

Texas A&M International University
A. R. Sanchez, Jr. School of Business
Center for the Study of Western Hemispheric Trade
&

Universidad Regiomontana, Universidad Autónoma de Tamaulipas,
University of International Business and Economics, and Wuhan University

Present:

17th Annual Western Hemispheric Trade Conference

*WESTERN HEMISPHERE MEETS EASTERN HEMISPHERE:
TRADE, INVESTMENT AND DEVELOPMENT OPPORTUNITIES*



Electronic Proceedings
April 10-12 | 2013
Laredo, Texas, USA

CENTER FOR THE STUDY OF WESTERN HEMISPHERIC TRADE

The Center for the Study of Western Hemispheric Trade at Texas A&M International University is a public service institute founded to study globalization with special emphasis on the Western Hemisphere. The Center is a part of the A.R. Sanchez, Jr. School of Business, and it supports the college as well as the entire Texas A&M International University community with its various programs. The Center seeks to increase awareness and knowledge about the Western Hemispheric countries and their economical, political and social interactions. The Center highlights Texas A&M International University and the City of Laredo and promotes education.

History

Since its inception in 1993, the Center has become a valuable resource for joint research and faculty and student exchanges. The Center is a key location for educational entities, businesses and governments to turn to for up to date and relevant information on the Western Hemisphere. The Center provides a forum for international discussion and debate for representatives from countries in the Western Hemisphere regarding issues that affect trade and other economic relations within the Hemisphere. Through its alliance with educational entities, businesses and governments throughout the Hemisphere, the Center offers practical and targeted lectures imparted by visiting faculty, professionals, society leaders and scholars.

Focus

The Center's research focuses on subjects that affect Western Hemispheric Trade, including trade agreements, tariffs, customs, regional and national economies, politics, business development, finance, the environment and culture. The Center's publication, *The International Trade Journal (ITJ)*, is now under the auspices of the International Trade Institute and is a refereed interdisciplinary journal published for the enhancement of research in international trade. Its editorial objective is to provide a forum for the scholarly exchange of research findings in, and significant empirical, conceptual, or theoretical contributions to the field.

Mission

Consistent with the mission of Texas A&M International University and its A. R. Sanchez, Jr. School of Business, the Center for the Study of Western Hemispheric Trade will conduct and promote research on globalization and related topics, with special emphasis on Western Hemisphere, increase awareness and knowledge about the Western Hemispheric countries and their economic, political, cultural and social institutions and development dynamics, and spotlight Texas A&M International University as a key resource of information, research, training and conferences focusing on the Western Hemisphere.

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WELCOME

Dear Conference Participant:

It is my pleasure to welcome you to the 17th Annual Western Hemispheric Trade Conference. This year's theme is: *Western Hemisphere meets Eastern Hemisphere: Trade, Investment and Development Opportunities*. In view of the increasing importance of the Eastern Hemisphere to world development and prosperity, we chose a theme that attempts to capture and explore this symbiotic relationship between East and West, where everyone is bound to benefit. Here in the border city of Laredo, we witness the daily flow of goods by air, rail, cars, and trucks at a volume that has made this "Gateway City" the largest inland port in the United States. Northbound cargo comes from the South and the East, and similarly, southbound goods go to Central and South America, as well as more distant places, notably China.

At this year's conference, a total of fifty-eight papers will be presented throughout 16 academic sessions and will address a wide variety of relevant topics. Scholars from the US, Mexico, China and elsewhere will present the results of their scholarship, and are expected to generate lively discussion and dialogue. Consistent with our location, mission, and partnership relationships, some sessions will be held in English and others in Spanish. Papers include topics such as: Region's economic boom due to horizontal fracturing (fracking); Employment and competitiveness of South Texas region; Organizational communication; Financial crisis; Corporate finance; Female leadership; Competitiveness; Corruption; Terrorism; Foreign Direct Investment (FDI); Corporate Social Responsibility (CSR); Illicit trade; Migration; Electronics industry in Mexico and China; Mexico's reforms, democracy and competitiveness; World energy situation; and Trade and Innovation.

In addition, we have four outstanding keynote speakers, each of whom will share rare and valuable insights. Dr. Peter Dorfman will present the latest results from the renowned GLOBE (Global Leadership and Organizational Behavior Effectiveness) research project and will delve into the question of what outstanding CEOs have in common. Dr. Joseph Michael Finger, well known in trade policy and economic development circles, with notable contributions at the World Bank and elsewhere, will address trade reforms in Asia and Latin America. In another keynote address, Ambassador Joe Rogers, with extensive firsthand knowledge of China and the rest of Asia, will address China's economic imperative, its demographic transitions, and the end of cheap labor there. Dr. Andrew Hilton, a world renowned policy analyst and think tank leader in London, will conclude the conference by presenting an analysis of how changes in the financial environment affect global economic growth.

Another feature of this year's conference is the plenary panel, organized by our partners at Americas Society/Council of the Americas. Prominent scholars and policy makers from New York, Texas, and California will address the topic of migration both regionally and to the US, as well as the implications for both hemispheres.

Thursday's evening reception, held at the University's historic Casa Ortiz, in the heart of downtown Laredo, will feature a mariachi band, good food, as well as an opportune occasion for visiting old friends and making new ones.

It is a pleasure to welcome you to our conference, and we wish you a pleasant and productive visit. The electronic proceedings for the conference are available on our web site: <http://freetrade.tamiu.edu>.

Sincerely,

Tagi Sagafi-nejad, Ph.D.
The Radcliffe Killam Distinguished Professor of International Business
Director, Center for the Study of Western Hemispheric Trade
Editor, *The International Trade Journal*

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Eagle Ford Shale: Boom Económico en la Región.

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ABSTRACT

A lo largo de la historia, el petróleo y sus derivados han sido considerados como instrumentos importantes para fortalecer las economías nacionales; hoy día todavía se tiene la percepción de que un país abundante en petróleo tiene el potencial para alcanzar estabilidad económica. América del Norte, en México y en los Estados Unidos son países con abundante disposición de este recurso natural. La frontera entre el noreste de México y Texas se ha visto beneficiada con el reciente descubrimiento del desarrollo petrolífero Eagle Ford Shale y su posterior explotación con una proyección de 30 años, la cual ha impulsado diversos sectores de la economía regional. El objetivo de esta investigación es observar el impacto económico que se genera después del año 2008 con el descubrimiento del yacimiento petrolífero en el sur del estado de Texas gracias a los trabajos de exploración y extracción de los combustibles fósiles que se encuentran en la región, así como hacer un señalamiento de los cambios socio-económicos que se dan gracias a las nuevas fuentes de trabajo en los condados aledaños al citado yacimiento. Esta investigación busca hacer propuestas integrales para que empresarios de Nuevo Laredo puedan ser partícipes del crecimiento económico en esta región y para que estos eleven su nivel de competitividad y puedan participar de estos beneficios económicos en las ramas de turismo, de industria restaurantera, de infraestructura y de industria hotelera.

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Estrategias de Comunicación Organizacional

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RESUMEN

La comunicación es la actividad característica del ser humano, es algo que siempre está presente y mediante la cual la gente se relaciona entre sí y se organiza para combinar sus esfuerzos. Este proceso es de vital importancia no solo para individuos como miembros del grupo social, sino también para el devenir económico de las empresas u organizaciones. El objeto de esta investigación es analizar el proceso de comunicación en las organizaciones, las barreras de la comunicación y el impacto que tienen en el proceso de la comunicación. Analiza la comunicación ascendente, descendente y algunas dificultades que surgen, y se ocupa de otras formas de comunicación, como la comunicación lateral y la electrónica analizara la comunicación informal que se maneja en las organizaciones como la extraoficial. Los autores afirman que los problemas de comunicación en las empresas existen por una mala transmisión del mensaje por parte de los superiores hacia los subordinados Y esto se pueden solucionarse si Sabemos comunicarnos bien ya que es la clave principal para un perfecto entendimiento entre personas o grupos y dentro de las empresas, debe existir siempre una correcta comunicación que permita mantener informados a todos los trabajadores para un buen desempeño de su trabajo.

ABSTRACT

Communication is the characteristic activity of human beings, is something that is always present and in which people relate to each other and are organized to combine their efforts. This process is of vital importance not only for individuals as members of the social group, but also for the economic future of the companies or organizations. The purpose of this research is to analyze the communication process in organizations, communication barriers and the impact they have on the communication process. Analyzes communication upward, downward and certain difficulties, and deals with other forms of communication, including electronic communication and analyze lateral informal communication is handled in organizations as unofficial. The authors argue that the problems of communication in business there by poor transmission of the message by superiors to subordinates and this can be solved if we communicate well and that is the main key to a perfect understanding between individuals or groups and within companies, there must always be proper communication that allows to keep all employees for good job performance.

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Propuesta de la Miopía Estratégica: Buscando Mejores Resultados en las Empresas

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RESUMEN

Los estudiosos de las teorías administrativas siempre han proveído de herramientas y técnicas para lograr la eficientización, la calidad y por ende el mejoramiento de las actividades empresariales. La Administración Estratégica surge en los años sesentas para encontrar éste propósito. Sin embargo, no obstante que muchas empresas lleven al cabo el proceso estratégico mencionado, muchas veces requieren "detenerse estratégicamente" y analizar los puntos clave que deben de cambiarse dentro de la empresa para seguir siendo exitosas. Este es el objetivo de la aplicación de la herramienta propuesta aquí: el análisis, reflexión y solución de la Miopía Estratégica en una empresa.

Palabras clave: Administración Estratégica, puntos clave estratégicos, Miopía Estratégica.

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Enterprise and (Un)Employment: A Proposal Against Crises Revisited

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INTRODUCTION

Economic crises like those observed in the United States (U. S.) and European countries as well as in emergent countries such as Mexico have negative impact on labor markets, say, laid offs, low salaries, less benefits and shortened pensions of actives workers and retirees. Because a few countries integrate the so called *engine of the global economy*, their vicissitudes have negative effects on other countries with a lesser degree of industrialization. Then, the purpose of this paper is double, i) to visualize the historical recurrence of economic crises characterized by a glut, oversupply of goods and services face to face a weak market strongly related to and increasing unemployment, declining salaries and a regressive income distribution; ii) to propose a keystone of solution based in diminishing unemployment levels and order to reinforce social income and therefore to promote the purchasing power that reinforce the market demand side, taking as evidences those of the U. S. and Mexico to verify that crises have a generalized presence. The approach of this paper is a macroeconomic one although the title includes the term enterprise because the majority of employment is generated in the private sector, civil labor force in the U.S. and 95 percent in Mexico¹.

This article has four sections. The first presents our hypothesis, the second describes a theoretical frame by reviewing the history of economic thought, the third shows statistical evidences, and the last is for conclusions and recommendations.

I. HYPOTHESIS

Economic crises are characterized by a glut of excessive supply respect a weak demand for goods and services, the latter due to a low purchasing power related to labor conditions described above, phenomena more frequent in times of technical innovation since new machines and equipments substitute labor in the production process, then productivity increases as well as unemployment; here unemployment means the *non-utilization of labor*² and not only open unemployment, but in one or another way unemployment depresses salaries, then purchasing power of the markets.

This hypothesis is described in diagram 1 through an example of an economy where 100 workers produce 100 units **without** technical innovation, when innovations takes place, 70 can produce 100 units and 30 are fired, productivity increased from 1 (100/100) to 1.43 (100/70); salary mass would be reduced, so in the short run profits increase because the cost of production is lower. To keep employment 100 it is necessary to produce 125 units, but it would be convenient to diminish labor journeys and maintaining salary levels in order to reinforce market, otherwise the new production level could not be sold.

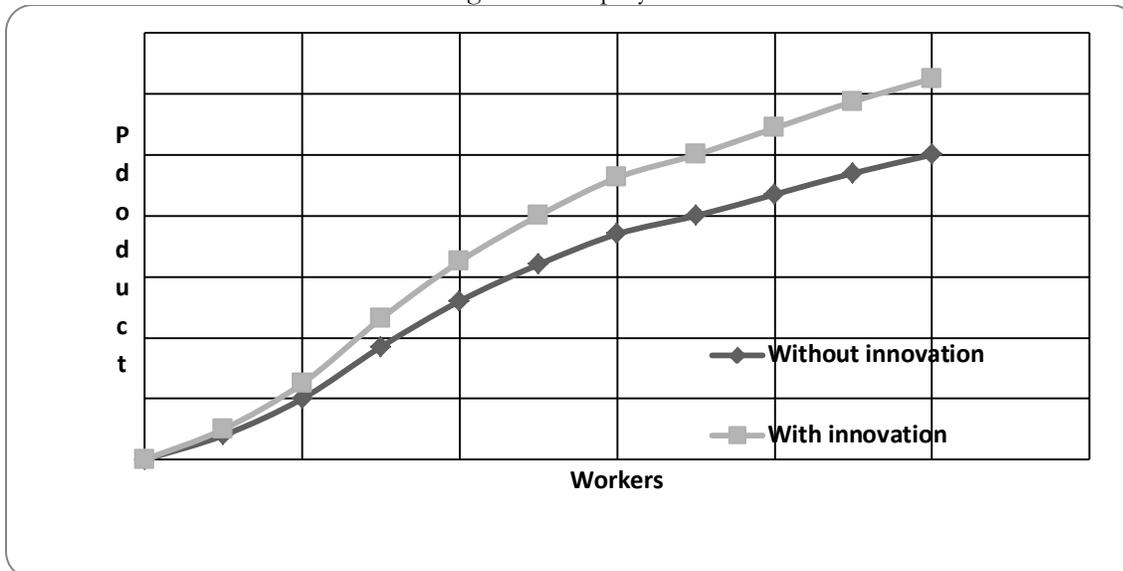
The example is brought into to 1 in two sections, the 1.1 implies diagram 1but now it is assumed a salary of \$5 and a sale price of \$10 per unit of product, then 100 workers and 100 units make possible sales \$1000, of

¹ 4.8 per cent of occupation is registered in the Mexican Government, according to National Institute of Statistics and Geography (INEGI).

² The Harper Collins Dictionary *ECONOMICS*, U.S.A., 1991, p. 533

cost \$500 (labor is the unique input) and profit \$500; table 1.2 implies innovation, 30 were fired, cost is \$350 (70x5), sale \$1250 (125x10) and profit grew to \$650; profits less cost increased from 0 to \$300, this can be named index of inequity.

Diagram 1. Employment - Product



Source: as explained in the text.

Table 1. Impact of re-distribution of product increased

Table 1.1		Wage \$5.00		Price \$ 10.00
	Employment	Product	Price	Sale\$
Without innovation	100	100	\$ 10.00	1,000
With innovation	70	100	\$ 10.00	1,000
	Co\$t	Inequity		Profit
Without innovation	\$ 500.00	\$ -		\$ 500.00
With innovation	\$ 350.00	\$ 300.00		\$ 650.00
Unemployment	30			
Table 1.2		Wage \$ 5.00		Price \$ 10.00
	Employment	Product	Price	Sale\$
Without innovation	100	100	\$ 10.00	1,000
With innovation	100	125	\$ 10.00	1,250
	Co\$t	Inequity		Profit
Without innovation	\$ 500.00	\$ -		\$ 500.00
With innovation	\$ 500.00	\$ 250.00		\$ 750.00
Unemployment	0			

Source: explained in the text, from Diagram 1.

Table 1.2 keeps employment 100 under innovation, so production is 125 and sales \$1250, if price and salary remain unchanged, profit would be \$750 and inequity index \$250. Furthermore, if price were reduced, say, from \$10 to \$9.5, the inequity index would be reduced, profit \$687.5 (sales minus cost: 125x\$9.5 - 100x\$5), higher than the original \$650 and, last but not the least, without unemployment.

Then, to keep or increase employment it is required to strengthen markets by promoting labor income through lesser work journeys and salaries in function of productivity, these conditions can be supported by the increase in efficiency given by technical innovation; history shows that better labor conditions have been gotten although by strikes and struggles, but also that some entrepreneurs understood these cause - effect relationships, such as Robert Owen or Henry Ford.

II. THEORETICAL FRAMEWORK

Adam Smith perceived that if the ratio *productive labor / unproductive labor* increases, so wealth of nations; unproductive were armies, nobility and clergy principally; he realized that salaries must be paid according to productivity because this would give happiness to workers and their families. David Ricardo distinguished market salary and natural salary, the former according to labor supply and demand and the latter one sufficient to keep certain minimum cost of living, and both would be the same in the long run, Ricardo also saw how technical innovation could create unemployment but only in the short run, but, he argued, in the mid term there would be new job opportunities. However, Smith and Ricardo perceived a decreasing rate of profits and a conflict between profits and salaries, so in order to protect or enlarge profits it would be necessary to keep salaries under an adequate level, sufficient to buy foods, and Ricardo visualized the relevance of import grains if necessary. Later, John Stuart Mill also argued salaries not only be at a level that they can buy foods but also other basic goods and services, so, it is necessary to promote their domestic production or even import them from other countries or British colonies.

Karl Marx analyzed this profit – salary conflict, he considered labor the unique productive factor but the total value of its product is not paid to workers, salary is one part and the other is appropriated by the capitalist, the so called plus value, for consumption or investment, then, if total value of product is not returned to workers, this phenomenon creates low salaries, an unequal income distribution and weak markets, this is the origin of crises. Since innovation creates unemployment (*reserve army*) this helps to depress salaries and raises the ratio *constant capital / variable capital* (organic composition of capital, *ocv*), where the capital variable is the sum of salaries and the capital constant, other payments; if *ocv* increases, this means that labor participation is diminished, but this also diminishes profits because, according to Marx, labor is the source of profits.

The XIX century Neoclassical School (NS) focused on the theory of value, the use of mathematics and how the market mechanism works, not precisely on labor issues, however NS presented evidence of unequal income distribution through the Pareto's Law, realistic in our days under a global view. At the end of this century, Marshall tried to conciliate both objective and subjective theories of value, he accepted the Say's Law (every supply creates its own demand), and presented criteria on labor demand elasticity in four cases where labor elasticity must be higher if: i) other production factors can be substituted by labor, ii) the higher price elasticity of the final product or service where labor is applied, iii) labor cost represents a high proportion of total cost, and iv) the higher be the demand elasticity of capital goods. Alfred Marshall taught economics in Cambridge and John M. Keynes took courses from him, but Keynes did not accept the Marshall's (and Arthur Pigou's) ideas respect to market equilibrium since Keynes faced the Great Depression, so he suggested fiscal policies to promote markets and raise the business rate of return. The Keynesian theory was followed in Western economies after the Great Depression and the Second World War, the *Golden Age*, especially in the U. S.

In the 1950s Arthur Lewis presented his version of the Classical Model, which was followed by Ranis & Fei, and Todaro, who adopted the assumption of unlimited labor supply in an a two-sector poor economy, this supply comes from four sources: i) women, ii) population growth, iii) traditional sector, and iv) technical unemployment. Lewis's model is different from the Neo Classical approach one because the latter supposes lack of labor, and Lewis wrote

The focus on prices and income distribution survived in the Neo Classical era but the labor supply was not unlimited any more

Then, the Neo Classical model would not help to understand an economy with accelerated population growth because it supposes lack of labor, and this is not true in this type of economies; Neo Classical theories were expanded through Robert Solow's model trying to explain economic growth but not convergence in poor countries; Jones³ infers this argument from papers under the Neoclassical approach like those of Barro and Sala-i-Martin (1992),

Because not all countries present the same rates of investment, population growth or the state of arts, is not expected they can go toward the same stationary world

But in the 1970s the price of petroleum increased more than a thousand per cent, which created inflationary problems in Western Economies and specially in the U. S., therefore, in order to reduce inflationary trends it was adopted a restrictive monetary policy and, in fact, inflation was reduced but with increasing unemployment, both depicted by the Philips curve, representing an inflation - unemployment trade off. In this case, the *sui generis* full employment means that the numbers of labor vacancies and unemployed persons coincide, because these do not satisfy the position requirements, then they are not productive.

Winners of 2010 Nobel prize Mortensen and Pissarides (1994: 397-415) analyzed the impact of institutional factors on labor markets, so rates of unemployment could not be representative because they are not produced by economic phenomena only but also by institutional ones, such a unemployment insurance and other protective laws.

Then, the history of economic thought shows not only different but also controversial theories, since the Classical School it was evident the problem of decreasing rate of profits, profits and salaries trade off and unemployment associated to business fluctuations. Now, it is convenient to investigate how unemployment has evolved in different types of economies, like those of Mexico and the U. S., and to prove if wage reductions imply a regressive income distribution and this, in turn, have a negative impact on markets. If so, the logical recommendations would be to improve labor market conditions for workers.

III. STATISTICAL EVIDENCE

Now the purpose is to see how technical innovation, *ceteris paribus*, creates unemployment because new machines and equipment substitute labor, this depresses wages and makes more regressive the income distribution that, in turn, implies a weaker purchasing power that has a negative impact on consumption of goods and services markets.

Unemployment includes both open and disguised unemployment, which presents two faces, one, the people that cannot work the journey they wish, say 4 hours instead 8, and those working in activities that do not let them use their abilities fully, a graduate like a taxi driver for example; anyway the consequence is lower salaries than those earn if they could work well. Economic literature⁴ presents three types of unemployment: frictional, cyclical and structural. Frictional is generated from the normal friction between employers and workers, cyclical unemployment implies employment according to business fluctuation and structural is due to discrepancy between abilities offered by workers and those required in the labor market. Policies to diminish unemployment vary according to which type is the goal. If it is frictional, it is necessary to improve communication between enterprises and people seeking for a position; if cyclical, to promote both private and public expenditures to push demand levels; structural is a more sophisticated issue, that can be diminished in the medium term by training programs or even changes in the college curricula, or redefinition of position in order to give opportunities to unemployed workers.

³ Charles Jones, *Introducción al Crecimiento Económico*, Prentice Hall, México, 2000, p. 61 y p. 67.

⁴ See, for example Samuelson, 2005: 654-655

The next step is to analyze statistical trends of unemployment, wages, income distribution and their impact on markets in Mexico and the U. S.

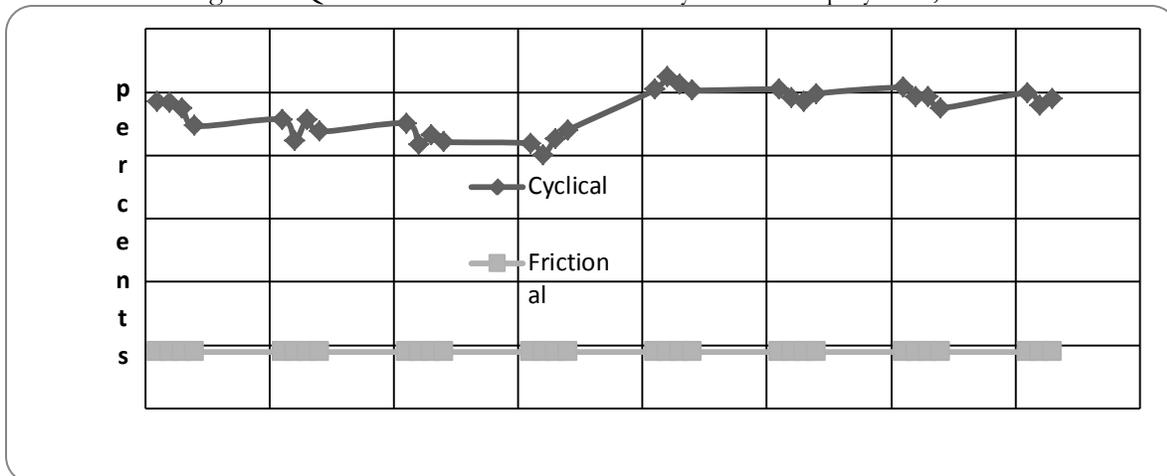
The Mexican case

Employment has lagged respect to production due to technical innovation in some degree, what is not easy to precise because there are strong differences within economic sectors, which include both traditional and modern subsectors, data are given only by sectors, however, from 2005 to 2012 GDP grew 24 percent and employment, 20; because informal labor is frequent in agriculture and services, not much in industry, this sector implies a GDP and employment *growths* of 13.7 and - 13.5 (in manufacture subsector, 17.0 and 7.7 per cent).

Data by type of unemployment are reviewed as well as how they were conceptualized and estimated. Frictional unemployment was taken as average of the quarterly rate of unemployment from 2005 to 2012, whose fluctuations around average were included as a component of cyclical unemployment as explained below. Cyclical unemployment by taking three indexes: fluctuations described above plus rate of occupation under market critical conditions of employment (TCCO, Spanish initials) plus not economically active population but available, as percentage of the economically active population. Frictional and cyclical rates of unemployment are depicted in diagram 2.

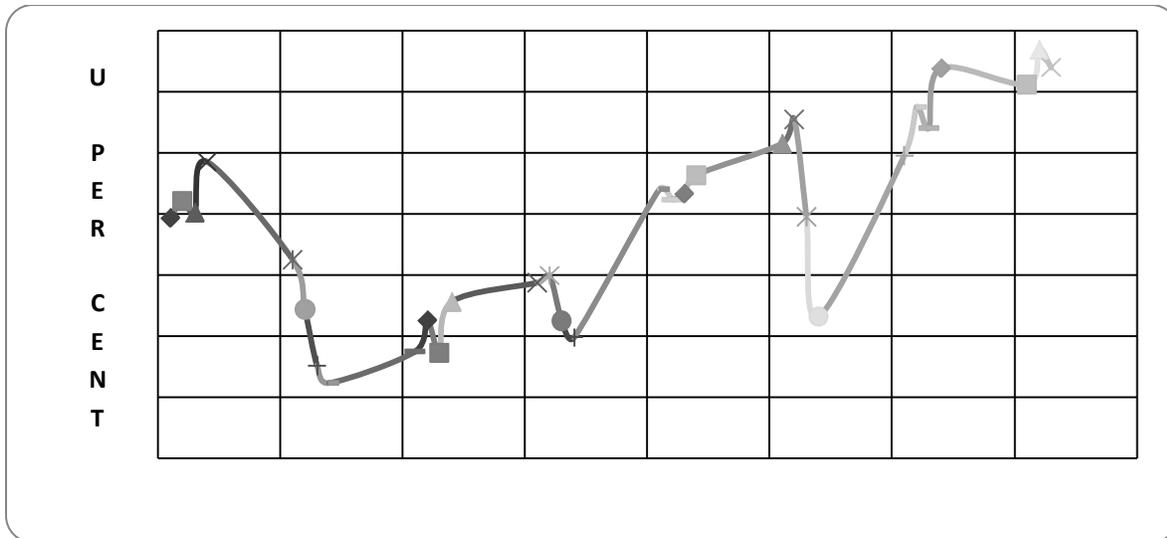
To estimate structural unemployment the rate of informal occupation was taken was taken on one hand and on the other data from Secretary of Labor and Social Welfare, whose information brings evidence on how abilities offered by labor force and those required do not match. As it is well known people in informal occupation have no access to credit, suffer from educational shortcomings and do not use modern capital goods. The informal employment rates are presented in diagram 3.

Diagram 2. Quarter Rates of Frictional and Cyclical Unemployment, 2005 - 2012.



Source: Rates estimated with information from Instituto Nacional de Estadística y Geografía, INEGI.

Diagram 3. Quarterly Rate of Informal Employment per quarter, 2005 - 2012.



Source: constructed with statistic from INEGI.

These rates show an upward trend and higher level than the frictional and cyclical rates, this might imply persistence of structural shortcoming conditions such as no access to credit, low educational proficiency,... Table 2 brings evidence about a paradoxical phenomenon, there are more vacant positions than persons who got a job because many of these do not fill the position requirements.

Table 2 Available positions vs Employed workers

Year	Av.Positions	Employed
2012 Jan - Sep	681,099	311,589
2011	743,951	297,755
2010	713,470	264,641
2009	812,450	273,581
2008	794,328	303,353
2007	620,972	273,924
2006	585,677	238,127
2005	543,559	230,803

Source: Secretary of Labor and Welfare Prevision

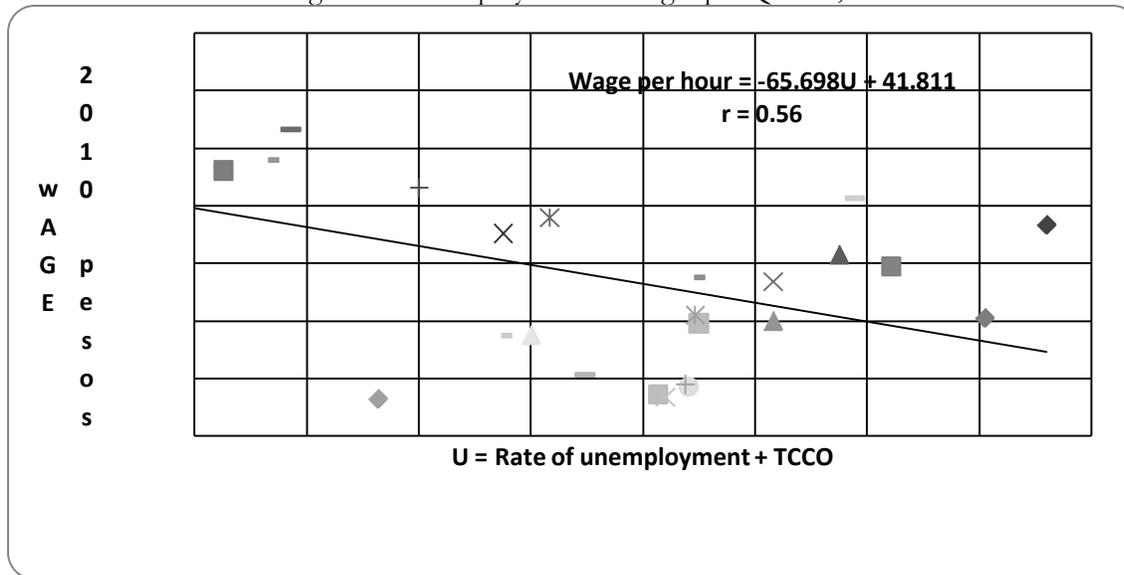
This sad panorama is too old as a INEGI - STPS text described in 1994⁵ and it has been increasing through the time as Diagram 3 and table 2 shows.

Unemployment and Wages. Economic theory says that an excess in supply respect to demand push prices down, then unemployment would push wages down, this seems to be in Mexico, where there is a negative relationship between unemployment and wages, unemployment index taken as the sum of rates of unemployment plus employment under market critical conditions (TCCO), wages earned per hour of work in pesos of year 2010⁶.

⁵ INEGI (1994), *Una visión de la modernización de México en cifras*, México, FCE, p.34.

⁶ The *t* - value of the regression coefficient is 2.1, significant.

Diagram 4. Unemployment vs Wages per Quarter, 2005 - 2012.



Source: constructed with information from INEGI.

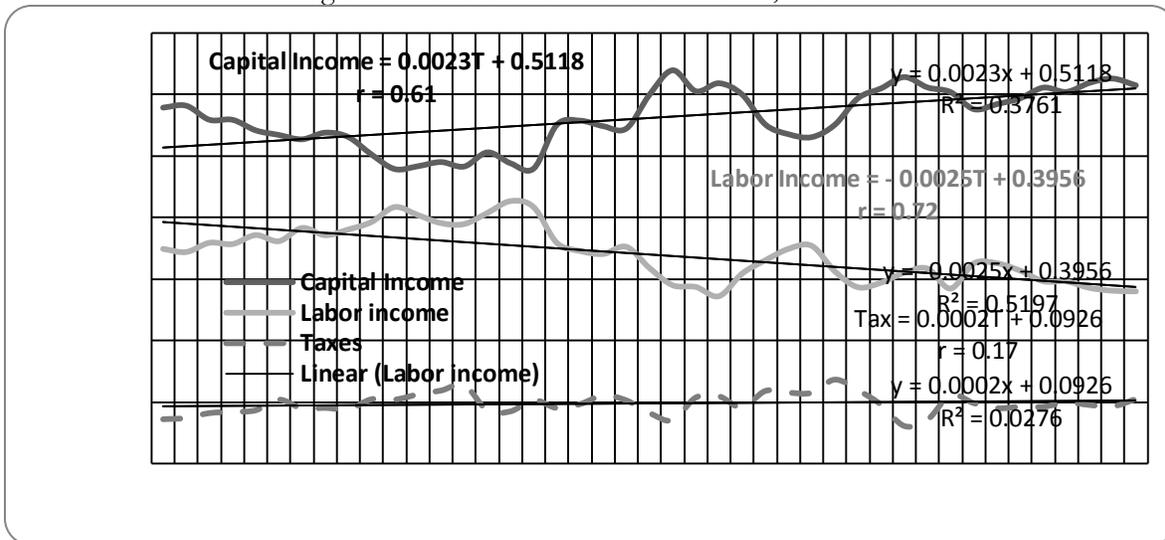
It is necessary to say that annual wage reported by the Mexican Institute for Social Security (IMSS initials in Spanish) from 1993 to 2010 (pesos of year 2010) grew from \$247.7 to \$248.3, a stagnant panorama, with strong down fluctuation in the 1995-1998 critical period, and certain recovery since 1999; but workers registered by the IMSS grew from 27 percent of total occupation in 1998 to 36.4 in 2012, when respective total occupation were 38.6 and 49.4 millions; figure reported by the IMSS are taken as employment indexes, but this might be erroneous because IMSS increases its registration but not necessarily this means employment growth. Last but not the least, general minimum diary wage decreased from \$59.8 in year 2000 to \$57.5 in 2012.

Then, if unemployment grew and wages decreased, this makes a more regressive income distribution.

Income Distribution. At first glance an index could be the median per hourly work, in 2010 pesos, that declined from \$21.3 to \$19.8 between years 2005 and 2012. Another approach is based on the functional GDP distribution, whose trends are presented in Diagram 5⁷, negative for labor and positive for capital.

⁷ Notice that the sum of coefficients is 1.

Diagram 5. Functional distribution of GDP, 1966-2008

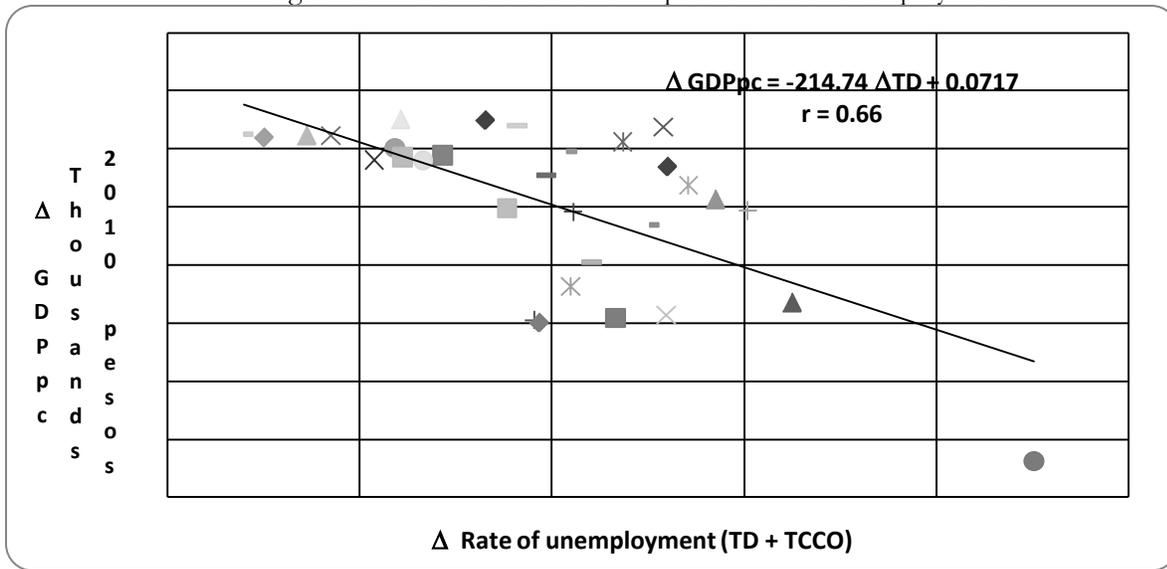


Source: constructed with information from INEGI, National System of National Accounts.

This statistical information confirms the declining trend of labor participation and the opposite trend for capital income; taxes rather remain constant.

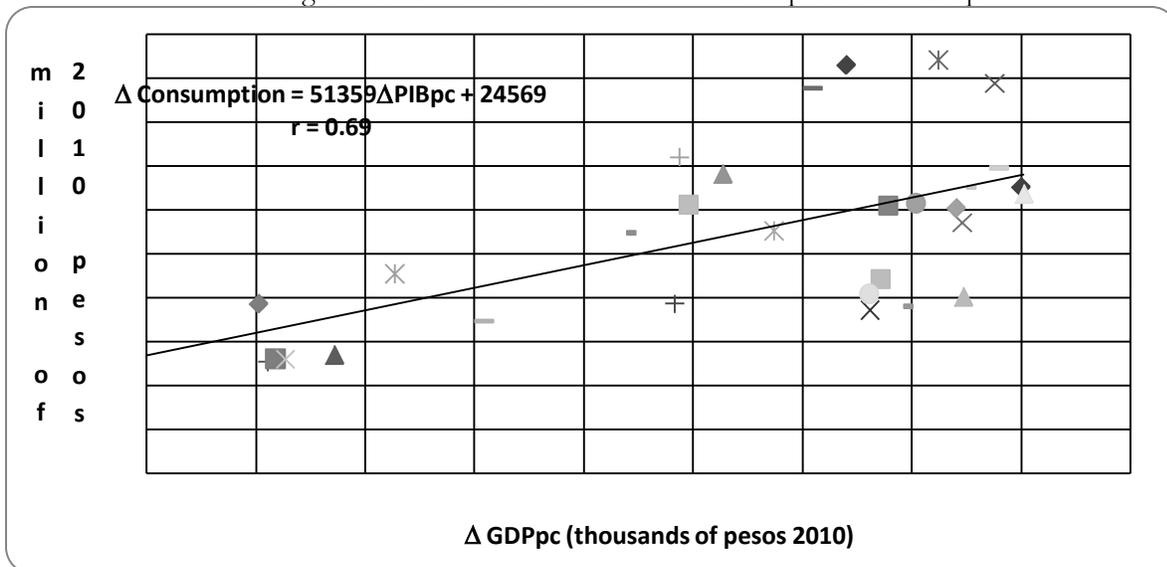
The next step is to visualize how the increasing unemployment rates, declining wages and regressive functional GDP distribution could impact Mexican market, taking in account the highest proportion of occupation is that of salaried workers, 69 per cent in 2012 for example. Therefore the logical sequence is as follows if salaried people represent the highest component of occupation, unemployment has been growing and salaries declined, it limits the growth of GDP per capita and the outcome is to depress demand. This panorama is presented in two diagrams by using first differences to delete statistical problems of autocorrelation, from 2005 to 2012 because this period implies reliable an available data; diagram 6 shows the negative relationship given by increasing unemployment and decreasing GDPpc and diagram 7, the positive relationship between GDPpc and national private consumption (diagram 7), the higher is GDPpc, the higher consumption.

Diagram 6. First differences of GDPpc and Rate of unemployment



Source: INEGI, ENOE y National Account System.

Diagram 7. First differences in Private consumption and GDPpc



Source: INEGI and National Account System

In short, the index of economic growth given by the GDPpc is related inversely with unemployment and directly with national private consumption, similar panorama is with consumption of durable and semi-durable goods (no presented), but no with services, because many services considered are basic such as house maintenance, education, transportation and electricity principally, whose demand is inelastic.

Therefore, if we want to reinforce markets, it is necessary to increase the Mexican GDP and decrease unemployment rates which in turn, improve the functional GDP distribution. Table 2 summarizes the statistical information described above.

Table 3. Unemployment and labor income (pesos of 2010) in México

Year	Hour per week	Rate of unemployment	Wage per hour	Weekly Income	Unemployed (thousands)
2005	43.3	3.5	31	1,344	1,481
2006	42.7	3.2	32.9	1,403	1,395
2007	42.4	3.4	34	1,441	1,510
2008	42.9	3.5	32.7	1,404	1,593
2009	42.1	5.2	32.2	1,354	2,376
2010	42.3	5.3	30.8	1,301	2,496
2011	42.4	5.2	29.8	1,263	2,543
2012	41.9	4.8	29.8	1,246	2,443

Source: INEGI

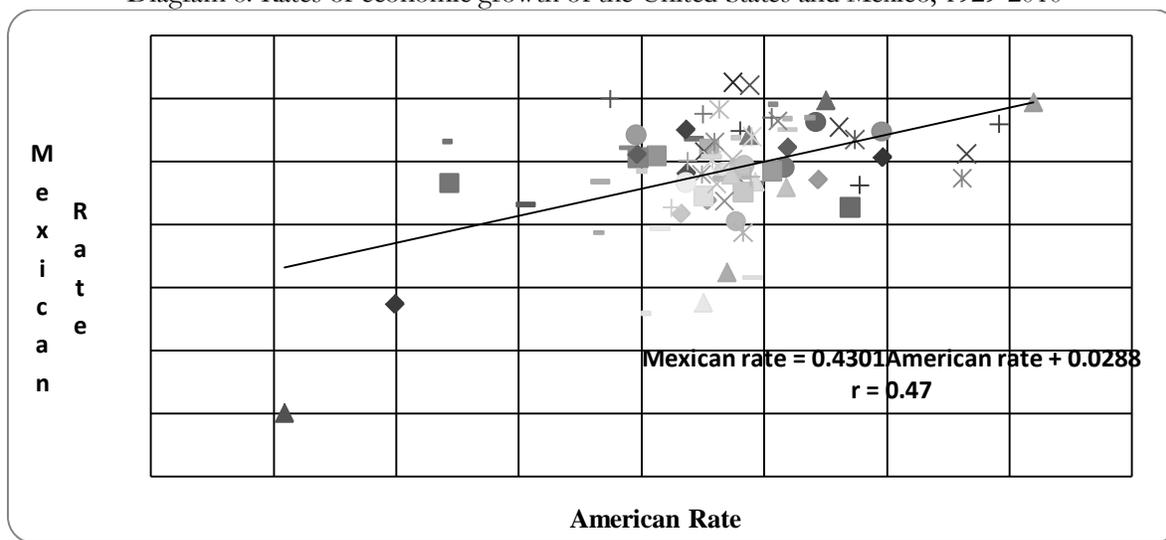
Then the Mexican panorama let us see and increasing number of unemployed people and decreasing income in absolute figures, more representative than rates (for instance unemployment rate was 3.5 in years 2005 and 2008, but the number of unemployed persons grew as Table 3 shows).

The American Case

American statistics let us know how employment advances slowly respect to production, from 1983 to 2011, when the GDP grew 117 per cent and employment only 39, then, this trends would imply a worsening labor conditions and among them, unemployment. This panorama impacts other economies, like the Mexican one, taking in account that around 80 percent of Mexican exports go to the U.S. and from this country Mexico buys more than 50 percent of its imports and similar figure is that of capital inflows, last but the least and according to the Bureau of labor Statistics, there are around 11 million of Mexicans (born in Mexico)⁸ working in the U.S. Diagram 8 shows rates of economic growth of both countries, showing a cause-effect relationship.

⁸ U. S Census Bureau (<http://www.census.gov/prod/2011pubs/acsbr10-15.pdf>)

Diagram 8. Rates of economic growth of the United States and Mexico, 1929-2010



Source: U. S. Department of Commerce and INEGI

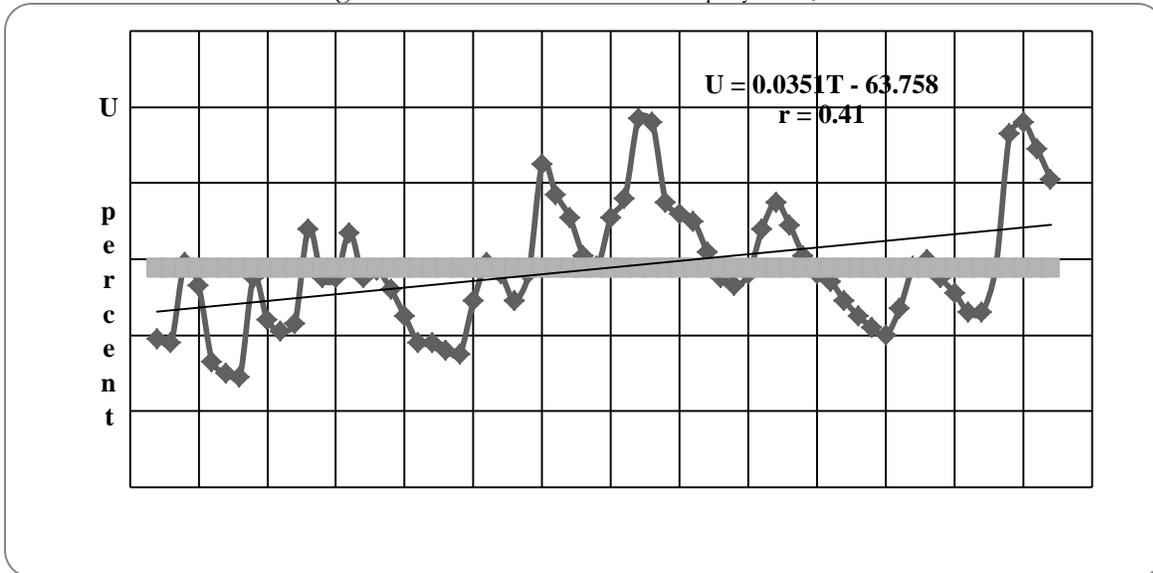
History register phenomena that let us visualize the Mexican dependence from the American vicissitudes, so it is well known that during the Great Depression the impact on the Mexican economy was strong, Mexican GDP declined in 1932 and 300 hundred thousand of Mexican workers had to return to Mexico because the unemployment in the U. S. During the Second World War both economies grew and Mexico registered large capital inflows, but when this war ended (as well as the Korean war) those capitals flew out producing strong devaluations of the Mexican peso; in the postwar era both countries lived the so called Golden Age and Mexican politicians spoke about the *Mexican miracle*; in the 70s the international petroleum price increased more than a thousand percent, the U. S. faced a stagflation problem and Mexico its petroleum boom, but in the early 80s the oil price came down and this created a world financial crises, above all in the largest Latin American countries, Mexico among them, the 80s was called the lost decade. American authorities adopted a restrictive monetary policy to curb inflation but this raised (open & disguised) unemployment.

Both countries have depicted similar sequences: unemployment - wages depressed - regressive GDP distribution - weak markets.

This panorama is going to be statistically described for the U. S.

Unemployment and Wages. Diagram 9 depicts an increasing trend of the unemployment rate for the historical period 1947 - 2011 and, once again, frictional unemployment is depicted by the flat line and fluctuations around the average rate of unemployment were taken to represent cyclical unemployment.

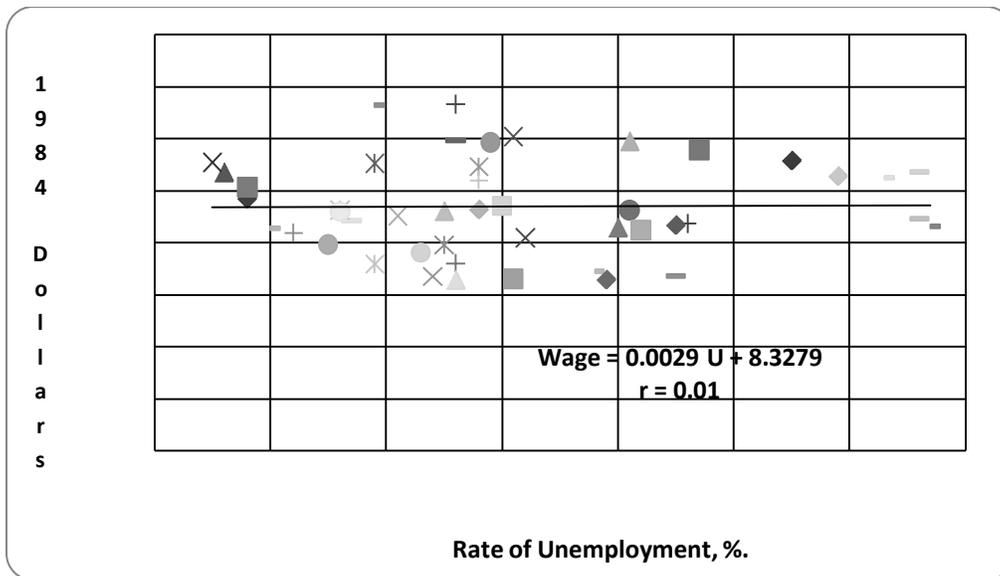
Diagram 9. American Rate of Unemployment, 1947 - 2011



Source: U. S. Bureau of Labor Statistics

Diagram 10 shows a poor correlation between unemployment and wages for a long period of time too, say, stagnant wages *vis a vis* unemployment increased that in turn, considering a predominant proportion of salaried people in the labor force, produced regressive income distribution against labor income as Diagram 11 will show.

Diagram 10. Wage per hour vs Rate of unemployment, 1966-2011



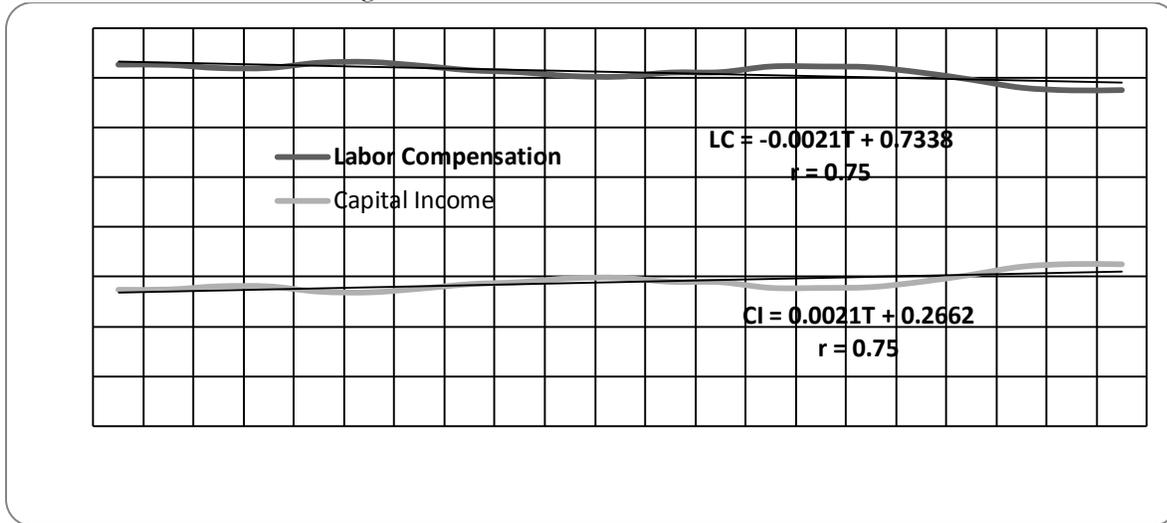
Source: U. S. Bureau of Labor Statistics

Stagnant wages with declining trend of weekly journeys of labor, from 38.5 hours in 1966 to 33.7 in 2011 (see table 4), helps us to see the backup of regressive functional GDP distribution shown in diagram 11. Behind there is unemployment in one or another form, as Heilbroner implies

workers that were laid off, (so) they joined the pool of people already looking for jobs. This allowed companies to offer lower wages to any new employees they took the impact of downsizing on wages (Heilbroner, 2008, 152).

Income Distribution.- Functional GDP (income) distribution is presented for the period 1987 - 2007, with available data. As in the Mexican case, respective negative and positive trends for labor compensation and capital income.

Diagram 11. Functional GDP Distribution, 1987-2007



Source: U.S. Bureau of Labor Statistics and Bureau of Economic Analysis.

About this panorama, Heilbroner wrote

Perhaps the most effective way to depict the trend (of inequality) is to compare the ratio of the wages of an average male worker with that of a top chief executive officer (CEO). If we take an estimated figure of \$25,000 as the average wage of such worker in 1970, the income of this company's highest paid executive was around \$1 million. If we now turn to 2004, the average wage has risen to \$43,000, but the top CEO pay now approaches \$15 million. The ratio has jumped from 40 to 1 to more than 350 to 1 (Heilbroner (2008: 154).

And table 3 summarizes words and figures discussed above.

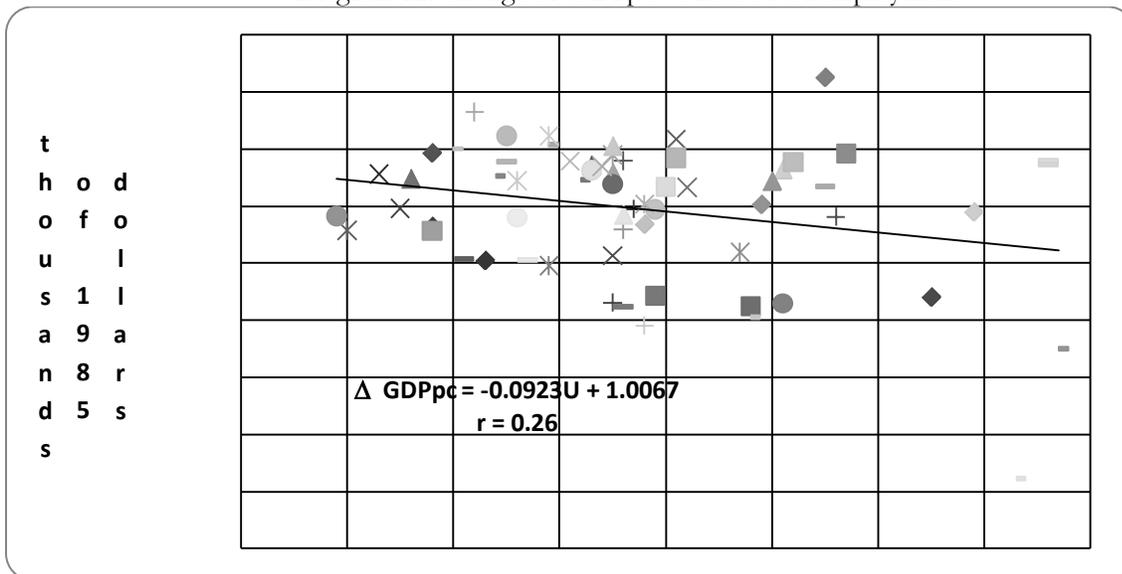
Table 4. Labor conditions in the U. S.

Year	Hours per week	Wage per hour	Weekly income	Rate of Unemployment	Unemployed (thousands)
1966	38.5	8.43	325	2.9	2,198
1976	36.1	8.89	320	7.7	7,300
1986	34.7	8.15	286	7	8,237
1996	34.3	7.67	263	5.4	7,236
2006	33.9	8.31	282	4.6	7,001
2007	33.9	8.3	281	4.6	7,078
2008	33.6	8.6	289	5.8	8,924
2009	33.1	8.63	286	9.3	14,265
2010	33.4	8.68	290	9.6	14,825
2011	33.6	8.64	293	8.9	13,747

Source: U.S. Bureau of Labor Statistics

Unemployment grows, but not wages, and a declining labor income share, that is the brief and realistic historical description of the American case.

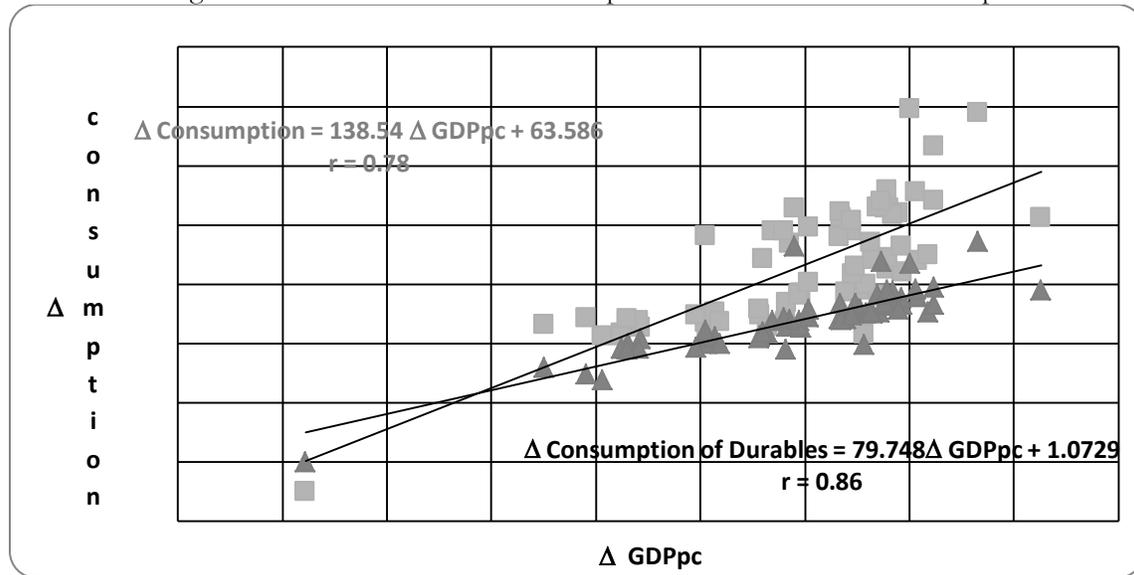
Diagram 12. Change of GDPpc vs Rate of Unemployment



Source: U.S. Labor Statistics Bureau

The next steps is to detect the relationship - first differences - of GDPpc and consumption, diagram 13 presents a significant and positive correlation, the higher is the change in GDPpc, the higher that of consumption, total and that of durables.

Diagram 13. First differences of consumption vs first differences of GDPpc



Source: U.S. Bureau of Labor statistics.

As the statistical evidence teaches us unemployment deteriorates wages, income and then consumption, say markets.

Once again, the recommendation is to improve labor conditions in order to reinforce the demand side of markets.

IV. Conclusions and recommendations

Conclusions

C1. The wage - income - market demand relationship has been analyzed through the history of economic thought showing that lower salaries has been strongly related to unemployment and both worsens market purchasing power which, in turn, create gluts between supply and demand of goods and services: Ricardo, Malthus, Marx, Keynes and Heilbroner, among other authors, have made emphasis of this issue.

C2. Statistical evidence of civil labor force in the U. S. and employment in the private sector in Mexico confirms this phenomenon in economies with different degree of development such as those of the U. S. and Mexico, where there have been increasing unemployment, lower wages, income distribution against labor and lagged consumption respect to the product of goods and services.

C3. Considering that wages represent a high share of total income, of purchasing power, it is advisable to promote employment, wages and a GDP distribution in favor of workers in order to both strength markets and diminish gluts. Otherwise, enterprises would visualize a conflictive perspective given by weak markets perhaps implicit in stock markets.

C4. It is advisable that public policies promote employment in private sectors because these are the key source of employment, wages and income distribution; then, it is necessary to apply fiscal & monetary policies, under politicians and business men consensus, taking in account both would win if there are stronger markets.

C5. Since technical innovation raises productivity but the value of this increment is not fairly distributed between labor and capital factors, markets are deteriorated and this had markets to have gluts, which have become a characteristic feature of crises As presented by the history of business cycles that, in turn, have implied strikes and social struggles whose solutions, historically, have been based on improvements in laws in favor of workers, whose corner stone has been composed by both lesser labor journeys and higher wages.

C6. Now the hypothesis proposed seems to be proven with equations gotten and presented above. Table 5 brings the Mexican case, where unemployment rate grows 0.0039 (average from the period 2005-12)) causing a decline of 766 pesos (of year 2003) in GDPpc and this diminish national private consumption by 14,761 million pesos; if the rate of unemployment would be 0.0019 points, GDPpc would decrease 336 pesos but consumption could increase ,300 million pesos⁹.

Table 5.Simulation for Mexico

Δ GDPpc(thousands of 2003 pesos) vs Δ Quarter unemployment				
Δ GDPpc	Slope	Δ U	+	constant
-0.765786	-214.74	0.0039		0.0717
Δ Private Consumption vs Δ GDPpc				
Million\$ 2003				
Δ consumption	slope	Δ GDPpc	+	constant
- 14,761	51359	-0.76579		24569

Source: equations from diagrams 6 and 7.

C7. In such a way, simulation goes to the American case. The average rate of unemployment and GDPpc for the period 1947-2011 is 5.73 percent, the average increase of GPDpc 478 dollars and that of total consumption 129.8 million dollars (dollars of 1985). Simulating an unemployment rate of 4.73, this one point reduction would raise GDPpc in 570 dollars and total consumption, by 142.5 million dollars.

Table 5. Simulation for the United States

Δ GDPpc (thousands of 1985 dollars 1985) vs Rate of unemployment				
Δ GDPpc	Slope	U	+	constant
0.478	-0.0923	5.73	+	1.0067
Δ Consumption vs Δ GDPpc				
Consumption (thousands of 1985 dollars)				
Δ consumption	slope	Δ GDPpc	+	constant
129.8	138.54	0.478	+	63.586

Source: equations from diagrams 12 and 13.

C8. If unemployment were reduced, the sequence unemployment – wage - income distribution - consumption passes from a vicious circle to a virtuous circle.

Recommendations

R1. Supporting wages and reducing unemployment, negative impact of crises would diminish; for this is necessary clarify which type of unemployment is going to be focused and adopt the pertinent strategies; if

⁹ With the equation $0.0019*(-214.74) + 0.0717 = -0.336$ that in turn $-0.336*51359+24569 = 7297$.

frictional, to improve the negotiations between employers and workers, through *ad hoc* means of communications, headhunters or enterprise - university dialogs principally. If cyclical, by higher both public and private expenditures, especially the former according to our times; if structural, training programs supported by *ad hoc* college curricula, or by new definitions of positions in order to offer job opportunities to unemployed workers.

R2. Fiscal and monetary policies must support industries characterized by a labor intensity, profitable perspectives, high market shares and to analyzing them by regions, with emphasis where unemployment have high rates, taking in account that it is difficult to move workers and their families.

R3. To follow and give feedback the implementation of the Mexican Federal Law of Labor, to be in force this year, whose purpose, politicians say, is to promote employment as well as *decent* work according to the International Labor Office criterion. Since employment depends on real conditions but not necessarily from new regulations, the new law gives only a labor-market frame to markets but in order it can be successful, it is necessary to reform other legal dispositions like that of fiscal and energetic items as the Secretary of Labor and Social Welfare recognized¹⁰. Mexican history shows that in order to create one million positions per year, the annual increase of labor force, GDP must grow 7 percent¹¹, a rate never seen during the last 30 years; and if this new law introduced the concept of labor flexibility, under the unemployment panorama described above, workers have a weak power of negotiation and this is source of an eventual conflict.

R4. On the American side, to follow immigration reform negotiations because it will impact the labor market for Mexicans and Americans. About the most important topics to be considered President Barack Obama said¹²

We are not going to ship back 12 million people, we're not going to do it as a practical matter. We would have to take all our law enforcement that we have available and we would have to use it and put people on buses, and rip families apart, and that's not who we are, that's not what America is about. So what I've proposed... is you say we're going to bring these folks out of the shadows. We're going to make them pay a fine, they are going to have to learn English, they are going to have to go to the back of the line...but they will have a pathway to citizenship over the course of 10 years.

Reform project contemplates these important items¹³

- *Issuance of the "No Match" Regulation*
- *All workers must hold legal status in the United States*
- *The Social Security Administration will send letters to employers explaining the potential liability of hiring illegal employees*
- *Reduce the amount of documents accept to verify identity and work eligibility*
- *Increase fines for hiring illegal workers*
- *Increase investigation of employers who hire illegal workers*
- *Federal contractors must use the Federal Electronic Employment Verification System to verify each employee*

¹⁰ Secretary of Labor and Social Prevision, http://www.stps.gob.mx/bp/secciones/sala_prensa/conferencia/2012/nov/conf_14112012.ht

¹¹ World Bank

¹² United States Immigration Reform, <http://www.usaimmigrationreform.org/> (February, 28, 2013).

¹³ Ibidem

- *Increase the use of E-Verify to other industries*
- *Make E-verify integrated with DMV's around the country to avoid illegal workers from obtaining job by showing a fake drivers license*

R.5- Finally, to visualize the future labor force that in Mexico implies to create 800 thousand positions per year in this decade¹⁴, considering these newcomers are alive today and new positions do not include available labor force thanks to unemployment. In the U. S., the annual average of position to be created is 1.05 million per year during this decade too¹⁵ and in the American case it is necessary to remain not only available labor force thanks to unemployment but also ethnical origin, gender, age and legal residence.

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Programa Integral de Vinculación Universidad Comunidad: *Un Programa de Vinculación con las Áreas Vulnerables Para Mejorar la Calidad en la Base de la Cadena Educativa y Aumentar la Competitividad en las Universidades*

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RESUMEN

Lograr ser una economía competitiva, dependerá fuertemente de atender una de las debilidades más apremiantes de nuestro país, la educación básica y la educación superior, mismos que son dos de los pilares en los que se soportan los subíndices de los criterios globales de competitividad (GCI). La labor de las universidades es fundamental para la creación de programas encaminados a mejorar la calidad de los programas educativos, haciéndolos más competitivos a la vez que ayuda a las comunidades a solucionar sus problemas. La vinculación con las zonas marginadas permite el impulso hacia el mejoramiento de la calidad de vida de sus habitantes.

Palabras clave: Vinculación, competitividad, calidad educativa.

ABSTRACT

To be a competitive economy, it will depend in the ability to consider one of the most pressing weaknesses of the education system in our country: basic education and higher education. These are the medullar in supporting the global competitiveness criteria. The job of universities is paramount for the creation of programs willing to improve the quality of the educational programs, making them more competitive and enable them to produce solutions to their problems. Entailment with marginalized communities allows an improvement in the quality of life of community members.

Keywords: Entailment, competitiveness, quality of education.

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Propuesta de un Manual de Administración Pública: La Importancia de la Transparencia

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RESUMEN

Se trata de un documento integrador que describe y precisa la estructura del Poder Ejecutivo del Estado de Tamaulipas, su organización, atribuciones, servicios y las funciones encomendadas a las diversas dependencias y entidades de la Administración Pública Estatal.

El presente Manual responde a un imperativo de transparencia gubernamental y constituye una valiosa herramienta al servicio de los ciudadanos, quienes en todo momento pueden consultar de manera comprensible, fácil y de libre acceso, toda la información concerniente a la Administración Pública.

El municipio no sólo es la base de la división territorial y política del país, jurídicamente sustentada en la Constitución Política de los Estados Unidos Mexicanos, sino que es el espacio más adecuado para la relación gobierno ciudadanos. Su importancia incrementada por el paso de los años y las reformas constitucionales, así como por la realidad política y social, lo colocan como un espacio estratégico para el desarrollo nacional.

Las condiciones que logren establecer los gobiernos municipales determinan su capacidad de competencia, a fin generar mejores perspectivas de desarrollo para su población. Varios son los retos de los municipios en esta etapa histórica de evolución de nuestro país:

- Elevar las condiciones de vida de la población, a través del mejoramiento del entorno, por medio de los servicios y las obras públicas municipales.
- Generar el equilibrio entre las necesidades del desarrollo urbano y la preservación de los recursos naturales.
- Prevenir desastres provocados por actos humanos, fomentando la participación comunitaria y la concertación; así como, atenuarlos efectos nocivos por desastres naturales, haciendo más efectiva la capacidad de respuesta ante tales eventualidades.
- Prevenir la aparición de conductas delictivas que dañen la seguridad y cohesión social de las comunidades.
- Fomentar la integración económica, mediante el establecimiento de condiciones propicias para la generación de opciones productivas de inversión y de creación de empleos.
- Propiciar la cultura cívica entre la población como un elemento generador de participación, integración, respeto, cohesión e identidad comunitaria.

- Transparentar, evaluar y comunicar las acciones de gobierno, a fin de generar confianza sobre el uso y destino de los recursos públicos.
- Crear una administración pública que llegue a cada localidad con la misma eficiencia y eficacia, buscando la desconcentración operativa, el facultamiento de los servidores públicos y una regulación más adecuada de las actividades de los particulares.
- Consolidar el proceso de descentralización de la vida nacional, mediante el incremento de su capacidad de gobierno que fortalezca la vida democrática del país.

“El Desempeno Competitivo Municipal en el Contexto de Apertura Comercial: Caso Tamaulipas”

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ABSTRACT

The present context of economic integration and investment flows of foreign capital causes that competitiveness based strategies to promote local development becomes central to public policy discourses. Thus it is very important to develop methodologies to measure and analyze the competitive performance of subnational territories, particularly municipal since this area has been fairly studied. Therefore here we outline a competitiveness index built Ad hoc to Mexican municipalities. From the results, we found a polarized pattern of competitiveness (i.e. successful versus lagging municipalities). These findings underscore the importance of prioritizing state and national actions towards a better intermunicipal development. For that purpose the ICM can be very useful to the government sector because it allows diagnosing and quantifying public policy objectives.

Keywords: territorial competitiveness, competitive performance, Tamaulipas

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Agglomeration of Knowledge in MNEs through Intra-firm Transfer

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ABSTRACT

Acquiring knowledge is an advantage that can be gained from intra-firm communication. However, studies have shown that the transfer of knowledge has not been identified as one of the advantages in the internalization of the firm, particularly for multinational enterprises (MNEs) from western countries. The objective of the intra-firm cooperation is financial driven. This paper focuses on the issue of intra-firm knowledge transfer, using system dynamics modeling. The paper demonstrates that it is a win-win situation for both parent company and its subsidiary if effort is made in improving willingness and acceptability of knowledge transfer. It argues that the knowledge transfer should be among main strategic objectives of multinational enterprises (MNEs). Knowledge transfer would be both for technology and production as well as process.

Keywords: Knowledge Transfer, Knowledge Acquisition and Sharing, Systems Theory, Strategic Alliances, and System Dynamic

Agglomeration of Knowledge in MNEs through Intra-firm Transfer

I. INTRODUCTION

Multinational Enterprise (MNE) is viewed as a globally distributed innovation network, whose success is associated to the capability to absorb, create and combine knowledge on a global basis (Bartlett & Ghoshal, 1989; Hedlund, 1994). In other words, MNE is knowledge-sharing systems whose success rest on their capability to learn, transfer and integrate knowledge more effectively than their competitors (Kogut & Zander, 1992,1993). Thus, knowledge transfer turned into the focus of academic researchers in strategy and international business and the capability of transferring and exploiting knowledge across national borders has been considered as a crucial factor of sustaining MNEs competitive advantages, since knowledge is a valuable, rare, and difficult to imitate resource that a firm possesses to win in the increasing global competition (Peng & York, 2001).

Traditionally headquarters are seen as the principal sources of new knowledge and technology (Johanson & Vahlne, 1977; Porter, 1990; Sölvell & Zander, 1998) knowledge transfer from parent firms to subsidiaries is very important to exploit their firm-specific capabilities in a foreign environment (Kuemmerle, 1999). In recent years, more evidences show that subsidiaries hold an equal position as headquarters regards to competence and importance (Forsgren, 1990; Foss & Pedersen, 2002) Their traditional tasks involve implementation of headquarters' assignments, adaptation parent company technology to local market needs, and provision of technical support to local factories and customers (Håkanson & Nobel, 2001) their new tasks are related to activities in knowledge exploration (Kuemmerle, 1999) as Nohria & Ghoshal (1997) propose "Innovation in MNCs is no longer simply the responsibility of the corporate center", due to the fact that started from the early 1980s, MNEs have been carried out research and development (R&D) activities in different subsidiaries (Cantwell, 1989). As a result, the ability of subsidiaries to draw ideas from host country during their process of technological development allows them to turn into sources of innovation (Frost, 1998). Therefore, the knowledge flows is not a one-way process originating from the headquarters to subsidiaries (Peng & Wang, 2000), but a bi-directional process.

In order to understand the ways in which companies organize and benefit from internal knowledge transfer, knowledge transfer between parent and subsidiary, have been studied intensively. Previous research examined antecedents and consequences of knowledge transfer (Van Wijk, Jansen, & Lyles, 2008), other studies investigated determinant factors that affect intra-firm knowledge transfer (Argote, 1999; Gupta & Govindarajan, 2000) After these years of study, however, a systematic overview of the underlying mechanisms and outcomes of intra-firm knowledge transfer is still absent.

This paper contributes to the literature by examining the way organizational knowledge transfer between parent and subsidiary; the factors influence the effective knowledge transfer; and the way these factors interact with each other on the outcome of knowledge transfer. Management implications will be provided based upon the findings at the end. System dynamics is particularly appropriate when the knowledge transfer is viewed as a system, two-way and the interaction of several variables in the knowledge transfer can be examined simultaneously. This paper is structured as follows: section II, literature is reviewed. Section III, methodology is presented. Section IV results are discussed. Section V conclusions are given.

II. LITERATURE REVIEW

Definition of Knowledge

Knowledge in MNE is composed of the information and capabilities possessed by individuals, groups and organizations, in terms of documents, processes, routines, norms and structures in organization. Knowledge

is contrasted as 'knowing what' and 'knowing how'. The former specifies the procedural type of knowledge, and the latter is 'declarative' (Kogut & Zander, 1993; Gupta & Govindarajan, 2000). Knowledge can also be classified into explicit or tacit. Explicit knowledge refers to those that can be codified and expressed clearly; in contrast, tacit knowledge is not easy to articulate (Polanyi, 1966) since it is embedded in individuals (Nonaka, 1994). It is found that knowledge that is tacit, complex, and specific is difficult to diffuse and imitate, which in turn make a firm's performance sustainable (McEvily & Chakravarthy, 2002). The codifiable knowledge can be easily transferred, in contrast, it is difficult to transfer the tacit and complex knowledge due to its dependence on individuals (Cantwell & Santangelo, 1999; Johanson & Vahlne, 1977; Zander & Kogut, 1995). Knowledge of technology is the focus of this paper.

Furthermore, knowledge is also distinguished among the different levels of domains: individual, group, and organization (Hedlund, 1994). Individual knowledge is defined as individual expertise or experiences, which constitutes the basis of organizational knowledge. This study focuses on organizational knowledge, which is embedded, including systems, structure, values and beliefs and practices. Because of the embeddedness of knowledge in the specific circumstances of time and space (Hayek, 1945), the fact that one unit of MNEs possess valuable knowledge does not imply that other units of MNEs can benefit from that knowledge (Szulanski, 1996). Therefore, it is important for an organization to facilitate knowledge transfer within social networks to maintain their performance.

Research has shown that organizational knowledge transfer from both internal and external sources has important implications for organizational performance and innovativeness. Prior research supports a positive relationship between organizational knowledge transfer and performance (Steensma & Lyles, 2000). Transferring knowledge contributes to the development of organizational capabilities that are difficult to imitate, and subsequently leads to enhanced performance (Szulanski, 1996). Research on organizational knowledge transfer has focused on how knowledge transfer relates to innovativeness. Organizational knowledge transfer enables an organization to generate new ideas for new product development (Tsai, 2001) as it stimulates the combination of existing and newly acquired knowledge and augments a unit's capacity for making novel linkages and associations (Jansen, Van Den Bosch, & Volberda, 2005). In addition, the accumulation of knowledge not only permits more efficient utilization of related knowledge but also enables organizations to better understand and evaluate the nature and commercial potential of technological advances (Cohen & Levinthal, 1990).

Knowledge Transfer Process

Knowledge transfer is a process of communication. It takes place between a source and a target through a transferring channel (Gupta & Govindarajan, 2000). It refers to process through which a subsidiary shares knowledge with other units of MNE to enhance their capabilities. Knowledge transfer requires integrating differentiated knowledge and manifest itself through changes in the knowledge bases or performance of recipient (Argote & Ingram, 2000). Knowledge transfer has been labeled as knowledge sharing (Hansen, 1999), knowledge flows (Gupta & Govindarajan, 2000) and knowledge acquisition (Darr, Argote, & Epple, 1995).

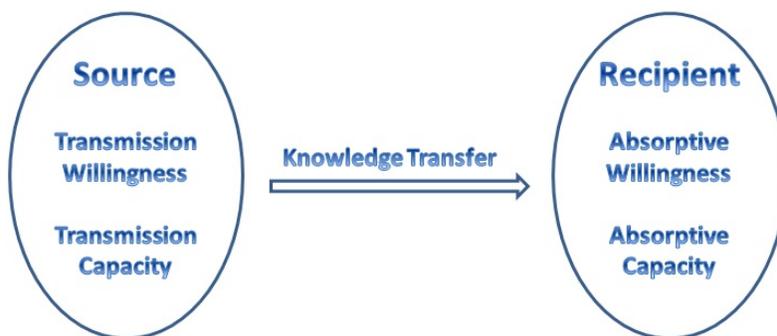
Generally, the knowledge transfer in MNEs is classified into external and internal transfers. External transfer is defined as knowledge sharing activities between MNEs units with outsiders, for instance, customers, suppliers, other firms and governments. Internal transfer refers to the knowledge exchanging activities within the MNEs. In addition, this internal transfer can be considered to the hierarchical and lateral. The former is undertaken between parent and subsidiaries, the later between subsidiaries. This study focuses on internal knowledge transfer in MNEs. Specifically, knowledge transfer between parent and subsidiary. Based on the directions of knowledge transfers in MNEs, four types of transfer contexts are classified: knowledge outflow from subsidiary to partner; knowledge inflow from subsidiary to partner; knowledge inflow from partner to subsidiary; and knowledge outflow from partner to subsidiary.

Based on the communication theory, four sets of factors that are likely affect the success of knowledge transfer are determined: the characteristics of transferred knowledge, the characteristics of knowledge source, the characteristics of knowledge recipient, and the characteristics of the context in which the transfer occurs (Teece, 1977). Szulanski (2003) indicates that effective knowledge transfer depends on the disposition and ability of the source and recipient, the relationship between them, and the characteristics of the object that is being generated. Similarly, Minbaeva (2007) specifies the basic elements of a transfer as source, message, recipient and context and name the barriers related to each elements as the characteristics of knowledge, characteristics of knowledge receiver (absorptive capacity), characteristics of knowledge senders (disseminative capacity) and characteristics of the relationship between source and recipient. We modified their definition, identified and named the basic elements of knowledge transfer as transmission willingness, transmission capacity, absorptive willingness and absorptive capacity.

From the perspective of the characteristics of knowledge source and recipient and the relationship between them, it is argued that the recipient's absorptive capacity and the relationship between source and recipient influence on the stickiness of internal knowledge transfer (Szulanski, 1996). Powerful absorptive capacity and arduous relationships will be beneficial to knowledge transfer. Foss and Pedersen (2002) suggest that the sources of knowledge are important since they define the characteristics of knowledge that is going to be transferred and as a result, knowledge transfer mechanisms. In addition, Gupta and Govindarajan (2000) posit that factors for instance, the value of the source's knowledge stock, the motivational disposition of the source unit, the motivational disposition of the target unit and the absorptive capacity of the target unit impact the knowledge flows in MNEs. They also suggest that the value of a subsidiary's knowledge stock and transmission channels are positively associated with the subsidiary's knowledge outflows. Moreover, the transmission channels, absorptive capacity and motivation disposition to acquire knowledge are positively associated with its knowledge inflows. This study focuses on the capability and willingness of knowledge source and the capability and willingness of knowledge recipient. Motivational factor and transmission channel can be put into willingness and capability respectively and the relationship between source and recipient can be reflected in the willingness to disseminate and receive.

Based on the factors that have impact on the knowledge transfer process above discussed, figure 1 is created.

Figure 1 Knowledge Transfer between Source and Recipient



Knowledge transfer occurs not randomly and firms establish various policies, structures, and procedures to ease learning (Inkpen, 1998). People craft strategy and construct decision, based their mental models of firms and industries. The full implication of strategic decision which is influenced by organizational experiments is obscure at the beginning. Later they examine the occurrence in the real world. The learning cycle is not accomplished until people adjust their mental models according to the feedback, that is to say by comparing the outcome with expectation. The learning in modeling process is explained by Morecroft (2007) as follows: modeling assists people in sharing, clarifying and improving their mental models, as well as allows them to verify and polish strategic modeling. Knowledge is acquired and accumulated through experiments, and will influence future performance of the firm by the strategic decision made on the basis of the knowledge.

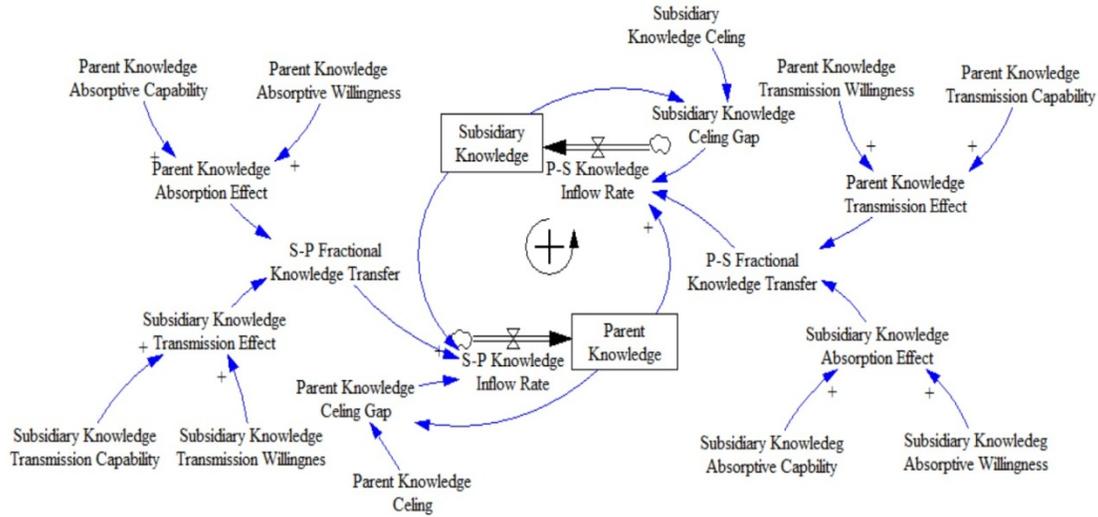
III. METHODOLOGY

System dynamics is an instrument that provides important possibilities in research analysis. Firstly, it allows us to model the dynamic changes that take place on the knowledge flows between MNE and partner, particularly on the willingness and capability of source and recipient. Secondly, it allows us to examine the interaction of several variables in the knowledge transfer, in contrast to the unidirectional impact of exogenous variables on a dependent variable. Finally, system dynamics methodology has been adopted in policy studies since it can demonstrate the effect of the policy.

A firm accomplishes competitive advantage by creating a set of assets that is valuable, rare, imitable, and organizational. To make the competitive advantage of the firm sustainable, the firm should accumulate or reconfigure such assets. It is found that the dynamic view of firm performance could be built up by linking system dynamics (SD) with resource-based view (RBV) (Morecroft, 2007). Therefore, it is appropriate to study knowledge by SD, since it is one of the most important intangible assets that a firm possesses and greatly attributes to competitive advantage of the firm.

Based on the factors that determine knowledge transfer within MNE discussed previously, figure 2 is elaborated to illustrate this dynamic system.

Figure 2: Intra-firm Knowledge Transfer



In this model, it is assumed that the knowledge base $K_{i,0}$ and knowledge ceiling \bar{K}_i of each organization are fixed, that knowledge of technology is transferred within MNE, between parent and subsidiary overseas, without knowledge leakage and inter-firm knowledge inflow. The mathematical equations and assumptions that describe the proposed knowledge transfer model are presented below. We use $C_{i,t}$ to represent a firm type i at time t , specifically, parent and its subsidiary are represented by 1 and 2 respectively. The time t is not including in the equations where it is assumed to be constant over the simulation period.

The model starts off by calculating the mutual general knowledge of parent and its subsidiary. For demonstration purpose, knowledge transfer from subsidiary to parent is illustrated as following. The Knowledge of parent in the next time period $K_{1,t+1}$ is calculated by adding the quantity of knowledge of itself in the current period $K_{1,t}$ to the quantity of knowledge $I_{21,t}$ gained from partner via mutual cooperation.

Knowledge gain $I_{21,t}$ from subsidiary to parent is affected by knowledge transfer coefficient $E_{21,t}$. As along the increase of the coefficient, current knowledge inflow per unit time will be also increase. The knowledge gain is also affected by the accumulated size of the associated knowledge pool $K_{2,t}$, which means the bigger

size of the pool, the faster current of knowledge inflow per unit time. Finally, the knowledge remaining gap $G_{1,t}$ to the inherent knowledge ceiling \bar{K}_1 of parent itself limits the knowledge gain, in other word, it is impossible that the accumulated size of knowledge pool keeps growing at an increasing rate during a certain time period, meaning that there is a knowledge ceiling determined by associated organizational nature characteristics, such as, size of capital, size of professional personnel, and productive efficiency, etc. Therefore, the growth of the knowledge of parent and subsidiary follows the typical S-curve with knowledge ceiling. The S-curve model of the knowledge transfer is represented as the following:

$$\begin{aligned} K_{1,t+1} &= K_{1,t} + I_{21,t} \\ I_{21,t} &= K_{2,t} * E_{21,t} * G_{1,t} \\ G_{1,t} &= \max\left(1 - \frac{K_{1,t}}{\bar{K}_1}, 0\right) \end{aligned}$$

Knowledge transfer coefficient $E_{21,t}$ is the multiplication of the knowledge transmission effect $T_{2,t}$ of the source subsidiary and the knowledge absorption effect $A_{1,t}$ of the recipient parent. The subsidiary knowledge transmission effect is the multiplication of subsidiary knowledge transmission willingness $TW_{2,t}$ and subsidiary knowledge transmission capacity $TC_{2,t}$. The parent knowledge absorption effect is the multiplication of parent knowledge absorptive willingness $AW_{1,t}$ and parent knowledge absorptive capacity $AC_{1,t}$.

$$\begin{aligned} E_{21,t} &= T_{2,t} * A_{1,t} \\ T_{2,t} &= TW_{2,t} * TC_{2,t} \\ A_{1,t} &= AW_{1,t} * AC_{1,t} \end{aligned}$$

Where:

- $A_{1,t}$ Absorption effect of parent at time t
- $AC_{1,t}$ Absorptive capacity of parent at time t
- $AW_{1,t}$ Absorptive willingness of parent at time t
- $E_{21,t}$ Knowledge transfer coefficient from subsidiary to parent at time t
- $I_{12,t}$ Knowledge gain from subsidiary to parent at time t
- $G_{1,t}$ Knowledge remaining gap of parent at time t
- $K_{1,t}$ Knowledge of parent at time t
- $K_{1,t+1}$ Knowledge of parent at time t+1
- \bar{K}_1 Knowledge ceiling of parent
- $T_{2,t}$ Transmission effect of subsidiary at time t
- $TC_{2,t}$ Transmission capacity of subsidiary at time t
- $TW_{2,t}$ Transmission willingness of subsidiary at time t

Generally, within an MNE, the parent possesses a bigger knowledge base. In this study, it is assumed that parent has a knowledge base, $K_{1,0} = 250$, $\bar{K}_1 = 3000$, $K_{2,0} = 200$, $\bar{K}_2 = 1500$. Transmission willingness (TW) and absorptive capacity (AC) are more critical in this learning process as it is demonstrated in the knowledge transfer literature that absorptive capacity is the most important determinant in the internal knowledge transfer in MNE (Gupta & Govindarajan, 2000). The willingness of transfer also is a significant factor that determines the success of knowledge transfer because of trust issue between parent and subsidiary. Therefore, this study is focused on the relationship between TW, AC and knowledge base and the impact of change of TW and AC on the knowledge transfer.

Five scenarios are presented in this study. In the first scenario, The value of the eight inputs $TW_{1,t}$, $TC_{1,t}$, $AW_{1,t}$, $AC_{1,t}$, $TW_{2,t}$, $TC_{2,t}$, $AW_{2,t}$, $AC_{2,t}$ are 55%, 65%, 75%, 65%, 45%, 45%, 65% and 55% respectively and these values are the initial values, 35% of increase is assumed for demonstration purpose. In the second

scenario, $TW_{1,t}$ is 74%, increased 35%, from the initial value, keeping other inputs as the initial value. In the third scenario, $TW_{1,t}$, and $AC_{1,t}$, are 75% and 88%, increased 30% from the initial value, keeping other inputs as the initial value. In the fourth scenario, $TW_{1,t}$, and $AC_{1,t}$, and $TW_{2,t}$ are 74%, 88%, and 61%, increased 35% from the initial value, keeping other inputs as the initial value. In the fifth scenario, $TW_{1,t}$, and $AC_{1,t}$, and $TW_{2,t}$ and $AC_{2,t}$ are 74%, 88%, and 61% and 74%, increased 35% from the initial value, keeping other inputs as the initial value. The five scenarios are labeled with number 5, 4, 3, 2, and 1 respectively in the following table:

Table 1 Summary of Parameters for Simulation

	5	4	3	2	1
$TW_{1,t}$	55%	74%	74%	74%	74%
$TC_{1,t}$	65%	65%	65%	65%	65%
$AW_{1,t}$	75%	75%	75%	75%	75%
$AC_{1,t}$	65%	65%	88%	88%	88%
$TW_{2,t}$	45%	45%	45%	61%	61%
$TC_{2,t}$	45%	45%	45%	45%	45%
$AW_{2,t}$	65%	65%	65%	65%	65%
$AC_{2,t}$	55%	55%	55%	55%	74%

IV. RESULTS AND DISCUSSION

In order to see the effects of the changes of the variables described above on the knowledge transfer, the model was simulated. The effects of the variable changes can be observed in the graphs as “if-then” type scenarios. Figure 1 shows the impact of changes of transmission willingness and absorptive capacity on knowledge transfer to MNE in the five scenarios. Figure 2 illustrates the impact of changes of transmission willingness and absorptive capacity knowledge transfer to subsidiary in the five scenarios. The five scenarios are labeled with number 5, 4, 3, 2, and 1 respectively by line markers in figure 3 and 4.

Figure 3

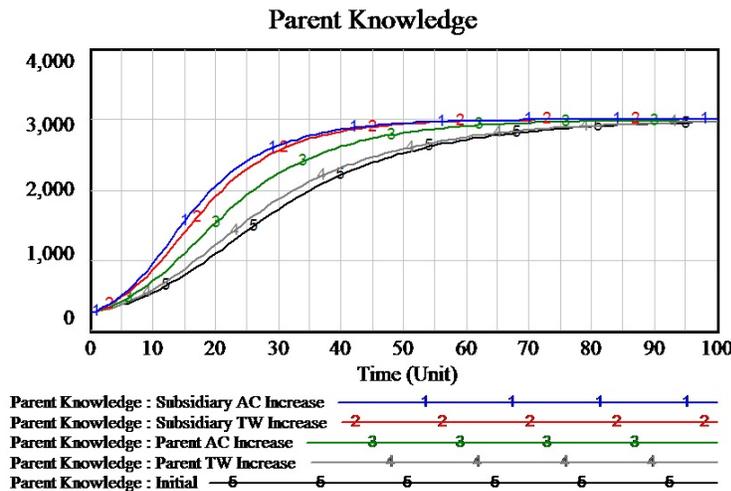
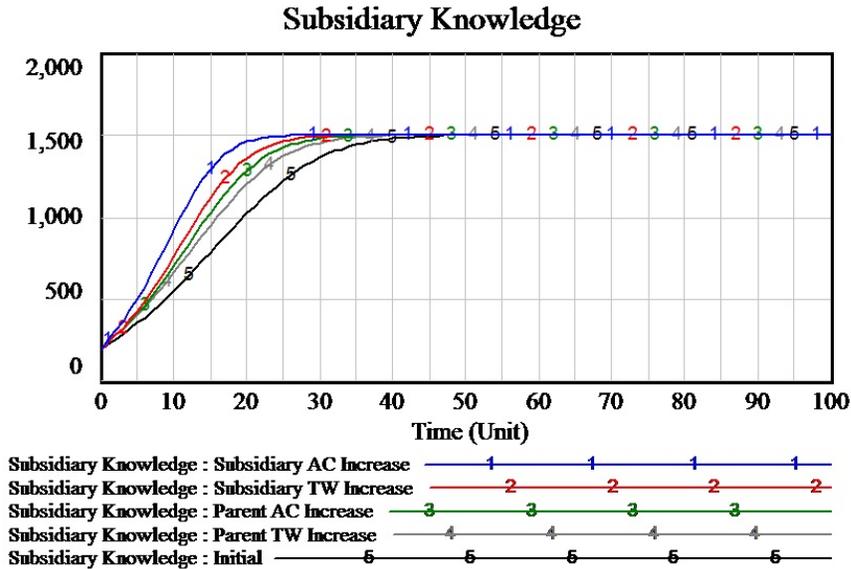


Figure 4



It is clearly observed from the figure 3 and 4 that when $TW_{1,t}$, increases as the line 4 shown, the rate of knowledge transfer increases and the accumulated knowledge achieves to the ceiling faster than the line 5, where all the inputs have initial value. When $TW_{1,t}$, $AC_{1,t}$ increase as the line 3 demonstrated, the rate of knowledge transfer increases and the accumulated knowledge reaches to the ceiling faster than line 4. When $TW_{1,t}$, $AC_{1,t}$, $TW_{2,t}$, increase as the line 2 indicated, the rate of knowledge transfer increases and the accumulated knowledge achieves to the ceiling faster than the line 3. When $TW_{1,t}$, $AC_{1,t}$, $TW_{2,t}$, $AC_{2,t}$ increase as the line 1 illustrated, the rate of knowledge transfer increases and the accumulated knowledge achieves to the ceiling faster than the line 2.

V. CONCLUSION

The paper using stylistic model shows that two-way flow of knowledge transfer will help improve the cumulative knowledge base of MNE and its subsidiary overtime. Two factors, transmission willingness and absorptive capacity are important both on the amount and the speed of transmission. Specifically, higher transmission willingness leads to faster and higher level of transmission. Also, higher willingness to absorb knowledge results in faster and higher level of knowledge transmission.

Therefore, suggestion is that effort should be made within MNEs, between parent and subsidiary to include knowledge transfer as one of strategic objective along with financial factors. In the implementation process, effort should be made to improve willingness to share information with subsidiary and to eliminate any institutional barrier that exists in this regards. At the same time, effort should also be made in convincing parent and subsidiary that they can learn from each other. One directional learning will result in limited knowledge transfer, while the two-way transfer leads to agglomeration of knowledge pool of parent and subsidiary.

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“Proposal of factors promoting Interfirm Collaboration in the early phase of Cluster Conformation: the Case of Eastern and Western Cultures Coexisting in Automotive Clusters”.

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ABSTRACT

This paper describes the existing relationship between Interfirm Collaboration (I.C.) and successful Cluster Conformation (C.C.) in Nuevo León, Mexico’s automotive industry. I.C. is required for successful cluster conformation (Schilling & Phelps, 2007. Adobor, 2006. Mei-Lin, 2006. Porter, 2001. Ketels y Memedovic, 2008. Porter y Kramer, 2011. Porchini, 2012).

A cluster (SEDEC, 2009, Porchini, 2012): is an “association of independent companies and institutions that collaborate in a specific geographical area, seeking among other goals, to generate synergies, low costs, innovate and compete in more demanding valued products and services markets”. For this goal, they conform a cluster initiative along with universities, government institutions, research and development centers to enhance competitive industries and productive chains in regions and communities where they settle. Collaboration is thus considered a cornerstone in any cluster conformation process.

Study starts reviewing results achieved at “Cluster Automotriz de Nuevo León” (C.L.A.U.T) conformation process. Factors found to enhance I.C. in the automotive industry in Mexico are then analyzed in clusters when Western and Eastern cultures have to collaborate. This analysis will help practitioners in both sides of the world to facilitate interfirm collaboration in these clusters and to anticipate methodological conflicts dealing in multicultural environments.

Keywords: Interfirm Colaboration, Cluster, Conformation.

“Proposal of factors promoting Interfirm Collaboration in the early phase of Cluster Comformation: the case of Eastern and Western cultures coexisting in automotive clusters”.

1. Introduction

This paper describes the existing relationship between Interfirm Collaboration (I.C.) and successful Cluster Conformation (C.C.) in Nuevo León, Mexico through an exemplary case, the CLAUT, the automotive industry cluster.

The automotive sector is of a high importance worldwide and Mexico is not an exemption. It has a long supply chain involving several other industries, like glass, steel, petrochemical and electronics. Globally speaking, this sector generates 60 million employees and manufactures 2,000 billion euros a year. O.I.C.A. (2012) dimensions the automotive industry as the sixth economy in the world with a production of more than 84 million vehicles worldwide in 2012. According to I.N.E.G.I. (2012) automotive industry in Mexico represented 15.3 % of the manufacturer's GDP in 2011. More than 2.6 million cars are built in Mexico generating more than 1 million jobs created in all supply chain. C.L.A.U.T. is presently the most developed cluster in Nuevo León, Mexico (SEDEC, 2009 and Porchini, 2012).

I.C. is required for successful cluster conformation (Schilling & Phelps, 2007. Adobor, 2006. Mei-Lin, 2006. Porter, 2001. Ketels & Memedovic, 2008. Porter y Kramer, 2011. Porchini, 2012) in the automotive sector in Mexico as well (Porchini, 2012) . This paper aims to discuss results found in C.L.A.U.T. with other Western and Eastern transnational automotive clusters to draw conclusions about how to deal with I.C. in multicultural environments.

A cluster (SEDEC, 2009, Porchini, 2012): is an “association of independent companies and institutions that collaborate in a specific geographical area, seeking among other goals, to generate synergies, low costs, innovate and compete in more demanding valued products and services markets”. For this goal, they conform a cluster initiative along with universities, government institutions, research and development centers to enhance competitive industries and productive chains in regions and communities where they settle. By clustering together, firms are able to collaborate and pull from a common and accessible pool of resources, information, and demand for innovation to build competences and create competitive advantages to compete globally. "Cluster is a state of mind, it is about institutions that bind companies with an invisible social glue." (Dr. Lesinsky cited in Zamborsky, 2012).

Clusters are seldom recognized as exemplary platforms of collaboration. This is the case of the Styria automotive Cluster in Austria, bringing universities, government agencies and private companies to agree on a skill upgrading in tier two in order to make cluster more competitive. Slovak automotive cluster where VW and Korean KIA cooperate still await for increasing collaboration between the two (Zamborsky, 2012). Porter and Kramer (2011) recognizes relative collaboration limits cluster productivity, innovation and the quality of life in communities where it is established. Even though some argument that between inter-organizational and intra-organizational collaboration the former one is more related to higher competitive results (Wiengarten, Humphreys, Cao & McKittrick, 2010), collaboration is considered a cornerstone in any C.C. process.

Factors promoting I.C. in a mexican automotive cluster, the C.L.A.U.T.

Some scientists in the past have written about a relative collaborative culture in Mexico (Kraz, 1991. De la Cerda y Nuñez, 1998. Belausteguigoitia, 2004). Having ten clusters been built in Nuevo León recently during

past two state administrations this investigation aimed to probe that I.C. was possible in this country finding key factors to make I.C. and a successful C.C. possible.

Operational definition of I.C. was set as: That perceived experience of free, non-formal, spontaneous actions among two or more persons, from two or more institutions, that facilitates the expected joined result (Porchini, 2012). According to Berger, Jones, et al. (2005a, 2) Collaboration is seldom expressed through open interchange of information, joint seeking of problem solutions and setting of common goals.

Eight hypothesis were set as follows: “Increasing impact of following factors such as: Interchange of information and knowledge (I.E.); Consensual rules of participation (R.C.); Individual firms strategies (P.E.); Selection process of firms (P.S.); Governmental facilitating roll (R.G.); Leadership of first cluster president (L.P.); Leadership of first cluster manager (L.G.) and Superior valued motivation from Top cluster management (M.BC), the more successful C.C. will be. These hypothesis set for an automotive cluster in Mexico are now brought into consideration at a global level.

Cluster conformation (C.C.) phase, according to Feldman and Francis (2006) is defined here as that self-organizing initial step among business owners and executives of institutions involved where quality of interaction is set to build future trust and integration of resources.

Results achieved.

1. Selection process of firms (0.711) and Leadership of first cluster president (0.408) do enhances collaboration and a successful C.C.
2. Additionally, Open interchange of information and knowledge (0.414) and Rules of participation reached by consensus (0.435) correlated also positively with C.C.
3. Social capital, the accumulation of best practices in the cluster, probed to be correlated with I.C. (0.642)
4. An effective, efficient, transparent and self-sustainable cluster is achieved through: a well-integrated group of allied managers (0.614); and/or a good cluster strategy (0.668) and/or social capital practices (0.635).
5. Methodologies followed to help group integrate in cluster (0.749) and/or the formation of cluster committees (0.851) were well correlated with I.C..

The two proven independent variables.

The first independent variable proven, “Selection process of firms” guarantees that firms with more tradition of collaboration enter the cluster to enrich social capital in the benefit of all members. A cohesive group of firms is then created as “Macro-cultures” (Abraham & Fombrun, 1994. Chen (2006, 125); “Delimited territorial Nods” (Markusen, 1999) or “Locally embedded Cultures” (Depner & Bathelt, 2005, 12), alliances formed by similarities in interests, expectations and even friendship circles. These *macro-cultures* are common in the automotive industry.

The second variable proven, “Leadership of first cluster president” is key to C.C. Porter (1990) and Schmitz (1992), for example, stress the importance of the reputation, image, inspiration and legitimacy of the cluster president as an effective leader. Sölvell (2008, p.78) asks for a facilitating rol, with well deep knowledge of industry and wide net of contacts in this cluster president as a condition for cluster competitiveness. To keep cohesiveness his or her conduct must be opened to respectful, sincere and transparent communication, acting with moral authority, fairness, trust and intentional “affectiveness” in order to treat and help people and companies consistently in time (Porchini, 2012).

2. Research Problem

Is I.C. key in the C.C. process in automotive clusters in which Western and Oriental cultures coexist? And if so, What key factors promote I.C. in these clusters?

This paper finds these questions relevant in today's theory of clusters once these strategic alliances are seldom formed out of incoming multinationals from advanced countries settled in an emergent country. Business managers, executives and experts from diverse cultures are called to collaborate efficiently in order to reach competitiveness on a short time span. And the lack of collaboration reflects the numerous failures of multinational alliances, mergers, acquisitions and clusters (Depner and Bathelt, 2005).

This investigation, though exploratory and descriptive in nature studying recent scientific literature, will try to probe that collaboration is possible between Western and Eastern cultures pertaining to companies and members involved in automotive clusters and that some key factors must be taken into account for C.C. success.

3. Discussion

Cultural aspects of collaboration.

Collaboration is a cultural manifestation in all mankind. Moreover, all men as human social beings are the product of culture (Vargas, J.G., 2007, 3). Culture refers to social patterns of behavior shared by communities, developed and configured through norms and manners, learned attitudes, principles, beliefs, convictions, moral codes, philosophies of life, values and conducts transmitted by generations (Vargas, J.G., 2007). Collaboration belongs to what the theory of organizations call the "Informal" part as opposed to the "Formal" dimension of the organizations. We thus can talk about a desired culture of collaboration in organizations (Depner and Bathelt (2005, 4) in order to engender harmony, focus, productivity, innovation and a better more competitive Society.

In this sense, this document differentiates "Collaboration" as a free, affective act and "Cooperation" as programmed relationships among individuals to perform a task (Porchini, 2012). Sölvell (2008, 55) so refers to the importance of paying attention to formal and informal nets of contacts in order to strength the development of competitive clusters. Noteboom (2002) in turn deals with attitudes, intentions and motivations that presidents, managers, practitioners and members involved must show in order to enhance collaboration within clusters. Ketels and Memedovic (2008, 382) says it clearly: "purposive collaboration can enhance the ability of clusters to drive higher economic performance and innovation".

Culture of Collaboration around the world.

Hofstede (1980, 1991) studied extensively culture differences among countries and regions. Through his research over 70 countries he found a way to measure and compare cultures between countries and regions through indices. This culture differences can help us understand culturally Western versus Oriental forms of collaboration coexisting in actual clusters.

There are five criteria Hofstede studied in each country: Power Distance Index (PDI), Individualism (IDV), Masculinity (MAS), Uncertainty Avoidance Index (UAI) and Long Term Orientation (LTO). Each of these dimensions has its own continuous, high and low values. For the sake of this investigation United States and Germany as developed countries and Mexico and China as emergent ones are considered briefly in this paper.

United States got following scores in Hofstede research: 40, 91, 62 and 46. Last criteria is not rated here. This may be interpreted in the sense that Americans are not a hierarchical but a more equalitarian (PDI relatively balanced) society built as we know from immigrants all over the world. Their individuality is high (IDV high)

because that is their will to survive, grow, build a family and progress, working hard as a competitive nation (MAS relatively high). As a more entrepreneurial community risk is accepted (UAI balanced) and so their will to make alliances to help each other to get everyone's goals. Accordingly, collaboration is possible when practiced in organizations lead and inspired by principles of team building and common good.

Germany in turn scored 35, 67, 66 and 65. This people tend to be an equalitarian country fighting for equal rights for all (PDI relatively low). As a western country they believe in competent highly skillful individuals that recognize the value of a proud competitive country (IDV relatively high) with team work scoring high. Their masculinity tends to show themselves as very competitive and collaborative at the same time (MAS relatively high). In terms of uncertainty it is an entrepreneurial country that has learned how to risk prudently in new adventures and innovations (UAI relatively high). As a model of teamwork Germans are more collaborative and competitive in nature practicing high group standards.

Mexico as a developing country was rated 81, 30, 89 and 62 respectively. These results show Mexico as a highly hierarchical society (PDI high) dominated by vertical superior-subordinate relationships. Country is collectivist (IDV low) in the way they like to create ties in family, friends and professional associations, although this may not mean a total compromise to each other in strict sense. Also tend to act (MAS high) in autocratic style as business owners, yet trying to beat other adversaries having hard times creating alliances. It is a rather conservative society (UAI relatively high), not so long term motivated as more action oriented pursuing clear short term goals. In consequence, collaboration in general is limited among business owners and executives, unless they work on a different basis such as in multinationals and close to the US border. (Kraz, 1991. De la Cerda y Nuñez, 1998. Belausteguioitia, 2004).

China. Also as a fast growing emergent country scored 80, 20, 66 and 30 respectively. They are also highly hierarchical (PDI high) respecting elders, spiritual leaders and people in central government. Altogether chinese act as a strict centralized integrated society. It is a highly collectivist (IDV low) country, well known by their ancient casts maintaining norms, principles and manners they have to observe and obey. Personal relationships called *guanxi* are promoted to build common interests and expectations in work places (Depner and Bathelt, 2005). Their masculinity not so high (MAS relatively high) show a tendency to preserve family ties and principles all lifelong in balance with their competitiveness and working values in sake of their country well-being and the emperor's. They live under the *wuli*, *shili* and *renli* modeling system caring for reality and society in a holistic way (Kidd, 2003, 21). After a long period of traditions Chinese are now more opened to innovation (UAI low) learning from other multinational companies. Collaboration in this country is highly developed, among themselves, as part of the *guanxi* relationships among peers, being a Confucianism value deeply lived and experienced by generations.

Collaboration in Automotive clusters.

Automotive clusters have two distinctive characteristics from others: 1. are structured vertically oriented to serve highly demanding consumers and 2. have hundreds of high specialized suppliers along value chain organized in tiers dealing with assemblies, subassemblies, components and parts. Verticality imposes members the adoption of standards, practices and aggressive policies for those in or those wishing to enter the chain. Even more, as automakers move more toward modular assembly, the rules and practices of the supply network demand more collaboration within the upstream supply chain (Lin, Y; Zhou, L; Shi, Y; Ma, S., 2009). From the human factor point of view all these OEM and suppliers must trust each other to share information and capabilities (Kidd, 2003). Developing trust is a whole issue when dealing with highly diverse cultures coexisting in a cluster.

Moreover it happens, mainly in western countries that several firms along the chain know, collaborate and recommend each other internationally. This because in emergent countries usually there are no high quality suppliers they can have mutual understanding with. This way these chains and tiers form, as it was mentioned previously Macro-cultures (Abraham & Fombrun, 1994) as close industrial groups cohesive under precise

norms, codes, team conducts and work philosophies. This variable, as seen before in Mexico's C.L.A.U.T is a key factor determining collaboration and efficient start-ups within a C.C. process.

From the point of view of leadership in first cluster president, should be a *clusterpreneur*, a business example, respected, visionary, inspired, executive, a synergist consensus builder (Dirven, 2005). In case of a long supply chain a legitimate leader extracted from private sector will be necessary, an admired example in human relations and community/social values.

In order to find these cultural problems in multicultural settings between Western and Oriental cultures coexisting in one cluster, the Shanghai automotive case is analyzed here.

Western and Oriental collaborative cultures.

Kidd (2003, 22) studied management behavior in western and oriental cultures and found following main sources of conflicts present in clusters where these two cultures coexist:

1. Western managers have a tendency to interpret a foreign country culture by externalized models and archetypes of what an individual rational human being is and behaves in society, whether Chinese managers do it by internalized models such as *guanxi* modeling seeing themselves as part of a whole. Their group discipline to norms and principles is notorious acting as one.
2. Western managers view problems in a single loop of solutions, in a more direct form, sometimes seen as impulsive and too rational. Oriental countries usually adopt a type of double loop problem solving, not only what seems the apparent solution but also the external conditions in which a problem may be solved consistently and effectively at the long run.
3. Western managers more direct and impulsive get desperate with Orientals that review problems on and on in order to arrive to long term solutions. Once convinced everyone knows what must be done in these situations and things are implemented quick and thoroughly.
4. Western countries are educated in data enrichment environments to make quick decisions and respond according to hard data available. Oriental is more consistent data available in terms that all aspects of a problem should be taken into account before a decision is made and so it is a more reflexive culture.
5. Western cultures begin discussions with hard-based formal data at hand and must arrive to clear consensual decisions while Orientals are tacit and subjective when dealing with complex problems and situations. Situations must be then studied from different perspectives and elderly wise superiors must be addressed to have a whole picture considered.
6. When negotiating Western managers are based usually on Judeo-Christian beliefs and ethics such as solidarity and common good values whereas Orientals base their assumptions on Confucianism such as integrity, justice and holistic values. As a result Orientals are seen too humble and extremely patient people, while Western are seen as desperate, arrogant, immodest, suspicious and adversarial.

Case: VW entering Shanghai automotive cluster.

VW was invited by Popular Republic of China to pertain the Shanghai automotive cluster. This cluster was funded in the eighties with great government support under a highly centralized industrial policy. VW saw this as an opportunity to expand their operations in the Asian market. In 1985, after seven years of negotiations finally VW started their operations in Shanghai.

Depner and Bathelt (2005, 2) studied this case as the encounter of two different cultures, German and Chinese represented by public owned S.A.I.C. (Shanghai Automotive Industrial Corporation), this one with the mission for developing local competitive suppliers. Both institutions trying to generate a beneficial cluster serving their own interests. China's S.A.I.C. of course, did not allow VW to select his foreign suppliers most convenient. VW had to get ahead with their plans not convinced about possible outcomes.

VW trying to export their successful clustering process had to face some human factor type problems regarding lack of proper timely information, had difficulties in communicating openly and frankly, of mutual acceptance and understanding. Not only that, S.A.I.C. had also to audit processes and procedures used by VW under supervision of the communist party. The Exchange of information between Germans and Chinese was in general difficult, indirect and incomplete generating distrust and day-to-day conflicts. Meetings were other source of conflict an frustration for Germans. While Chinese tend to be silent and evasive, not sharing information nor taking decisions in meetings, there was a sense of desperation in the ranks of German labor force (Depner and Bathelt, 2005, 13). In contrary, Germans use meetings to take group decisions, mostly if reached by consensus.

4. Findings.

As per this paper objective following key critical factors were found in scientific literature on automotive clusters around the globe.

1. Validating investigation with C.L.A.U.T. in Mexico *Selecting collaborative firms* either formally or through existing macro-cultures is key factor for a successful C.C.
2. *Leadership of first cluster president* and his/her selection process as expert in integrating cultures involved, is also relevant factor in the promotion of I.C. in a transnational clustering process.
3. *Cluster planning and strategy* focused on how all stakeholders may gain with the cluster as a win-win collective and a cultural adventure.
4. *Authentic transcendental motives exposed* as principle of action addressed jointly by heads of institutions involved in transnational cluster seeking higher standard and quality of living in the community as well as the development of local suppliers.
5. *Negative perceptions about western culture taken as outsider* must be carefully addressed. If mutual trust is to be forged then Westerners have to understand Orientals social deep need for conformity to their traditional Confucianist norms.
6. *Quality of business environment*, this is, an existing open collaborative culture present among institutions from governmental agencies, universities, research centers, OEM's and local firms in tiers involved, help attract, settle and retain high quality collaborative firms, owners and executives from abroad.
7. *Training and educational programs*, university seminars and multicultural coaches educating future cluster members at all levels know how to deal with multicultural environments, habits, values and beliefs prepare also the scenario for inter-organizational and personal collaboration and a C.C. quick settlement in the region.
8. *Open exchange of information* relevant to take timely decisions whereas different cultures might have different patterns of communication.
9. *Deliberative committees* openly commenting and understanding work codes, manners, formalities and protocols ingrained in every culture may help anticipate conflicts and delays in day-to-day operations.

Following practices have been also identified in scientific literature as promoting I.C. in early phases of a C.C. when Western and Oriental cultures coexist in transnational clusters and joint ventures:

- A shared institutional context under which both parts may understand each other's intentions and motives behind actions
- Debating and caring for ambiguous cultural symbols and norms may help frame and anticipate conflicts about key issues subject to interpretation (Peters, Johnston, Pressey and Kendrick, 2010)
- Building consensus on participatory rules through new conventions and codes, common standards, and shared technology.
- Educating partners in cultural protocols required to be followed and accepted for the other part when those help build harmony. This education can be given in exchange programs traveling to countries where cultures are different (Kidd, 2003, 20).
- The need of leaders in both sides with high level motivation to build contacts and networks gathered around the cluster, letting new collaborative firms to enroll in (Depner and Bathelt, 2005, 6).
- Integrate the "*guanxi*" system in the organizational structure to maintain trusted friendly relationships (Depner, et al., 13).
- Participate in events mainly outside working hours devoted to know everyone involved.
- Training trips for Chinese technicians to be trained in Germany exposed to best practices and cultural norms.

5. Conclusions and recommendations.

Reviewing scientific literature in transnational clusters I.C. is also cornerstone of a successful C.C. as well as in growing stages. Moreover, certain key factors additional to the ones found in C.L.A.U.T. in Mexico as an emergent country such as selection of collaborative firms and selection of first cluster president (Porchini, 2012) must be taken care of to assure a successful process.

Along with Noteboom (2002) and Ketels and Memedovic (2008), Cooperation is not conceptually the same as Collaboration, though wrongly they are taken as synonyms. Cooperation refers to programmed formal interactions when accomplishing a task or a project. Collaboration is a spontaneous, non-formal willing act when the good of the person or the community or the good of an alliance or relationship, either inter-organizational, intra-organizational or personal, is sought.

In the automotive industry clusters are formed in existing macro-cultures that tend to act as a filter for new incoming suppliers. These macro-cultures work with apparent no problem when beliefs and work philosophies are alike in companies and hosting institutions ally in clusters (Sölvell, 2008). But in transnational clusters, especially when host country is eager to set policies about development of local suppliers, these embedded nets may be broken or altered in order to reconfigure the supplying chain and so interpersonal or inter-organizational conflicts may arise (Depner & Bathelt, 2005)..

I.C. derives in Social capital, innovation, productivity and growth in clusters (Dirven, 2005, 5). In transnational clusters these goals are achieved only when a well integration of cluster members at all levels is patiently achieved. When a cluster is formed out of unknown companies mainly for the OEM efforts have to

be carefully and intentionally made building mutual respect and understanding on partner's cultures and customs.

Leaders from every institution involved must show a legitimate and exemplary relationship from the top forging together a friendly working environment looking towards benefiting the community they are in, a transcendent motive that above forms and manners is recognized as a binding principle. Two or more visionary purposive leaders set the standard to all their subordinates of what a cohesive group is highly productive with extraordinary results. This is especially important when dealing with spiritual-type beliefs, highly obeyed and experienced in oriental cultures (Rodriguez Porras, 2005, 52).

Clusters are formed without proper and careful planning as an economic agglomeration entity. OEM's interested in being positioned in high growth emergent countries from where they can distribute fast enough their competitive models usually take for granted the influence of foreign collaborative cultures so important for strengthening the cluster, especially in early phases. Integration among new partners must be quick in order to put the enormous investments to work. Business environment becomes key to cluster development and so governmental agencies and also professional, trade and business associations under the name of "institutions for collaboration" (IFC) may help build bridges of mutual understanding (Ketels & Memedovic, 2008, 382). Governmental agencies, universities and firms involved could incentive and develop regionally a distinctive and enriched multicultural environment where collaboration and diversity be firmly promoted.

This investigation opens the possibility to study in depth the conformation of new clusters along the border between United States and Mexico or between US, China and other oriental countries and Mexico from the point of view of the development of an inter-institutional, inter-organizational and personal collaborative culture among these countries as a platform to promote several multicultural clusters integrated and operating quicker than before from different industrial sectors benefiting more rapidly the quality of life of our fast developing communities.

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“The Feminine Leadership Advantage: Relating Women’s Values and Leadership Styles to Organizational Practices”

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ABSTRACT

The feminine leadership advantage may be characterized by, among others, women having a relatively higher degree of cooperation, nurturance, and interpersonal relationships than men. One crucial question is the degree to which such advantage originates from the individual leader, from the organization or from the duality leader-organization. Aiming to discern such question this article analyzes, and discusses, some relationships among women’s values and leadership styles to organizational practices and features of the organization’s external environment.

Keywords: Feminine leadership advantage, humane leadership, team-oriented leadership, participative leadership, leader values, organizational practices, external environment.

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Money and Happiness: Spending, Saving and Happiness (Progress Report II)

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1 Introduction

Research shows, that individual happiness is influenced by many factors. Namely for example there is the marital status, intelligence, religion, health (Diener et al 1999), the institutional environment (Frey/Stutzer 2000) and the genetic pool (Verme 2009). Moreover happiness is relative to the social comparison to other persons in their personal fellowship (Hirschmann/Rothschild 1973; McBride 2010). This paper controls some of these variables and focus on a more economic view. Hence, this approach is based on economic well-being and the influence on the individual happiness.

The most accepted view of psychologists and economists is that economic well-being, defined as income and wealth, has a weak but significant effect on happiness or rather on subjective-wellbeing. But hence, spending and saving have a contrary impact on the wealth it is advisable to investigate these two factors separately. How happiness is related to factors like savings and spending has barely been determined on an experimental level. This paper is filling the gap by using an innovative experimental design to test spending and savings and by using an ordinary least square regression.¹ The model used will account for a number of control variables to test a number of hypotheses related to saving and spending in general, gender differences, age differences and later differences between Germans and US Americans. First, the recent literature is reviewed and a statement for the use of our measurement technique – namely the Likert scale – is made. In the current stage this progress report does not yet include a theory for saving and spending by using the equilibrium business cycle model and the present value concept. Furthermore, a sub chapter will cover “the essence of human beings” or essentially the concepts of the homo economicus, homo reciprocans, homo sociologicus and homo biologicus as well as the concept of altruism and egoism within those views of the human nature. Afterwards the data and the experimental design are presented and then the model is explained and the hypotheses are tested.

¹The analysis can be also conducted via panel regression since the dataset is essentially a panel dataset with a very short time horizon and also the bootstrapping or kernel regressions are available.

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Comparing Performance Measures of Portfolio Returns

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ABSTRACT

This paper analytically determines the conditions under which four commonly utilized portfolio measures (the Sharpe index, the Treynor index, the Jensen alpha and the Adjusted Jensen alpha) will be similar and different. If the single index CAPM model is appropriate, we prove theoretically that well-diversified portfolios must have similar rankings for the Treynor, Sharpe indices and Adjusted Jensen's alpha ranking. The Jensen alpha rankings will coincide if and only if the portfolios have similar betas. For multi-index CAPM models however, the Jensen alpha will not give the same ranking as the Treynor index even for portfolios of large size and similar betas. Furthermore, the adjusted Jensen's alpha ranking will not be identical to the Treynor index ranking.

Keywords: Sharpe Index, Treynor Index, Jensen Alpha, Adjusted Jensen Alpha, CAPM Model, Multi-index CAPM Model, Performance Measures, Rank Correlation, Ranking, and Rank Transformation.

Comparing Performance Measures of Portfolio Returns

INTRODUCTION

Measurement of a portfolio's performance is of extreme importance to investment managers. That is, if a portfolio's risk-adjusted rate of return exceeds (or is below) that of a randomly chosen portfolio, it may be said that it outperforms (or underperforms) the market. The risk-return relation can be dated back to Tobin (1958), Markowitz (1959), Sharpe (1964), Lintner (1965), and Mossin (1966). Evaluation measures are attributed to Treynor (1965), Sharpe (1966) and Jensen (1968, 1969). Empirical studies of these indices can be found in the work by Friend and Blume (1970), Black, Jensen and Scholes (1972), Klemkosky (1973), Fama and MacBeth (1974), and Kim (1978). For instance, the rank correlation between the Sharpe and Treynor indices was found by Sharpe (1966) to be 0.94. Reilly (1986) found the rank correlation to be 1 between the Treynor and Sharpe indices; 0.975 between the Treynor index and Jensen alpha; and 0.975 between the Sharpe index and Jensen alpha. In addition, the sampling properties and other statistical issues of these indices have been carefully studied by Levy (1972), Johnson and Burgess (1975), Burgess and Johnson (1976), Lee (1976), Levhari and Levy (1977), Lee and Jen (1978), Chen and Lee (1981, 1984, 1986). For example, Chen and Lee (1981, 1986) found that the statistical relationship between performance measures and their risk proxies would, in general, be affected by the sample size, investment horizon, and market conditions associated with the sample period. Notwithstanding these empirical findings, an analytical study of the relationship among these measures is missing in the literature. These performance measures may well be considered very "similar" owing to the unusually high rank correlation coefficients in the empirical studies. However, the empirical findings do not prove the true relationship. These measures can theoretically yield rather divergent rankings especially for the portfolios whose sizes are substantially less than the market. A portfolio size about 15 or more in which further decreases in risk is in general not possible (Evans and Archer, 1968; Wagner and Lau, 1971; and Johnson and Shannon, 1974) can generate rather different rankings.

In the case of an augmented CAPM, a majority of these performance measures, contrary to the conventional wisdom, can be rather different regardless of the portfolio sizes! In this note, it is our intention to (1) investigate such relationship, (2) clarify some confusing issues, and (3) provide some explanations as to the empirically observed high rank correlations among performance measures. The analysis is free from the statistical assumptions (e.g., normality) and may provide some guidance to portfolio managers.

THE RELATIONSHIP BETWEEN TREYNOR, SHARPE AND JENSEN'S MEASURES IN THE SIMPLE CAPM

Given the conventional assumptions, a typical CAPM formulation can be shown as¹

$$y_i = \alpha_i + \beta_i x \quad [1]$$

where $y_i = \pi_p - \pi_f$ = the estimated excess rate of return of portfolio i over the risk-free rate

$x = \pi_m - \pi_f$ = the excess rate of return of the market over the risk-free rate

The Treynor index is a performance measure which is expressed as the ratio of the average excess rate of return of a portfolio over the estimated beta or

$$T_i = \bar{y}_i / \beta_i \quad [2]$$

Similarly, the Sharpe index is the ratio of the average excess rate of return of a portfolio over its corresponding standard deviation or

$$S_i = \bar{y}_i / S_{y_i} \quad [3]$$

A standard deviation which is significantly larger than the beta may be consistent with the lack of complete diversification. While the Sharpe index uses the total risk as denominator, the Treynor index uses only the systematic risk or estimated beta. Note that these two indices are relative performance measures, i.e., relative rankings of various portfolios. Hence, they are suitable for a nonparametric statistical analysis such as rank correlation.

In contrast to these two indices, the Jensen alpha (or α) can be tested parametrically by the conventional t statistic for a given significance level. However, the absolute Jensen alpha may not reflect the proper risk adjustment level for a given performance level (Francis, 1980). For instance, two portfolios with the identical Jensen's alpha may well have different betas. In this case, the portfolio with lower beta is preferred to the one with higher beta. Hence, the adjusted Jensen alpha can be formulated as the ratio of the Jensen alpha divided by its corresponding beta (see Francis, 1980) or

$$AJ_i = \alpha_i / \beta_i \quad [4]$$

The close correlation between the Treynor and Sharpe indices is often cited in the empirical work of mutual fund performances. Despite its popular acceptance, it is appropriate to examine them analytically by increasing the portfolio size (n) to the number of securities of the market (N), i.e., the portfolio risk premium s_x approaches the market risk premium y . Rewriting the Treynor index, we have

$$\begin{aligned} T_i = y_i / \beta_i &= \bar{y}_i * [\text{Var}(x) / \text{Cov}(x, y_i)] = [y_i / \bar{\text{Var}}(y_i)] \text{Var}(x) \\ &= [\bar{y}_i / S_{y_i}] [\text{Var}(x) / S_{y_i}] = S_i s_x \end{aligned} \quad [5]$$

since $\text{Cov}(x, y_i) = \text{Var}(y_i) = \text{Var}(x)$ for $x = y_i$.²

Equation [5] indicates that the Treynor index, in general, will not equal the Sharpe index even in the case of a complete diversification, i.e., $n = N$. It is evident from [5] that these two indices are identical only for $s_x = 1$; a highly unlikely scenario. Since neither the Treynor nor Sharpe index is likely to be normally distributed, a rank correlation is typically computed to reflect their association. Taking rank on both sides of equation [5] yields

$$\text{Rank}(T_i) = \text{Rank}(S_i) \quad s_x \quad [6]$$

since s_x in a given period and for a given market is constant. As a result, the Treynor and the Sharpe indices (which must be different values) give identical ranking as the portfolio size approaches the market size as stated in the following proposition.

PROPOSITION #1:

In a given period and for a given market characterized by the simple CAPM, the Treynor and Sharpe indices give exactly the same ranking on portfolios as the portfolio size (n) approaches the market size (N).

This proposition explains high rank correlation coefficients observed in empirical studies between these indices. Similarly, equation [5] also indicates that parametric (or Pearson Product) correlation between the Treynor and Sharpe indices approaches 1 as n approaches N for a constant s_x , i.e., T_i is a nonnegative linear transformation of S_i from the origin. In general, these two indices give similar rankings but may not be identical.

The Jensen alpha can be derived from the CAPM for portfolio i :

$$J_i = \alpha_i = \bar{y}_i - \beta_i \bar{x} \quad [7]$$

It can be seen from equation [7] that as n approaches N , y_i approaches x , and β_i approaches 1. Hence α_i approaches zero. The relationship of the rankings between the Jensen alpha and the Treynor index ranking are equal can be proved as β_i approaches 1 because:

$$\begin{aligned} \text{Rank}(J_i) &= \text{Rank}(\alpha_i) = \text{Rank}(\alpha_i/\beta_i) = \text{Rank}(\bar{y}_i) - \text{Rank}(\beta_i \bar{x}) \\ &= \text{Rank}(y_i/\beta_i) - \text{Rank}(\bar{x}) \\ &= \text{Rank}(T_i) \end{aligned} \quad [8]$$

Since \bar{x} is a constant; y_i/β_i approaches y_i and $\beta_i \bar{x}$ approaches \bar{x} . We state this relationship in the following proposition.

PROPOSITION #2:

In a given period and for a given market characterized by the simple CAPM, as the portfolio size n approaches the market size N , the Jensen alpha ranking approaches the Treynor index ranking.

However, the Jensen alpha will in general be dependent on the average risk premium for a given beta value for all portfolios since

$$\begin{aligned} \text{Rank}(\alpha_i) &= \text{Rank}(\bar{y}_i) - \beta_i \text{Rank}(\bar{x}) \\ &= \text{Rank}(\bar{y}_i) - \text{constant} \end{aligned} \quad [9]$$

for a constant β_i (for all i). In this case the Jensen alpha will give similar rank to the Treynor index for a set of portfolios with similar beta values since

$$\text{Rank}(\bar{y}_i/\beta_i) = \text{Rank}(\bar{y}_i) = \text{Rank}(\alpha_i)$$

for a fairly constant set of β_i 's. Hence, we state the following proposition.

PROPOSITION #3:

In a given period and for a given market characterized by the simple CAPM, the ranking of the Jensen alpha and that of the Treynor index give very close rankings for a set of fairly similar portfolio betas regardless of the portfolio size.

Next, we examine the relationship between the adjusted Jensen alpha and the Treynor index in the form of the adjusted Jensen alpha (AJ). Since

$$\begin{aligned} \alpha_i &= \bar{y}_i - \beta_i \bar{x} \text{ hence} \\ \text{AJ} &= \alpha_i / \beta_i = \bar{y}_i / \beta_i - \bar{x} \end{aligned} \quad [10]$$

It follows immediately from equation [10] that

$$\text{Rank (AJ)} = \text{Rank (I)} - \text{Rank } (\bar{x}) \quad [11]$$

The result is stated in the following proposition.

PROPOSITION #4:

In a given period and for a given market characterized by the simple CAPM, the adjusted Jensen alpha gives precisely identical rankings as does its corresponding Treynor index regardless of the portfolio size.

Clearly, it is the adjusted Jensen alpha that is identical to the Treynor index in evaluating portfolio performances in the framework of the simple CAPM. The confusion of these measures can lead to erroneous conclusions. For example, Radcliffe (1990, p. 209) stated that "the Jensen and Treynor measures can be shown to be virtually identical." Since he used only the Jensen alpha in his text, the statement is not correct without further qualifications such as proposition #3. The ranking of the Jensen alpha must equal that of the adjusted Jensen alpha for a set of similar betas, i.e., $\text{Rank } (\alpha_i / \beta_i) = \text{Rank } (\alpha_i)$ for a constant beta across all i . All other relationships can be derived by the transitivity property as shown in Table 1. In the next section, we expand our analysis to the augmented CAPM with more than one independent variable.

TABLE 1

ANALYTICAL RANK CORRELATION BETWEEN PERFORMANCE MEASURES: SIMPLE CAPM

	Sharpe Index S_i	Treynor Index T_i	Jensen Alpha J_i	Adjusted Jensen Alpha AJ_i
Sharpe Index S_i	1			
Treynor Index T_i	Rank (T_i) = Rank (S_i) • S_x Identical ranking as $n \rightarrow N$	1		
Jensen Alpha J_i	As $n \rightarrow N$ Rank (J_i) \rightarrow Rank (S_i)	Rank (J_i) \rightarrow Rank (T_i) as $n \rightarrow N$ or $\beta \rightarrow 1$ or Rank (J_i) \rightarrow Rank (T_i) for similar β_i 's	1	
Adjusted Jensen Alpha AJ_i	As $n \rightarrow N$ Rank (AJ_i) \rightarrow Rank (S_i)	Rank (AJ_i) = Rank (T_i) regardless of the portfolio size	Rank (α_i/β_i) = Rank (α_i) for similar β_i 's	1

THE RELATIONSHIP BETWEEN THE TREYNOR, SHARPE AND JENSEN MEASURES IN THE AUGMENTED CAPM

An augmented CAPM can be formulated without loss of generality, as

$$y_i = \alpha_i + \beta_i x + \sum c_{ij} z_{ij} \quad [12]$$

where z_{ij} is another independent variable and c_{ij} is the corresponding estimated coefficient. For instance, z_{ij} could be a dividend yield variable (see Litzenberger and Ramaswami, 1979, 1980 and 1982). In this case again, the Treynor and Sharpe indices have the same numerators as in the case of a simple CAPM, i.e., the Treynor index still measures risk premium per systematic risk (or β_i) and the Sharpe index measures the risk premium per total risk or (s_y). However, if the portfolio beta is sensitive to the additional data on z_{ij} due to some statistical problem (e.g., multi-collinearity), the Treynor index may be very sensitive due to the instability of the beta even for large portfolios. In this case, the standard deviations of the portfolio returns and portfolio betas may not have consistent rankings. Barring this situation, these two measures will in general give similar rankings for well-diversified portfolios.

However, in the augmented CAPM framework, the Jensen alpha may very well differ from the Treynor index even for a set of similar portfolio betas.

This can be seen from reranking (α_i) as:

$$\text{Rank}(\alpha_i) = \text{Rank}(\bar{y}_i) - \beta_i \text{Rank}(\bar{x}) - \sum_j \text{Rank}(c_{ij} \bar{z}_{ij})_j \quad [13]$$

It is evident from equation [13] that the Jensen alpha does not give same rank as the Treynor index, i.e., $\text{Rank}(\alpha_i) \neq \text{Rank}(\bar{y}_i/\beta_i) = \text{Rank}(\bar{y}_i)$ for a set of constant portfolio beta β_i 's. This is because $c_{ij}\bar{z}_{ij}$ is no longer constant; they differ for each portfolio selected even for a set of constant β_i 's (hence $\beta_i \cdot \text{Rank}(\bar{x})$) for each portfolio i as stated in the following proposition.

PROPOSITION #5:

In a given period and for a given market characterized by the augmented CAPM, the Jensen alpha in general will not give the same rankings as will the Treynor index, even for a set of similar portfolio betas regardless of the portfolio size.

Last, we demonstrate that the adjusted Jensen alpha is no longer identical to the Treynor index as shown in the following proposition.

PROPOSITION #6:

In a given period and for a given market characterized by the augmented CAPM, the adjusted Jensen alpha is not identical to the Treynor index regardless of the portfolio size.

We furnish the proof by rewriting equation [12] for each portfolio i as:

Since $\alpha_i = \bar{y}_i - \beta_i \bar{x} - \sum_j c_{ij} \bar{z}_{ij}$ implies

$$\frac{\alpha_i}{\beta_i} = \frac{(\bar{y}_i)}{\beta_i} - \bar{x} - \sum_j \left(\frac{c_{ij}}{\beta_i}\right) \bar{z}_{ij}$$

We have

$$\text{Rank}(AJ_i) = \text{Rank}(T_i) - \text{Rank}(\bar{x}) - \sum_j \text{Rank}\left(\frac{c_{ij}}{\beta_i}\right) \bar{z}_{ij} \quad [14]$$

It follows immediately that $\text{Rank}(AJ) \neq \text{Rank}(T)$ in general since the last term of equation [14] is not likely to be constant for each estimated CAPM regression. It is to be noted that contrary to the case of the simple CAPM, the adjusted Jensen alpha and the Treynor indexes do not produce identical rankings. Likewise, for a similar set of β_i 's for all i , the rankings of the Jensen and adjusted Jensen alpha are closely related. Note that the property of transitivity, however, does not apply in the augmented CAPM since the pairwise rankings of T_i and J_i or AJ_i do not converge consistently (Table 2) even for large portfolios.

TABLE 2

ANALYTICAL RANK CORRELATION BETWEEN PERFORMANCE MEASURES: AUGMENTED CAPM

	Sharpe Index S_i	Treynor Index T_i	Jensen Alpha J_i	Adjusted Jensen Alpha AJ_i
Sharpe Index S_i	1			
Treynor Index T_i	Rank (T_i) and Rank (S_i) are similar barring severe multicollinearity or an unstable beta	1		
Jensen Alpha J_i	Rank (J_i) \neq Rank (S_i)	Rank (J_i) \neq Rank (T_i) even for a similar beta and regardless of the portfolio size	1	
Adjusted Jensen Alpha AJ_i	Rank (AJ_i) \neq Rank (S_i)	Rank (AJ_i) \neq Rank (T_i) regardless of the portfolio size	Rank (AJ_i) \rightarrow Rank (J_i) for a set of similar β_i 's	1

CONCLUDING REMARKS

In this note, we first assume the validity of the single index CAPM. The CAPM remains the foundation of modern portfolio theory despite the challenge from fractal market hypothesis (Peters, 1991) and long memory (Lo, 1991). However, empirical results have revalidated the efficient market hypothesis and refute others (Coggins, 1998). Within this domain, we have examined analytically the relationship among the four performance indices without explicit statistical assumptions (e.g., normality). The Treynor and Sharpe indices produce similar rankings only for well-diversified portfolios. In its limiting case, as the portfolio size approaches the market size, the ranking of the Sharpe index becomes identical to the ranking of the Treynor index. The Jensen alpha generates very similar rankings as does the Treynor index only for a set of comparable portfolio betas. In general, the Jensen alpha produces different ranking than does the Treynor index. Furthermore, we have shown that the adjusted Jensen alpha has identical rankings to the Treynor index in the simple CAPM. However, in the case of an augmented CAPM with more than one independent variable, we found that (1) the Treynor index may be sensitive to the estimated value of the beta; (2) the Jensen alpha may not give similar rankings to the Treynor index even with a comparable set of portfolio betas; and (3) the adjusted Jensen alpha does not produce same rankings as that of the Treynor index. The potential difference in rankings in the augmented CAPM suggests that portfolio managers must exercise caution in evaluating these performance indices. Given the relationship among these four indices, it may be necessary in general to employ each of them (except the adjusted Jensen alpha and the Treynor index are identical in ranking in the simple CAPM) since they represent different measures to evaluate the performance of portfolio investments.

NOTES

¹We focus our analysis on the theoretical relationship among these indices in the framework of a true characteristic line. The statistical distributions of the returns (e.g., normal or log normal) from which the biases of these indices are derived and other statistical issues are discussed in detail by Chen and Lee (1981, 1986). We shall limit our analysis to a pure theoretical scenario where the statistical assumptions are not essential to our analysis. It is to be pointed out that the normality assumption of stock returns in general has not been validated in the literature.

²This condition is guaranteed if the portfolio y_i is identical to the market (x) or if n is equal to N . In this special case, if the portfolio is weighted according to market value weights, the portfolio is identical to the market so $\text{cov}(x, y_i) = \text{Var}(y_i) = \text{Var}(x)$.

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Innovation, Hedging Effectiveness, Exchange-Traded Funds and Leverage Exchange-Traded Funds

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ABSTRACT

Leverage exchange-traded fund (LETF) is an innovation of the financial markets and was first issued in United States (U.S.). Recently, LETFs are issued in Asia, such as Japan and Hong Kong. This paper examines how this new financial product affects the markets via comparing the performance of four ETFs and LETFs, respectively, in U.S., United Kingdom, Japan and Hong Kong. The study focuses on reviewing the hedging effectiveness of those eight ETFs or LETFs. The results show the hedging performance of LETFs generally overcomes ETFs, especially in Asian markets. This innovation from LETFs is believed to strengthen the market microstructure in Asia.

Keywords: Exchange-traded funds, Leverage exchange-traded fund, hedging

JEL classification: G14, G15.

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Rate of Return and Information Asymmetry around Multiple Restatement Firms

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ABSTRACT

In this paper we empirically examine the market reaction of multiple restatement announcements by exploring the various reaction dimensions in terms of short and long term market reactions as well as the market reaction by direction of restatement announcements. Our findings show that market does penalize the companies which make more than one restatement announcements. Further we look at pattern of information asymmetry in terms of spread behavior and find that spread widens before the restatement announcements.

Rate of Return and Information Asymmetry around Multiple Restatement Firms

Introduction:

The effective functioning of our capital markets is based on the timely and correct filing of financial reporting of publicly traded firms. Firms have to report their financial statements to the Securities Exchange Commission (and to the public) quarterly and as well as annually. When a firm announces financial restatement because of an accounting irregularity or misrepresentation, investors not only lose confidence but also change their future investments strategies. When a financial restatement is announced by a firm, it leads to a decrease in equity values thereby leading to a loss of investor's wealth (GAO, 2002). According to Levitt (2000), significant restatements of audited financial statements have resulted in losses to many investors due to a reduction in the market capitalizations. The empirical studies by Kinney and McDaniel (1989), Palmrose, Richardson and Scholz (2004), Dechow, Sloan and Sweeney (1996), report a negative market reaction of the restatement announcements. Sample used in previous studies have been very limited and results are mixed.

First comprehensive data on restatement announcements was published by GAO office which reports all the announcements between year 1997-2006. Both the reports yield information on 2705 restatement announcements for the period of 1997-2006. Out of 2705 restatement announcements, we find that 1680 announcements are single restatement announcements and 1025 are multiple restatement announcements. These 1025 announcements are reported by 441 companies. Past research adds all of them together and doesn't differentiate between single and multiple announcements. This is the first paper to study these multiple restatement firms' separately in terms of rate of return surrounding the announcement. We postulate that prior research overestimates/underestimate the abnormal return by not separating single restatement companies from multiple restatement companies. Further we study the multiple restatement announcements and its perceived resultant information asymmetry around the announcement day. We examine the pattern of information asymmetry for multiple restatement announcements in terms of bid-ask spread around the announcement day. Study of spread behavior around the corporate events has been performed in the past by Conrad and Niden (1992), Barclay and Smith (1988), Foster and Viswanathan (1994) and many others. Results from these prior studies show a mixed picture. While Conrad and Niden (1992) find weak evidence of spread widening around corporate information event, Barclay and Smith (1988) find an increase in spread during stock repurchases announcements. Palmrose, Richardson and Scholz (2004) do not find any significant proportionate change in bid-ask spread surrounding the financial restatement announcement day. Glosten and Milogrom (1985) report a widening of spread due to superior information of few traders with risk neutral market makers. They show that under the asymmetric information hypothesis, the relatively well-informed firm trade against the relatively uninformed specialists, which increases the specialist's bid-ask spread. However, in case of restatement announcements, announcements usually come unexpectedly as there is no anticipation, except in cases of the routine restatement announcements like acquisitions and accounting rule changes. Since the available literature suggests that the "announcements" of whatever kind do affect the bid-ask spread, it is pertinent for us to investigate if there is any effect of restatements, either expected or unexpected, on the spread.

In this study, we examine the effect of announcement and its perceived resultant information asymmetry around the financial restatement announcement for the companies with multiple financial restatements during our sample period

When a company announces restatement for the first time, the market reacts with economically and statistically significant negative returns. However, if the market doesn't penalize these companies, then there is no need for managers of multiple restatement companies to worry as there is no penalty for making the repetitive mistakes in terms of financial restatement announcements. Furthermore, the published empirical

studies report that the overall effect of restatement results in negative cumulative abnormal return, there must at least a few companies that will show just the opposite trend, that is, positive cumulative abnormal return. Thus, another purpose of this study is to separate the companies in terms of positive versus negative effect of announcement. In other words we examine the market reaction of restatement announcements by the direction of cumulative abnormal return. In the absence of any management prerogative or study providing the effect on the level and direction of the firm's performance due to restatement, we depend on the sign of cumulative abnormal return during the three-day window of -1 to +1.¹ Furthermore to explore the long term performance of these multiple restatement companies, we also examine the post announcement long term performance for 365 days after the announcement. Assuming that the market is efficient at least in the semi-strong form there shouldn't be any stock price drift for the multiple restatement companies in the long term.

Data and Methodology:

We obtain all the restatement announcements from GAO report published in 2003 and 2006. The GAO database focuses on financial restatements announcements due to accounting irregularities and excludes all restatement announcements due to regulatory changes like mergers and acquisitions, regulatory accounting policy change etc. The majority of the database is compiled using the Lexis-Nexis "Power Search" command and the "U.S. News, Combined" database, with the keyword of "restate", "restated", "restating" or "restatement" within 50 words of "financial statement" or "earnings". For each restatement announced, the database provides information on the date of the announcement, the reasons for the restatement, and the party who initiated the restatement. Database also provides the information regarding the prompters of restatement as well as reasons for restatement. We select all the companies that have made more than one restatement announcements during the period 1997-2006. We consider the first restatement announcement made by these multiple announcement firms which yields us 441 observations to perform our study. Due to limited availability of data, it is difficult to find the nature of restatements (upward and downward). We will depend on the sign of cumulative abnormal returns around the event date to find whether the restatement announcement had an upward or downward effect. First we use event study methodology with the announcement date being the restatement announcement day. The event study is performed as follows: For each announcement date, we compute the abnormal returns using the market model. where the market model is defined as:

$$R_{it} = \alpha_i + \beta_i R_{mt} + \varepsilon_{it}$$

where R_{it} and R_{mt} are respectively the rates of return of the i^{th} stock and the value weighted market index on day t . The error term ε_{it} is assumed to be uncorrelated random variable with expected value equals to zero and constant variance.

The abnormal return for stock i on day t is calculated as:

$$AR_{it} = R_{it} - (\hat{\alpha}_i + \hat{\beta}_i R_{mt})$$

where R_{mt} is the return on the value weighted index, AR_{it} is the abnormal return of firm i for day t . $\hat{\alpha}_i$ and $\hat{\beta}_i$ are ordinary least squares estimates of α_i and β_i , the regression parameters. The estimate of the

¹ For example, Ikenbery and Ramnath (2002) study the stock split announcements and find that in case of stock split, management does have discretion in determining the timing of corporate news announcement and good news(bad news) are met with positive(negative) market reaction in short term and positive abnormal drift (negative abnormal drift) in long term. In case of restatement there is not much management discretion is available and generally it is externally initiated.

parameters of market model $\hat{\alpha}_i$ and $\hat{\beta}_i$ is obtained from market model regression for -245 days prior to the event window. Event window is defined as 30 days before and after the event date. After computing the abnormal return we compute the cumulative abnormal return around the announcement return as:

$$CAR_{i(\tau,\nu)} = \sum_{e=\tau}^{\nu} AR_{it}$$

where τ, ν are the beginning and ending date of the event window respectively. Mean cumulative abnormal return (MCAR) is computed as:

$$MCAR_{\tau,\nu} = \frac{1}{n} \sum_{i=1}^n CAR_{i(\tau,\nu)}$$

where n is the number of stocks in our sample. Further to find significance of mean cumulative abnormal return, we use parametric as well as non-parametric tests. For parametric test we use the Patell's Z-statistic.

For information asymmetry we further obtain the intraday quote data from NYSE TAQ .Daily spread is calculated from intraday spread data as the average of spread for every quote reported during the days for each company. The intraday bid and ask values that are negative or equal to zero from is removed from our usable data. Furthermore, we also remove all the intraday quote data after the trading hours (after 4.00 P.M). We delete all those companies from our sample that do not have complete data set, that is, 31 days of spread data (event announcement day, 15 days before and 15 days after the announcement). All these filtering processes yield us samples of 311 companies. We use the techniques proposed by Chung and Charoenwong (1998) for the calculation of spread behaviour. This procedure assumes a naïve stochastic process for the inter temporal behavior of spreads as

$$SPREAD_{it} = \mu_i + \varepsilon_{it} \quad (1)$$

where $E(\varepsilon_{it}) = 0$ and $COV(\varepsilon_{it}, \varepsilon_{i,t-1}) = 0$ for all i and t.

The serially uncorrelated random stochastic term ε_{it} represents the abnormal component of spread and μ_i is the *ex ante* expected spread measured from the estimation period. The abnormal component of spread around the restatement announcement date is measured by subtracting an estimate of μ_i from the spread on and around the event day. We take the standard definition of the relative spread as follows.

$$SP_{it} = \frac{AP_{it} - BP_{it}}{(1/2)(AP_{it} + BP_{it})} \quad (2)$$

where AP_{it} and BP_{it} are respectively ask and bid prices of stock i at time t

The standardized abnormal spread of stock i on day t is calculated using the following formula:

$$SAS_{i,t} = \frac{(spread - \bar{x}_i)}{s_i} \quad (3)$$

where s_i and \bar{x}_i are respectively the sample standard deviation and the sample mean of spread of stock i in the estimation period. The average abnormal spread on day t is calculated by averaging the standardized

abnormal spread across all securities. Thus, $AAS_t = \sum_i SAS_{it} / N$, where N is the number of securities on that particular event day.

Following the conventional event study methodology, we compute CASs (cumulative average spreads) by summing the average abnormal spread across time. Thus, $CAS_\tau = \sum_\tau AAS_t$, where \sum_τ stands for summation over $t = \nu$ through τ . τ and ν are ending and beginning day of CAS calculation.

Obviously the standardized SAS_{it} will have a probability distribution with mean zero and variance 1. Defining average abnormal spread as $AAS_t = \sum_i SAS_{it} / N$, then by Central Limit theorem the statistic Z

defined as $\frac{AAS_t}{1/\sqrt{N}}$ or $AAS_t \cdot \sqrt{N}$ will follow a standard normal distribution. We calculate the significance of cumulative abnormal spread suggested by Chung and Charoenwong (1998) in their paper as:

$$Z_t = \frac{CAS_\tau}{\sqrt{(\tau - \nu + 1)}} \sqrt{N}$$

where N is number of stocks in the event sample, τ is the ending day for cumulative abnormal spread event window and ν is the beginning day for cumulative abnormal spread event window. For each firm we use a spread of 15 days before and 15 days after restatement announcement. Our estimation period is $t = -15$ to -6 and 6 to 15 with $t = 0$ is the day of the event. The event period is a total of ten days surrounding the event, i.e., $t = -5$ to 5 . We calculate the cumulative abnormal spread and its significance for different event windows to see the pattern of information asymmetry on the aggregate basis for all the event announcements samples separately.

Results and analysis:

First we investigate the effects of multiple restatement announcements on a short term basis. For the short term market reaction of multiple restatement announcements, we choose three different windows as $(-1, 0)$, $(-1, +1)$, $(0, 0)$.

Table 1, we present the mean cumulative abnormal return and Patell Z statistics along with p-values for our restatement announcement. For three days window of $(-1, +1)$, we find that when firms make the first announcement, the market penalizes the companies with statistically significant negative return of -5.88%. Our results from other windows also confirm our findings that market does penalize restatement announcements. In figure 1, we graph average abnormal and cumulative abnormal returns for our event sample against days. This figure shows the pattern of average abnormal as well as cumulative abnormal returns over a period of 60 days. Looking at the figure we find that from day -30 to -10, the graph of cumulative abnormal return is declining but at a slower pace. From day -10 to -2 it starts declining at a higher rate and there is a large drop from day -2 to +2 days. After day + 2, a cumulative abnormal returns remains highly negative but do not show any further decline or sign of improvement in positive direction. We find that on the event day $(0, 0)$ cumulative mean abnormal return decreases as the firms go for more restatement announcements. For the window $(-1, +1)$ we find the same results.

Further, we divide our samples by the direction of restatement. As the data for direction (upward revision/downward revision) of restatement announcements is not available, we depend on the sign of cumulative abnormal return from day -1 to day +1. When the cumulative abnormal return is negative, we

recognize them as downward (negative) restatement announcement and when the sign is positive, we recognize as upward (positive) restatements. In table 2, we present the results for restatement announcements for negative and positive direction. Our findings show that on the event day mean cumulative abnormal return is significant across all the announcement samples from -4.30% for event day which increases to -11.17% for 3 days window surrounding the event. Looking at all positive restatement announcement sample we find that on the event day mean cumulative abnormal return is 2.08% and goes up to 5.4% for 3 days window surrounding the event date. Overall we see that 260 events have negative and 122 events have a positive return meaning all the restatement announcements are not bad.

Further, we investigate our samples for long term performance. We feel motivated to see the pattern of abnormal return over the time horizon of 360 days after the announcement day. Table 3 presents the result for long term study for multiple restatement announcements. We select six different windows (0, +30) (0, +60) (0, +90) (0, +180) (0, +240) (0, +360) to find if there is any pattern in the mean cumulative abnormal return. For the first announcement, we find that the mean cumulative abnormal return remains negative and significant for 90 days after the announcement. For the window (0, +90) we find a negative mean cumulative abnormal return of -2.42% which is significant at 5% level. After 90 days abnormal return becomes positive and market doesn't penalize these companies if another announcement comes after 90 days.

After performing the event study in terms of rate of return we perform analysis of spread behavior surrounding the event. Table 4 presents the descriptive statistics of standardized abnormal spread for the announcement sample for the event day as well as five days before and after the event announcement day. For 311 firms we find that mean of standardized abnormal spread is positive for all days except 5 days after the event. We find that mean and standard deviation of standardized abnormal spread is wider on days -1 to +1 including the event day.

After the descriptive statistics we compute the average abnormal spread, cumulative abnormal spread and Z statistics for average abnormal spread for event day and 10 days surrounding the event day. Table 5 presents the results for the average abnormal spreads, cumulative abnormal spreads and Z statistics for average abnormal spread for first restatement announcement sample. In Figure 2, we graph the average abnormal spread and cumulative abnormal spread against the event and 10 days surrounding the event day. From the graph we can infer that there is a sharp rise in average abnormal spread from day -1 to 0 and sharp decline for windows (0,1), (1,2), (2,3). After day +4 average abnormal spread becomes negative from positive values. In examining table 5, the obtained values of average abnormal spreads, we find that average abnormal spread is significant from day -2 to -1 at 10% significance level (Z value 1.711 and 1.856 respectively) and becomes highly significant for event day and the following day at 1% significance level (Z values 6.44 for event day and 5.432 for day +1). Thus, on the basis of our results we find an element of informed trading on the event day, before the event day and a day after the event day.

Conclusion:

We empirically examine the market reaction of multiple restatement announcements by companies by grouping them on the basis of number of restatement announcements. We explore various reaction dimensions in terms of short and long term market reactions as well as the market reaction by direction of restatement announcements. Our results show that in the short term, market does penalize the companies which make more than one restatement announcements. Further, result for the long term show that market has a short memory and companies are not penalized for their repetitive mistakes in the form of multiple restatement announcements in the long term as well and after 90 days period, most of the companies start making positive profit.

Our results regarding pattern of information asymmetry clearly show that spread widens before the restatement announcements. Our findings are in line with previous findings in literature (Barclay and Smith

(1991), Foster and Viswnathan (1991) showing the widening of spread around information events announcements.

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Table 1: Abnormal return surrounding restatement announcements

This table shows the mean cumulative abnormal return and Patell Z statistics for all the multiple restatement companies when they make their first announcement. Mean cumulative abnormal return (MCAR) is computed as $MCAR_{\tau,\nu} = \frac{1}{n} \sum_{i=1}^n CAR_{i,(\tau,\nu)}$. Where $CAR_{i,(\tau,\nu)} = \sum_{e=\tau}^{\nu} AR_{it}$ and τ, ν are the beginning and ending date of the event window respectively.

Event Window	Number of firms	Mean cumulative abnormal return	Patell Z statistics	p-value
(-1,0)	382	-2.66%	-12.056	<.0001
(-1,+1)	382	-5.88%	-19.668	<.0001
(0,0)	380	-2.25%	-14.656	<.0001

Table 2: Abnormal return surrounding restatement announcements for negative/positive direction

This table shows the mean cumulative abnormal return and Patell Z statistics for all the restatement announcements for negative/positive direction. Negative/positive direction is decided on the basis of -1 to +1 days cumulative abnormal return. When CAR for -1 to +1 days is negative, restatement is considered negative direction and vice versa. Mean cumulative abnormal return (MCAR) is computed as

$MCAR_{\tau,\nu} = \frac{1}{n} \sum_{i=1}^n CAR_{i,(\tau,\nu)}$. Where $CAR_{i,(\tau,\nu)} = \sum_{e=\tau}^{\nu} AR_{it}$ and τ, ν are the beginning and ending date of the event window respectively.

Event Window	Number of firms	Mean cumulative abnormal return	Patell Z statistics	p-value
Negative direction				
(-1,0)	260	-5.61%	-20.009	<.0001
(-1,+1)	260	-11.17%	-30.846	<.0001
(0,0)	258	-4.30%	-22.356	<.0001
Positive direction				
(-1,0)	122	3.61%	7.821	<.0001
(-1,+1)	122	5.40%	10.235	<.0001
(0,0)	122	2.08%	6.588	<.0001

Table 3: Announcements and long term performance

This table shows the mean cumulative abnormal return and Patell Z for all the multiple restatement announcement companies in the long term. Mean cumulative abnormal return (MCAR) is computed as

$MCAR_{\tau,\nu} = \frac{1}{n} \sum_{i=1}^n CAR_{i,(\tau,\nu)}$. Where $CAR_{i,(\tau,\nu)} = \sum_{e=\tau}^{\nu} AR_{it}$ and τ, ν are the beginning and ending date of the event window respectively.

Event Window	Number of firms	Mean cumulative abnormal return	Patell Z statistics	p-value
(0,+30)	381	-3.72%	-4.349	<.0001
(0,+60)	381	-3.76%	-3.236	0.0012
(0,+90)	382	-2.42%	-1.976	0.0482
(0,+180)	382	0.32%	-1.889	0.0589
(0,+240)	382	5.33%	0.273	0.7846
(0,+360)	382	15.79%	3.499	0.0005

Table 4: Descriptive statistics for standardized spread and two sample t-test for the restatement announcement sample

This table provides the basic descriptive statistics of the standardized abnormal spread for the complete event period for standardized spread before and after the event announcement day. The standardized abnormal spread of stock i on day t is calculated using the following formula $SAS_{i,t} = \frac{(spread - \bar{x}_i)}{s_i}$ where s_i is the sample standard deviation and \bar{x}_i is the sample mean of spread of stock i in the estimation period.

Days	N	Mean	Standard Deviation	25 th percentile	Median	75 th percentile	Minimum	Maximum
-5	311	0.070	1.047	-0.607	-0.185	0.695	-2.011	4.287
-4	311	0.055	1.049	-0.642	-0.122	0.664	-4.065	6.098
-3	311	0.064	1.037	-0.649	-0.111	0.614	-2.354	4.356
-2	311	0.097	1.336	-0.697	-0.071	0.635	-2.528	12.130
-1	311	0.105	1.714	-0.672	-0.214	0.593	-3.642	21.268
0	311	0.365	2.049	-0.637	-0.074	0.893	-8.101	21.751
1	311	0.308	2.386	-0.660	-0.082	0.896	-7.672	29.582
2	311	0.071	1.152	-0.696	-0.170	0.593	-2.970	5.544
3	311	0.017	1.059	-0.693	-0.170	0.594	-2.027	4.686
4	311	0.018	0.965	-0.604	-0.188	0.537	-2.709	3.531
5	311	-0.090	1.126	-0.733	-0.209	0.520	-10.042	3.640

Table 5: Average abnormal spread (AAS), cumulative average spread (CAS), and Z- statistics

In this table, we present the average abnormal spread ($AAS_t = \sum_i SAS_{it} / N$ where SAS_{it} is the standardized abnormal spread of stock i on day t and N is the number of securities on that particular event day), the cumulative average spreads ($CAS_t = \sum_t AAS_t$, where \sum_t stands for summation over $t = \nu$ through τ), and the Z-statistics ($\frac{AAS_t}{1/\sqrt{N}}$ or $AAS_t \cdot \sqrt{N}$) for first event announcement sample. These values are presented for the whole event period (i.e., $t = -5$ to 5).

Days relative to first announcement Event Dates	Average Abnormal Spread (AAS)	Cumulative Average Spread (CAS)	Z = AAS*sqrt(N)
-5	0.070	0.070	1.235
-4	0.055	0.125	0.969
-3	0.064	0.189	1.126
-2	0.097	0.286	1.711*
-1	0.105	0.391	1.856*
0	0.365	0.756	6.444***
1	0.308	1.064	5.432***
2	0.071	1.136	1.260
3	0.017	1.153	0.298
4	0.018	1.170	0.312
5	-0.090	1.081	-1.585

Figure 1: Event average abnormal return and cumulative abnormal return.

This figure shows the average abnormal return and cumulative abnormal return for the event sample. Blue (solid) line represents the average abnormal return and broken line represents the cumulative abnormal return.

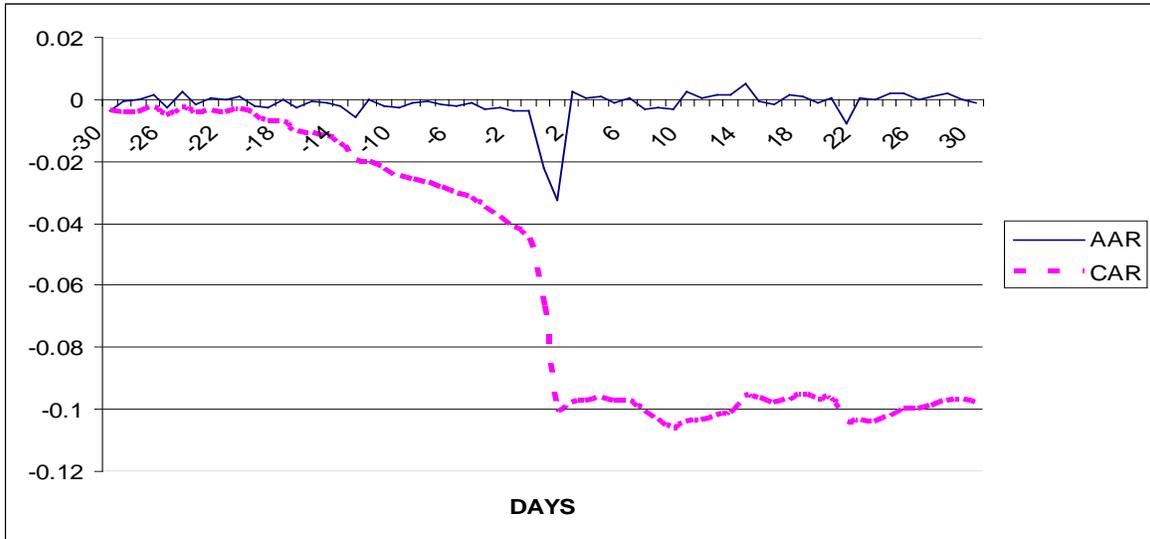
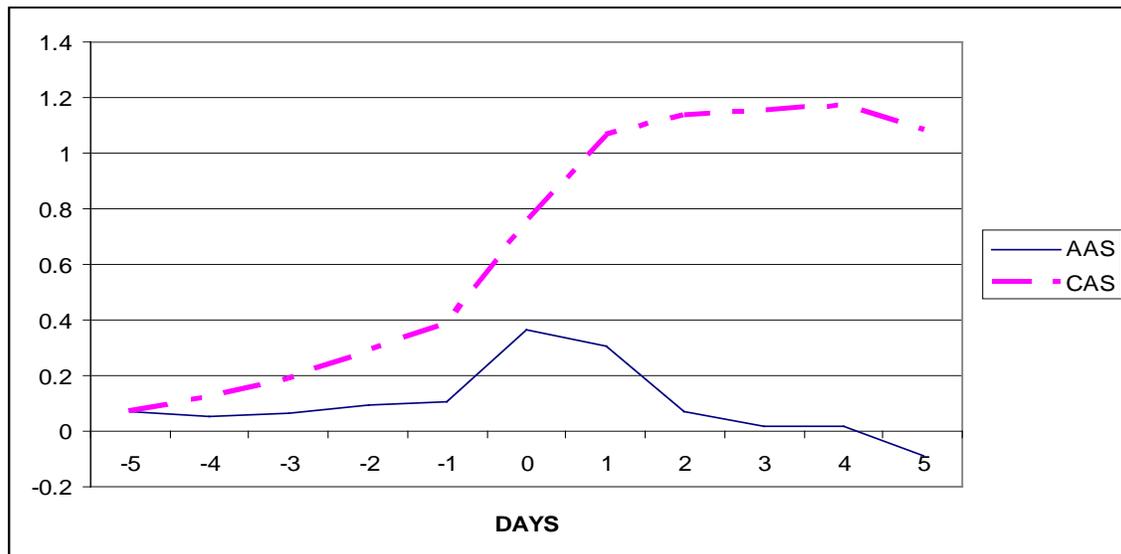


FIGURE 2: Average abnormal spread and cumulative abnormal spread around restatement announcements

This figure presents Average abnormal spread and cumulative abnormal spread around Restatement Announcements from day -5 to day 5.



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Causes and Consequences from Delisted Companies from MSE

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ABSTRACT

Several countries have been struggled to increase the numbers of public companies traded into their financial markets, there are no doubts about the economic benefits and growth potential. To attract investors into the economy authorities has improved how to trade into the Financial Markets and protect investors interest, most of them are according with the OECD standards and similar to the SAROX law, even so we explored the delisted companies from the Mexican Stock Exchange MSE and we tried to found a path for the last 20 years, our conclusions are around the financial and business culture, governance, globalization and law enforcement. Our study suggests several issues around how public companies in Mexico in terms of finance, governance, management and globalization patterns are affecting the MSE. The causes and consequences found in our study suggest new agenda for the financial authorities, financial institutions and public companies.

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R&D Announcement Returns, Corporate Governance, and Industry Competition

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ABSTRACT

Owing to information asymmetry and agency costs, outside investors are left with scarce information to judge whether R&D expenditures are properly used, and how creditable, profitable, and sustainable is associated with R&D announcements. From outside investors' perspective we investigate how corporate governance and industry competition effect on the announcement returns. The former dictates the credibility of an R&D announcement, while the latter implies the profitability and sustainability embedded in the announcement. Using 268 announcements released by 134 firms in the Taiwan stock market, we find the quality of corporate governance is positively correlated with R&D announcement returns and buy-and-hold returns. Moreover, industry competition, including intra- and inter-industry competition, drains the profitability and sustainability of R&D spending. Finally, we find R&D spending could be a creditable competitive weapon against the rival firms that are bounded by burdensome liability or insufficient internal funds.

Keywords: R&D Announcement, Corporate Governance, and Industry Competition

R&D Announcement Returns, Corporate Governance, and Industry Competition

1. Introduction

R&D investment is a major productive input in many firms, especially for those operate in the technology and science-based sectors. As compared to other capital and financial inputs, R&D investment is associated with several important dimensions related to information asymmetry. First, investors could derive little or no information about the productivity and value of a firm's R&D because some R&D projects are unique to the developing firms. Second, there are no organized markets for R&D and hence no asset prices from which to derive information. Third, the accounting reporting rules require that R&D is immediately expensed at disbursement so that investors could not find any information on value and productivity changes owing to R&D investment.

Another concern associated with R&D investment is the agency cost. Absent monitoring and bonding, corporate managers can and often make suboptimal investment decisions in order to maximize their own utility at the expense of shareholders. Consequently, one must also consider whether R&D expenditures are properly used, leading to better, cheaper, or innovative products or processes. It is necessary to distinguish firms which are expected to be effective and efficient in managing their assets from those which are not.

Since R&D activities are so important to the operations and profit potentials of high-tech firms while are left with scares public information for outside investors, it is intriguingly interesting to uncover the announcement effect of R&D investments given that outside investors concerns the risks from information asymmetry and agency cost. In this study we firstly include the quality of corporate governance into analysis and argue that it could effectively ameliorate investors' concerns of information asymmetry and agency costs. We therefore postulate that firms with good governance structure are associated with higher announcement returns.

The second issue being explored in this study is how intra- and inter-industry competitions effect on the announcement returns. The issue is motivated due to the concern that competitive interaction might affect the wealth of companies and the value of their shares when markets are preset to be less than complete or perfect. That is, the nature of industrial competition could possibly affect individual firms' share-price response to the announcement of new strategic initiatives. Of them, R&D is probably the most suitable instrument to be considered in play. According to the reasons proposed by Sundaram et al. (1996), R&D expenditures and their links to corporate governance mechanisms and managerial incentives attract considerable interest from many financial economists (e.g. Jensen, 1993). Moreover, R&D investment is related to spillover effect and technical change (e.g. Reinganum, 1989). We postulate that drastic intra- or inter-industry competition drains the monopolistic benefits of R&D investments.

In this study we use the competitive strategy measure (CSM) proposed by Sundaram et al. (1996) to capture intra-industry competition. A negative value of this measure indicates rival firms adopt accommodating competition with strategy substitutes. The announcing firms are therefore more likely to enjoy a higher benefit of the R&D investments. In contrast, a positive value of this measure indicates rival firms adopt tough competition with strategy complements. The announcing firms are therefore subject to the concern that the benefits derived from R&D spending are diluted due to rival's response. We therefore postulate that CSM is negatively correlated with the announcement returns.

Borrowing the measure of vertical relatedness and complementarity constructed by Fan and Lang (2000), we

construct corporate vertical relatedness (CVR) and corporate complementarity relatedness (CCR) to capture inter-industry competition. We assume that the firm with the highest vertical relatedness is the firm that is vertically related or vertically compete with the announcing firm. The firm with highest complementarity measure means that the firm procures input jointly or shares marketing and distribution with the announcing firm. With a high degree of overlap in the industry's input and output markets, two firms could compete across industries. Applying the same logic that competition drains monopolistic profits, we postulate both CVR and CCR are negatively correlated with the announcement returns.

Using the sample comprising 268 announcements released by 134 firms in the Taiwan stock market, we empirically test how corporate governance, intra-industry competition, and inter-industry competition affect R&D announcement effect and 1-year buy-and-hold returns. The empirical results basically support our postulations and could be easily summarized as follows. First, the quality of corporate governance, as manifested in a composite index that is summed from ten dummies covering ownership structure, board structure, and related-party transactions, is positively correlated with R&D announcement returns and buy-and-hold returns. Moreover, we find that industry competition drains the benefits of R&D spending. However, the negative impact of industry competition is stronger for intra-industry competition (CSM) than for inter-industry competition (CVR and CCR).

This study bears resemblance and complements the prior studies of R&D investments relating to the issues of corporate governance and industry competition. First, Chung, Wright, and Kedia (2003) use analyst following, board composition, and institutional holdings to proxy the announcing firm's corporate governance, and relate corporate governance to market valuation. In their investigation of the relation between corporate governance and R&D intensity, Dong and Gou (2009) use managerial discretion, independent outside directors, degree of share concentration, share held by the state, and share held by a manager to proxy the quality of corporate governance. We use a composite index instead that broadly covers variables in ownership structure, board structure, and related-party transactions, and find it is crucial in determining the market response. Regarding the literature of industry competition, Sundaram et al. (1996) firstly develop the competitive strategy measure. Kedia (2006) revise the measure to be able to correctly estimate the sign of the slope of the reaction function. We adopt the measure of Sundaram et al. (1996) and find a significantly negative relation between competitive strategy measure and R&D announcement returns. We note that our examination clearly identify rival firms against the announcing firms in the same industry so that the difference in announcement returns portrays the intra-industry rivalry. We borrow the vertical relatedness and complementarity that are developed by Fan and Lang (2000), and further revise these measures into corporate-level measures. Again, we use differences in announcement returns between announcing firms and rival firms to capture the net effect after taking account of inter-industry rivalry.

The potential contributions of this study are multifold. First, our investigation is based on outside investors' point of view. Investors do concern the credibility, profitability and sustainability of a firm's R&D announcement. The concern of credibility owing to the risks of information asymmetry and agency cost is ameliorated when the underlying firm is associated with a good governance structure. The concern of profitability and sustainability lies in the competitive structure within an industry and across industries. Second, we specifically identify the rival firm using the measures gauging intra- and inter-industry competition. In so doing, we are able to gauge the net announcement effect between the announcing firm and the rival firm. Third, we find that the effect of industry competition on the net market response becomes insignificant as the identification of rival firms becomes obscure. For example, the impact of industry competition is more significant for intra-industry rivalry than for inter-industry rivalry. The case of vertical relatedness is more significant than the case of complementarity. Finally, we find evidence that R&D spending could be a creditable competitive weapon against the rival firms that are bounded by liability or insufficient internal funds. The rest of this paper is organized as follows. Section 2 introduces the sample and variables. Section 3 reports the empirical results. Section 4 concludes.

2. The Sample

2.1. Source of the Sample

Our sample comprising firms that announced R&D investments in 2000-2009 was hand-collected from newspaper clips (including Economic Daily News, China Times, and United Daily News), websites, and the Market Observation Post System (an official information website). To avoid confounding effects in gauging firm value, we exclude firms that disclosed fundamental news 15 days before and 15 days after R&D announcements. Also excluded are firms that lack complete information on R&D expenditures or stock return data from the Taiwan Economic Journal (a data company in Taiwan), those that operate in the financial industry, and those that have been delisted from the Taiwan Stock Exchange. The effective sample comprises 268 announcements released by 134 firms.

Table 1 reports the summary statistics by industry (Panel A), year (Panel B), and times of announcements (Panel C). The number of announcements is highest in the semiconductor industry (76, 28.36%), followed by computer and peripherals (40, 14.93%), and Optoelectronics (26, 9.70%). The eight subcategories of the electronics industry represent 77.62% of the total number of announcements. This comes no surprise that the electronics industry is characterized as capital- and R&D-intensive industry and is therefore the focal point of this study. The yearly breakdown results shown in Panel B indicate that there is no specific clustering in certain years. In Panel C, the sample breakdown by number of announcements indicates the majority of firms (84, 62.69%) engaged in a one-shot R&D announcement during our sample period.

Table 1: Sample Distribution

This table reports the sample distribution of 268 R&D announcements made by 134 Taiwan non-financial listed firms in the sampling period from January 2000 to December 2009. Panel A reports the distribution by industry breakdown. Panel B reports the distribution by yearly breakdown. Panel C reports the distribution by times of announcements.

Panel A: By Industry		
Industry	No.	%
Foods	1	0.37
Plastic	4	1.49
Fiber and Textile	3	1.12
Electronic Machinery	6	2.24
Electronic Appliance and Cable	4	1.49
Chemistry	11	4.10
Biotechnology	18	6.72
Glass and Ceramics	2	0.75
Iron	1	0.37
Rubber	4	1.49
Automobile	1	0.37
Semiconductor	76	28.36
Computer and Peripherals	40	14.93
Optoelectronics	26	9.70
Communication	25	9.33
Electronic Component	22	8.21
Information Service	6	2.24
Other Electronics	13	4.85
Others	5	1.87
Total	268	100.00
Panel B: By Year		
Year	No.	%
2000	27	10.07
2001	47	17.54
2002	41	15.30
2003	34	12.69
2004	21	7.84
2005	22	8.21
2006	15	5.60
2007	17	6.34
2008	17	6.34
2009	27	10.07
	268	100.00
Panel C: By Times		
Times	No.	%
1	84	62.69
2	29	21.64
3	7	5.22
4	7	5.22
5 and above	7	5.22

2.2. The Variables

Table 2 reports the summary statistics of the variables. The first variable of interest is corporate governance. Referring to Gompers et al. (2003) and others¹, we construct an internal corporate governance index to cover the ownership structure, board structure, and related party transactions. The benefit of constructing this index is to avoid the confounding effect whereby different perspectives yield different predictions on quality of corporate governance and therefore on the overall impact on R&D announcement effect. The index used to capture overall governance quality is expected to be positively correlated with R&D announcement effect. Specifically, corporate governance index (CGI) is constructed by the summation of the following 10 dummies:

$$\begin{aligned}
 CGI = & D_{CFR} + D_{\text{cash/control}} + D_{\text{deviation}} + D_{\text{pledge}} + D_{\text{board_control}} + D_{\text{supervisory_control}} + \\
 & D_{\text{RPT_sales}} + D_{\text{RPT_purchase}} + D_{\text{RPT_loan}} + D_{\text{RPT_guarantee}}
 \end{aligned}
 \tag{1}$$

where D_{CFR} is assigned 1 when cash flow rights are higher than the sample median and 0 otherwise. $D_{\text{cash/control}}$ is assigned 1 when the cash/control is higher than the sample median and 0 otherwise. $D_{\text{deviation}}$ is assigned 1 when the control-cash deviation is lower than the sample median and 0 otherwise. D_{pledge} is assigned 1 when the percentage of controlling owner's shares pledged for bank loan is lower than sample median and 0 otherwise. $D_{\text{board_control}}$ is assigned 1 when percentage of board members being controlled by controlling owner is lower than the sample median and 0 otherwise. $D_{\text{supervisory_control}}$ is assigned 1 when the percentage of supervisors being controlled by controlling owner is lower than the sample median and 0 otherwise. $D_{\text{RPT_sales}}$ is assigned 1 when percentage of related-party sales is lower than the sample median and 0 otherwise. $D_{\text{RPT_purchase}}$ is assigned 1 when percentage of related-party purchase is lower than the sample median and 0 otherwise. $D_{\text{RPT_loan}}$ is assigned 1 when percentage of related-party loan is lower than the sample median and 0 otherwise. $D_{\text{RPT_guarantee}}$ is assigned 1 when percentage of related-party guarantee is lower than the sample median and 0 otherwise. The average score of corporate governance index is 5.19.

We use the competitive strategy measure (CSM) of Sundaram et al. (1996) to capture the intra-industry competition. The nature of competitive interaction affects the wealth of companies and the value of their shares. The announcement effect should be higher (lower) when the competitor adopts accommodating (tough) strategy. The measure is defined as the coefficient of correlation between: (i) ratio of change in firm's quarterly net income to change in firm's quarterly net sales ($\Delta\pi^f / \Delta S^f$) and (ii) change in the rest-of-industry's quarterly net sales (ΔS^c), over the period of 8 quarters prior to announcement quarter².

$$CSM = \text{corr}(\Delta\pi^f / \Delta S^f, \Delta S^c)
 \tag{2}$$

According to Sundaram et al. (1996), CSM could be negative or positive. The intra-industry competition

¹Focusing on shareholder rights protection, Gompers et al. (2003) construct an equally weighted index of 24 corporate governance provisions compiled by the Investor Responsibility Research Center (IRRC) covering matters such as poison pills, golden parachutes, classified boards, cumulative voting, and supermajority rules to approve mergers. They indicate that the quality of corporate governance has a positive impact on firm performance. In a similar vein, Bebchuk et al. (2004) recognize the difference in importance and potential redundancy among these 24 provisions and create an alternative entrenchment index comprising six provisions: four provisions that limit shareholder rights and two that make potential hostile takeovers more difficult. They find that a good governance structure is associated with better contemporaneous and subsequent operating performance.

² In Sundaram et al. (1996), the period of observations is 40 quarters. To avoid a large sacrifice of the sample, we use the data of prior 8 quarters instead.

among firms is defined as strategic substitutes (accommodating or complaisant competition) when the measure is negative and strategic complement (tough or aggressive competition) when the measure is positive. The average CSM is 0.01, indicating the average sample firm competes on the basis of strategic complement.

Other than intra-industry competition we also investigate how inter-industry competition effects on R&D announcement effect. We adopt the vertical relatedness measure and the complementarity relatedness measure put forth by Fan and Lang (2000) to capture the inter-industry competition. The industry vertical relatedness measures the degree to which a firm integrates forward and/or backward into its secondary segment(s), given its primary segment. We employ the input-output tables in Taiwan so as to capture (1)inter-industry and (2) intersegment (within a diversified firm) vertical relatedness. Specifically, two businesses are vertically related if one can employ the other's products or services as input for its own production or supply output as the other's input. The procedure for constructing the variables detailed in Fan and Lang (2000) entails three steps. First, a_{ij} denotesthe dollar value of i 's output required to produce industry j 's total output, and v_{ij} is a_{ij} divided by the dollar value of industry j 's total output, representing the dollar value of industry i 's output required to produce one dollar's worth of industry j 's output. Conversely, we divide a_{ji} by the dollar value of industry i 's total output to get v_{ji} , representing the dollar value of industry j 's output required to produce one dollar's worth of industry i 's output. We then take the average of the two input requirement coefficients to obtain the vertical relatedness coefficient of industries i and j ,

$$VR_{ij} = 1/2(v_{ij} + v_{ji}). \quad (3)$$

To obtain corporate vertical relatedness, the industry vertical relatedness is weighted by the firm's size in proportion to total size of the industry (S_i). The average CVR is 0.026.

$$CVR_{ij} = S_i * VR_{ij} \quad (4)$$

Corporate complementarity relatedness (CCR), referred to Fan and Lang (2000), is defined as

$$S_i * 1/2(\text{corr}(b_{ik}, b_{jk}) + \text{corr}(v_{ki}, v_{ki})) \quad (5)$$

where $\text{corr}(b_{ik}, b_{jk})$ denotesthe correlation coefficient of the output flows between industry i and j , and $\text{corr}(v_{ki}, v_{ki})$ denotes the correlation coefficient of the input flows between industry i and j . The average CCR is 0.027.

The cumulative abnormal returns in different windows (CAR(-5,5), CAR%(-1,0)) are calculated using standard event-study methodology where the weighted Taiwan Stock Index is used as a proxy for market returns, and the market model for 250 days prior to R&D announcement is used to gauge the parameters of alpha and beta. Day 0 is defined as the day on which the announcement appeared in a major publication. The prediction standard error for significance test is referred to Brown and Warner (1980). The average CAR (-5, 5) (CAR (-1, 0)) is 1.437% (0.936%), indicating that R&D announcements drew favorable appraisal by the market in general.

To capture the intra-industry and inter-industry competition, the R&D announcement effect is subtracted by the abnormal return of the industry competitor in the same observation windows. The competitor is chosen by the firm that did not announce R&D investment in the cohort year and has the highest competitive strategic measure (CSM), corporate vertical relatedness (CVR), and corporate complementarity relatedness (CCR) against the R&D announcing firm. For example, $\Delta CAR_{\text{CSM}}(-5,5)$ denotes the difference in abnormal return between R&D announcing firm and CSM-close competitor in the observation window (-5,5). A positive value indicates the announcing firm is associated with higher abnormal return than industry competitor that head-to-head competes with the announcing firm in the same industry. The average $\Delta CAR_{\text{CSM}}(-5,5)$, $\Delta CAR_{\text{CVR}}(-5,5)$, and $\Delta CAR_{\text{CCR}}(-5,5)$ are 1.240%, 2.263%, and 1.558%, respectively. The corresponding measures in the observation window of (-1,1) are 1.215%, 0.855%, and 0.836%, respectively.

The higher the value the more competitive advantages of the R&D announcing firm against the rival.

Other than the short-term announcement returns, we also trace the long-run performance by calculating the 1-year buy-and-hold returns of R&D announcing firms. The average buy-and-hold return of R&D announcing firms is merely 0.021%. The returns turn out to be negative when adjusted by industry peers being selected by the criteria of CSM, CVR, and CCR. The average $\Delta\text{BHAR}_{\text{CSM}}$, $\Delta\text{BHAR}_{\text{CVR}}$, and $\Delta\text{BHAR}_{\text{CCR}}$ are -0.042%, -0.136%, and -0.158%, respectively. The overall result indicates that R&D announcement is in general favorably appraised by the market in short run. However, as the passage of time the announcing firms fail to demonstrate superior performance compared to their head-to-head competitors and therefore are associated with lowered buy-and-hold returns.

Prior studies illustrate other variables that might effect on the announcement effect of R&D announcements. We include them as control variables in this study. First, industry R&D intensity, which is discussed by Kelm, Narayanan, and Pinches (1995), is calculated as the three-year industry averaged R&D expenditure divided by the industry averaged net sales. On average, industry R&D expenditure amounts to 0.537% of total sales. Firm R&D intensity (FRI) is the underlying firm's three-year R&D expenditure divided by its corresponding net sales. On average, the firm's R&D intensity is 2.237%. Industry concentration (IC), as discussed in Kelm et al. (1995), denotes the sum of the top four companies' sales in proportion to the total sales of that industry. The average industry concentration is 0.538%. Market share (MS) being defined as the ratio of firm's sales in proportion to total industry sales is 6.989% on average. Net income (NI), the net income in million NT dollars in the year of R&D announcement, is 4.90 billion NTD. Firm size (FS), the natural logarithm of book assets, is 16.78 on average. The average age of the sampling firms is 27.48 years since their inception. Debt ratio (DR) is total debt divided by total assets. The average debt ratio is 34.52%. Export ratio (ER), being defined as the proportion of foreign sales, is 60.17% on average. Tobin's Q, referred to Chung and Pruitt (1994), is calculated as the sum of market value of equity, market value of preferred stocks, total debt divided by total assets. The average Q is 0.762.

We also calculate the competitor's debt ratio because R&D announcement could be deemed as a competitive strategy if the rival is confined with limited debt capacity and could not cope with the announcement in launching a R&D investment. If this is the case, the announcing firm could enjoy the total benefit of R&D investment without being shared by competitors. The average competitor's debt ratio is 43.85%, which is higher than the average debt ratio of R&D announcing firms. The strategy could also be effective if the competitor is short of cash flows. We also calculate the competitor's free cash flows (CFCF), being defined as the earnings before depreciation minus taxes, interest, preferred dividend, and cash dividend divided by beginning total assets, and find that the average free cash flow of the competitor is 0.11%.

Table 2: Summary Statistics

CGI denotes corporate governance index which is constructed by the summation of the following dummies: board control (being assigned 1 when the percentage of board seats controlled by controlling owner is lower than the sample median and 0 otherwise), supervisory control (being assigned 1 when the percentage of supervisory board controlled by controlling owner is lower than sample median and 0 otherwise), control-cash deviation (being assigned 1 when the deviation between the controlling owner's control rights and the cash flow rights is lower than sample median and 0 otherwise), pledge ratio (being assigned 1 when the controlling owner's percentage of shares pledge for bank loan is lower than sample median and 0 otherwise), related-party sales (being assigned 1 when related party sales is lower than the sample median and 0 otherwise), related-party purchase (being assigned 1 when the level of related purchase is lower than sample median and 0 otherwise), related party loan (being assigned 1 when the level of related loan is lower than sample median and 0 otherwise), related party guarantee (being assigned 1 when the level of related party guarantee is lower than sample median and 0 otherwise), cash flow rights (being assigned 1 when the controlling owner's cash flow rights are higher than the sample median and 0 otherwise), and cash/control (being assigned 1 when the ratio of cash flow rights to control rights is higher than sample median and 0 otherwise). In total, CGI is constructed by the summation of the ten dummies. Competitive strategy measure

(CSM), according to Sundaram et al. (1996), is defined as the coefficient of correlation between: (i) ratio of change in firm's quarterly net income to change in firm's quarterly net sales ($\Delta\pi^f / \Delta S^f$) and (ii) change in the rest-of-industry's quarterly net sales (ΔS^c), over the period of 40 quarters prior to announcement quarter. Corporate vertical relation (CVR), referred to Fan and Lang (2000), is defined as $S_i^* / (1/2(v_{ij} + v_{ji}))$, where S_i denotes the firm's size in proportion to total size of the industry, v_{ij} (v_{ji}) denotes the dollar value of i 's (j 's) output required to produce industry j 's (i 's) total output divided by the dollar value of industry j 's (i 's) output. Corporate complementarity relation (CCR), referred to Fan and Lang (2000), is defined as $S_i^* / 2(\text{corr}(b_{ik}, b_{jk}) + \text{corr}(v_{ki}, v_{ki}))$, where $\text{corr}(b_{ik}, b_{jk})$ denotes the correlation coefficient of the output flows between industry i and j , and $\text{corr}(v_{ki}, v_{ki})$ denotes the correlation coefficient of the input flows between industry i and j . The cumulative abnormal returns in different windows (CAR(-5,5), CAR%(-1,0)) are calculated using standard event-study methodology where the weighted Taiwan Stock Index is used as a proxy for market returns, and the market model for 250 days prior to R&D announcement is used to gauge the parameters of alpha and beta. $\Delta \text{CAR}_i(-5,5)$ denote the abnormal return of R&D announcing firm after deducting the corresponding abnormal return of the comparable firm i that does not announce R&D expenditure in the cohort year while is close in CSM, CVR, and CCR, respectively. ΔBHAR denotes 1-year buy-and-hold return of R&D announcing firm after deducting the corresponding buy-and-hold return of the comparable firm i that does not announce R&D expenditure in the cohort year while is close in CSM, CVR, and CCR, respectively. Industry R&D intensity (IRI), referred to Kelm, Narayanan, and Pinches (1995), is calculated as the three-year industry averaged R&D expenditure divided by the industry averaged net sales. Firm R&D intensity (FRI) is defined as the ratio of the three-year average of firm R&D intensity to three-year average industry R&D intensity. Industry concentration (IC), as discussed in Kelm et al. (1995), denotes the sum of the top four companies' sales in proportion to the total sales of that industry. Market share (MS) is defined as the ratio of firm's sales in proportion to total industry sales. Net income (NI) is the net income in million NT dollars in the year of R&D announcement. Firm size (FS) is the natural logarithm of book assets. Age is the firm's years in duration since its inception. Debt ratio (DR) is total debt divided by total assets. Export ratio (ER) is the proportion of foreign sales. Tobin's Q(Q), referred to Chung and Pruitt (1994), is calculated as the sum of market value of equity, market value of preferred stocks, total debt divided by total assets. Competitor's debt ratio (CDR) is the debt ratio of the matching firm in the same industry, approximate in size, and did not have R&D announcement in the cohort year. Competitor's free cash flows (CFCF) is defined as the earnings before depreciation minus taxes, interest, preferred dividend, and cash dividend divided by beginning total assets of industry peer that is in the same industry and approximate in size.

	No.	Mean	Q1	Q2	Q3	S.D.
CGI	268	5.190	4.000	6.000	7.000	2.231
CSM	259	0.010	-0.134	0.019	0.167	0.303
CVR	261	0.026	0.002	0.010	0.041	0.033
CCR	261	0.027	0.002	0.011	0.042	0.034
CAR(-5,5)	268	1.437	-5.468	1.044	7.076	11.762
CAR(-1,0)	268	0.936	-2.223	0.006	4.066	5.056
$\Delta \text{CAR}_{\text{CSM}}(-5,5)$	228	1.240	-4.962	0.408	7.290	11.306
$\Delta \text{CAR}_{\text{CSM}}(-1,0)$	228	1.215	-1.514	0.945	4.173	4.693
$\Delta \text{CAR}_{\text{CVR}}(-5,5)$	243	2.263	-4.755	1.892	8.304	12.299
$\Delta \text{CAR}_{\text{CVR}}(-1,0)$	243	0.855	-1.628	0.510	3.456	5.277
$\Delta \text{CAR}_{\text{CCR}}(-5,5)$	225	1.558	-5.621	1.524	8.096	12.402
$\Delta \text{CAR}_{\text{CCR}}(-1,0)$	225	0.836	-2.372	0.661	3.936	5.530
BHAR	268	0.021	-0.258	-0.034	0.244	0.431
$\Delta \text{BHAR}_{\text{CSM}}$	234	-0.042	-0.276	-0.039	0.231	0.490
$\Delta \text{BHAR}_{\text{CVR}}$	248	-0.136	-0.391	-0.108	0.166	0.556
$\Delta \text{BHAR}_{\text{CCR}}$	237	-0.158	-0.430	-0.132	0.146	0.567
IRI (%)	268	0.537	0.018	0.043	0.083	1.130
FRI (%)	268	2.237	0.841	1.538	2.517	2.622

IC (%)	268	0.538	0.432	0.526	0.591	0.148
MS (%)	268	6.989	0.868	3.168	11.697	8.491
NI (in million NTD)	268	4,897.465	102.491	444.628	4,254.751	13,190.883
FS	268	16.784	15.280	16.611	18.386	1.874
Age (years)	268	27.478	20.250	26.000	33.750	10.709
DR (%)	268	34.524	24.223	33.380	43.885	13.587
ER (%)	268	60.173	44.913	63.290	85.528	29.570
Q	268	0.762	0.651	0.759	0.830	0.293
CDR (%)	259	43.848	31.010	45.580	52.750	17.541
CFCF	259	0.110	0.055	0.102	0.173	0.010

3. Empirical Results

In Table 3 we conduct test in differences of the key variables including corporate governance index (panel A), CSM (panel B), CVR (panel C), and CCR (panel C). The sample is divided into halves based on the sample medians of the variables. In panel A we find that high-CGI firms are associated with higher announcement returns and buy-and-hold returns than low-CGI firms. For example, the average CAR (-5, 5) of 3.511% for high-CGI firms is significantly higher than that of -0.669% for low-CGI firms. This is consistent with hypothesis 1 indicating that firms with good quality of corporate governance are more likely to be favorably appraised by the market that the R&D investment is value enhancing and therefore are associated with higher announcement returns. Good-governance firms tend to outperform poor-governance firms as to show that the buy-and-hold return of the former (0.07%) is significantly higher than that of the latter (-0.064%).

In panel B we find that firms with negative CSM are associated with higher announcement returns than firms with positive CSM. Firms with negative CSM indicate that the rivals adopt accommodating competition so that the R&D announcing firms could solely enjoy the benefit of R&D. In contrast, positive CSM indicates that rival firms are active and tough in responding to the firm's R&D investment. Fierce competition among rivals would result in lower expected benefits associated with R&D investments and therefore lower announcement returns. The result is consistent with hypothesis 2 that the announcement returns of firms with negative CSM is higher than those of firms with positive CSM. For example, the average CAR (-1,0) of firms with negative CSM (2.136%) is higher than that of firms with positive CSM (0.678%).

However, we find the opposite for 1-year buy-and-hold returns of firms with positive CSM (0.063%) outperform those of firms with negative CSM (-0.104%). A possible reconciliation between short-term announcement returns and the long-run buy-and-hold returns is that firms with negative CSM, implying that rival firms are relatively passive, could enjoy the benefit of R&D investments. However, they might overinvest to their suboptimal level so that the long-run performance deteriorates. Another possibility is that a firm in an industry with negative CSM implies the growth potentials of this industry is less promising. Rival firms are therefore less active to tag along with R&D announcements. R&D announcing firms with negative CSM therefore might enjoy higher short-run announcement returns while the investments incur wealth losses in the long run.

In panel C and D we investigate how inter-industry competition effects on the R&D announcement returns. We find that firms with low CVR and CCR are associated with higher announcement returns than firms with high CVR and CCR, respectively. Low CVR implies that firms are less related to use products or services as input for their own production or supply output as the other's input. Low CCR implies firms are less engaged in procuring input jointly or sharing marketing and distribution with other complementary firms. The result therefore indicates that firms less vertically or horizontally related to inter-industry counterparts might solely enjoy the benefit of R&D investments and therefore are associated with higher announcement returns. The difference of 1-year buy-and-hold returns between high versus low CVR (CCR) firms are insignificant. The overall result seems to support the argument that investors attach a higher valuation upon firms that operate

in an industry that less drastically compete with peer firms that operate either in the same industry or in different industries.

Table 3: Test in Differences

This table reports the test in differences of cumulative abnormal returns and 1-year buy-and-hold returns between high-CGI and low-CGI R&D announcing firms. CGI is defined in Table 2. ***, **, and * denote the significance level of 1%, 5%, and 10%, respectively.

		CAR(-5,5)		CAR(-1,0)		BHR	
		Mean (t-value)	t-value	Mean (t-value)	t-value	Mean (t-value)	t-value
Panel A: by CGI							
CGI	High	3.511 (3.359)***	(4.346)***	1.370 (3.285)***	(1.725)*	0.070 (1.866)*	(2.667)***
	Low	-0.669 (-0.700)		0.746 (1.866)*		-0.064 (-1.886)*	
Panel B: by CSM							
CSM	>0	1.392 (1.706)*	(-1.786)*	0.678 (1.845)*	(-2.001)**	0.063 (1.806)*	(2.740)***
	<0	4.522 (3.990)***		2.136 (4.199)***		-0.104 (-1.924)*	
Panel C: by CVR							
CVR	High	0.554 (0.657)	(-2.465)***	0.402 (1.050)	(-1.098)	-0.156 (-3.189)***	(-0.600)
	Low	3.985 (3.013)***		1.312 (2.352)**		-0.117 (-2.298)**	
Panel D: by CCR							
CCR	High	0.231 (0.230)	(-2.219)**	0.130 (0.283)	(-1.689)*	-0.137 (-2.840)***	(0.237)
	Low	3.130 (2.321)**		1.672 (2.860)***		-0.180 (-3.190)***	

Before conducting regression analysis, we conduct Pearson correlation of the variables and calculate the variance inflation factors for each variable so as to ensure the estimated regression coefficients would be not affected by severe multicollinearity. An unreported result shows that except for some variables (e.g. net income, firm size, and market shares) most variables are not significantly correlated. All variance inflation factors are below 3. In Table 4 we conduct regression analysis. The announcement returns and buy-and-hold returns are regressed on corporate governance index and other control variables. The results show that corporate governance index is positively correlated with the announcement returns and 1-year buy-and-hold returns. Again, this is consistent with hypothesis 1 that firms with good governance structure are more likely to be perceived by the market of a value-enhancing R&D investment and therefore higher announcement returns. Moreover, we find that industry R&D intensity (IRI) is negatively correlated with the announcement returns.

Industry R&D intensity is often taken as an indicator of the technological opportunity in an environment (Comanor, 1967; Foster, 1982; Hambrick and MacMillan, 1985; Link and Long, 1981; Phillips, 1966). However, its effect on R&D announcement returns depends on the market stages. The effect is expected to be smaller when market is during the stage of commercialization and larger when market is during the stage of innovation (Kelm et al., 1995). The negative correlation between announcement returns and industry R&D intensity implies that most firms in our sample are in the industries during the stage of commercialization rather than innovation. The R&D announcements either have been expected by the market before the

announcement or are perceived by the market to be less effective in creating value.

Similarly, the announcement effect is also dictated by the firm's technological capability. Firms that continually outspend their rivals in R&D may have greater technological capability; they may innovate more but also enjoy the benefits of any economies of scale inherent in the R&D process (Burgelman & Maidique, 1989). However, the R&D announcements by these firms carry less information for the stock markets, and hence may create smaller wealth effects. We use relative firm's R&D intensity (FRI) being defined as the ratio of the three-year average of firm R&D intensity to three-year average industry R&D intensity to capture firm's technological capability, and expect to find a negative relation between FRI and announcement returns. The result is insignificant.

We also include the market-related variables in the analysis. Industry concentration (IC), being defined as the sum of top four companies' sales in proportion to the total sales of that industry, is to measure the degree to which product markets are dominated by a small number of firms and is often employed to operationally define appropriability. Intuitively, the benefits arising from R&D efforts must be positively associated with market concentration. However, the empirical evidence mixed (cf. Kamien & Schwartz, 1982). Some evidence suggests that relationship holds true in the case of R&D expenditures (Doukas & Switzer, 1992), but other findings suggest that when R&D intensity is controlled, industry concentration does not matter (Chaney al, 1991).

The result in Table 4 shows that industry concentration is significantly negatively correlated with CAR (-5, 5). We surmise that the result is due to the fact that oligopolistic market structure tends to be associated with drastic market competition that reduces managerial incentives to exert effort and therefore reduces value (Griffith, 2001). Moreover, Beiner et al. (2006) indicate that intensive product market competition is associated with a stronger incentive scheme for managers and that lowers firm value. Another possibility is that if firms intensively compete, an R&D announcement tends to trigger rival firm's follow-on announcement, and that dilute the benefit associated with R&D announcements. This argument is consistent with hypothesis 2 and 3 that intensive intra- or inter-industry competition drains the benefit of R&D investment.

We also include firm's characteristics including market share, net income, firm size, age, debt ratio, and export ratio in the regression analysis. The result shows that firm size is positively correlated with the buy-and-hold return. This might be related to the argument put forth by Schumpeter (1961) that large firms are more innovative than small firms. However, we argue that firm size may be negatively correlated with announcement return due to following reasons. First, Porter (1980) suggests that firms that are not market leaders need to develop niche strategies to serve specific needs in a market. Accordingly, new products should be more highly valued for small firms than for large firms (Chaney et al., 1991). Moreover, large firms' new product introductions may carry less unanticipated information than those of small firms. The result in Table 4 indicates that firm size is negatively correlated with the announcement returns, albeit insignificant.

Table 4: Regression Analysis- CGI

This table reports the regression analysis of CAR and BHAR on CGI and other control variables. All variables are defined in Table 2. In each cell the regression coefficient and t-statistics in parentheses are reported in the upper and lower case. ***, **, and * denote the significance level of 1%, 5%, and 10%, respectively.

	CAR(-5,5) (N=268)	CAR(-1,0) (N=261)	BHAR _{CGI} (N=264)
Intercept	13.962 (0.207)	-1.033 (0.822)	-0.686 (0.081)*
CGI	0.744 (0.031)**	0.296 (0.038)**	0.025 (0.045)**
IRI(%)	-1.594 (0.044)**	-0.415 (0.240)	0.007 (0.808)
FRI(%)	-0.036 (0.915)	0.038 (0.787)	0.011 (0.327)
IC(%)	-12.710 (0.015)**	-1.426 (0.505)	-0.003 (0.985)
MS(%)	-0.138 (0.367)	0.004 (0.952)	-0.007 (0.178)
NI	0.001 (0.447)	-0.000 (0.570)	0.000 (0.312)
FS	-0.428 (0.476)	-0.064 (0.794)	0.037 (0.078)*
Age	0.092 (0.216)	0.058 (0.059)*	0.001 (0.572)
DR(%)	0.047 (0.456)	0.017 (0.520)	-0.003 (0.143)
ER(%)	-0.039 (0.164)	0.015 (0.201)	0.000 (0.794)
Tobin's Q	-3.402 (0.249)	-0.979 (0.417)	-0.003 (0.974)
Adjusted R ²	0.051	0.014	0.013

In Table 5 we investigate how intra-industry competition affects the R&D announcement returns and buy-and-hold returns. To implement the test, we conduct level-to-change regression. Specifically, the dependent variables are $\Delta CAR_{CSM}(-5,5)$, $\Delta CAR_{CSM}(-1,0)$ and $\Delta BHAR_{CSM}$. $\Delta CAR_{CSM}(-5,5)$ is defined as the abnormal return of R&D announcing firm after deducting the corresponding abnormal return of the comparable firm that does not announce R&D expenditure in the cohort year while is close in CSM. In so doing we are able to capture inter-industry rivalry and difference in market response. The results in Table 5 indicate that CSM is negatively correlated with $\Delta CAR_{CSM}(-5,5)$ and $\Delta CAR_{CSM}(-1,0)$, indicating the R&D investment is perceived by the market to carry less profitable information if the firm confronts with intensive inter-industry competition. Moreover, the negative relation between IRI and $\Delta CAR_{CSM}(-5,5)$ and the negative relation between FRI and $\Delta CAR_{CSM}(-1,0)$ are consistent with prior finding that the difference in announcement effect is smaller when the industry's R&D is intensive and the underlying firm overspend its R&D investment. The result also shows that firm size is negatively correlated with $\Delta CAR_{CSM}(-1,0)$, indicating that large firms' new product introductions carry less unanticipated information than those of small firms.

We find that Tobin's Q is negatively correlated with $\Delta CAR_{CSM}(-5,5)$ and $\Delta BHAR_{CSM}$. This could be understood that firms with high growth potentials carry less information content when additional launching an R&D investment. From alternative perspective, the margin benefit for firms with high Q is expected to be

smaller than that for firms with low Q.

In the model we also include the variables of comparable firms so as to capture intra-industry competition among firms. The variables of interest and carrying strategic implications are the competitor's debt ratio (CDR) and free cash flow (CFCF). It is reasonable to postulate that firms are more likely to solely enjoy the benefit of R&D investment when the competitor being confined with insufficient internal funds or costly external financial sources is unable to tag along another R&D announcement. The signal of R&D announcement is therefore creditable in that the strategic move is warranted when the rival is unable to instantly respond to. The result shows that competitor's debt ratio is negatively correlated with $\Delta CAR_{CSM}(-5,5)$ (-5.5). That is, the R&D announcing firm enjoy a higher announcement return than its rival which is restricted by debt capacity.

Table 5: Regression Analysis- CSM

This table reports the regression analysis of CAR and BHAR on CSM and other control variables. All variables are defined in Table 2. In each cell the regression coefficient and t-statistics in parentheses are reported in the upper and lower case. ***, **, and * denote the significance level of 1%, 5%, and 10%, respectively.

	$\Delta CAR_{CSM}(-5,5)$ (N=218)	$\Delta CAR_{CSM}(-1,0)$ (N=220)	$\Delta BHAR_{CSM}$ (N=227)
Intercept	5.470 (0.606)	12.116 (0.012)**	0.445 (0.316)
CSM	-4.162 (0.095)*	-1.903 (0.085)*	-0.080 (0.457)
IRI(%)	-1.609 (0.049)**	0.006 (0.984)	-0.023 (0.475)
FRI(%)	-0.066 (0.855)	-0.291 (0.043)**	0.005 (0.734)
IC(%)	3.083 (0.568)	-2.488 (0.272)	-0.227 (0.311)
MS(%)	-0.118 (0.437)	0.021 (0.743)	-0.001 (0.905)
NI	0.000 (0.707)	0.000 (0.560)	0.000 (0.641)
FS	-0.363 (0.536)	-0.514 (0.035)**	-0.015 (0.531)
Age	0.132 (0.080)*	0.056 (0.073)*	-0.002 (0.577)
DR(%)	0.049 (0.459)	0.008 (0.770)	0.000 (0.970)
ER(%)	0.008 (0.771)	0.004 (0.739)	0.003 (0.035)**
Tobin's Q	-9.920 (0.001)***	-1.030 (0.643)	-0.261 (0.035)**
CDR(%)	0.092 (0.059)*	-0.027 (0.187)	0.000 (0.954)
CFCF	4.877 (0.609)	-3.225 (0.411)	0.052 (0.890)
Adjusted R ²	0.071	0.035	0.030

In Table 6 and 7 we investigate how inter-industry competition effect the announcement returns. In Table 6

(Table 7) we focus on the rivalry with competitors that are vertically related (complementarily related) to the R&D announcing firms. Again, we choose the comparable firm that is with the highest CVR (CCR) with the R&D announcing firm. The abnormal return of the comparable firm assuming it had made an R&D announcement in the same period serves as the benchmark for the R&D announcing firm. The difference of return, being included in the regression analysis, captures the net announcement effect after taking account of the inter-industry rivalry. The result in Table 6 indicates that CVR is negatively correlated with $\Delta CAR_{CSM}(-5,5)$, implying that higher vertical relatedness results in a dilution of the net announcement effect. That is, comparable firms that are vertically correlated with the R&D announcing firms might enjoy the spillover effect so that the announcement effect of the R&D investment is lowered.

Industry R&D intensity is negatively correlated with $\Delta CAR_{CSM}(-5,5)$ and $\Delta CAR_{CSM}(-1, 0)$, implying the spillover effect of an industry's R&D investment to its upstream or downstream counterparts. In contrast, the effect of relative firm's R&D intensity is insignificant. And, industry R&D intensity and relative firm's R&D intensity are both insignificant in the investigation of complementarity relatedness (Table 7). The result implies that the spillover effect of an R&D investment is retarded by the decrease in industry relatedness, assuming it is highest for CSM, followed by CVR and CVR. It is also consistent with our common knowledge that it is easier to identify a rival firm in the same industry than in the different industries. Moreover, it is easier to find out a vertically related firm than a complementary firm. An easy identification of a rival firm means that investors could more possibly have an instant response to the impact of R&D on the announcing firm and the rival firm, and therefore a gauge of the net announcement effect.

The rest results in Table 6 and 7 are qualitative similar to those in Table 5. For example, age is positively correlated with the differences in the R&D announcement returns, indicating that announcing firms with long-tracing record are less subjected to the concern of information asymmetry and therefore are associated with a higher announcement return. Moreover, high-q firms have lower announcement returns in that the market has factored the growth potentials into current market price. The announcement therefore carries less information content and therefore a lower announcement return. Again, we find that R&D could be a competitive weapon. The evidence is found in the negative correlation between the competitor's debt ratio (CDR) and $\Delta CAR_{CSM}(-5,5)$ (Table 6) and in the positive correlation between competitor's free cash flow (CFCF) and $\Delta BHAR_{CCR}$ (Table 7). That is, when the rival firm is more financially restricted, the announcing firm is more likely to enjoy the benefit of R&D investment without worrying the rival firm's retaliation or mimicry.

Table 6: Regression Analysis- CVR

This table reports the regression analysis of CAR and BHAR on CVR and other control variables. All variables are defined in Table 2. In each cell the regression coefficient and t-statistics in parentheses are reported in the upper and lower case. ***, **, and * denote the significance level of 1%, 5%, and 10%, respectively.

	$\Delta \text{CAR}_{\text{CVR}}(-5,5)$ (N=238)	$\Delta \text{CAR}_{\text{CVR}}(-1,0)$ (N=233)	$\Delta \text{BHAR}_{\text{CVR}}$ (N=233)
Intercept	1.547 (0.899)	4.160 (0.421)	0.209 (0.625)
CVR	-117.254 (0.040)**	-33.391 (0.171)	-2.961 (0.149)
IRI(%)	-1.387 (0.088)*	-0.905 (0.023)**	0.005 (0.870)
FRI(%)	0.180 (0.631)	0.178 (0.316)	-0.003 (0.843)
IC(%)	-3.292 (0.559)	-7.941 (0.001)***	0.200 (0.301)
MS(%)	0.205 (0.368)	0.079 (0.417)	0.011 (0.173)
NI	-0.000 (0.834)	0.000 (0.988)	0.000 (0.409)
FS	0.182 (0.794)	-0.057 (0.847)	-0.028 (0.256)
Age	0.165 (0.048)**	0.100 (0.005)***	0.000 (0.958)
DR(%)	-0.062 (0.371)	0.012 (0.676)	-0.004 (0.080)*
ER(%)	-0.063 (0.031)**	-0.011 (0.362)	0.002 (0.058)*
Tobin's Q	-3.386 (0.253)	-2.750 (0.027)**	0.093 (0.366)
CDR(%)	0.140 (0.031)**	0.037 (0.174)	0.000 (0.896)
CFCF	5.212 (0.545)	2.746 (0.451)	0.106 (0.729)
Adjusted R ²	0.062	0.087	0.014

Table 7: Regression Analysis- CCR

This table reports the regression analysis of CAR and BHAR on CCR and other control variables. All variables are defined in Table 2. In each cell the regression coefficient and t-statistics in parentheses are reported in the upper and lower case. ***, **, and * denote the significance level of 1%, 5%, and 10%, respectively.

	$\Delta CAR_{CCR}(-5,5)$ (N=213)	$\Delta CAR_{CCR}(-1,0)$ (N=215)	$\Delta BHAR_{CCR}$ (N=227)
Intercept	26.645 (0.029)**	13.611 (0.010)***	-0.765 (0.135)
CCR	15.507 (0.778)	8.937 (0.710)	-1.373 (0.559)
IRI(%)	-0.649 (0.451)	0.466 (0.187)	0.065 (0.055)*
FRI(%)	-0.224 (0.539)	-0.069 (0.655)	0.007 (0.615)
IC(%)	-11.208 (0.035)**	-4.368 (0.061)*	-0.156 (0.477)
MS(%)	0.181 (0.414)	0.027 (0.772)	0.007 (0.469)
NI	-0.000 (0.127)	-0.000 (0.428)	-0.000 (0.123)
FS	-1.076 (0.123)	-0.638 (0.039)**	0.042 (0.160)
Age	0.046 (0.538)	0.038 (0.250)	0.003 (0.351)
DR(%)	-0.133 (0.062)*	0.013 (0.668)	-0.003 (0.314)
ER(%)	0.013 (0.643)	0.004 (0.738)	0.001 (0.319)
Tobin's Q	0.886 (0.756)	-2.734 (0.033)**	0.147 (0.231)
CDR(%)	0.031 (0.623)	0.012 (0.656)	-0.003 (0.284)
CFCF	-1.288 (0.882)	-3.241 (0.385)	-0.720 (0.046)**
Adjusted R ²	0.038	0.052	0.023

4. Conclusion

In this study we investigate how corporate governance, intra-industry competition, and inter-industry competition effect on a firm's R&D investment. The results show that corporate governance is positively correlated with the announcement returns and ex-post buy-and-hold return. Industry competition drains the announcement effect. We use competitive strategy measure of Sundaram et al. (1996) to capture intra-industry competition, and corporate vertical relatedness and corporate complementarity relatedness of Fan and Lang (2000) to capture inter-industry competition. The results show that industry rivals dilute the R&D announcement effect and the negative impact is stronger for intra-industry competition than for inter-industry competition, implying the negative impact of inter-firm rivalry is reduced as the increase in opacity of identifying the vis-a-vis rival firm.

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Basics of Novel Inventory Systems

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ABSTRACT

Keeping inventories adequately maintained to meet the demands of future sales or uses in business enterprises determines the extent of success of businesses. Hence, successful inventory management is necessary, in particular, formulating of mathematical, probabilistic, and deterministic models. This essentially describes optimal inventory policies when and how to replenish the inventory. In this paper, we discuss several basic considerations used in determining inventory models that address the needs of current manufacturing and business enterprises. Theories and novel approaches are integrated to reflect the representation of many actual situations.

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Is Hoarding More Cash Always Good for Firms? --Panel Threshold Application

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ABSTRACT

Based on the benefits of precaution motives, it is good for firms to hold more cash to increase firm values. However, holding too much cash may result in the inefficiency of capital usage and cause agency problems, which will decline firm values. Due to the both side of benefits and costs of cash holdings, there should be an optimal level. We adopt the panel threshold regression model of Hansen (1999) to examine it, and find that hoarding appropriate level of cash is indeed good for firms; however, hoarding too much cash will decline firm values. We also provide some further examinations to ensure robustness. Overall, these results implicitly suggest that the managers of firms should take an appropriate liquidity policy to maximize firm values.

Keywords: Corporate cash holdings; Firm values; Financing constraints; Agency problems; Panel threshold regression model

Is Hoarding More Cash Always Good for Firms? --Panel Threshold Application

1. Introduction

What are the roles of corporate cash holdings? What are the costs and benefits for firms to hold cash? What are the determinants of corporate cash holdings? Is hoarding more cash good for firms? Or is there an optimal level of corporate cash holdings? It is important for corporate managers and shareholders to make their financial decisions on the liquidity policy. Opler, *et al.* (1999) find that the evidence is consistent with a static tradeoff model of cash holdings, implying that there should be an optimal level of corporate cash holdings. They indicate that high risk firms tend to have more cash holdings, and low risk firms with more cash holdings have the benefit of precaution motives. That is, managers often maintain an optimal level of assets with different liquidity to balance the costs and benefits-. We can infer such findings based on other academic empirical evidences about the determinants of corporate cash holdings as follows.

The first strand of literature explores the link between financial constraints and corporate cash holdings, which show the benefits of holding cash. Keynes (1934), Opler, *et al.* (1999) illustrate the precautionary benefits of holding liquid assets and indicate t firms financially constrained tend to hold more cash. Almeida, *et al.* (2004) mention that firms with financial constraints save more cash in terms of cash flows. Faulkender and Wang (2006) find that the marginal value of cash reserves in one hand is positive for firms, but in the other hand it declines with larger cash holdings, higher leverage. All the above mention findings show that holding cash is beneficial to firms based on the precaution motives.

However, the second strand of literature shows holding more cash is not always good for firms. They show that agency problem plays an essential role to corporate cash holdings. Dittmar and Mahrt-Smith (2007) find that corporate governance has a great impact on the value of cash holdings, and firms with poor corporate governance often hold less cash reserves as they often dissipate cash quickly. Harford, *et al.* (2008) examine the relationship between corporate governance and cash holdings in the U.S. market. They find that firms with excess cash holdings and poor corporate governance often spend cash quickly on capital expenditures and acquisitions. These empirical evidences indicate that firms with poor corporate governance often hold less cash reserves and the value of cash holdings is lower in the U.S. market. All these reports support the traditional viewpoint of the free cash flow hypothesis (Jensen, 1986), which indicates that hoarding more cash is a cost for firms.¹

Hence, according to the findings of the aforementioned literatures, they imply that there should be an optimal level of corporate cash holdings for firms. That is, there should be a non-linear relation between cash holding and firm values. We assume that there exists an optimal cash holding ratio based on the precaution motive advantages and the cost of agency problems. The Figure 1 can best explain the relationship between cash holding and firm value, which can predict the optimal level of cash holding ratio. As this trade-off and

¹ In addition, there are numerous other literatures that also explore the issue of corporate cash hokdings. Myers and Rajan (1998) illustrate the paradox of liquidity. Pinkowitz and Williamson (2001) test the industrial firms of Japan, U.S. and Germany and show that the effect of bank power on corporate cash holdings. Ozkan and Ozkan (2004) investigate the corporate cash holdings in (continued on next page) U.K. Pinkowitz and Williamson (2007) explore the marginal value of cash holdings in the U.S. stock market. Haushalter, *et al.* (2007) investigate product market dynamics on corporate cash holdings and hedging behavior and find that the predation risk has an impact on corporate financial and investment decisions. Foley, Hartzel, *et al.* (2007) illustrate the reasons for U.S. multinational firms to hold higher cash from the perspectives of tax regulation. Ramirez and Tadesse (2007) illustrate the links among corporate cash holdings, national culture, and multinationality. Bates, *et al.* (2008) show the precautionary motive for firms to hold cash.

asymmetric relation may stand, therefore we adopt the threshold regression model in panel data (Hansen, 1999) to accurately seize the non-linear relation between cash holding and firm value².

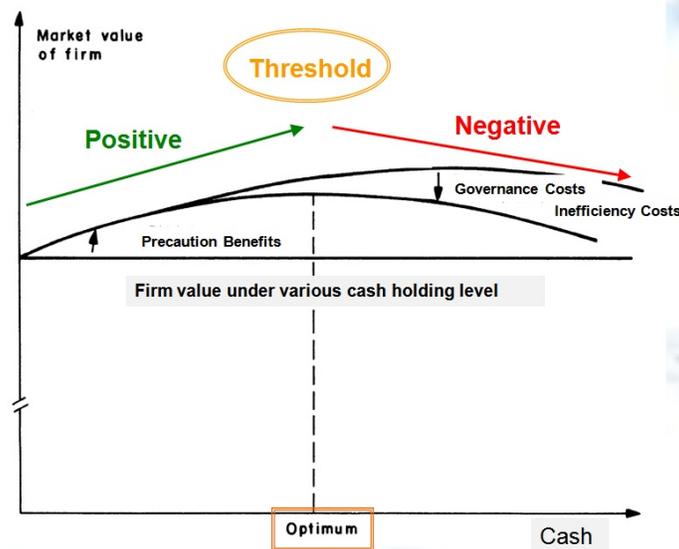


Figure 1. The optimal level of corporate cash holdings

Compared to other traditional non-linear models (especially those non-parametric regression models), the threshold model has the benefits to precisely identify the change point between two variables. In addition, as the threshold model of Hansen (1999) is designed for panel data, it also has the benefits of enlarging our information set to examine the type of panel data, which include the dimension of firm level (cross-section) and time level (time-series).

The remainder of this paper proceeds as follows. Section 2 illustrates the dataset (Compustat) used in our paper. Section 3 is the empirical methodology which illustrates the threshold regression model in panels. Section 4 presents and analyzes our empirical results. Section 5 is the robust estimations. Section 6 is the conclusion.

2. Data

The dataset used in this study begins with all public listed and still active U.S. corporations from the period 1988-2008 according to the annual Standard and Poor's Compustat database. In consideration of the limitation of the balanced panels of threshold regression model of Hansen (1999), we construct the balanced panel data by retaining 73 firms continuously listed on Compustat for 21 years from 1988 to 2008, amounting to a total of 14,028 firm-year observations.

And all the variables are listed and the detailed definitions of those used in our study are shown as Table 1. There are three groups of variables used in our study. The first is the dependent variable, Tobin's q ratio (*tobinq*), which represents the value of firms. Second, the threshold variables are cash holdings. We adopt four definitions for robustness consideration (*ch1*, *ch2*, *ch3*, and *ch4*). Other control variables are firms' leverage (also adopting four definitions for robustness: *lev1*, *lev2*, *lev3*, and *lev4*), firm size (also adopting four definitions for robustness: *fsize1* and *fsize2*), R&D dummy (*rd_dm*), return on assets (*ROA*), earning

² We use the Tobin's Q ratio of the firm's market value to the replacement cost of its assets as our dependent variable in our study, and interpret it as a measure of firm's value. (ex. Berger and Ofek, 1995; McConnell and Servaes, 1995; Daines, 2001; Woidtke, 2002; Ahn, *et al.*, 2006; Villalonga and Amit, 2006).

before interests and tax (*ebitat*) as a proxy for profitability, market value to book assets ratio (*mbratio*), depreciation (*depat*), free cash flow (*freecf*), and fixed assets (*fixedat*). Also, we provide the descriptive statistics of these variables used in our study which are shown on Table 2.

Table 1
Variable Definition

Variables	Mnemonic	Definition
<u>Dependent Variable:</u>		
Tobin's Q	<i>tobinq</i>	Tobin's Q: (total assets – total common equity + annual closed stock price * common stock outstanding) / total assets
<u>Threshold Variables:</u>		
Cash holding1	<i>ch1</i>	Cash holding ratio 1: cash and short-term investments / total assets
Cash holding2	<i>ch2</i>	Cash holding ratio 2: cash and short-term investments / (total assets - cash and short-term investments)
Cash holding3	<i>Ch3</i>	Cash holding ratio 3: cash / total assets
Cash holding4	<i>Ch4</i>	Cash holding ratio 4: cash / (total assets - cash)
<u>Control Variables:</u>		
Leverage1	<i>lev1</i>	Book Debt Ratio: (long-term debt + short-term debt) / total assets
Leverage2	<i>lev2</i>	Market Debt Ratio 1: (long-term debt + short-term debt) / (total assets – book equity + market equity)
Leverage3	<i>lev3</i>	Market Debt Ratio 2: (total liabilities) / (total liabilities + market equity)
Leverage4	<i>lev4</i>	Market Debt Ratio 3: (long-term debt) / (total assets – current liabilities - book equity + market equity)
Firm size 1	<i>fsize1</i>	The natural log of sales
Firm size 2	<i>fsize2</i>	The natural log of total assets
R&D Dummy	<i>rd_dm</i>	Dummy variable equal to one (zero) if the firm did not report R&D expense
ROA		Return on assets
EBIT	<i>ebitat</i>	Profitability: earnings before interest and taxes / total assets
MB	<i>mbratio</i>	Market to book ratio: book liabilities plus market value of equity divided by book value of total assets
Depreciation	<i>depat</i>	Depreciation / total assets
Free cash flow	<i>freecf</i>	The free cash flow of firms: (net cash flow from operating activities – dividends of preferred stocks – dividends of common stocks) / total assets
Fixed asset	<i>fixedat</i>	The fixed asset to assets

Table 2**Summary statistics**

The dependent variable is Tobin' Q ratio (*tobinq*), which represents the value of firms. The threshold variables are cash holdings, and we adopt four definitions for robustness (*ch1*, *ch2*, *ch3*, and *ch4*). Other control variables are firms' leverage (also adopting four definitions for robustness: *lev1*, *lev2*, *lev3*, and *lev4*), firm size (also adopting four definitions for robustness: *fsize1* and *fsize2*), R&D dummy (*rd_dm*), return on assets (*ROA*), earning before interests and tax (*ebitat*), market value to book assets ratio (*mbratio*), depreciation (*depat*), free cash flow (*freecf*), and fixed assets (*fixedat*). Our sample periods are the annual data from year 1988 to year 2008, which is a set of balanced panel data with 21 years and a total of 668 firms, yielding a total of 14,028 firm-year observations .

Variable	Mean	Std. Dev.
Tobinq	1.871	2.473
ch1	0.112	0.147
ch2	0.271	1.912
ch3	0.080	0.104
ch4	0.130	0.967
lev1	0.260	0.483
lev2	0.185	0.167
lev3	0.114	0.169
lev4	0.578	5.417
rd_dm	0.588	0.492
fsize1	6.058	2.406
fsize2	6.098	2.365
Ebitat	0.064	0.340
mbratio	1.567	2.306
Depat	0.047	0.058
Freecf	0.055	0.306
Fixedat	0.328	0.230

3. Methodologies**3.1 Panel Unit Root Models**

As the panel threshold regression model of Hansen (1999) is an extension of the traditional least squared estimation method, it hence requires that variables considered in the model to be stationary in order to avoid the problem of spurious regression (Granger and Newbold, 1974). We thus process the unit root test in our first step. Since the data sets are all in panels in our investigation, the well-known Levin, Lin and Chu (2002) (hereafter refer as *LLC*) panel unit root test technique is employed for our panel unit root tests.³

³ LLC is a modified version of the LL (Levin and Lin, 1992, 1993) panel unit root technique.

3.2 Threshold Autoregressive Model

As illustrated in the section 1, we propose an idea of finding the “target” optimal cash holding ratio which maximizes the firm value. This paper applies a non-linear method panel threshold regression model to solve this problem. In contrast with traditional linear model, this panel threshold regression model does not only allow the flexibility of nonlinear relationship between variables, but also obtains the explicit value of changing points which is superior to the common nonlinear least regression (ex. adding the squared term as the independent variable).

Hansen (1999) proposed to use two-stage OLS method to estimate the panel threshold model. On the first stage, for any given threshold value (γ), we compute the sum of square errors separately. On the second stage, we try to find the estimation of threshold value ($\hat{\gamma}$) which minimizes the sum of squares. At last, the estimation of threshold regression is used to estimate the coefficients for every split “regime” and do analysis. In addition, in order to increase the richness of information extracted from the dataset, the data type of the threshold model of Hansen (1999) is explored in panels, which is superior to models in single dimension of cross-section or time-series. We summarize the main estimation procedures as follows.⁴

3.2.1 Threshold Model Construction

Assuming the optimal cash holding ratio appears to be relevant to firm value, this study aims at finding whether there exists a threshold effect and trying to use threshold model to estimate this ratio to capture the relation between cash holding and firm value.

Thus we set up single threshold model as follows:

$$tobinq_{it} = \begin{cases} \mu_i + \theta' ch_{it} + \alpha_1 X_{it} + \varepsilon_{it} & \text{if } ch_{it} \leq \gamma \\ \mu_i + \theta' ch_{it} + \alpha_2 X_{it} + \varepsilon_{it} & \text{if } ch_{it} > \gamma \end{cases} \quad (1)$$

$$\theta = (\theta_1, \theta_2)', X_{it} = (lev_{it}, rddm_{it}, fsize_{it}, ebitat_{it}, mbratio_{it}, depat_{it}, freecf_{it}, fixedat_{it})'$$

where $tobinq_{it}$ represents the proxy variables for firm value, which is the Tobin's q ratio; the threshold variable, ch_{it} , are cash holdings, and we adopt four definitions for robustness (**ch1**, **ch2**, **ch3**, and **ch4**), and the γ is the specific estimated threshold value. Other control variables, X_{it} , are firms' leverage (also adopting four definitions for robustness: **lev1**, **lev2**, **lev3**, and **lev4**), firm size (also adopting four definitions for robustness: **fsize1** and **fsize2**), R&D dummy (**rd_dm**), return on assets (**ROA**), earning before interests and tax (**ebitat**) as the proxy for profitability, market value to book assets ratio (**mbratio**), depreciation (**depat**), free cash flow (**freecf**), and fixed assets (**fixedat**). Besides, μ_i , the fixed effect, represents the heterogeneity of companies under different operating conditions. The error term ε_{it} is assumed to be independent and identically distributed with mean zero and finite variance $\sigma^2(\varepsilon_{it} \sim iid(0, \sigma^2))$; i , represents different companies; t , represents different periods.

⁴ For the detailed illustration, please refer to the original setting of the panel threshold model of Hansen (1999).

In addition, we can also re-write equation (1) as the following equation (2) and (3):

$$tobinq_{it} = \mu_i + \theta' X_{it} + \alpha_1 ch_{it} I(ch_{it} \leq \gamma) + \alpha_2 ch_{it} I(ch_{it} > \gamma) + \varepsilon_{it} \quad (2)$$

where $I(\cdot)$ represents indicator function,

$$tobinq_{it} = \mu_i + [\theta', \alpha'] \begin{bmatrix} X_{it} \\ ch_{it}(\gamma) \end{bmatrix} + \varepsilon_{it} \quad (3)$$

$$ch_{it}(\gamma) = \begin{bmatrix} ch_{it} I(d_{it} \leq \gamma) \\ ch_{it} I(d_{it} > \gamma) \end{bmatrix}$$

The observations are divided into two “regimes” depending on whether the threshold variable ch_{it} is smaller or larger than the threshold value of γ . The regimes are distinguished by differing regression slopes, α_1 and α_2 . After obtaining the estimated $\hat{\gamma}$, we then estimate the parameters (γ , α , θ , and σ^2).

3.2.2 Estimation

Note that taking averages of (3) over the time index t to derive:

$$\overline{tobinq}_{it} = \mu_i + \beta' \overline{ch}_{it}(\gamma) + \bar{\varepsilon}_{it} \quad (4)$$

$$\text{where } \overline{tobinq}_i = \frac{1}{T} \sum_{t=1}^T tobinq_{it}, \quad \bar{\varepsilon}_i = \frac{1}{T} \sum_{t=1}^T \varepsilon_{it}, \text{ and}$$

$$\overline{ch}_{it}(\gamma) = \frac{1}{T} \sum_{t=1}^T ch_{it}(\gamma) = \begin{bmatrix} \frac{1}{T} \sum_{t=1}^T ch_{it} I(ch_{it} \leq \gamma) \\ \frac{1}{T} \sum_{t=1}^T ch_{it} I(ch_{it} > \gamma) \end{bmatrix}$$

Taking the difference between (3) and (4) yields:

$$tobinq_{it}^* = \alpha' ch_{it}^*(\gamma) + \varepsilon_{it}^* \quad (5)$$

where $tobinq_{it}^* = tobinq_{it} - \overline{tobinq}_i$, $ch_{it}^*(\gamma) = ch_{it}(\gamma) - \overline{ch}_i(\gamma)$, and $\varepsilon_{it}^* = \varepsilon_{it} - \bar{\varepsilon}_i$

Let

$$tobinq_i^* = \begin{bmatrix} tobinq_{i2}^* \\ \vdots \\ tobinq_{iT}^* \end{bmatrix}, \quad ch_i^*(\gamma) = \begin{bmatrix} ch_{i2}^*(\gamma)' \\ \vdots \\ ch_{iT}^*(\gamma)' \end{bmatrix}, \quad \varepsilon_i^* = \begin{bmatrix} \varepsilon_{i2}^* \\ \vdots \\ \varepsilon_{iT}^* \end{bmatrix}$$

Denote the stacked data and errors for an individual, with one time period deleted. Then let the $TOBINQ^*$,

$CH^*(\gamma)$ and e^* denote the data stacked over all individuals.

$$TOBINQ^* = \begin{bmatrix} tobinq_1^* \\ \vdots \\ tobinq_i^* \\ \vdots \\ tobinq_n^* \end{bmatrix}, CH^*(\gamma) = \begin{bmatrix} ch_1^*(\gamma) \\ \vdots \\ ch_i^*(\gamma) \\ \vdots \\ ch_n^*(\gamma) \end{bmatrix}, e^* = \begin{bmatrix} \varepsilon_1^* \\ \vdots \\ \varepsilon_i^* \\ \vdots \\ \varepsilon_n^* \end{bmatrix}$$

Use this notation, (5) is equivalent to

$$TOBINQ_{it}^* = CH_{it}^*(\gamma)\alpha + e_{it}^* \quad (6)$$

The equation (6) represents the major estimation model of threshold effect. For any given threshold value of γ , the slope coefficient α can be estimated by ordinary least squares. That is,

$$\hat{\alpha}(\gamma) = (CH^*(\gamma)'CH^*(\gamma))^{-1} CH^*(\gamma)TOBINQ^* \quad (7)$$

The vector of regression residuals is

$$\hat{e}^*(\gamma) = TOBINQ^* - CH^*(\gamma)\hat{\alpha}(\gamma) \quad (8)$$

and the sum of squared errors, SSE is

$$\begin{aligned} SSE_1(\gamma) &= \hat{e}^*(\gamma)'\hat{e}^*(\gamma) \\ &= TOBINQ^*(I - CH^*(\gamma)(CH^*(\gamma)'CH^*(\gamma))^{-1}CH^*(\gamma)')TOBINQ^* \end{aligned} \quad (9)$$

Chan(1993) and Hansen (1999) recommended estimation of γ by ordinary least squares. It is easier to minimize the concentrated sum of squared errors (9) and the least squares estimators of γ is

$$\hat{\gamma} = \arg \min_r SSE_1(\gamma) \quad (10)$$

Once $\hat{\gamma}$ is obtained, the slope coefficient estimate is $\hat{\alpha} = \hat{\alpha}(\hat{\gamma})$. The residual vector is $\hat{e}^* = \hat{e}^*(\hat{\gamma})$, and the estimator of residual variance is

$$\hat{\sigma}^2 = \hat{\sigma}^2(\hat{\gamma}) = \frac{1}{n(T-1)} \hat{e}^{*'}(\hat{\gamma})\hat{e}^*(\hat{\gamma}) = \frac{1}{n(T-1)} SSE_1(\hat{\gamma}) \quad (11)$$

where n indexes the number of sample, T indexed the periods of sample.

3.2.3 Testing for a threshold

As we illustrated in the first section, when cash holding increases, the firm value increases because of the benefit of precaution motives; however, on the other side, agency problem related costs increase to offset the positive effect of cash holding to the firm value. Hence, we hypothesize that there exists threshold effect

between the cash holding ratio and firm value. It is important to determine whether the threshold effect is statistically significant. The null hypothesis and alternative hypothesis can be represented as follows:

$$\begin{cases} H_0 : \alpha_1 = \alpha_2 \\ H_1 : \alpha_1 \neq \alpha_2 \end{cases}$$

When the null hypothesis holds, it means that the coefficient $\alpha_1 = \alpha_2$, the threshold effect doesn't exist.

When the alternative hypothesis holds, the coefficient $\alpha_1 \neq \alpha_2$, that is, the threshold effect exists between the cash holding ratio and firm value.

Under the null hypothesis of no threshold, the model is as the following linear regression model:

$$tobinq_{it} = u_i + \theta' X_{it} + \alpha' ch_{it}(\gamma) + \varepsilon_{it} \quad (12)$$

After the fixed-effect transformation is made, we can obtain

$$TOBINQ_{it}^* = \alpha' CH_{it}^* + e_{it}^* \quad (13)$$

The regression parameter is estimated by OLS, yielding estimate $\tilde{\alpha}$, residuals \tilde{e}^* and sum of squared errors

$$SSE_0 = \tilde{e}^{*'} \tilde{e}^*.$$

Hansen (1999) suggested to use the F Test approach to test the existence of threshold effect, and use the sup-Wald statistic to test the null hypothesis.

$$F = \sup F(\gamma) \quad (14)$$

$$F(\gamma) = \frac{(SSE_0 - SSE_1(\hat{\gamma})) / 1}{SSE_1(\hat{\gamma}) / n(T-1)} = \frac{SSE_0 - SSE_1(\hat{\gamma})}{\hat{\sigma}^2} \quad (15)$$

3.2.4 Multiple thresholds Model

Hence, in addition to the single threshold model, it can extend to the double thresholds model, which is modified as follows:

$$tobinq_{it} = \begin{cases} \mu_i + \theta' X_{it} + \alpha_1 ch_{it} + \varepsilon_{it} & \text{if } ch_{it} \leq \gamma_1 \\ \mu_i + \theta' X_{it} + \alpha_2 ch_{it} + \varepsilon_{it} & \text{if } \gamma_1 < ch_{it} \leq \gamma_2 \\ \mu_i + \theta' X_{it} + \alpha_3 ch_{it} + \varepsilon_{it} & \text{if } \gamma_2 \leq ch_{it} \end{cases} \quad (16)$$

where threshold value is $\gamma_1 < \gamma_2$. This can be extended to multiple thresholds model $(\gamma_1, \gamma_2, \gamma_3, \dots, \gamma_n)$.

4. Empirical Results

4.1 Results of Panel Unit Root

The results of the stationary test for each panel (explained variables, threshold variable, and control variables)

are shown in Table 3. The null hypothesis of the LLC panel unit root test is non-stationary. We find that all variables have stationary characteristics, i.e., the type I(0) series, when the null hypotheses of unit root are all rejected. These stationary findings enable us to go further for estimating the panel threshold regression.

Table 3
Panel Unit Root Tests (Levin, Lin, and Chu, 2002, JE)

Tobin's Q ratio (*tobinq*) represents the value of firms. The threshold variables are cash holdings, and we adopt four definitions for robustness (*ch1*, *ch2*, *ch3*, and *ch4*). Other control variables are firms' leverage (also adopting four definitions for robustness: *lev1*, *lev2*, *lev3*, and *lev4*), firm size (also adopting four definitions for robustness: *fsize1* and *fsize2*), R&D dummy (*rd_dm*), return on assets (*ROA*), earning before interests and tax (*ebitat*), market value to book assets ratio (*mbratio*), depreciation (*depat*), free cash flow (*freecf*), and fixed assets (*fixedat*). We use the panel unit root test of Levin, Lin, and Chu (2002, JE), which is the common unit root process. The null hypothesis is the series with unit root. The symbol ***, **, and * represent the significant at 1%, 5%, and 10% levels, respectively.

	Statistic	Prob.
<i>tobinq</i>	-4.937***	< 0.001
<i>ch1</i>	-7.619***	< 0.001
<i>ch2</i>	-36.998***	< 0.001
<i>ch3</i>	-5.202***	< 0.001
<i>ch4</i>	-7.897***	< 0.001
<i>lev1</i>	-5.783***	< 0.001
<i>lev2</i>	-3.626***	< 0.001
<i>lev3</i>	-2.113**	0.017
<i>lev4</i>	0.891	0.814
<i>rd_dm</i>	-	-
<i>fsize1</i>	-2.319***	0.010
<i>fsize2</i>	-4.613***	< 0.001
<i>ebitat</i>	-4.369***	< 0.001
<i>mbratio</i>	-4.672***	< 0.001
<i>depat</i>	-2.732***	0.003
<i>freecf</i>	-9.080***	< 0.001
<i>fixedat</i>	-2.624***	0.004

4.2 Results of Linear Regression

Before we estimate the threshold model in panels, we estimate the common linear panel regression model, which includes the pooled regression, random effect model, and fixed effect model. These results are shown

on Table 4. We find that almost all variables in these three models are highly significant (except the constant term). Particularly, when we add the square terms of variable cash holdings (*ch1₂*), this variable in those three models are in negative significance, which shows that the relation between cash holding and firm value is non-linear. These preliminary results implicitly illustrate the firm value will increase with increase of the cash holdings, but decrease when cash holding level is higher. Although hoarding more cash is not always good for firms, we do not know exactly where the change point (i.e., the threshold of the optimal cash holding ratio) is for the relation between cash holding and firm value. Hence, we should go further to adopt the panel threshold model of Hansen (1999) to find the optimal cash holding ratio.

Table 4
Linear Regression

The dependent variable is Tobin's Q ratio (*tobinq*), which represents the value of firms. The threshold variables are cash holdings, and we adopt four definitions for robustness (*ch1*, *ch2*, *ch3*, and *ch4*), but the results of later three variables are shown upon request. And the variable *ch1_2* represents the squared of *ch1*, which is used to control the nonlinear effect. The control variables are firms' leverage (also adopting four definitions for robustness: *lev1*, *lev2*, *lev3*, and *lev4*), firm size (also adopting four definitions for robustness: *fsize1* and *fsize2*), R&D dummy (*rd_dm*), return on assets (*ROA*), earning before interests and tax (*ebitat*), market value to book assets ratio (*mbratio*), depreciation (*depat*), free cash flow (*freecf*), and fixed assets (*fixedat*). Our sample periods are the annual data from year 1988 to year 2008, which is a set of balanced panel data with 21 years and a total of 668 firms, yielding a total of 14,028 observations. The t statistics are in parentheses and the symbol * represents $p < 0.05$, ** represents $p < 0.01$, and *** represents $p < 0.001$, respectively.

	(1) OLS	(2) OLS	(3) Panel-RE	(4) Panel-RE	(5) Panel-FE	(6) Panel-FE
<i>ch1</i>	0.263*** (18.11)	0.502*** (15.70)	0.240*** (14.31)	0.402*** (11.88)	0.233*** (13.12)	0.382*** (10.94)
<i>ch1_2</i>		-0.402*** (-8.40)		-0.283*** (-5.52)		-0.263*** (-4.96)
<i>lev1</i>	0.483*** (84.02)	0.488*** (84.64)	0.569*** (114.79)	0.571*** (114.86)	0.578*** (116.14)	0.580*** (116.14)
<i>rd_dm</i>	-0.00987* (-2.46)	-0.00965* (-2.41)	-0.0128 (-1.83)	-0.0120 (-1.73)	-0.0178* (-2.06)	-0.0165 (-1.92)
<i>fsize1</i>	0.0283*** (33.72)	0.0280*** (33.34)	0.0200*** (13.17)	0.0195*** (12.85)	0.0141*** (7.18)	0.0135*** (6.86)
<i>ebitat</i>	0.102*** (10.54)	0.100*** (10.34)	0.0962*** (12.07)	0.0959*** (12.05)	0.0949*** (11.91)	0.0947*** (11.90)
<i>mbrati</i>	0.991*** (919.25)	0.991*** (916.27)	0.998*** (1004.18)	0.998*** (1000.92)	0.999*** (992.38)	0.998*** (989.31)
<i>depat</i>	1.457*** (35.61)	1.427*** (34.85)	1.146*** (32.32)	1.128*** (31.69)	1.110*** (31.13)	1.092*** (30.53)
<i>freecf</i>	-0.337*** (-27.04)	-0.340*** (-27.30)	-0.243*** (-23.77)	-0.244*** (-23.85)	-0.232*** (-22.64)	-0.232*** (-22.69)
<i>fixedat</i>	-0.215*** (-23.15)	-0.208*** (-22.27)	-0.187*** (-12.19)	-0.184*** (-12.03)	-0.179*** (-9.54)	-0.178*** (-9.51)
<i>_cons</i>	0.0108 (1.42)	-0.00116 (-0.15)	0.0332* (2.45)	0.0272* (2.01)	0.0675*** (4.25)	0.0633*** (3.99)
<i>N</i>	14028	14028	14028	14028	14028	14028

4.3 Results of Panel Threshold Regression

We assume that there exists the optimal cash holding ratio based on the advantages of precaution motive and the cost of agency problems. We hence use the panel threshold regression model of Hansen (1999) to capture the nonlinear relationship between firm value and cash holding in low and high regimes.

First, as shown on the Panel A of Table 5, we find that the null hypotheses of no single and double threshold effect are significantly rejected. That is, there are at least two thresholds in our model. In addition, the Figures 2(a) and 2(b) which are the plots of the concentrated likelihood ratio function represent the empirical point estimates of the threshold variable as the likelihood ratio hits the zero axes. Consequently, this study focuses on the three threshold models reported below.

Second, the results in Panel B of Table 5, the first and the second threshold estimates are 0.72% and 0.843%, respectively (that is, there are three regimes of cash holding). The first regime is below 0.72%, and the second one is between 0.72% and 0.843%. Based on the later ones, these three coefficients are 1.735, -0.490, and -2.774 in each regime, respectively. These results represent the effect of cash holding on firm's value is positive when below the cash holding ratio of 0.72%, whereas negative when above 0.72%. It implies that cash holding should not exceed the cash holding ratio of 0.72%. Consequently, based on the results of panel threshold regression model of Hansen (1999), to some extent, we can conclude that due to the benefit of precaution motives and the cost of agency problems, there is indeed a non-linear relation between cash holding and firm value.

Table 5**Panel Threshold Regression Estimation: Threshold Effect Tests**

The dependent variable is Tobin's Q ratio (*tobinq*), which represents the value of firms. The threshold variables are cash holdings, and we adopt four definitions for robustness (*ch1*, *ch2*, *ch3*, and *ch4*), but the results of later three variables are shown upon request. The control variables are firms' leverage (also adopting four definitions for robustness: *lev1*, *lev2*, *lev3*, and *lev4*), firm size (also adopting four definitions for robustness: *fsize1* and *fsize2*), R&D dummy (*rd_dm*), return on assets (*ROA*), earning before interests and tax (*ebitat*), market value to book assets ratio (*mbratio*), depreciation (*depat*), free cash flow (*freecf*), and fixed assets (*fixedat*). Our sample periods are the annual data from year 1988 to year 2008, which is a set of balanced panel data with 21 years and a total of 668 firms, yielding a total of 14,028 observations totally. White S.E. is the White heterogeneous standard error. The critical values are shown in parentheses which represent 10%, 5% and 1% statistics significant, respectively. F Statistic and p-value result from repeating bootstrap procedure 1,000 times for each of the three bootstrap tests.

Panel A.			
Threshold Effect Testing	Test Statistics	Critical Values ²	p-value
H ₀ : no threshold, H ₁ : single threshold	LR = 125.19	(18.94, 23.99, 43.64)	0.001
H ₀ : single threshold, H ₁ : double thresholds	LR = 26.01	(17.63, 21.59, 50.54)	0.034
H ₀ : double threshold, H ₁ : triple thresholds	LR = 1.86	(14.47, 18.48, 24.61)	1.000
Panel B.			
Parameters Estimation	Estimates	OLS S.E.	White S.E.
Single-threshold estimates			
$\alpha_1 : \{ch1_{it} \leq 0.72\}$	1.687	0.214	0.498
$\alpha_2 : \{ch1_{it} \geq 0.72\}$	-1.759	0.313	1.408
Double-threshold estimates			
$\alpha_1 : \{ch1_{it} \leq 0.72\}$	1.735	0.214	0.515
$\alpha_2 : \{0.720 \leq ch1_{it} \leq 0.843\}$	-0.490	0.404	1.724
$\alpha_3 : \{ch1_{it} \geq 0.843\}$	-2.774	0.374	1.574

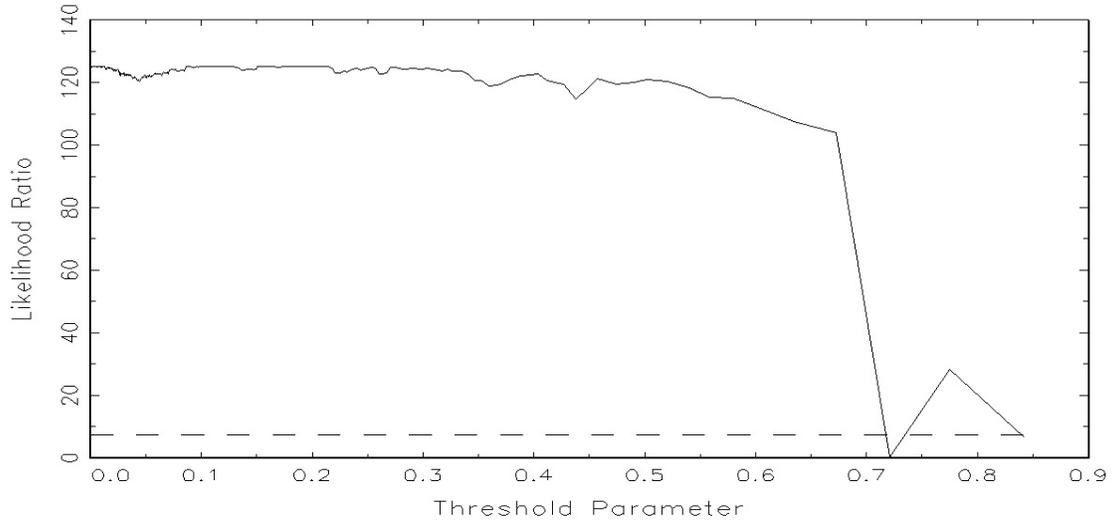
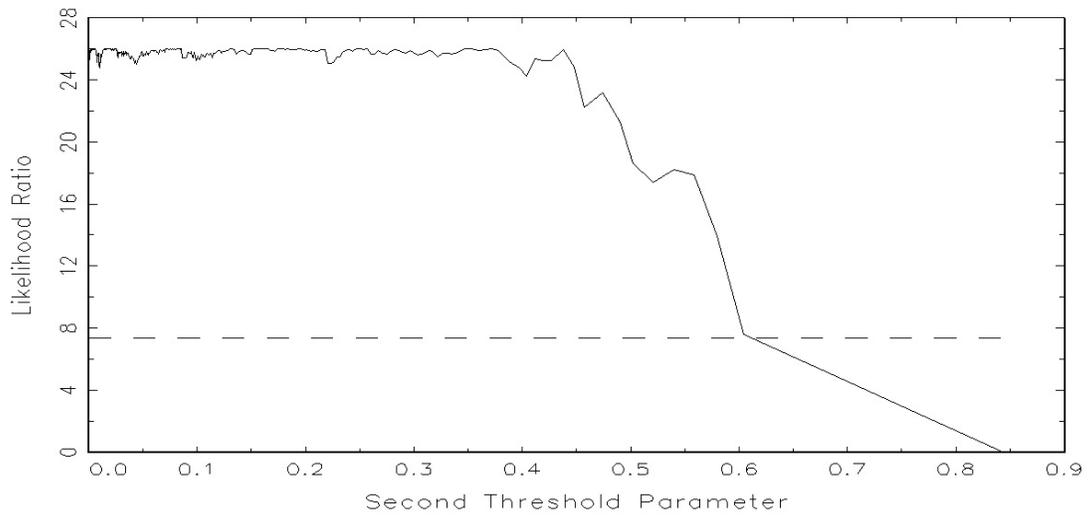


Figure 2(a) Single threshold model



(b) Double threshold model

Figures 2(b) Confidence Interval Construction

We also provide the results of other control variables as shown on the Table 6. Those results are similar to the ones of linear regression.

Table 6**Panel Threshold Regression Estimation: Other control variables**

The dependent variable is Tobin's Q ratio (*tobinq*), which represents the value of firms. The threshold variables are cash holdings, and we adopt four definitions for robustness (*ch1*, *ch2*, *ch3*, and *ch4*), but the results of later three variables are shown upon request. This table is the extension of Table 5 (also adopt the *ch1* as threshold variable), which is based on the results of thosetwo threshold models. The control variables are firms' leverage (also adopting four definitions for robustness: *lev1*, *lev2*, *lev3*, and *lev4*), firm size (also adopting four definitions for robustness: *fsize1* and *fsize2*), R&D dummy (*rd_dm*), return on assets (*ROA*), earning before interests and tax (*ebitat*), market value to book assets ratio (*mbratio*), depreciation (*depat*), free cash flow (*freecf*), and fixed assets (*fixedat*). Our sample periods are the annual data form year 1988 to year 2008, which is a set of balanced panel data with 21 years and a total of 668 firms, yielding a total of 14,028 observations totally. The symbol * represents $p < 0.05$, ** represents $p < 0.01$, and *** represents $p < 0.001$, respectively.

	Coef.	Std. Err.
<i>lev1</i>	-0.7548***	0.0598
<i>rd_dm</i>	-0.0229	0.1034
<i>fsize1</i>	-0.1490***	0.0241
<i>ebitat</i>	0.7730***	0.1072
<i>mbratio</i>	0.4365***	0.0121
<i>depat</i>	10.5629***	0.4226
<i>freecf</i>	-0.7645***	0.1364
<i>fixedat</i>	-1.1373***	0.2167

5. Robustness

In order to ensure the robustness of our empirical results, we perform a robust check to provide the alternative non-linear model: nonparametric regression model (Figure 3). We find that the relation between cash holding and firm value is positive as firms do not hoard too much cash, and negative for firms with high cash holdings. It proves that a non-linear relation exists between cash holding and firm value even after all kinds of robust checks are controlled.

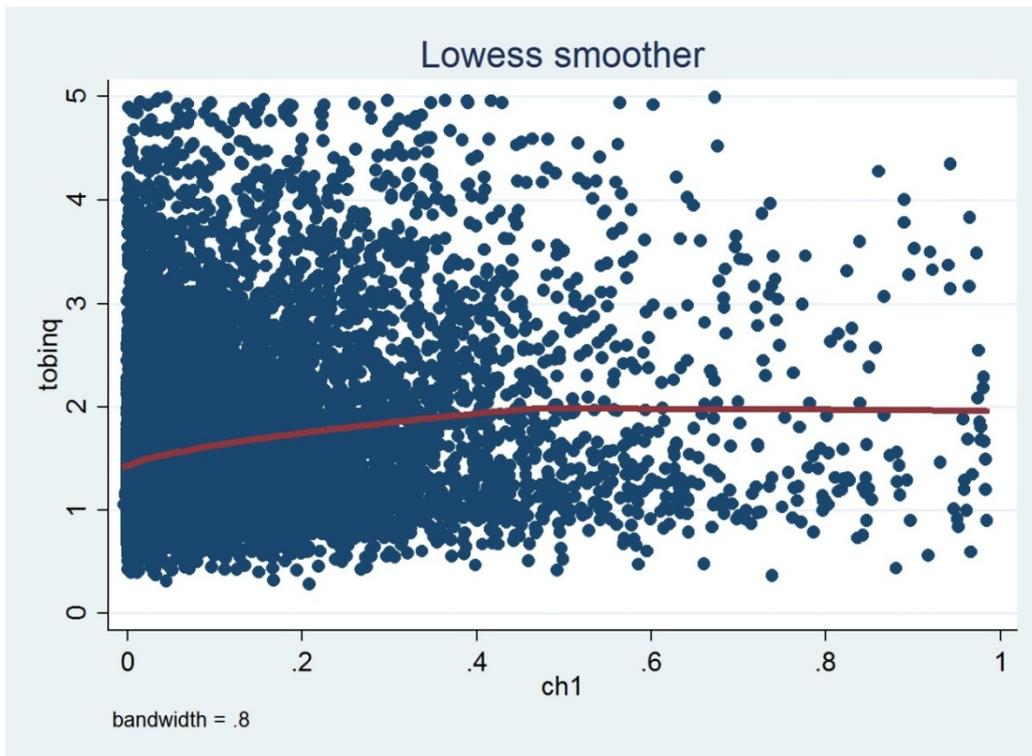


Figure 3(a) Nonparametric Regression Fitting: Lowess Smoother

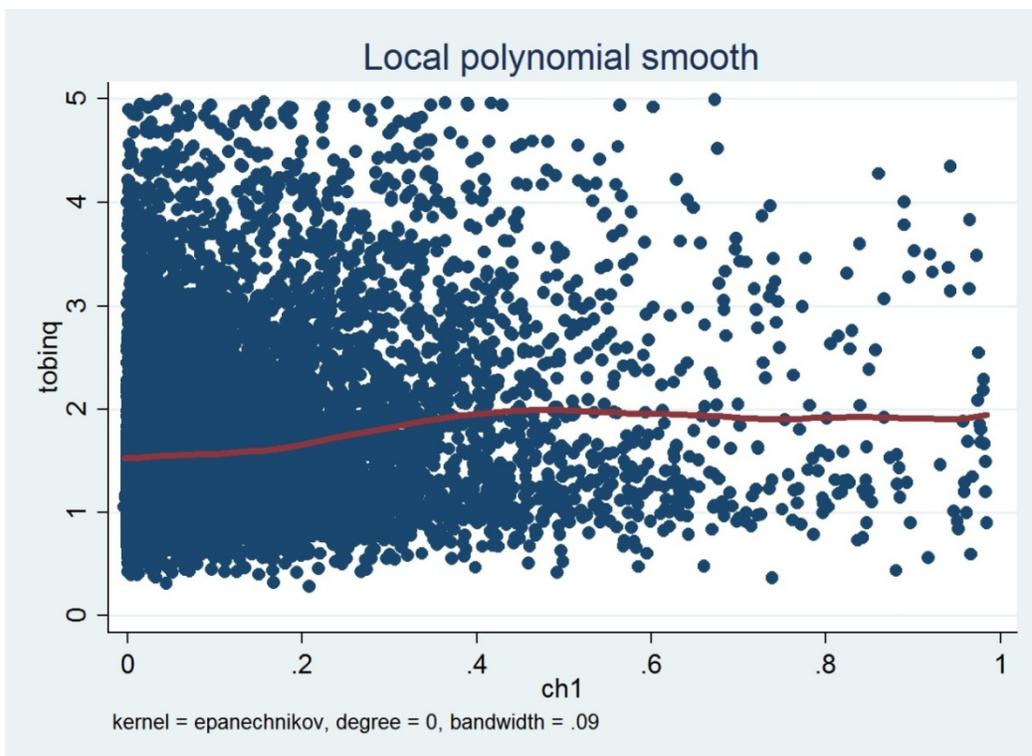


Figure 3(b) Nonparametric Regression Fitting: Local Polynomial Smooth

6. Conclusions

Concerning the relation between financial constraints and corporate cash holdings, the first strand of literature shows that hoarding cash has the benefit of precaution motives which exert positive effect on firm value. In addition, the second strand of literatures shows that agency problem plays an essential role on corporate cash holdings, which imply that hoarding more cash may cause the cost of agency problems, exerting negative effect on firm value. Hence, there should be a non-linear relation between cash holding and firm value.

At first, we provide the common linear regression results, including the pooled regression, random effect, and fixed effect, the results show that there is a non-linear relation between cash holding and firm value. Then, we go further to adopt the panel threshold regression model of Hansen (1999) to examine this finding. We find that there is indeed a two-threshold effect between cash holding and firm value. In addition, we provide some robust checks to ensure our robustness. Based on these results, we can infer that cash holding is good for firms but there exists an optimal level. These empirical results show that firm managers should maintain applicable liquidity policy to maximize firm value.

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Retail Supply Chain Dynamics

A System Dynamics Model Based Study

(A Research Work in Progress)

1.0 Introduction

Supply Chains are complex business systems. Many seemingly simple and successful management policies fail to yield the expected results when applied in supply chain settings. Typically, business executives blame these failures on unforeseen side effects of the decisions or changes in the business scenarios. Investors and supply chain partners seem to accept this explanation as a feature of reality. However, the true reason for this phenomenon of so called side effects, in the words of Sterman (2000) is, “Side effects are not a feature of reality but a sign that our understanding of the system is narrow and flawed.” There is no denying that there is an urgent need for improving our understanding of complex supply chain systems.

This study will be an extension of a series of studies aimed at gaining a deeper and better understanding of supply chain dynamics using System Dynamics modeling methodology. In previous studies effects of reductions in information delays and flow delays as well as forecasting/smoothing upon supply chains have been explored (Janamanchi and Burns, 2010; Janamanchi and Burns, 2007a; Janamanchi and Burns, 2007b; Burns and Janamanchi, 2006). Further, effect of inventory policies as well as optimization of supply chain performance have been studied (Janamanchi and Burns, 2007c; Janamanchi and Burns, 2008; Janamanchi, 2011).

The focus of the current study is a two player supplier-retailer supply chain with “multiple retailers” serviced by a “single supplier”. The objective is to ascertain desirable inventory policies / forecasting policies / production scheduling policies for adoption by the supplier and his retailers aimed at supporting multiple retailers’ objectives of low inventory but high availability and overall high inventory turns and so on. Effect of retailers experiencing volatile customer demand patterns will be employed to discern possible policy guidelines for supplier as well as for retailers to practice.

Supply chain dynamics has been fairly well researched by system dynamicists. Beginning with the founder of System Dynamics, Dr. Jay W. Forrester (1958; 1961) considerable research on supply chains has been contributed by Sterman (2000), Akkermans and Dellaert (2005), and Croson and Donohue (2003; 2005). System Dynamics is a continuous deterministic simulation modeling suitable for studying complex business systems. “Dynamic complexity” and “feedback loops” present in them, lend supply chains to a study in System Dynamics (Sterman, 2000). From a System Dynamics perspective, “Supply Chains consist of stock and flow structure for the acquisition, storage, and conversion of inputs into output and the decision rules governing the flows,” Sterman in Business Dynamics (2000)

The remainder of the paper is organized as follows. Model description and modeling tool are presented in section 2 together with details of initial parametric settings. Section 3 presents the results from simulation of the model under base case and five alternative scenarios together with the relevant discussion and possible insights that may be gained therefrom. Section 4 lists contributions, limitations and directions for future studies.

2.0 MODEL DESCRIPTION

2.1 Brief overview of the supply chain set up: The models utilized in this research are primarily simulation models of the continuous-deterministic type. Customers place orders for products with the retailers who place orders with their ‘upstream partner’ a manufacturer (hereinafter referred to as supplier) for the required products. Both the retailer and supplier carry Finished Goods inventories and have in place inventory policies. For obvious reasons, retailer has no work in progress, while, the supplier carries ‘work-in-process’

(WIP) inventories reflecting the manufacturing cycle time involved. Similarly, the supplier and retailer have order forecasting policies in place using “exponential smoothing” method with respective smoothing factors alpha denoting their respective approaches to forecasting.

Figure 1, shows the system dynamics structure for the retailers’ finished goods and the customer order forecasting setup. All three retailers viz. Good, Better and Best are captured in this structure with the use of subscribing. The model structure for the supplier is somewhat similar with the main distinction that it includes the production set up and thereby it contains the work in process and input coming from upstream supplier. Additionally, supplier has a workforce set up which includes hiring rate, quit rate, production normal, and overtime production when required etc. Supplier also has cost set up where he can keep track of the total costs of operations as may be required.

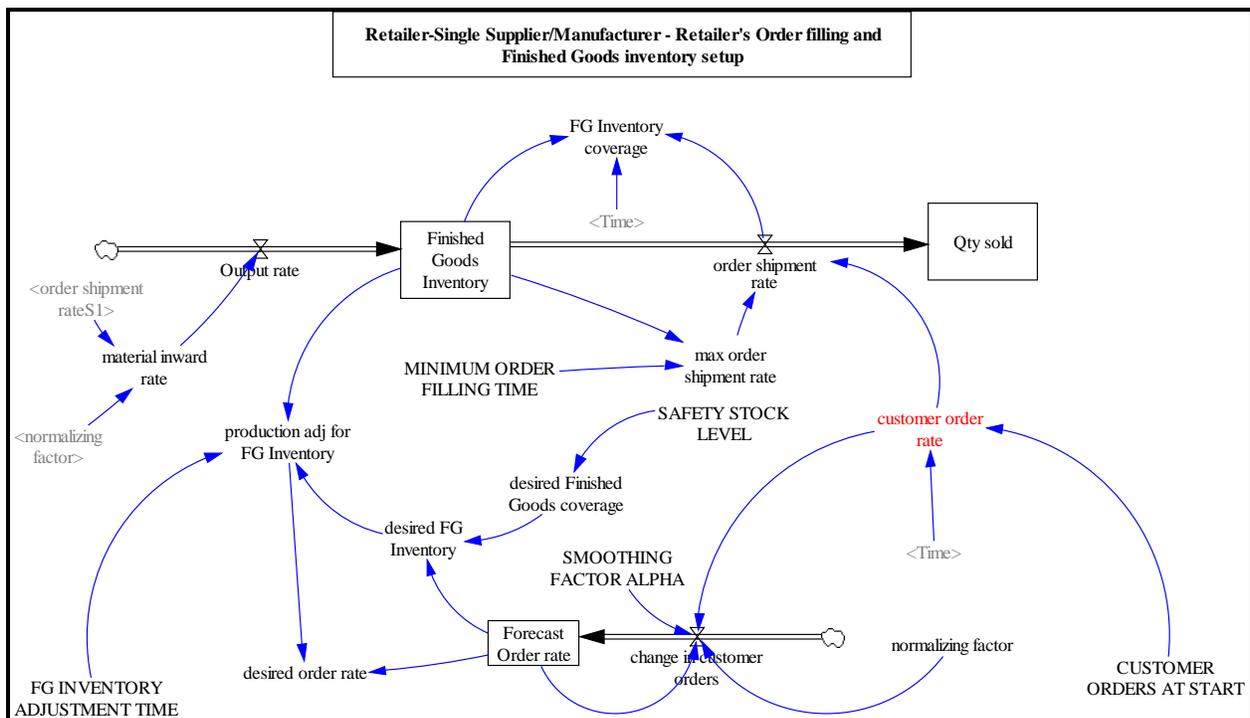


Figure 1: Retailer’s facility setup

2.2 Retailer’s set up: A week is the unit of time in this model. Customer orders initiate the action. Customer order is exogenous input that we use to exercise and test the model. As may be seen, the model includes, an exponential forecasting, order quantity determination based on safety stock and finished goods norms.

2.3 Supplier/manufacturer’s setup: Figure 2 below depicts the supplier/manufacturer’s structure.

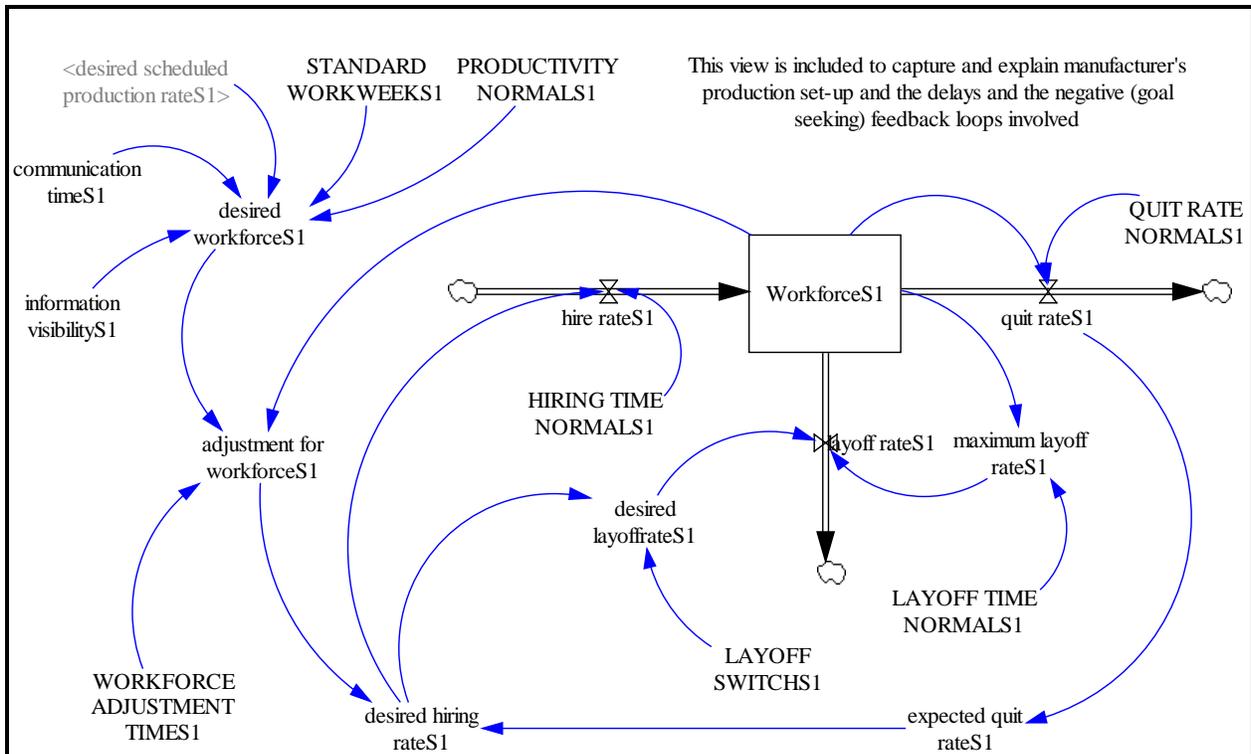


Figure 3: Supplier's Workforce view

Figure 3 depicts the workforce portion of the model structure. Typically, in the absence of information visibility between functional areas, there is a one time-period (one week) delay of communicating the 'desired scheduled production rate' to the personnel department. When information visibility (IV) is turned on, information delays in the retailer and supplier components (Figures 1 and 2) are removed (assuming that the retailer/supplier have in place, a suitable information systems).

One of those is the time required to perceive the need for changes in the workforce. Based on management's policy of adjusting the gaps in workforce, **desired versus actual**, an 'adjustment for workforce' is computed. The 'desired hiring rate' is the sum of the 'expected quit rate' and the 'adjustment for workforce', to maintain the required level of 'workforce'(if negative would denote lay off). For simplicity, we assume that the management does not practice lay-offs in this study.

parametric settings for the subscribing model - subscrip-tions- Good, Better, Best							
		Good		Better		Best	
Parameter	Unit	R	S	R	S	R	S
Production and Inventory							
Simulation Time	weeks	300	300	300	300	300	300
Customer Orders at start	units/week	5000	n.a.	10000	n.a.	15000	n.a.
Orders from manufacturer	units/week	n.a.	5000	n.a.	10000	n.a.	15000
Trend Start time	weeks	16	n.a.	16	n.a.	16	n.a.
Smoothing Alpha	dimensionless	0.3	0.5	0.3	0.5	0.3	0.5
Min Order Filling Time	weeks	1	1	1	1	1	1
Safety Stock level	weeks	1	1	1	1	1	1
FG Inv Adj Time	weeks	1	4	1	4	1	4
Production Cycle Time	weeks	n.a.	4	n.a.	4	n.a.	4
WIP Adj Time	weeks	n.a.	4	n.a.	4	n.a.	4
Standard Workweek	hours	n.a.	40	n.a.	40	n.a.	40
Flexible workweek -max	hours	n.a.	50	n.a.	50	n.a.	50
Flexible workweek -min	hours	n.a.	30	n.a.	30	n.a.	30
Productivity Normal	units/(hour*person)	n.a.	25	n.a.	25	n.a.	25
WIP	units	n.a.	20000	n.a.	40000	n.a.	60000
Finished Goods	units	5000	5000	10000	10000	15000	15000
Workforce View							
Workforce Adj Time	weeks	n.a.	3	n.a.	3	n.a.	3
Communication time	weeks	n.a.	1	n.a.	1	n.a.	1
Hiring Time Normal	weeks	n.a.	1	n.a.	1	n.a.	1
Layoff Time Normal	weeks	n.a.	5	n.a.	5	n.a.	5
Quit Rate Normal	dmnl/week	n.a.	0.01	n.a.	0.01	n.a.	0.01
Workforce	person	n.a.	5	n.a.	10	n.a.	15
Inventory/Labor Costs View							
Inventory Cost Normal	dollars/(unit*week)	0.1	0.1	0.1	0.1	0.1	0.1
Hourly Rate Normal	dollars/(person*hour)		12		12		12
Overtime wages	times normal wage		1.5		1.5		1.5
Hiring Costs Normal	dollars/person		100		100		100
Layoff Costs Normal	dollars/person		250		250		250

Table 1: Initial Parameter /Policy setting for retailers and supplier

Table 1 given above lists the initial values for the major stocks and policy parameters of the retailer and the supplier in the model. Running time for the simulation is 300 weeks.

Table 2 below summarizes the various customer order scenarios simulated in this study

Scenarios	Description
Base case	No changes in customer orders of 5,000 10,000 and 15,000 units/week from Good Better, and Best Retailer. Information visibility turned on and flexible work week is turned on (These are also turned on in the three subsequent scenarios.)
Random Normal	Starting week 16, customer orders vary between +/- 2000 units from the base-case assuming a standard Normal distribution with a mean of basecase demand and a std dev of 700 units (appx. 3 sigma on either side of mean).
Random Uniform	Starting week 16, customer orders vary between +/- 2000 units from the base-case assuming a standard Normal Uniform distribution with a mean of base-case demand.
Upward Trend	Random Uniform plus 50 units/week increment in upward trend starting week 16
Downward Trend	Random Uniform minus 10 units/week decrement in downward trend starting week 16 (decrement per week is limited to keep the ending order quantity to be positive and not let it go below zero).
Spiked Orders	Starting 26 th week, every 13 th week (one quarter approximately) customer orders spike up by 30% (26 th , 39 th , 52 nd week etc)

Table 2: Customer order scenarios simulated

Model contains structure necessary to capture and accumulate unfilled orders at the retailers' facility and the supplier's facility. Further below, Figure 4 depicts the customer order levels under each scenario.

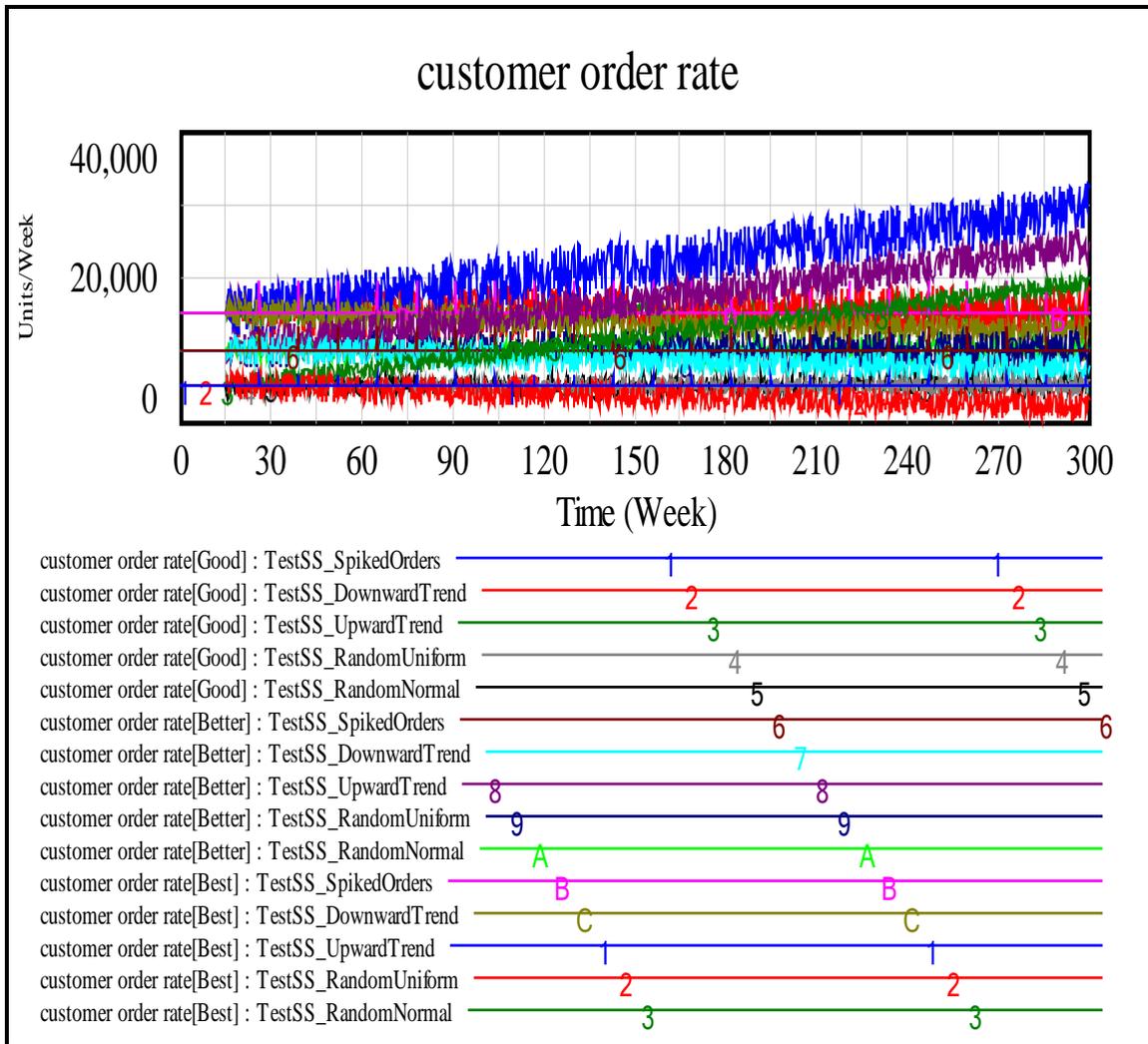


Figure 4: Customer order rates simulated in the study

Under the base case scenario, there is no change in the steady rate of customer orders, no randomness. Under the other scenarios the customer orders vary as shown in Figure 4 above. The idea is to develop insights into handling these variations effectively.

3.0 RESULTS FROM SIMULATIONS

Simulation begins with the base-case, where the system is in steady state and the customer orders are received steadily at 5,000 Units/week (good), 10,000 Units/week (better) and 15,000 Units/week (Best). Inventory policies (one week safety stock) and forecast policies (exponential smoothing with $\alpha=0.30$ for retailers and $.50$ for supplier) are working perfectly. Next the model is simulated with the scenarios listed in Table 2. And the unfilled orders are captured.

Unfilled orders of retailer

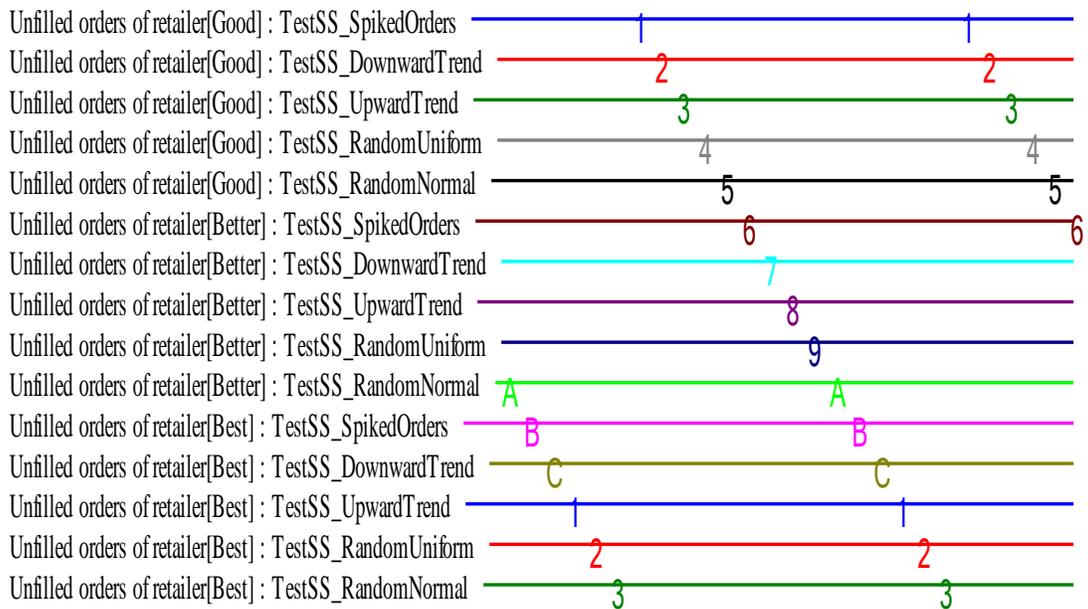
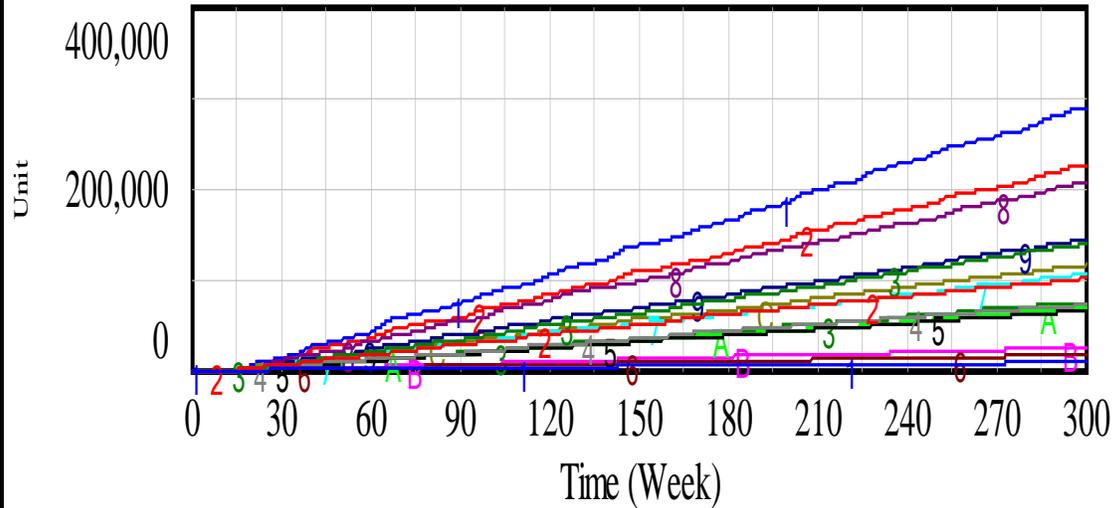


Figure 5: Unfilled Orders at retailer (despite Information Visibility and Flexible Work Week)

Unfilled orders of Supplier manufacturer

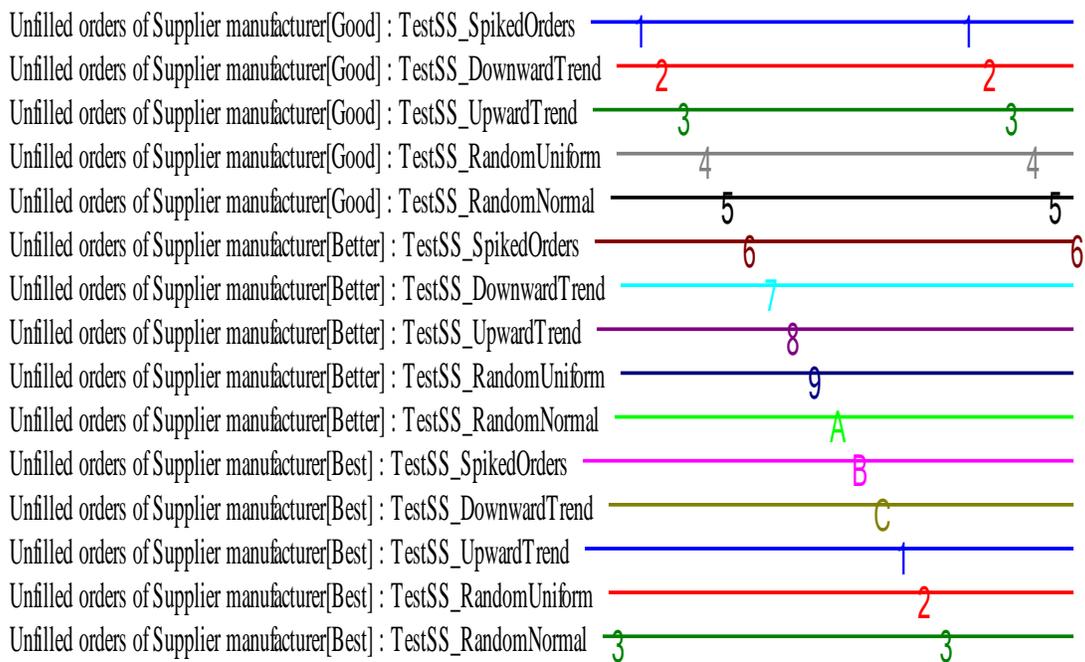
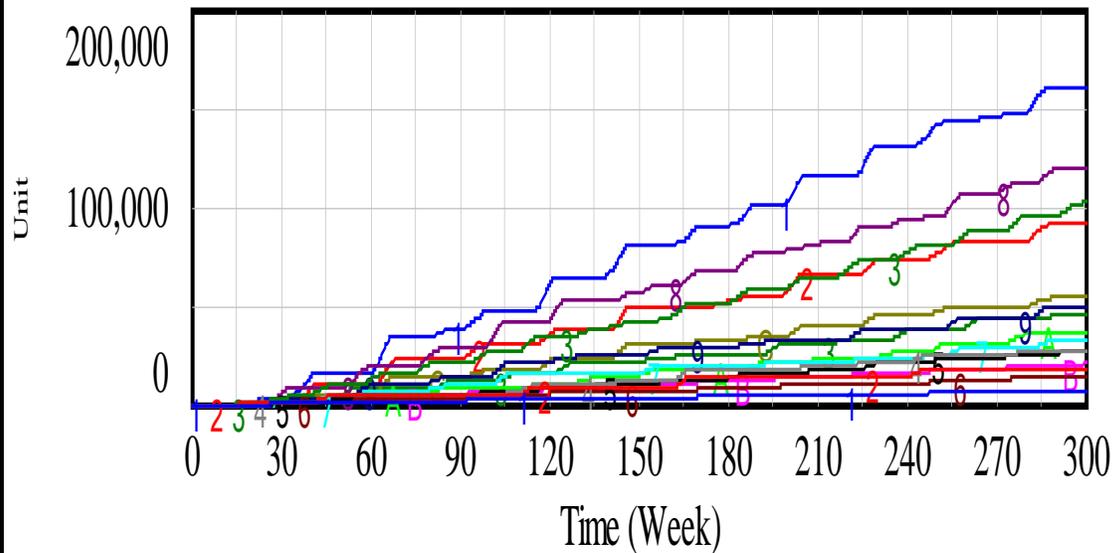


Figure 6: Unfilled Orders at Supplier (despite Information Visibility and Flexible Work Week)

Obviously, increasing in safety stock could be the simplest fix to eliminate unfilled orders. So model is simulated with 2 weeks safety stock at retailers to assess the unfilled order position and its seen that in all but one scenario(under downward trend for retailer ‘good’), increased safety stock effectively eliminates all unfilled order. See figure 7 below in respect of unfilled orders at the retailers with 2 weeks safety stocks.

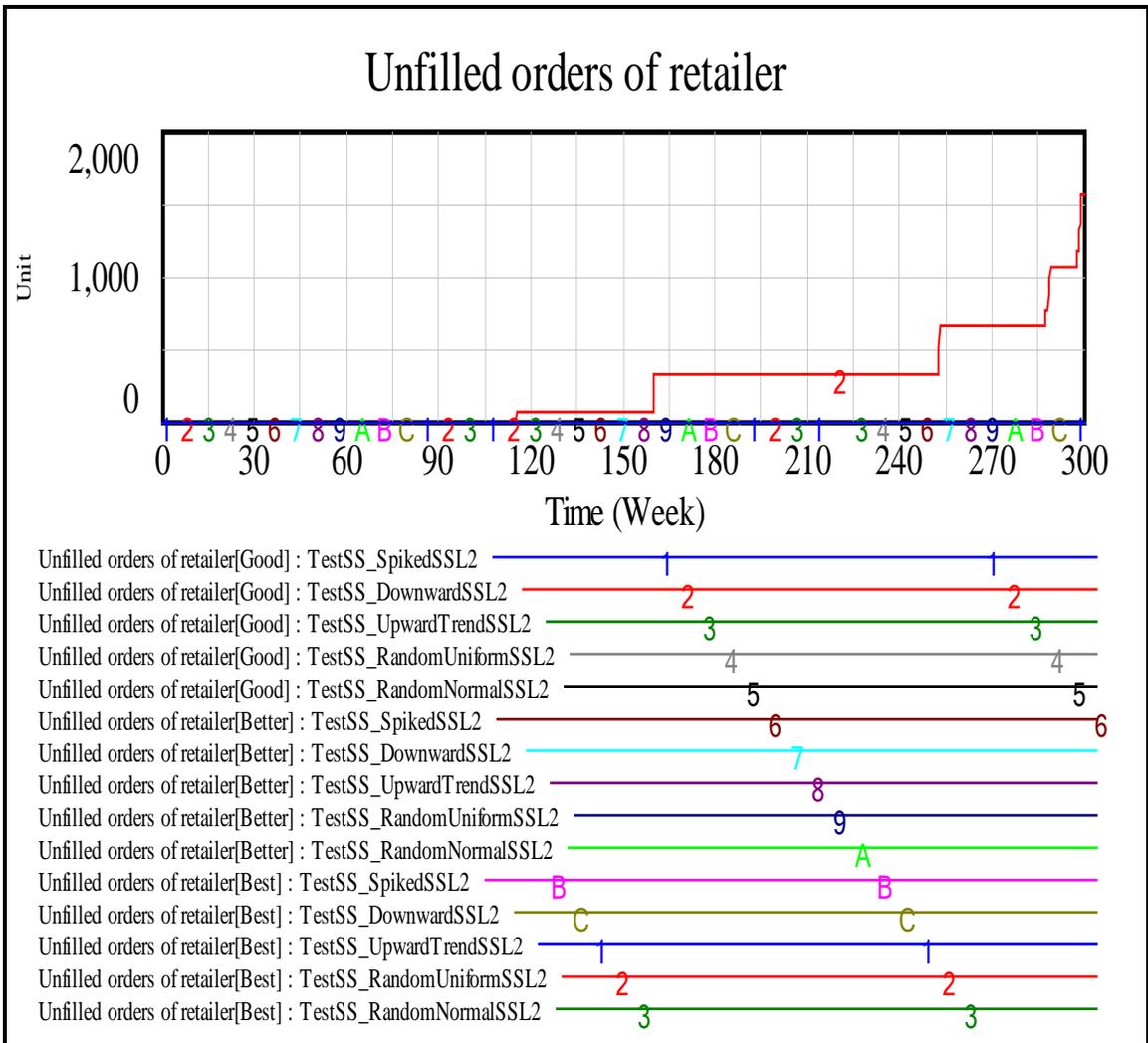


Figure 7: Drop in unfilled orders at retailer with 2 weeks safety stocks

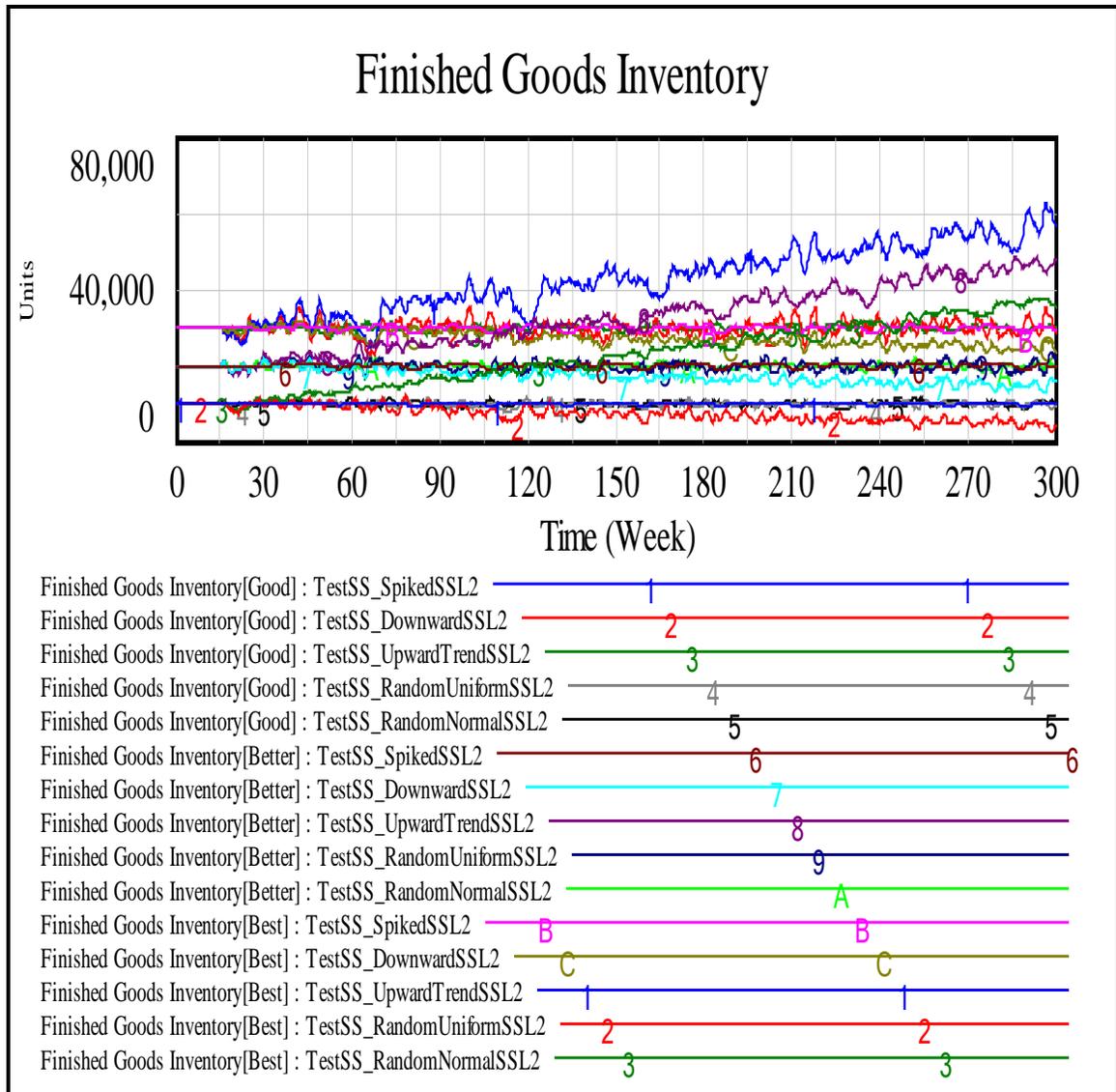


Figure 8: Finished Goods levels at the Retailer when safety stocks are increased

As may be seen in Figure 8, Finished Goods hovers around the 2 week level and above and stock outs are eliminated. But is this really the optimal solution. Obviously, it is not. So in order to reduce safety stock levels without compromising on elimination of stock outs, model is simulated with objective of minimizing unfilled orders at retailer. Powell's "Hill Climbing" algorithm that is built into Vensim is used to perform the parametric optimization.

Under optimization scenarios, while unfilled orders are eliminated, finished stock levels seem to creep up denoting need for further refinements. More importantly, we notice that supplier continues to have unfilled orders (Figure 9), which are perhaps, forcing retailers to offset the shortage by holding higher safety stocks. So the model is next simulated with dual optimization to eliminate unfilled orders at retailer and supplier simultaneously.

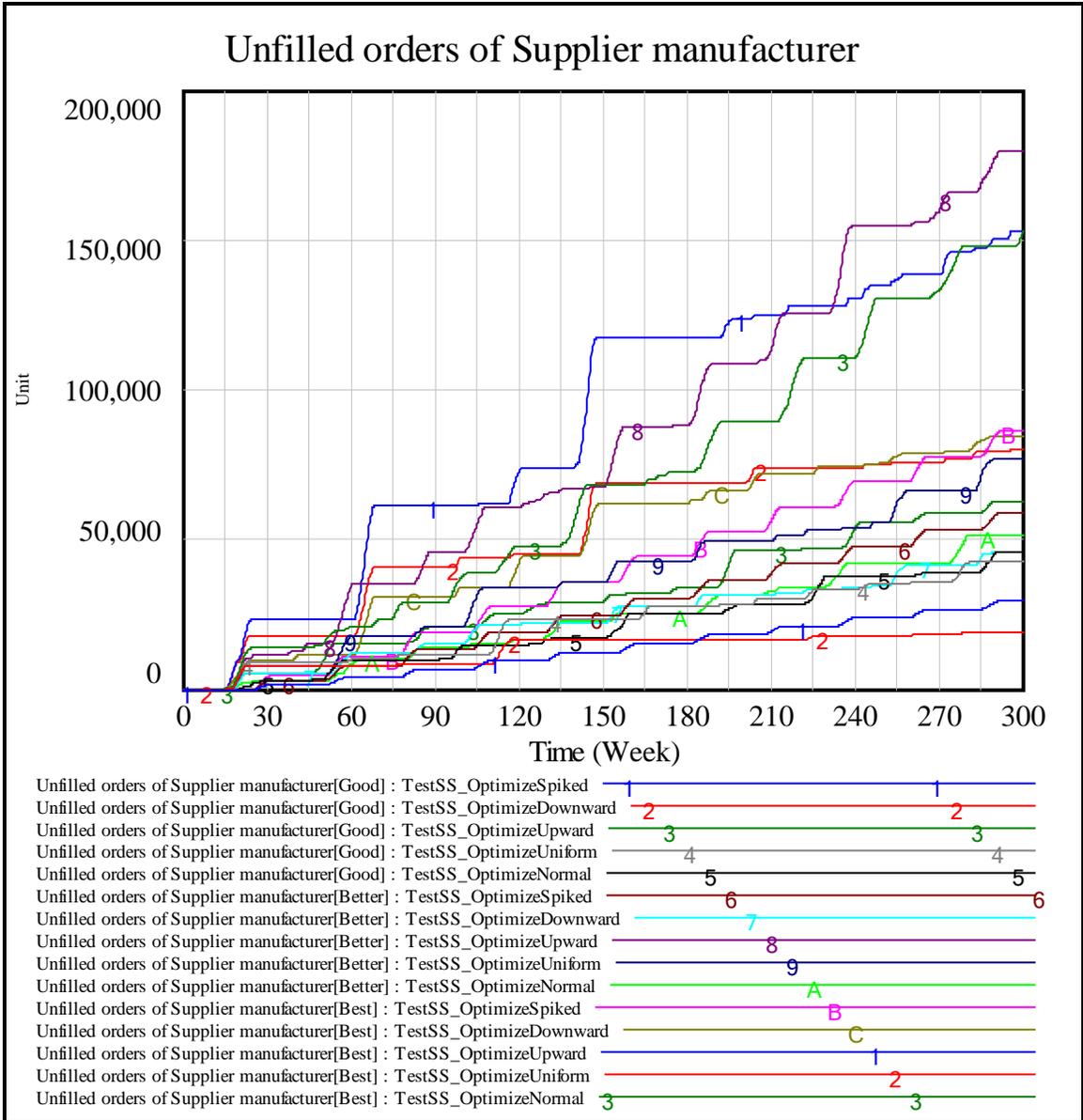
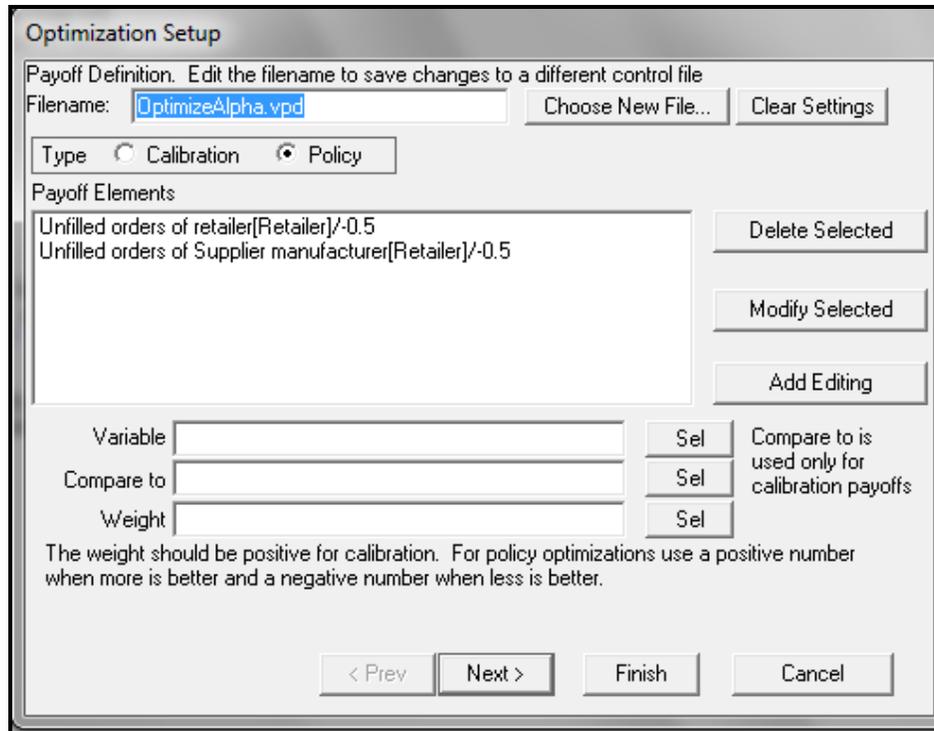


Figure 9: Supplier's unfilled orders under basic optimization scenarios



**Figure 10: Selecting the payoff elements for optimization
–minimize unfilled orders at supplier and retailer.**

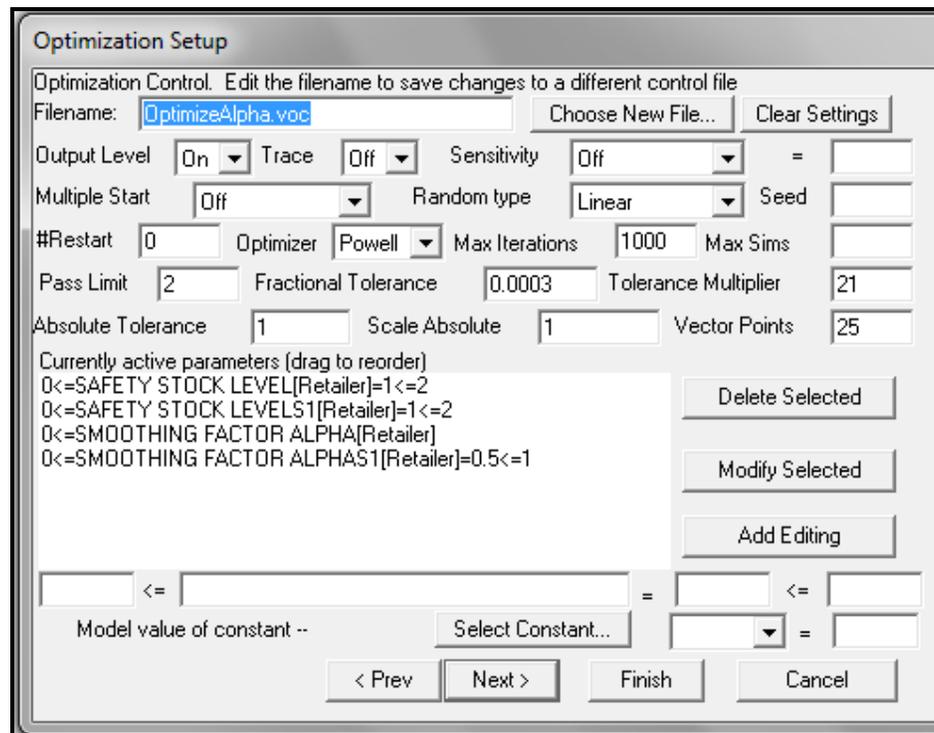


Figure 11: Selecting the search range for the parameters for optimization scenario

Figures 10 and 11 depict the process of selecting the payoff variable and defining the range of parametric values to search in the built-in optimization process of Vensim. As may be observed, under dual optimization

elimination of unfilled orders at supplier and retailer are given equal weights. Dual optimization accomplishes elimination of unfilled orders at supplier as well as all retailers. Figure 12 below depicts the elimination of unfilled orders at the supplier under dual optimization scenarios.

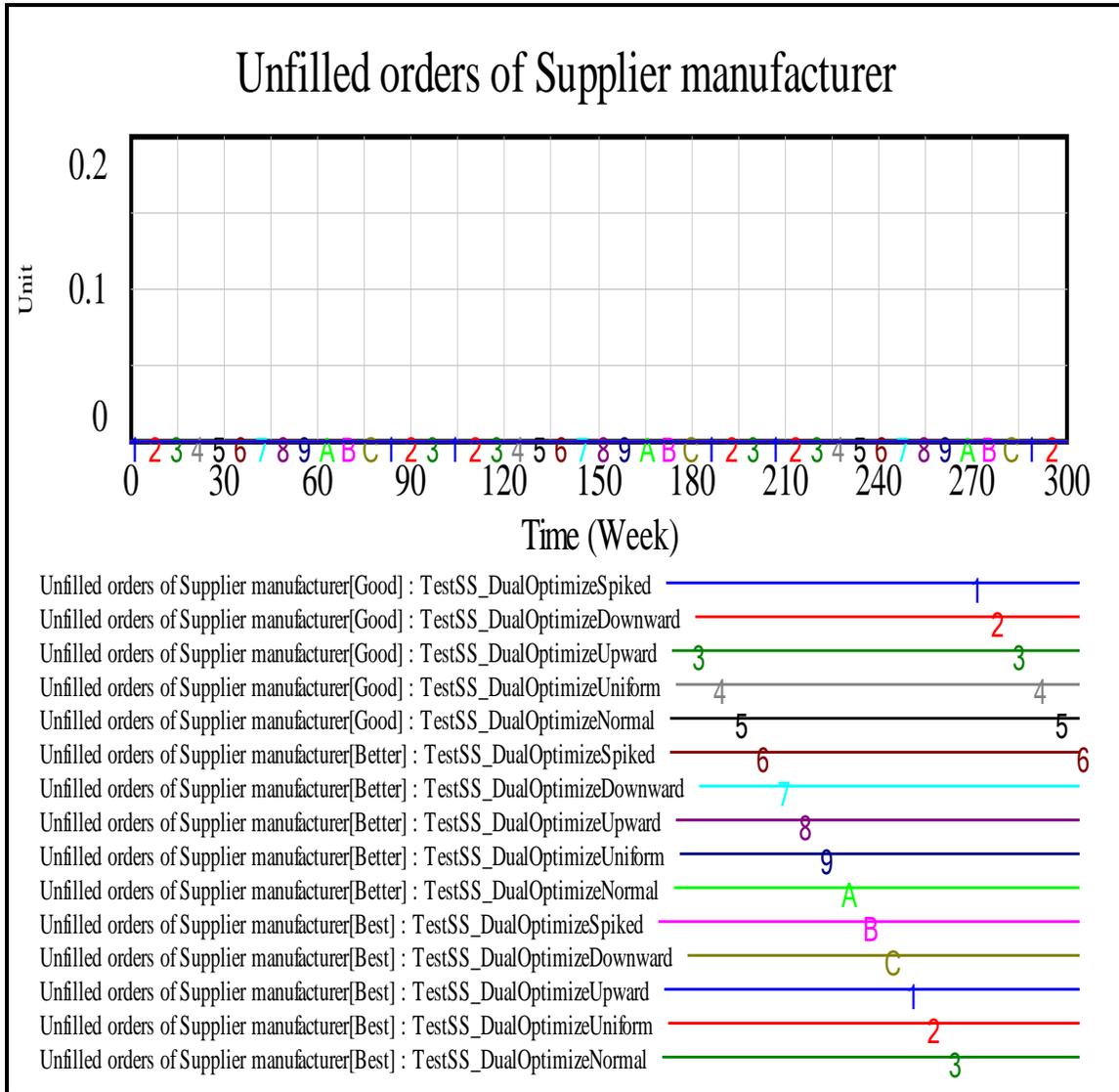


Figure 12: Supplier's unfilled orders under Dual optimization scenarios

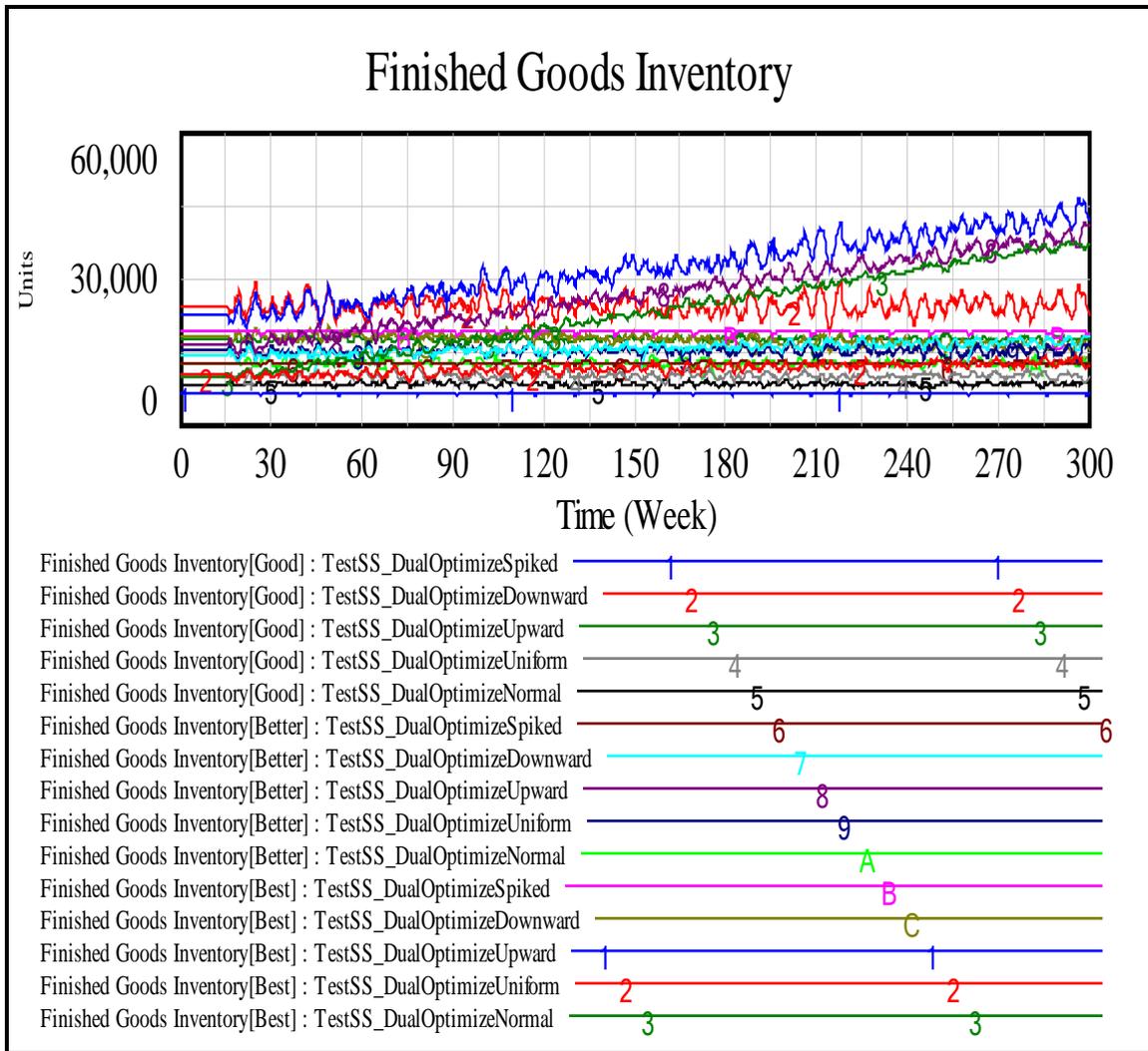


Figure 13: Finished Goods levels at the Retailer under Dual Optimization

Surprisingly, the dual optimization effort also brings down finished goods levels as captured in Figure 13 above. Stocks remain below 1.5 week level in most cases. Results from the various optimization runs and simulations are listed in Table 3 below. As may be noted, finished goods inventory levels fall for retailer. Another useful insight is that when dealing with relatively large retailer requirements (as in case of Best), the smoothing alpha =1 for the supplier under increasing orders, denoting that the supplier need not forecast but simply follow the retailer's order as input. This phenomenon was also discovered by Martin et al. (2006).

Parametric value	Initial point of search.	Optimize Random Normal order pattern	Optimize Random Uniform Order pattern	Optimize Random Upward Trend pattern	Optimize Random Downward Trend	Optimize Random Spiked Orders pattern	Dual Optimize random Normal Order pattern	Dual Optimize random Uniform Order pattern	Dual Optimize Random Upward Trend pattern	Dual Optimize Random Downward Trend	Dual Optimize Random Spiked Orders pattern
SAFETY STOCK LEVEL[Good]	1	2	2	2	2	1.4	1.65	2	1.98	2	1.26
SAFETY STOCK LEVEL[Better]	1	1.5	2	1.5	1.6	1.4	1.26	1.51	1.65	1.42	1.26
SAFETY STOCK LEVEL[Best]	1	1.5	2	2	1.4	1.4	1.17	1.61	1.49	1.20	1.26
SAFETY STOCK LEVELS1[Good]	1	1	1	1	1.05	1	2	2	2	2	1.31
SAFETY STOCK LEVELS1[Better]	1	1	1	1	1	1	1.5	2	2	1.72	1.31
SAFETY STOCK LEVELS1[Best]	1	1	1	1	1	1	1.5	2	2	1.39	1.31
SMOOTHING FACTOR ALPHA[Good]	0.3	0.3	0.3	0.3	0	0.3	0.016	0.3	0.3	0	0.03
SMOOTHING FACTOR ALPHA[Better]	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0	0.18	0	0.03
SMOOTHING FACTOR ALPHA[Best]	0.3	0.3	0.3	0.3	0.3	0.3	0.011	0.3	0.20	0.18	0.03
SMOOTHING FACTOR ALPHAS1[Good]	0.5	0.5	0.5	0.5	0.53	0.5	0.5	0.5	0.5	0.5	0.5
SMOOTHING FACTOR ALPHAS1[Better]	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
SMOOTHING FACTOR ALPHAS1[Best]	0.5	1.0	1.0	1.0	0.57	0.57	1.0	1.0	1.0	0.57	0.57

Table 3 Results from optimization runs

Raising Safety stock levels is the simplest solution to eliminating unfilled orders at the retailer only. When demand variations are high (as in case of Uniform and upward trend), higher level safety stock will address the issue of unfilled orders of retailer. Optimization with objective function of minimizing unfilled orders at retailer is the starting point to understand the impact of stocking level and other parametric settings. Dual optimization, recommends that the clue to eliminating unfilled orders at both SC partners starts with a higher safety stock at the supplier level. This also reduces stocking requirements at retailer. Smoothing factor α_{S1} [Best] =1 in respect of Best retailer signifies that in case of large retailers, the supplier should simply follow the retailers orders as input for his production schedule and not attempt to make his own forecasts. As may be seen, the inescapable conclusion here is that, if unfilled order minimization is the main objective (which should rightly be so in a retail supply chain), then increases in inventory to meet the surges in fluctuations in the customer order patterns becomes inevitable. This is not a very surprising result given that one of the major functions of an inventory is to serve as a 'safety stock' against unforeseen fluctuations. Besides, we find in this model by carefully selecting the objective function we can look for appropriate set of parametric settings to accomplish the desired goals.

4.0 CONTRIBUTIONS AND LIMITATIONS

This study demonstrates the use of optimization to simultaneously optimize performance metrics in dealings with three retailers of differing proportion of demand (1:2:3) and experiencing volatile demand patterns. Study presents some useful insights to managers servicing multiple retailers in accomplishing the overall objective of eliminating unfilled orders in a retail supply chain and the mechanism for doing the same.

4.1 Limitations of the model: Although the model captures the typical supply chain behavior observed in the real world, there is no denying that the SD model is simplified compared to the complex real world.

4.2 Implications of potential results of research: Study reinforces that the supply chain partners' interests are best served when they collaborate and share order/ production details with upstream and downstream partners and plan schedules accordingly.

4.3 Future research directions: Further studies will focus on obtaining more useful insights into other possible scenarios of different Supply Chain settings. Simplification assumptions made in developing the model can be relaxed one by one to develop more complex SD models capturing more complex business scenarios.

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How Culture Affects The Adoption Of U.S. Entrepreneurship Programs: An Analysis Of The Latin America Small Business Development Center Program

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ABSTRACT

Entrepreneurship is a transformative force that can lead to job creation and economic growth. Research shows that there is immense entrepreneurial energy present in the world. The 2011 Global Entrepreneurship Monitor (GEM) estimates that in the 54 countries where they collected data there are 388 million entrepreneurs actively engaged in starting and running new businesses (GEM, 2011). Governments use a variety of policy tools to help aspiring as well as practicing entrepreneurs. In the United States one of the primary federal entrepreneurship models is the network of Small Business Development Centers (SBDCs). SBDCs are institutions designed to help individuals start and grow businesses. This paper provides an international comparative research study that analyzes the successful development of the Latin America Small Business Development Center Program and the effects of culture in relation to entrepreneurship.

How Culture Affects The Adoption Of U.S. Entrepreneurship Programs: An Analysis Of The Latin America Small Business Development Center Program

I. Introduction

The United States of America has often been referred to as the land of opportunity where an individual can achieve the American dream. Consequently, this characterization may be attributed to the high level of individualism and small level of power distance that is associated with the United States (Hofstede, 1983). One example of how this has manifested itself is the level of entrepreneurship across the U.S. and the country's subsequent ranking in the Global Entrepreneurship Development Index (GEDI) developed by Acs, and Szerb, 2009. The U.S. occupies the third overall ranking on the GEDI relative to entrepreneurial performance in comparison to 71 countries and is first among all countries in "entrepreneurial aspirations" (Acs and Szerb, 2010).

The promotion of entrepreneurship throughout the United States is one that encompasses many environments both in the public and private sector. One example of where the two worlds intersect is in the work performed by a Small Business Development Center (SBDC). There are many entrepreneurship programs that individuals seeking outsider assistance or formal entrepreneurship training have access to across the country. Some examples include but are not limited to higher education degree programs, private sector consultants, business incubators, and the Kauffman Foundation. While many programs are available to entrepreneurs, some have out of pocket costs for the individual seeking assistance. Of the programs available there are a few that do not have any fees for their service; however none of the free programs can match the extensive network and level of service that is provided by the SBDC. By providing assistance to pre-venture and established small businesses in identifying viable business ventures, and improving their operations through efficient utilization of resources, SBDCs play an important role in the U.S. economy for those who often cannot afford the luxury and expense of a private consultant (Chrisman and Katrishen, 1994). The outsider assistance provided by the SBDC program has been shown to be effective and efficient at the national level from the standpoint of the entrepreneurial clients and society at large (Chrisman and McMullan, 2000).

The U.S. Small Business Administration (SBA) in partnership with government and colleges/universities has established a network of Small Business Development Centers (SBDCs) throughout the United States and its territories. "America's Small Business Development Center Network in fiscal year 2011 provided assistance to an estimated 1.25 million clients. Of this number, approximately 710,000 counseling and training clients received a minimum of one hour of individual counseling or two hours of group training" ("A Brief History of America's SBDC Network", n.d.). The network's clients include small business owners and aspiring entrepreneurs. In 2003 the University of Texas San Antonio (UTSA) Institute for Economic Development (IED) began a journey that would result in the implementation of the U.S. SBDC Network model into Latin America. This implementation provides an opportunity to explore whether or not a lesser-developed region can adopt a government sponsored entrepreneurship initiative developed in the U.S. This paper will explore the topic of culture and its relation to entrepreneurship. The ensuing analysis will look at the Latin American SBDC program and attempt to determine whether the program can attain a comparable level of performance and legitimacy that is associated with it in the U.S. Therefore, we propose to extend the international comparative research by offering an investigation into whether there are universal characteristics that are shared by entrepreneurs that apply across all cultures and whether or not they have an effect on the success of the SBDC program in Latin America. The paper will follow the subsequent format, a description of the U.S. SBDC program, a review of the antecedents in the literature, theory and proposition development, and conclude with a results and discussion section.

U.S. SBDC Model

“The SBDC program is the federal government’s largest and most successful management and technical assistance program for small businesses” (“A Brief History of America’s SBDC Network”, n.d.). Small Business Development Center’s (SBDCs) across the U.S. and its territories provide customized assistance to new and existing entrepreneurs so that they may achieve success in their ventures by opening a new business or expanding an existing one. All one-on-one consulting services provided by the SBDCs are free of charge to entrepreneurs. The U.S. SBDC model framework consists of the following two main components: Investment and Consulting. Each component has 3 factors, Investment consists of Funding, Economic Impact, and Return on Investment; Consulting consists of Long-term Assistance, Multiple Clients Consulting and Metrics. The two main components and the subsequent factors will be discussed in the following section.

Investment

Investment is the first of two components of the SBDC model. It is the reason SBDCs exist and it is made up of three factors: funding; economic impact; and return on investment. The U.S. federal government invests significantly in the SBDC network. Funding for fiscal year 2010 was appropriated at \$113 million (SBA FY 2012 Congressional Budget Justification and FY 2010 Annual Performance Report, 18) these funds are leveraged with matching funds provided by local partner institutions. The investment into the SBDCs throughout the U.S. consists of a partnership between the federal government via the Small Business Administration (SBA) and a local partner that allows the local partner to operate an SBDC. In this particular case study the local partner is the University of Texas at San Antonio’s Institute for Economic Development (UTSA-IED). The UTSA-IED is home to the South-West Texas Border SBDC Network, which manages 10 SBDC programs along with 5 specialty centers and programs.

Funding

Federal funds provided by the SBA are matched with funds from various local partner institutions. In the case of the South-West Texas Border SBDC Network territory each institution provides their own level of matching funds. The South-West Texas Border SBDC Network includes the following 10 centers: Sul Ross State University SBDC (Alpine, TX), Texas State University SBDC (Austin, TX, San Marcos, TX, and Round Rock, TX), Del Mar College SBDC (Corpus Christi, TX) Sul Ross State University – Rio Grande College SBDC (Eagle Pass, TX), University of Texas Pan American (Edinburg, TX, Harlingen, TX, and Brownsville, TX), El Paso Community College SBDC (El Paso, TX), Texas A&M International University SBDC (Laredo, TX), Angelo State University SBDC (San Angelo, TX), and University of Houston Victoria SBDC (Victoria, TX). The South-West Texas Border SBDC Network territory also includes 5 specialty centers and programs that are located at the UTSA-IED but provide assistance throughout the entire South-West Texas SBDC Network territory. They are as follows: International Trade Center, Procurement Technical Assistance Center, Rural Business Program, Startech, and SBDCNet (SBA National Clearinghouse). The initial funding from the SBA allows for the local partner to leverage their financial resources in order to provide entrepreneurs with better resources.

Economic Impact

According to the SBA, “Six years of longitudinal impact studies show there is a significant economic impact on businesses receiving technical assistance through SBA’s Entrepreneurial Development programs” (SBA FY 2012 Congressional Budget Justification and FY 2010 Annual Performance Report, 29). In 2010 SBDC clients generated more than \$4.7 billion dollars in new sales and obtained an estimated \$3.6 billion in financing (“SBDC National Economic Impact,” n.d.). This economic impact is an important factor because it leads to return on investment for the SBA and local partners.

Return On Investment

The economic impact generated by the SBDC Network accounted for a positive return on investment. The assistance provided by the SBDCs nationally generates more tax revenues than it costs to fund the program. “For every federal dollar invested, an SBDC client returns \$2.09 in federal revenue and \$1.62 in state revenue and \$1.62 in state revenue” (“SBDC National Economic Impact,” n.d.). This return on investment is a significant factor in the investment component of the SBDC model. This positive return allows the SBA to make a successful case to the U.S. Congress and its partner institutions in order to continue to reinvest in the program year in and year out. The investment component and its three factors of the SBDC model can be viewed as the “why”, where the consulting component and its factors can be viewed as the “how”.

Consulting

The nuts and bolts of the SBDC model lie in its consulting component. The consulting component is made up of three factors; long-term assistance; multiple clients consulting; and metrics. The SBDC model can trace back its roots to the first University Business Development Center, as they were previously called in December of 1976 (“A Brief History of America’s SBDC Network”, n.d.). The SBDC model has continually evolved over the past 35 years and its consulting component is its lifeblood. The consulting services performed by the individual counselors are meant to follow an educational format where the client plays an active role in the process.

Long-term Assistance

The success of the consulting component is based on building a long lasting relationship with entrepreneurs. On average a long-term counseling project involves about 80 hours of work performed by the client and 20 hours of work performed by the SBDC counselor (Chrisman, and McMullan, 2000). The services provided to new and existing entrepreneurs vary and include technical business assistance in areas such as management, marketing, finance, operations, technology, along with specialized services focused on international trade, procurement, venture capital, and rural development (Knotts, 2011). The focus on long-term assistance is central to assuring the successful creation of economic impact by the entrepreneurs that are assisted by the SBDC.

Multiple Clients Consulting

The SBDC model allows for the maximization of entrepreneurs that receive consulting services. SBDC counselors work with hundreds of clients on a yearly basis. The entrepreneur’s business knowledge level varies, which allows for counselors to customize the amount of time they spend with each. By ensuring that there is a broad entrepreneur base, the SBDC model provides the counselors with opportunity to develop the long-term relationships that generate economic impact resulting in a return on investment for the SBA and local partners.

Metrics

Metrics are an important factor of the consulting component of the SBDC model. The metrics include, businesses started, businesses expanded, new jobs created, existing jobs retained, entrepreneurs consulted, training program attendees, training programs performed, increased sales/contracts/exports, new financing/investments, and customized business research (“SWTXB SBDC Network Impact”, n.d.). The metrics have been developed over time and help measure the effectiveness of individual SBDC counselors and SBDCs.

II. Literature Review

There has been a considerable amount of scholarly work that has sought to answer the question of whether culture influences entrepreneurship (Hayton, et. al., 2002; Kollman and Kuckertz, 2006; McGrath and

MacMillan, 1992; Mitchell, et. al., 2002; Mueller and Thomas, 2001; Thomas and Mueller, 2000). The majority of the studies have used Hofstede's (1983) seminal paper as a basis to define the various cultural dimensions that exist among various nations. Four cultural dimensions were identified: Individualism/Collectivism (the relation between an individual and his or her fellow individuals); Power Distance (how society deals with the fact that people are unequal); Uncertainty Avoidance (how society deals with the fact that time runs only one way: that we have to live with uncertainty because the future is unknown and always will be); and Masculinity/Femininity (the division of roles between the sexes in society) (Hofstede, 1983). These dimensions have served as a useful instrument to measure the differences among national cultures.

Similar to the substantial amount of research investigating cultural dimensions, the resource-based view (RBV) of the firm has received extensive attention in the scholarly world. RBV provides an explanation for a firm achieving sustainable competitive advantage in which resources must be valuable, rare, inimitable, and nonsubstitutable (Barney, 1991). A resource is meant as anything that could be thought of as a strength or weakness of a given firm (Wernerfelt, 1984). RBV provides a relevant framework to explain why some firms outperform others or for the purposes of this article why some entrepreneurs outperform others. In the following section we explore some of the literature concerning both culture and RBV.

Culture and Entrepreneurship

One of the general hypotheses of researchers is that cultures that are high in individualism, low in uncertainty avoidance, low in power-distance, and high in masculinity enable entrepreneurial activity within their population (Hayton, C., George, G., and Zahra, S.A., 2002). Such is the case of the cultural dimension profile of the United States (Hofstede, 1983). In contrast to the U.S., the cultural dimension profile for Mexico a country representative of Latin America is low in individualism, high in power-distance, high in uncertainty avoidance, and high in masculinity (Hofstede, 1983). In 1992 two studies made comparisons between entrepreneurs and non-entrepreneurs (McGrath and MacMillan, 1992; McGrath et. al., 1992). The comparison across 13 countries showed that entrepreneurs were consistently higher in power-distance, individualism, and masculinity and lower in uncertainty avoidance when compared to non-entrepreneurs. Furthermore the authors found that entrepreneurs believed in taking the initiative and controlling their own destiny, were willing to take charge and direct others, and were positively oriented toward adaptation and change, when compared to others (McGrath and MacMillan, 1992; McGrath et. al., 1992). Figure 1 illustrates a comparison of the national cultural dimension profiles for the U.S. and Mexico as per Hofstede (1983) and the cultural dimensions of the entrepreneurs as identified by McGrath and MacMillan (1992). As evidenced by the research there are clear differences between the U.S. and Mexico, they sit on opposite ends of the spectrum in three of the four dimensions individualism, power-distance, and uncertainty avoidance with only high masculinity in common. In contrast, the cultural dimensions of entrepreneurs identified by McGrath and MacMillan (1992) share similarities in individualism, uncertainty avoidance, masculinity with only power-distance different between the entrepreneurs and the U.S. profile.

Hofstede Cultural Dimensions	USA	Mexico	Entrepreneurs
Individualism vs. Collectivism	High Individualism	Low Individualism	High Individualism
Power Distance	Low Power Distance	High Power Distance	High Power Distance
Uncertainty Avoidance	Low Uncertainty Avoidance	High Uncertainty Avoidance	Low Uncertainty Avoidance
Masculinity vs. Femininity	High Masculinity	High Masculinity	High Masculinity

Figure 1. Comparison of Cultural Dimensions

Among the research conducted regarding culture and entrepreneurship there is evidence of shared characteristics among entrepreneurs, specifically that entrepreneurs share common cultural cognitions when faced with common problems that have a limited number of known responses (Mitchell, et. al., 2002). In their 2002 study comparing 11 countries, Mitchell, et. al. distinguish the population of their sample into two separate groups, entrepreneurs and non-entrepreneurs. This is an important distinction because it helps identify that entrepreneurs regardless of what country they originate from share a specific type of culture. Furthermore, Mitchell, et. al. (2002) identified the existence of a universal culture of entrepreneurship where they propose that regardless of culture or geographical location, entrepreneurs share common experiences in the conceptualization, start-up, and growth of ventures. This shared commonality is important, but it is no way meant to be homogeneous.

Another example of shared entrepreneurial culture can be derived from the works of Kollman and Kuckertz, 2006. In their study of entrepreneurs representing seven different cultural regions, they attempt to make a link between two of the five categories in the literature on entrepreneurship theory. Specifically, they attempt to link the formation of new ventures and the circumstances under which such an event occurs. In their study they find that with regard to the “entrepreneurial event”, many entrepreneurs believe the discovery of a business opportunity, respectively the decision for a particular business model, to be the starting point of their company’s evolution (Kollman, and Kuckertz, 2006). Furthermore, Mueller and Thomas (2000) explore the question of whether entrepreneurial traits vary systematically across cultures. In their study they focus on two traits that are shared by entrepreneurs, “internal locus of control” and “innovativeness”. They go on to introduce the concept of “entrepreneurial orientation” where they define it as an individual who is self-reliant, self confident, with strong determination and perseverance to initiate and grow an enterprise (Mueller and Thomas, 2000, 62). The findings showed that “entrepreneurial orientation” varied in frequency across cultures, but they presume that the propensity to think creatively may be a universal trait and not shaped by culture, meaning that creativity and creative thinkers are equally prevalent in a variety of cultural contexts (Mueller and Thomas, 2000). These findings appear to provide a framework for the belief that despite differences in culture the commonalities among entrepreneurs’ characteristics are present across a multitude of nations.

Resource-Based View and the Entrepreneur

For the purposes of this paper we use the definition developed by Bygrave and Hofer (1991) where the entrepreneur is an individual, specifically “an entrepreneur is someone who perceives an opportunity and creates an organization to pursue it”. This is key because in the U.S. SBDC model it is individual entrepreneurs who receive technical assistance from SBDC counselors. Following the work of Chrisman and McMullan (2000) we build on the argument that entrepreneurs are themselves a valuable resource by way of the quality of their knowledge. The entrepreneurs are key actors in the role of small and medium enterprises

that are assisted by the SBDC. Particularly during the initial start-up or pre-venture period, the counseling assistance the entrepreneurs receive can be considered a special resource that they may use to develop distinct competencies. The entrepreneurs define which resources are obtained and cultivated along with how those resources are configured and used in the competitive environment faced by the young firm (Chrisman and McMullan (2000). Furthermore, Chrisman and McMullen (2000) argue that the function of the entrepreneur acting as a key resource is a function of the knowledge they possess and attain. Evidence exists of how knowledge-based resources contribute to performance by giving firms the aptitude to modify their products to meet market needs in order to deal with competitive challenges (Miller and Shamsie, 1996). Entrepreneurs who can develop tacit knowledge or individual know how which is difficult to codify as opposed to explicit knowledge or facts and theories which are in the public domain, they can then apply it to their business in order to develop distinct capabilities (Grant, 1996). Due to the nature of how SBDC counseling is performed whereby the interactions between the counselor and the entrepreneur are educational and task oriented, an entrepreneur may develop tacit knowledge through the counseling process. Additionally, the blending of tacit and explicit knowledge developed during the entrepreneurs time spent with the SBDC counselor, will improve the chances of the venture developing a sustainable competitive advantage (Chrisman and McMullen, 2000). The ability for Latin American entrepreneurs to access the services of SBDC program provides them a greater opportunity to achieve success in their venture.

Theory and Proposition Development

As the literature has shown evidence of a shared “entrepreneurial culture” it is important to note that this culture is not meant to be homogeneous. However, its existence suggests that entrepreneurs across the globe are more alike than non-entrepreneurs across the globe. These shared beliefs have led to entrepreneurs being characterized as “deviants” in their society for the desire to differ from customary behavior that is emblematic of their national culture (McGrath and MacMillan, 1992). Intuitively one can gather that if entrepreneurs are misfits because they choose to go rogue then there must be a sense of “us-versus-them” that binds them across the globe. The pursuit of a perceived opportunity is the driving force behind becoming an entrepreneur. Regardless of the approach they use to execute this pursuit, the ultimate goal for entrepreneurs is to generate personal wealth for themselves. Therefore, entrepreneurs have more in common as a group than do individuals across different countries. Accordingly, we offer the following four propositions:

Proposition 1: An entrepreneurship culture is shared by individuals regardless of their country of origin stemming from the pursuit of opportunity and wealth creation.

The existence of a shared entrepreneurial culture facilitated the establishment of the SBDC program in Latin America. The implementation of the U.S. SBDC Network Model into Latin America began in 2003. With initial funding from the U.S. Agency for International Development (USAID) the University of Texas at San Antonio (UTSA) International Trade Center (ITC) whose focus is to assist companies looking to import or export their products or services to and from the United States was able to engage the Universidad Autonoma de Guadalajara (UAG) to establish a partnership in order to implement the U.S. SBDC Network Model into Mexico. The UAG reached out to other universities throughout Mexico to develop an initial network of Mexican SBDCs. Working closely with the San Antonio SBDC the UTSA-ITC developed a Spanish language curriculum that could be delivered to the newly established Mexican SBDCs. The result of the project was the establishment of over 100 Mexican SBDCs, which formed their own network as the Mexican Association of SBDCs (AMCDPE). Since this first effort, UTSA-ITC has received other sources of funding to continue the implementation further into Latin America. At present time the UTSA-ITC has helped launch 104 SBDC programs in Mexico, 10 in El Salvador, 2 in Colombia, and is in the process of implementing programs in the Dominican Republic, Honduras, Costa Rica, Panama, and the Caribbean. The successful adoption of the U.S. SBDC Model in Latin America may have been facilitated by the shared cultural characteristics among entrepreneurs. Therefore,

Proposition 2: The adoption of U.S. SBDC entrepreneurship program was aided by the culture exhibited by entrepreneurs across the globe.

While, we argue that lesser-developed countries with different national culture than the U.S. will successfully adopt the U.S. SBDC Model, we do not presume that its implementation is rigid. Just as an entrepreneur must adapt to the needs of the environment they operate in, so did the UTSA-ITC when seeking to implement the model. The expectation of the UTSA-ITC was not to garner identical results in the expansion countries as in the United States. This of course is due to the fact that each country has a different type of general population along with different characteristics in its cultural dimensions as compared to the United States. These differences in national culture provided a perceived moderating effect to the U.S. SBDC Model implementation. Consequently,

Proposition 3: The national culture moderates the adoption of the U.S. SBDC entrepreneurship program in other countries.

The performance of the SBDC program in Latin America is directly associated with the how well the entrepreneurs that work with the counselors do in their businesses. As previous research identified, new venture development can be thought of as a process requiring special application of the resourced-based view and that the technical assistance provided by the SBDC program has been shown to be effective from the standpoint of the entrepreneurial clients (Chrisman and McMullan, 2000). In order for the Latin American SBDC program to realize the level of legitimacy the program possesses in the U.S., the SBDCs must create an environment of learning for the entrepreneurs that allows them to develop tacit knowledge that they can apply to their business in order to achieve sustainable competitive advantage. Therefore, if the individual clients achieve success through the development of resources, the SBDCs will be able to capture the results and measure the economic impact created by the activities of the centers. Thus,

Proposition 4: Latin American SBDCs long-term success will be attributed to the ability of the entrepreneurs' ability to develop distinct capabilities.

Results & Discussion

This paper has provided an international comparative research study examining the U.S. and Latin America by investigating the effects of culture in relation to entrepreneurship. We argue that despite possessing significant differences in national cultures, Latin America has been able to successfully adopt a U.S. entrepreneurship program. This is due to the existence of mutual cultural characteristics shared by entrepreneurs across the globe. In addition, we propose that the ability for the Latin America SBDC program to gain legitimacy is tied to the ability of the clients to learn from the consulting process and develop resources. Furthermore, the fact that the program is getting ready to celebrate its ten-year anniversary with an established network of nearly 120 centers across 3 countries and 5 more countries in the development stage, it would appear to give credence to universality of U.S. entrepreneurship programs.

While this paper makes a compelling case for the adoption of U.S. SBDC Network model it is not one without its limitations. First of all this paper is conceptual in nature and does not provide empirical evidence to support the propositions that were stated. Though the literature review was meaningful it is no way meant to be exhaustive. Further examination of the results generated by the established Latin American SBDC Network may help provide validation of the findings of this paper. Specifically, a longitudinal study exploring the results of the economic impact and return on investment generated by the new SBDCs would be of particular interest. Another limitation of this paper is that it only looks at the transfer of the U.S. model into Latin America. Based on the findings regarding proposition 1, it would be worth to investigate the adoption of another country's entrepreneurial program by the United States. How well would the U.S. adopt another country's entrepreneurial program? Finally, this paper suggests that as a society we may be moving more

towards homogeneity in the realm of business and therefore the opportunity to develop further knowledge into this topic is warranted.

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Testing the Moderating Effect of Socioeconomic Structure on the Relationship between Culture and Technology Use

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ABSTRACT

This paper seeks to extend the research of Yenyurt and Townsend (2003) by testing the moderating effect of socio economic structure on the relationship between culture and technology use using the technique of Structural Equation Modeling by using the software Warp PLS 3.0. We analyze four cultural dimensions provided by Hofstede and find they have a significant impact on the technology use dimension however the moderating effect of socio economic structure on the relationship between culture and technology use is insignificant.

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An Investigation of the Romanian SME's Involvement in CSR Involvement in CSR Practices

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ABSTRACT

For many years corporate social responsibility was a practice that belonged to the big companies, but recent trends show that small and medium size companies are also very much involved in it, although they are a lot less praised about. In most of the developed European countries SMEs are active about giving back to the society. Consequently, this paper is aiming to investigate the degree of CSR involvement of SME in the North West region of Romania. The research methodology was a qualitative approach. The findings show that in Romania, the investigated companies want to have a positive impact on a wide range of stakeholders through the business decisions they make, but they still focus more on surviving in the contemporary economic environment. The study shows that being socially responsible must be adapted to the informal way of conducting business in SME, in which the right attitude is the key.

Keywords: corporate social responsibility, small and medium size enterprises, CSR involvement.

An Investigation of the Romanian SME's Involvement in CSR Involvement in CSR Practices

INTRODUCTION

Corporate social responsibility has been a hot topic for many years now, as it had a significant growth in the last decade. Even though CSR has received a lot of attention from academia and also media, it is still a mystery for certain businesses. In order to define the concept, we will use Friedman opinion regarding CSR as being an extension of firm's efforts to maximize shareholder's wealth, but also conform to the basic rules of society (1970). A more recent opinion views CSR as the economic, legal, moral, philanthropic actions of the firm to influence the quality of life of relevant stakeholders (Hill *et al.*, 2007). We believe that CSR describes the ways in which companies choose to manage their business processes to create a positive impact on society in general. Some may also add the continuous pressure that exists for businesses to get involved in such activities (Jenkins, 2006). Even though CSR is a popular topic, there are still confusions as to the fact that it is optional and philanthropic (van Marrewijk, 2003). All and all, we agree that CSR is not a matter of optional and philanthropic actions, but a reasonable economic plan in accordance with the existing laws and linked to the enterprise value chain (Porter, 2002).

Generally CSR was a strategic component of the big companies' way of doing business (del Brio, 2003; Hillary, 2000; Spence, 1999), but in the recent years the focus has shifted towards the small companies as well. In this sense, studies show that we must learn more about the particular corporate culture and framework and the relationships that condition the economic and social functioning of small and medium size enterprises (SMEs) (Spence, 1999). The first argument is that small and medium size companies contribute with 98% of all business in the EU and are responsible with 67% of total employment and half of the total value added in the EU (SME Performance Review, 2012). Consequently, their role in the economy is extremely big and the attention towards them should be higher. Moreover, the topic requires special attention as implementing CSR policies in a big company is not the same with doing so in a small one. Small firms are not "little big firms" as Dandridge underlined (1979). There are a large number of studies on SME CSR in the literature (Lepoutre and Heene, 2006; Fassin, 2008). Some authors consider that small companies are better positioned and equipped for socially responsible behavior than large firms (Lepoutre and Heene, 2006), others are convinced that due to their reduce size SMEs have more difficulties than larger ones to take in social responsibility measures. According to this latter category, some managers are convinced that it is useless to develop CSR campaigns as their social and environmental impact is negligible (Hitchens *et al.*, 2005). We strongly disagree with this belief. Even though SMEs do not have the financial resources of the big companies, they still have an impact in the local community, by using different means of achieving CSR. We must agree that due to their very nature, small businesses are socially responsible, but they just do not know they are (EMSF, 2004).

Furthermore, we found the need to explore this matter in the Romania industry sector also. After the Lisbon policy to make Europe more competitive in the world (Luetkenhorst, 2004) and Romania joining EU in 2007, there is an increasing pressure for Romanian SMEs to get involved in CSR practices. Recent statistics show that in Romania SMEs represent 99% of all the active companies, providing work for 66% of the employees, being only one percent under the European data (Barta *et al.*, 2011). The purpose of the study is to analyze to which extent Romanian small and medium size enterprises get involved in corporate social responsibility activities, what are their criteria, the most common campaigns, their frequency, the motivation and benefits. Furthermore, we were interested to learn their view on CSR in general. How they define it and what does it represent to them.

This study is part of an ongoing research we are conducted in Romanian industry regarding corporate social responsibility practices that has as a general objective the creation of a best practices handbook for small and medium size enterprise owners/managers to use. We observed that in Romania most of the SME managers are

characterized by permanent lack of time and specialized knowledge. An explanation for this may result from the fact that they “often participate intensively in day to day production, on the shop floor. As a result, his time is extremely scarce. (...) Small firms will in majority have no specialized staff for finance, personnel, or marketing, and certainly not for legal affairs” (Noteboom, 1994, p. 288). Due to this reality we considered the long time purpose of the study to create a set of best practices for CSR dedicated to small and medium size enterprise owners/managers. We strongly believe that there is a great need for the academics in Romania to work closely with the SME owners/managers in order to find ways of transferring knowledge on how CSR for these particular companies should look like in the future.

METHODOLOGY

In order to accomplish both the short and to add to the long term purpose of the study, we began by conducting a qualitative research on 3 SMEs from the North West region. The study was developed based on the tree most successful SMEs in the region and its intended to discover these organizations’ perception on their social and environmental actions. The methodology that we considered to be most suitable for this purpose was the Grounded Theory by using data that contain both inductive and deductive thinking in order to establish the participants’ main expertise regarding CSR and how they continually try to improve it. We wanted to gain a fresh perspective on a familiar situation.

Following on from Glaser and Strauss (1967) we aimed to measure in terms of: a) Fit: how, the concepts dealt with; b) Relevance of the contribution made; c) Workability; d) Modifiability: based on the degree to which the theory is permeable to the incorporation of new knowledge generated within the same field of knowledge. Regarding our three case studies we wanted to reach the following levels of understanding: subjective: daily understanding of the social actors; interpretative: the researcher’s understandings of the subjective participants’ understandings; positivist: the researcher’s understandings of the objective facts (Lee, 1989).

The three companies were selected based on award winning of the Chamber of Commerce in 2012 in the North West region of Romania. After caring out email discussion and telephone interviews all companies agreed to take part in the study. They provided us access to company documents and we carried out interviews with the owners/managers. We conducted the interviews, we analyzed the notes of the interviews, we decoded the information and regrouped it in order to better use it. Following Murillo and Lozano (2006), we conducted the interview based on five pillars:

- Find out their own definition of CSR;
- Discover the motivation of getting involved in SCR;
- Analyze specific praxis carried out;
- Observe how they communicated these social or environmental practices;
- Observe how the company made the most out of these practices.

The participants to our study had the following descriptions:

- Company A is an electrical wires producer, founded in 1993. It produces a wide range of electrical wires for domestic and industrial use working mostly with the car manufacturing sector. The company has an Italian partner which transferred a lot of know how over the years. Company A has 176 employees.
- Company B is a road construction enterprise. It was created in 1997 and it has 190 employees. They work mostly based on government contracts.
- Company C is a shoe manufacturer. It was created in 1911 and has 230 employees. They started out as a state

owned company and it was privatized in 2008. They are a trademark of the local community and they are extremely well known locally. Their products have a great deal of success, but unfortunately they also experimented many of financial ups and downs.

For this study we considered only small and medium size enterprises, but we excluded the micro enterprises. According to the European Commission (adopted on 6th of May 2003) report we will consider that a company is a SME if it has less than 250 employees, an annual turnover of less than €50 million, an annual balance sheet total under €43 million, and has less than 25% in the ownership of other companies. Judged by these standards all the three participants qualify for the criteria.

Our study has of course a series of limitations too. The biggest of all refer to its reduced territorial coverage and to the small number of participants. Also another problem is the reduced scope of our study and also the qualitative measures used may add some disadvantages. All in all, our intent was to learn more about CSR from companies in the SME category.

RESULTS AND INTERPRETATION

CSR definition

We choose to begin the interpretation of the results with managers' definition of CSR. We found out that in all three cases managers view CSR as a professionalism proof. They see CSR a part of their ethical decision making about „doing the right thing“. Consequently, in all three cases we did not get a formal definition close to what the literature regards as being CSR. Company A described CSR as being “our responsibility on the long term regarding our employees, customers, suppliers and the local community”. Company C refers to it as to the “duty of giving something back to the society”.

Moreover, after talking to the owners/managers of the participant companies, we consider more appropriate the term social responsibility in relation to small and medium size enterprises opposed to the classical corporate social responsibility one. This is supported by other authors too. For instance Lepoutre and Heene talk about small business social responsibility (SBSR) and not corporate social responsibility in their work (Lepoutre and Heene, 2006).

Motivations for CSR

Regarding the motivations of getting involved in CSR actions, all companies' representatives admitted that there was a trend of increasing the number of these activities in the last years. Company B admitted that they were motivated by the government environmental agencies too, and this makes sense as most of their work is based on governmental contracts. This company is more focused on taking care of the environmental compliances in their field of expertise and developed some campaigns of tree plantation in the local community in the last years.

The most frequently mentioned motivation was related to the pressure felt from the local community. It is true that small and medium size enterprises are not visible in the international economic environment, but they benefit from a lot of attention in the local one. Consequently, they are struggling to make and keep a good impact in this environment. Some of the other motivations include: employee safety and welfare, creating a positive work climate and supply chain constraints.

Specific campaigns

The participants to our study were socially responsible by being profitable and supporting the local community, but also get involved in environmental issues and charity events. Company B was the most aware of its environmental impact and had a clear policy on how to protect the environment. They also invested in reducing their carbon footprint over the last couple of years, waste minimization, and use of energy from renewable

sources due to some governmental project that encouraged and supported businesses in this direction.

The other two companies were more active in sponsoring local sport teams and sport events. Charity seemed to be the easy option for them. Curiously they admitted that their involvement in these activities was *ad hoc* more than structured and strategic. The manager of company A said that “whenever the local youth football team needed some extra money for prizes in competition we were happy to offer them a hand”. They were also involved in sponsoring events organized by the city town hall to support talented young children with extraordinary school results. Also company A and C declared themselves concerned with the CSR activities in order to be able to better fit in their supply chain.

Communication of results

We observed that all three companies resent the communication of results part. We could find information about the CSR campaigns only on the website of company B. The other two companies are only mentioned in the local newspapers regarding their involvement in sports events and charity. All three companies’ representatives declared that the CSR reporting takes too much time and it’s too complicated.

CONCLUSIONS

The first and most obvious conclusion is that in the Romanian industry sector small and medium size enterprises are more focused on surviving in the contemporary economic crisis than on CSR. They have a certain degree of involvement in CSR activities, but this is not part of their long term strategy. Most of what they give back to the society is due to the fact that in the small local communities they activate, there is a big peer pressure for them to be part of certain sport events, charities and local initiatives. They consider CSR expensive and unfortunately they do not take full advantage of its benefits as they do not bother to report all their CSR actions. We strongly consider that it is mandatory for Romanian SME to pay more attention to CSR and to include it in their strategic objectives. Sometimes they are behaving in a socially responsible manner without even realizing and this is also something they should learn to benefit from.

This research gives us the premises for our future studies as we are expanding it to the entire country. A priority will be to research ways to make owners/managers of the Romanian SME more aware of the CSR benefits on the long term. We plan to do this by further investigating the small and medium size enterprises involvement in these activities and then creating a set of best practices for them to use. In summary, we believe that there is a number of interesting issues to further research based on this primary study.

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The End of Work? Utopia or Dystopia?

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ABSTRACT

Technology changes the way people work. In the past, technology increased efficiency and thus made it possible for men and women to produce more and better goods and services, which increased the standard of living. Now, however, it seems that technology is not just helping people to work more productively; it is actually doing all the work, leaving human beings without work to do. Already, the average worker in almost every country around the world works significantly fewer hours than the average worker did a century ago. If this trend continues, then there will be little work left for human beings to do, which raises the specter of unemployment levels higher than ever before. This qualitative research begins by identifying and clarifying the relevant factors, then it goes on to prove beyond a reasonable doubt that technology is in fact reducing the amount of work to be done by human beings. This paper then looks to the future, speculating what might become of people after there is no more work, or very little, left for them to do. A world without work could be a utopia in which individuals lead fulfilling, spiritual lives free from the burdens of toil and the fear of poverty. Or, a world without work could be a hellish dystopia in which the masses find themselves lacking a way to survive with dignity because their labor has no value and they have nothing else to give in return for the necessities of life, and the few who own the world's wealth will languish in perpetual boredom. People could spend their ample free time growing in virtue; or they could spend their free time wallowing in vice. The paper concludes with some suggestions that might make a future utopia more probable than a future dystopia.

The End of Work? Utopia or Dystopia?

I. Introduction

This is a primarily qualitative study, with a quantitative element in the fourth part. Following the example of researchers in consumer behavior (Seth, 1982), this paper will draw from multiple fields, and use various styles, to grasp an important phenomenon: unemployment caused by technology.

After defining and explaining important terms, this paper moves on to recount the historical development of the current situation, then in part four there is an attempt to use linear regression models to prove that, as the literature claims, technology is significantly reducing the amount of work for human beings to do. The fifth part consists of imaginative predictions about the world without work. The sixth part includes suggestions about the predictions of the previous part. At the very end, there is a brief summary of the whole paper.

II. Important Terms

There are numerous definitions of the word “work”. It can be used as a verb or a noun, even sometimes as an adjective. The definitions that seem most appropriate for this paper are two found in the *Merriam-Webster Dictionary*. The first definition is: “sustained physical or mental effort to overcome obstacles and achieve an objective or result.” The second definition is: “the labor, task, or duty that is one's accustomed means of livelihood.” The first definition is broader, and it grasps the essence of work, for all people, in all ages. Work requires effort, and it is done to achieve an objective. Work is not done for its own sake. There are many activities that are engaged in for their own sakes; they are hobbies, or games, but they are not work. The purpose of work is something other than the activity itself. Here, intentions are essential. If a person goes fishing as a hobby, then even if he or she catches no fish, the time fishing might have been well spent. On the other hand, if a person goes fishing as work, then catching fish is necessary, or else the time will have been wasted. If one person goes into the forest to cut wood because he wants exercise, then he can spend a good time hitting the trees with a dull ax that does not cut them down. If, on the other hand, a person goes into the forest to cut wood because he is a lumberjack and that is his job, then his ax must be sharp, because if he does not cut down trees then he will waste his time.

The second definition of work – the means of livelihood – applies to most, but not all, human beings. Most people throughout history have had to work to survive and support their families. Never has there been a time in recorded history when all had to do this; there have always been some privileged few who could survive without working. These were the elite who could devote their time to other, more aristocratic endeavors. According to both Plato and Aristotle, it was necessary for some to spend their lives in laborious toil so that others did not have to. The end of labor, end in this case meaning purpose or goal, was the aristocratic life. Slaves could not live the aristocratic life, but they could derive some happiness from knowing that their work was valuable because it made the aristocratic life possible. A sense of accomplishment would thus be their recompense.

The English word “finance” comes from the Latin word “finis”, meaning “end”. Finish can be taken as the termination, beyond which there is nothing, but it can also be taken as the goal or purpose, as in the end towards which other things are merely means. This second understanding of end, as the goal or purpose, is more useful for our understanding of finance. “Financing an activity really is creating the architecture for reaching a goal – and providing stewardship to protect and preserve the assets needed for the achievement and maintenance of that goal,” (Shiller, 2012, p. 7). “At its broadest level, finance is the science of goal architecture – of the structuring of the economic arrangements necessary to achieve a set of goals,” (6). Finance is a means to arriving at an end, or a way to achieve goals. It makes things possible. Finance, however, is not an end in itself. It does not make anything actual. Herein lies the crux of the matter. Like a gun that can be used for good purposes, such as hunting for food, or defending your family, or shooting

targets for sport, but can also be used for evil purposes, like robbing a bank, or murdering people, finance can be used for good or for evil, depending upon the goal. Finance does not determine the goal, but merely facilitates the achievement of goals. One person might use finance to create jobs for thousands of unemployed workers, or provide food for millions of hungry families; another might use finance to build a criminal empire. A hedonist who wants nothing more than pleasure can obtain as much as he wants through the wealth generated by finance. A hermit could use finance to build a hermitage and buy a garden to grow the food necessary for his survival. A hermit is someone who renounces this world and lives in isolation meditating. Even though a hermit renounces this world, he or she is still attached to it by the body, which needs space to exist and food to live. Land and food cost money. Someone currently living the contemplative life would not care about finance, because that would distract from more spiritual endeavors, but someone preparing to become a hermit should definitely think of finance as a way of attaining the goal of living the highest type of life. “Even the archetypal solitary poet requires financing to practice her or his art. An income to live on, publishers, printers, arrangers of public readings, the construction of suitable halls for public readings – there is a hidden financial architecture behind all of this,” (8).

In many professions, the goal is to make further work unnecessary. Physicians, for example, work to make sick or injured people healthy and well. A physician is not good at what he or she does if all the patients come back frequently because they never recover from their ailments and so need constant care. For a physician, repeat business is a sign that he or she has not done a good job. Teachers are similar, in that their job is to educate the ignorant. Before someone is educated, he or she knows little, whereas a teacher is someone who knows much. If the teacher does a good job, then the ignorant person will become knowledgeable, knowing all that the teacher knows, and then the student will no longer have any need for the teacher. Great teachers are those who transform students into their intellectual equals after having been intellectually inferior. In construction and manufacturing, also, doing a job well means rendering oneself unneeded. If a building is poorly built, then it will require much maintenance, and after a couple decades it will have to be torn down and a new building built in its place; but if a building is well-built, then it might stand for centuries, requiring only minimal maintenance. A well made automobile will drive for over twenty years, but a poorly made one will break down after a much shorter time, in which case the owner will have to buy another car. If buildings require much maintenance, and need to be replaced often, then there will always be plenty of work for construction workers and architects. If automobiles do not last very long, then there will always be plenty of work in the automobile industry. A job well done, however, does not need to be redone, so in many professions the ultimate goal is the elimination of the need for the profession. Technology makes it possible to attain this goal. The elimination professions can cause hardship for those who worked in them. The solution to this problem cannot be found without some understanding of what a human being is.

A human being is composed of three essential elements: a physical body, an intellect, and a will. Machines have almost completely replaced our bodies, at least potentially. They have not actually replaced bodies for the vast majority of human beings in the world, who still work with their hands, and raise children whom they have conceived and born in the normal biological way. In potency, however, machines can do almost everything that human bodies can do. Billions of people work with their hands only because they cannot afford the machines that could do their work for them. As the wealth of the world increases, more people will be able to afford labor-saving machines, and as the number of such machines increases, economies of scale and competition will reduce their cost and thus make them even more affordable and available, meaning that eventually all will have them and no more manual labor will be necessary. The day will come when the only manual labor done will be done as a hobby, for exercise and enjoyment, but not as work to produce goods. Computers are not yet capable, even in potency, of replacing the human intellect, but this could happen. Most of the human intellect is concerned with perceiving, memorizing, and computing, all of which can be done by machines. We see images with our eyes, and we remember those images, then we put those images together and ‘compute’ what they mean, which is to say go from premises to conclusions. We see that all men can walk, and we see that Tony is a man, so we reason that Tony must be able to walk. We do not need to see Tony walking to know that he can; it suffices to see that he is a man, and to remember that all

men can walk. If ever we encounter a man who cannot walk, perhaps because he had a car accident and lost his legs, then we will have to change our premise that all men can walk. Reality is very complex, but very much of it can be understood with simple reasoning. A computer can be programmed to ‘reason’ as human beings do. If given correct premises, computers can perceive realities and make correct judgments about them. It is conceivable that in the not-too-distant future computers will replace humans in work that requires thought just as they have in work that requires physical strength. In the third essential component of human beings – the will – computers have not the slightest ability to replace us, however. Machines already have the potential to replace our bodies, and they might someday have the potential to replace our intellects, but they cannot replace our wills.

Aristotle wrote that living as a free man was more difficult than living as a slave. This seems counter intuitive. Slaves are forced to toil under the sun, doing work for their masters, and if they do not do all that is demanded of them, then they are beaten. Freedom is better than slavery, but not because it makes life easier. Free men and women have to think, make decisions, and bear the responsibility of their decisions. Slaves can merely obey. If their masters tell them to do something wrong, the slaves do not care, because they are not responsible. Slaves can be trained to do specific tasks; they can and do think, but their thought is narrow, oriented towards whatever task their masters assign to them. Free men and women, however, must think broadly, and know not only how to do various tasks, but also which tasks should be done, and which not. “Thinking broadly, interpolating different sources of information and information from different perspectives,” which Schiller (2012, p. 10), claims the new technological economy fosters, is what Aristotle would call wisdom, the highest form of intelligence. In his book *The Politics*, Aristotle writes that if ever we had magic tools like the god Hephaestus, tools that do the work we command them to do, then we would not need slaves. Jeremy Rifkin (2004) writes something similar, “technology would be the new slaves, freeing humanity to play, loaf, or pursue a higher calling” (p. 48). We now have those magic tools that Aristotle imagined, and so it is now possible for all men and women to be free. In the United States, slavery was officially abolished in 1865, but poverty forced millions to continue working like slaves. Today, however, technology makes so that all are free, not only legally – de jure, but also actually – de facto. In his book, *Nicomachean Ethics*, Aristotle writes that only free, wise adults can be perfectly happy, because compulsion makes happiness imperfect. No activity, even though pleasant, will make a person perfectly happy if the person has not chosen to do it. No computer, no machine, not even the most advanced technologies can choose for us.

III. Historical Development

About two centuries ago, a change was imposed on millions of workers. They suffered until they grew accustomed to it and chose to embrace the new work situation. In Ancient times and during the Middle Ages, most people were peasant farmers, growing enough food to survive. Some folks were craftsmen, who made things with their hands using simple tools, and then sold what they had made directly to customers. A craftsman was therefore a small businessman. He did not merely do the labor that his boss told him to do; he made practical decisions, acquired his own materials, worked to make something, and then sold the product of his labor and kept the proceeds. Then the world changed. Many could not adapt, but eventually, after some generations, attitudes changed. The modern industrial attitude in which workers labor for others, and define themselves according to their jobs, is not eternal; it came to be less than two hundred years ago, and it can pass away.

In the seventeenth and eighteenth centuries, advances in agriculture made it possible for a smaller number of agricultural workers to produce enough food to feed a growing population. Prior to that, the majority of human beings had to work producing food. This agricultural revolution made it possible, and often necessary, for millions of people to move to cities and work in manufacturing. From the last half of the eighteenth century to the early twentieth century, advances in manufacturing technology made it possible for a small number of industrial workers to produce enough manufactured goods to satisfy demand, and even go beyond, producing surpluses that aggressive advertising/marketing campaigns had to convince people to buy. After technology made it possible for a few workers to produce more than enough manufactured goods to

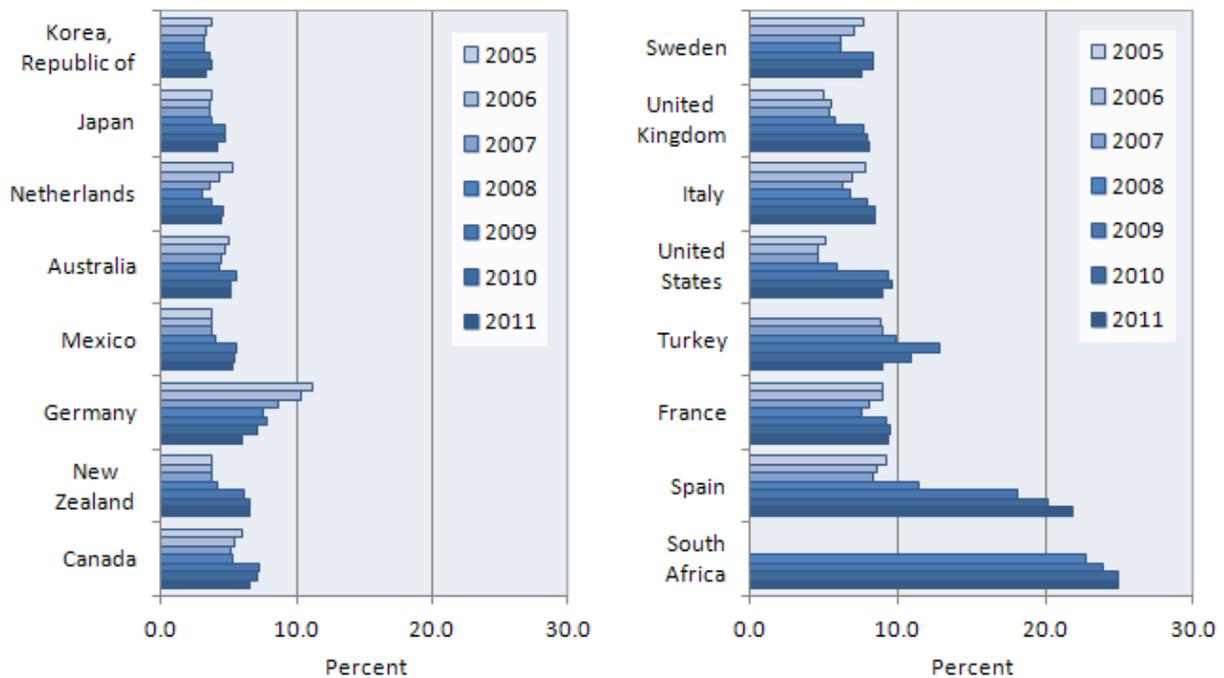
satisfy demand, millions of workers during the second half of the twentieth century left manufacturing and got jobs in the service sector. Now, in the twenty-first century, information and communication technology is making it possible for a small number of service workers to do all that is needed, meaning that there is no longer the need for as many workers in this sector. Having reduced the workforce in agriculture, manufacturing and services, there seems to be nothing left. Unemployment might rise. This could be a bad thing, or a good thing.

In past centuries, machines proved more able to do work that required muscles without minds. Human beings had to do all the thinking, but machines could do lifting, or moving, or crushing, or joining. In the twentieth century something new began: computers. Computers can almost think; a human being writing a program is required to do all the real thinking, but computers can compute, and they can remember information, both of which are very much like thinking. “Machines are rapidly replacing human intelligence. A computer program named Soar has the ability not only to play games against humans but also to learn how to play new kinds of games as well. The DeepQA program invented at IBM by a group led by David Ferruci can recognize speech and answer general-knowledge questions. The program has been tested in simulated appearances on the television quiz show *Jeopardy*, and it appears to be able to beat human contestants,” (Shiller, 2004, p. 10). This raises the question, “What is left for us human beings to do?”

IV. Current Happenings

The United States Department of Labor, Bureau of Labor Statistics, has this chart comparing recent unemployment rates in various countries. In twelve of these sixteen countries, unemployment seems to be rising, whereas in Germany it seems to be falling, and in the remaining three it seems to be stable.¹

Chart 1. Unemployment rates, 2005-2011



¹ This chart can be found on the internet at <http://www.bls.gov/fls/flscomparelf/charts.htm>.

It seems that unemployment is on the rise, but it does not seem to be rising rapidly (except in Spain). The reality is worse than the official figures indicate, however, because there is disguised unemployment; millions of adults who are unemployed are not counted as such, either because they are officially classified as “disabled”, or because they are incarcerated (in the United States alone, there are about two million people in jail or prison), or because they do not want to work (perhaps because long-term unemployment has pushed them into despair and so they no longer hope to find a job). Millions of other adults are employed part-time, or only temporarily, or are on furlough. For someone who wants a permanent, full-time job, temporary part-time employment is underemployment, or disguised unemployment. A measure that combines unemployment and underemployment, which unmasks disguised unemployment, is U6. This figure, more informative than the official unemployment rate, gives us numbers closer to reality. These numbers are significantly higher than the official unemployment rates, and they are clearly rising.

U6 unemployment has risen in the United States from less than 12% in 1994 to over 14% today. This small increase is on top of a large increase from the levels of the 1980's, when U6 unemployment fluctuated between a high of almost 11% and a low of under 6%, and the 1950's, when U6 unemployment fluctuated between a high of less than 8% and a low of under 3%. Though there is significant fluctuation in each period, there is clearly a trend upwards. Unemployment in Japan and the European Union is also rising, from less than 3% in 1994 to over 4% now, and from about 9% in 2000 to over 10% now. It seems that this rise in unemployment is caused by technology, not by bad economies, because the United States, Japan and the European Union have all increased their Gross Domestic Products per capita, adjusted for inflation, during these times. Per capital gross domestic product rose at an average annual rate of 1.77% from 1971 to 1975, 2.66% from 1976 to 1980, 2.33% from 1981 to 1985, 2.24% from 1986 to 1990, 1.22% from 1991 to 1995, 3.14% from 1996 to 2000, 1.46% from 2001 to 2005, and 0.07% from 2006 to 2010. In Japan, during the same years, per capita gross domestic product rose at average annual rates of 1.1% from 1991 to 1995, 0.75% from 1996 to 2000, 1.16% from 2001 to 2005, and 0.46% from 2006 to 2010. We do not have figures for the European Union as a whole, but the numbers for the individual European countries are similar to those of the United States and Japan. The percentages are small, but they are all positive. In the United States, Japan, and Europe the wealth per capita, even when adjusted for inflation, has been increasing at the same time that unemployment has been rising, which shows that increases in wealth, caused by technology, are not creating as many jobs as are being lost.²

When a regression is run comparing the U6 unemployment rate in the United States every year from 1981 to 2010 with the per capital gross domestic product, adjusted for purchasing power parity and a trend variable,³ R^2 is .351, and the coefficient for per capita G.D.P. is so close to zero that it is statistically insignificant. The trend effect on unemployment, on the other hand, is somewhat larger, with a coefficient of .007, though it is significant only at the 15% level. According to this model, unemployment tended to increase, though not dramatically, from 1981 to 2010, and changes in wealth had no significant impact. This supports the hypothesis that technology has increased production without creating more jobs, or at least not as many jobs as it destroys. For the time period 1981 to 1999, U6 unemployment fell from 7.6% to 7.4% (a decrease of 2.6% of the original amount), while G.D.P. per capita rose from about \$13,600 to about \$33,500 (an increase of 146% of the original amount). This does not seem alarming, but the time period from 2000 to 2010 is alarming. U6 unemployment rose from 7% to 16.7% (an increase of 139% of the original amount), while G.D.P. per capita rose from about \$35,250 to \$46,860 (an increase of 33% of the original amount). So, in the new millennium, unemployment grows along with wealth, i.e. the wealth of the nation grows as the number of jobs shrinks.

In an attempt to make a model that better explains the real situation, two additional variables were added to the regression model. First, because firms might hire or lay off employees based upon their earnings the previous year, rather than the current year, a gdp lagged one year was added. Second, because the

² A graph showing this phenomenon is in the appendix at the end of this paper.

³ The charts showing the details by which the regressions were run are in the appendix at the end of this paper.

unemployment was little changed for the first nineteen years, then changed drastically during the last eleven years, the trend variable was squared to turn the model into a quadratic equation, which better reflects such increasing rates of change. The addition of these two variables increases the R^2 from .35 to .89, meaning that it explains reality much better than the original model. The P-values in this second model are all approximately zero, except for the gdp lagged -1, meaning that the per capita gdp, the trend, and the trend squared, but not the gdp lagged -1, certainly influence the unemployment rate. The negative coefficient on per capita gdp indicates that increases in national wealth per capita do cause unemployment to decrease, but the overall trend is towards increasing unemployment, at an accelerating rate.

Next, the variables measuring gdp are dropped and replaced with a variable representing labor productivity output per hour, because technology can increase productivity output per hour. The R^2 drops from .89 to .55, meaning that this model explains reality less well than the previous one, but still better than the first model. Labor productivity has a positive coefficient of .002, which means that as labor productivity per hour increases, so does U6 unemployment. The p-value for labor productivity, however, is .42, which means that it is far from being certain; therefore if something must be said, then it should be said that increasing the efficiency of labor, which is what technology does, increases unemployment. But it is not necessary to say anything, because the numbers are not conclusive.

This phenomenon is not unique to the United States. Evidence shows that unemployment in Germany and France is not caused, as 'classical explanations' would have it, by wages growing faster than production, nor is it caused by a dip in demand, rather it is caused by long-term technology advances. In the short-run, technology does not eliminate jobs, but it does in the long-run. "The possibilities of capital to withdraw from the production process or to substitute capital for labor are much greater in the long run than in the short run," (Berthold et al., 2002, p. 433). In the 1970's, wages rose drastically in Germany and France, as increased production per labor hour created more wealth; the wages rose faster than the marginal productivity of labor, which did not happen in the United States. Beginning around 1980, the trend in Germany and France reversed, until in 1995 labor in both countries, especially France, were earning significantly less per unit of production than they had been in 1970. They were not earning less overall, but they were producing more, and their increases in earnings were proportionately less than their increase in productivity. Unemployment rose much in Germany and France during the 1980's; several factors might have caused this, of which short-sighted labor relations might be important. Labor unions in Germany and France made wages and benefits rise in the 1970's to the point where they practically forced their employers to replace them with machines so as to remain competitive in the global market. Berthold et al. (2002) state that there is a threshold that labor unions should never cross; though it is normal for them to strive for higher wages and more benefits, they should avoid demanding so much for the workers they represent that they give the respective employers incentive to replace workers with machines. Labor unions in Germany and France made the mistake of crossing that threshold in the 1970's, and they paid the price of high unemployment in the 1980's. As chart 1 from the U.S. Department of Labor shows, German labor has recovered from its mistakes and unemployment there has fallen drastically in the last five years. France still suffers from high unemployment, but the United States and the United Kingdom have risen nearly to the same level, so the French do not seem worse off than the Anglo-Saxons. Berthold et al. (2002) claim that the negative consequences of labor union excesses in the 1970's were short-term phenomena that have run their course, whereas the long-term unemployment problems in Europe are caused by technology replacing labor. "The elasticity of substitution between capital and labor is low only in the short run, but high in the long run. Adjusting the production technology by raising the capital intensity of production can therefore in the long run be a powerful instrument of capital to thwart appropriation attempts of labor," (p. 439-440).

Clearly, technology renders some jobs obsolete, thus taking employment away from some workers, but it creates other jobs, thus providing employment for other workers. "In their 2005 book *The New Division of Labor: How Computers Are Creating the Next Job Market*, labor economists Frank Levy and Richard J. Murnane argue that computers are replacing routine tasks yet cannot perform what they call 'expert thinking' or 'complex communication.' In fact, computers are more likely to create jobs requiring these human talents than displace

humans from them. Expert thinking means thinking broadly, interpolating different sources of information and information from different perspectives – information about what is new and current as well as what is perennial and has been forgotten,” (Shiller, 2012, p. 10). The number of jobs created is not equal to the number of jobs lost. The article “Will Smart Machines Create a World without Work,” (Condon and Weisman, 2013 – 4) states that one corporation – General Motors – had 600,000 workers in the 1970s, but now has only 202,000. All the employees of three huge new firms created by technology – Apple, Google and Facebook – are in total only 138,300, which is less than half the number of jobs lost from General Motors. Technology creates hundreds of thousands of jobs, but it destroys millions: “In the U.S., more than 1.1 million secretaries vanished from the job market between 2000 and 2010, their job security shattered by software that lets bosses field calls themselves and arrange their own meetings and trips. Over the same period, the number of telephone operators plunged by 64 percent, word processors and typists by 63 percent, travel agents by 46 percent and bookkeepers by 26 percent, according to Labor Department statistics,” (Condon, et al., 2013 – 2, paragraph 10).

The negative psychological effects of unemployment are perhaps nowhere as extreme as in Japan. The Japanese people, after World War II, are known for their total devotion to work. For such people, being out of work can be psychologically devastating. “In Japan, where the term 'unemployment' is barely uttered, fierce new global competition is forcing companies to tighten their operations, throwing workers into unemployment lines for the first time in recent memory: Although Japan claims an unemployment rate of only 2.5 percent, some analysts point out that if the high number of discouraged unemployed workers and unrecorded jobless is added to the totals, the figure might be as high as 7.5 percent,” (Rifkin, 2004, p. 198). The Japanese economy performed poorly in the 1990’s, and unemployment began to rise in 1994. In 2000, Japanese unemployment officially approached five percent; if what Rifkin wrote about the relationship between real and official unemployment in Japan when he wrote his book is still true, then real unemployment in Japan might be as high as fifteen percent today. Kanai and Wakabayashi (2004) report that the average number of hours Japanese work has decreased since the 1980’s, yet the number of Japanese workers suffering from death by overwork (in most cases this means suicide caused by work-related stress) has increased drastically. This increase might be apparent, not real, as Japanese are more likely to report and recognize what in the past they hid and ignored; but if the increase is real, it indicates that though Japanese are working fewer hours, their jobs are more stressful because they fear unemployment, which they did not fear in the past.

V. Predictions

According to Condon and Weisman (2013 – 4), some jobs, like hotel maid or restaurant busboy, are secure because there are no machines that can do those jobs. Long-term, these jobs will disappear. They are low-paying jobs, and so it is more economical now to pay people their low wages than to spend millions developing machines to replace them, but it is not difficult to imagine someone someday inventing such machines. Such machines, in fact, have already been imagined: in 1947 William Pene du Bois wrote a book titled *The Twenty-One Balloons* in which he describes a machine that would remove the sheets from beds, wash them, dry them, and then put them back on the beds. This would replace hotel maids. Restaurant busboys would not be necessary if tables collapsed automatically after each meal, dropping the plates and silverware on the ground. The plates, made of ceramic, could then be crushed into clay, which would then be reformed into new plates and hardened in a kiln. The silverware could be melted and then the liquid metal poured into molds and cooled to make new silverware. Such would be impractical given the current state of technology and the low wages that busboys earn, but though currently impractical, it is possible, and if busboy wages increase much, then busboys will be replaced by such machines. Another article (Condon, et al., 2013 – 2) tells the story of a meter reader in Fresno, CA who is paid \$67,000 annually to walk from house-to-house reading meters to record how much electricity each house used. New meters are gradually being installed at a rate of 1,200 each day. The new meters do not require meter readers; they transmit their information electronically. So, the City of Fresno has reduced the number of meter readers from fifty to six.

Condon and Weisman (2013 – 4) warn that, perhaps, 75% of all adults will be unemployed because there will not be enough work for them to do. Perhaps, instead of laying off workers because there is not enough work, the hours that all workers spend working could be reduced. This situation is already nearly present in some countries. According to a *Forbes.com* article in 2008, workers in the Netherlands work an average of only 1,391 hours each year. 1,391 hours divided by fifty-two weeks equals 26.75. Norwegians work only slightly more. The total number of hours people work might have declined even more than the numbers indicate. In some countries there are no incentives to work hard, so people go to their jobs and waste time rather than really working. Just because a person is “at work” does not mean that he or she is actually working. The whole world has advanced far toward the goal of making work less necessary. Having done this, we must now think seriously how we can live well in this new situation.

VI. Suggestions

One possible solution is to reduce the number of hours each worker works each week. Imagine that there is a company with 1,000 workers working forty hours each week, for fifty weeks each year. Each worker produces two widgets per hour, and is paid \$20 per hour. Thus, the factory produces 4,000,000 widgets each year and spends \$40,000,000 on wages. The widgets can be sold for \$14 each, thus making it possible to earn \$56,000,000 in revenue. If \$0.25 of plastic is used for each widget, and fixed costs are \$1,000,000 annually, then profits will be \$14,000,000 annually. Now imagine that new technology is invented making it possible for each worker to produce four widgets per hour. If the demand for widgets does not increase, then the company can either produce a surplus, which will cause price to decrease and lead to bankruptcy; or it can lay-off half of its workers; or it can have each worker work only twenty hours each week. By producing four widgets per hour, each worker could produce eighty widgets in twenty hours, which is the same number of widgets that each worker was producing before when working forty hours each week. To help workers live better after their reduction in hours, the company can give them a raise to \$35 per hour. After this change, workers should be pleased because they are paid 75% more each hour; their annual income will decline from \$40,000 to \$35,000, but they will have so much free time that if they choose they can get another job. On the other hand, they can choose to spend the extra time on other activities, such as raising their children, or advancing their own education. The company, meanwhile, will earn the same revenues, but cut costs by \$5,000,000, which will increase profits to \$19,000,000. So, everyone will be happy. This might seem like a completely imaginary scenario, but similar things have happened. Kellogg’s reduced their work-week from forty hours to thirty during the Great Depression (in 1930), and the results were positive for both company and workers (Rifkin, 2004, p. 27).

Friedman, Christensen and DeGroot (1998) write about blurring the lines between work and personal activities. In the recent past, work and personal life were separate spheres, each to be taken care of during certain hours of the day. When one or the other demanded extra time – for example working late to finish a project, or taking time off to care for a child – then there were problems. Under a new managerial style, however, employers can be involved in the personal lives of their employees so as to make their work schedules as flexible as possible so that each employee can both do the necessary work, and have a fulfilling personal life. Some employees might object to sharing their personal lives with their employers, but in many cases it makes for a better working environment. With the communications technology available today, many workers can work at their own homes, at different times of the day, so as to better care for their families, or do whatever else they choose. The product of the employee’s work should be judged objectively, and if it is not lacking, then the employee should not be penalized for spending less time ‘at work’, or for choosing to work at unusual hours. As long as the productivity is good, the rest should not bother the employer. This might sound like a contradiction. On the one hand, Friedman et al. (1998) suggest that employers should get more involved in the personal lives of employees, but on the other hand they say that productivity is all that counts for the business. This is a paradox, not a real contradiction. Managers must know employees personally to judge which ones are willing and able to work according to a flexible schedule, and/or to work from their homes. An employee who is determined, and loyal, will do the necessary work without external pressure. A worker who is not determined and loyal will slack off and give excuses for why his or her work

was not done. The practice of valuing production over 'face time' is relevant to our topic because it would be a way of maintaining salaries despite labor-reducing technology. If pay is based on the amount produced, rather than the amount of time spent, then workers would welcome technological advances, because it would benefit them, and it would not harm anyone.

Another solution to technology-caused unemployment is to grow the rentier class, much like it was in the nineteenth century, except that now it will be the lower classes, rather than the upper classes, that gain money from rents, dividends and bond interest. During the 19th century, in Western Europe and the United States, the wealthiest 10% of individuals worked little; they were the international rentier class who gained revenues from rents charged on the properties they owned, from interest earned on bonds and bank deposits, and from dividends paid by the corporations in which they had invested. Today, the wealthiest 10% of individuals in the United States and Western Europe work more, on average, than the other 90% (Rajan and Zingales, 2003). Today, most wealthy people work hard running their own businesses, or managing corporations, or rising to the top of their professions, whether those professions be sports, art, academia or politics. The 'idle rich' are not idle. Now, it is the poor who are idle. Instead of castigating businesses for choosing to lay off workers who do not add value to their operations, it would be better to help more people own revenue-generating assets. In the past few decades U.S. corporations have laid off workers so as to cut costs, and by so doing have increased their profits to the benefit of their shareholders; many of those shareholders are the workers themselves. Many corporations have stock plans by which their employees become partial owners of the companies for which they work, and therefore benefit from increased dividends. Workers for corporations that do not have such plans can easily buy shares of stock simply by saving some of their money and then going to a stock-broker or using an on-line investing service like E-Trade.⁴ Unemployed people have more free time than employed people, so they could spend more time researching companies and thus pick the best ones, thus earning high returns.

If the stock market is thought to be too risky for the average person, then there are bonds. The governments of Western Europe, Japan, and the United States all borrow money selling bonds so as to fund massive entitlement programs to 'help' the poor, but these programs maintain the poor in degrading poverty, forcing them to beg for welfare, and discouraging them from improving themselves because if they begin to rise out of poverty then they will cease receiving welfare. Charity, on the other hand, is love – that is what the word means, the English word charity comes from the Latin word *caritas*. Love is always personal. It can be given only by persons, and it can be given only to persons. Government programs are not personal. The government is an institution, not a person, and it gives to groups, not to individuals, except in so much as those individuals belong to the favored groups. There is nothing more degrading than welfare. There is nothing more beneficial to human persons than charity. In charity, the person who gives and the person who receives are both transformed into better persons. In welfare, the tax-payers are harmed by having their money taken from them, and the poor are harmed by having their human dignity taken from them. The excellent book on this subject: *The Tragedy of American Compassion*, by Marvin Olasky (1994) tells of the good that many volunteer organizations did until the government stepped in and took control of everything, transforming charitable organizations that helped poor people improve themselves into political tools designed to make people completely dependent upon the government. "We have learned in this century that the search for human happiness is not well served by egalitarian systems, let alone socialist ones," (p. xvi). Government welfare programs are not the solution to problems of unemployment. Instead of selling bonds so as to give welfare to the poor, it would be better to simply give bonds to the poor and then let them live off of the interest they receive. This would be less degrading, as the poor would receive the bonds one time instead of having to repeatedly beg for welfare. There would be the danger that poor people would act imprudently and waste their money, but no system can completely eliminate this possibility. Some people are self-destructive, and no matter what others do, they will behave badly and thus harm themselves. There will

⁴ On-line investing services like E-Trade did not exist when Rifkin wrote his book, so he could not have known about them, but that does not change the essence of this argument, which is that corporate profits can benefit ordinary people, if only ordinary people would buy shares in corporations.

always be some individuals who make bad choices, but it might be possible to make bad choices less common by educating people better so that they grow in virtue.

If the problem of providing for all in a just way could be solved, so that even those who do not work are able to live decently, there will still be psychological problems related to unemployment. This second potential problem might be more difficult to solve than the first. "Americans, perhaps more than any other people in the world, define themselves in relationship to their work. . . . The notion of being a 'productive' citizen is so imprinted on the nation's character that when one is suddenly denied access to a job, his or her self-esteem is likely to plummet. Employment is far more than a measure of income: for many it is the essential measure of self-worth. To be underemployed or unemployed is to feel unproductive and increasingly worthless," (Rifkin, 2004, p. 195).

Some believe that time not spent working is time wasted. The truth is that time spent working is valuable only according to the value of the goods and services produced by the work, and therefore it is a waste of time if the goods and services have no value. This is clear from the definition of work at the beginning of this paper. Work is done to achieve an objective or result other than the activity of doing the work. Time spent in some other activities, on the other hand, can be inherently valuable, because people enjoy doing them, or somehow improve themselves by doing them. Josef Pieper wrote an excellent little book titled *Leisure, the Basis of Culture* (1952). In it, he writes that people are trained to work well, but people are educated to live well when not working. Education, therefore, is the solution to future psychological problems. We need not more training for jobs that will exist in decreasing numbers; we need better education so that people can live well without work (or while working fewer hours). People should be educated to enjoy reading good novels, and watching good movies. Every town in America has a library where anyone can find more books than he or she could read in a life-time, but most Americans dislike reading. Cable television and the internet make it possible for almost every American to watch almost anything he or she wants almost any time day or night, but many choose to watch pornography, or other mindless shows, instead of watching thought-provoking entertainment that will develop them spiritually. People choose the pleasures of beasts, or of adolescent boys, when they should choose the higher joys that are proper to men and women. It is not, as some believe, a case of sacrificing happiness to do "what we ought to do". It is rather a case of wanting greater happiness. "We are half-hearted creatures, fooling about with drink and sex and ambition when infinite joy is offered us, like an ignorant child who wants to go on making mud pies in a slum because he cannot imagine what is meant by an offer of a holiday at the sea. We are far too easily pleased," (Lewis, C. S., 1996, p. 25-26). People will not be perfectly happy if forced to act virtuously, but such happiness is possible if people are educated to freely choose virtuous activities in their ever increasing spare time.

Volunteering to help others and improve society is one type of virtuous activity that individuals can choose. Unremunerated labor does not fit the second definition of work, because it is not a "means of livelihood," but it is work according to the first definition: "sustained physical or mental effort to overcome obstacles and achieve an objective or result." Volunteerism might be the solution to the psychological problems caused by unemployment. This blurs the line distinguishing work from hobbies. Volunteer work is done to achieve something other than the activity of working, so it is more than a hobby, yet it is less efficient than professional work, and those who do it normally feel good about it, even if they achieve little, so it is like a hobby.

VII. Conclusion

It seems that the amount of work for human beings to do is diminishing, and so we are facing two potential problems. The first problem has to do with work as a means to gaining one's livelihood.

This article proposes two possible solutions to the first problem. One possible solution to the problem of livelihood would be a reduction of working hours for each individual worker, which would distribute work more evenly across the whole population. Instead of a few people working many hours and the rest having

no work at all, the amount of work to be done might be divided in such a way that all work a little. Instead of having one worker work overtime and commit sixty hours each week to his job, while two other adults are unemployed, it might be better for three individuals to work twenty hours each. Another possible solution to the problem of providing livelihood for everyone in a future with less work to do would be to help more people gain income-generating assets, so that they will not be destitute when unemployed.

The second problem in a future with less work is psychological. People do not value their free time, and so they waste it, because they do not value their lives, because they do not value themselves. None loves himself more, according to Aristotle, than a virtuous person. Virtuous people are admirable, and they know it, so they are happy, because they love themselves. People should be educated to become virtuous, so that they will love themselves. People who love themselves love life, and they value their time and will not waste it when not working. We can thus hope that a future with less work will be a utopia.

The alternative to virtue is vice. If people spend their free time behaving hedonistically, pursuing short-term pleasure above all else, then the absence of work will be sorely felt. The world will descend into chaos, a new Dark Ages, potentially worse than previous dark ages. In past centuries, the necessity of working to survive prevented the majority of folks from doing great harm. There are always consequences to our actions, but the consequences are not always great. Someone who must work long hours to survive can do neither great good nor great harm. If such a person spends seventy hours laboring in a factory, then he or she has little time or energy left for anything else, so though choosing virtue or vice will make a difference, the difference will not be great. On the other hand, if a man or a woman does not have to work, then he or she has great potential for good, and for evil. An adult with ample time and energy available can greatly benefit society by volunteering, but he or she can also greatly harm society by doing evil. We must therefore fear that a future without work will be a dystopia.

In the future, our work will focus less on transforming the external world, and more on transforming ourselves. This requires a choice, which is an act of the will. Machines already do much of what our bodies used to do, and it seems that they will soon be able to do much of what our intellects do, but they can never replace our wills; labor-saving technology can be the means by which we attain our ends; computers with virtual intelligence can help us to better discern what means we should use to best attain our ends; but we ourselves must choose by acts of will what our ends are. The amount of time we spend on activities that are traditionally thought of as work will continue to diminish, but new activities previously engaged in only while relaxing, on vacation, or after retirement, will become important parts of every human life. Instead of enjoying entertainment merely as a distraction, a source of amusement to relax the mind when not working, entertainment can be formative. Instead of coming home exhausted from work and watching mindless television to relax, people can watch thought-provoking movies. Instead of wasting time looking at pictures, or reading books appropriate for adolescents but unfit for adults, people can read informative history books, or great novels. Religion can be practiced throughout a person's lifetime, unlike now when most who attend religious services are elderly. Through qualitative entertainment, perpetual learning, and life-long religious practice, we can improve ourselves. Making a good person is a greater achievement than making a good car. Perhaps, even though they might not have been aware of it consciously, men and women worked hard making good cars, and sturdy buildings, and healthy bodies, and smart computers, not because those things are very valuable in themselves, but so that after we have all of those things, we will then be able to make ourselves into good persons, which is the ultimate goal of finance, of work, indeed of all human life.

A transformation is a change from a beginning state to a different state. So, in order to understand this, we need to know what our beginning state is, and we need to imagine what our ending state should be. Already, in fully-developed countries like the United States and Western Europe, more people work in service industries, directly for human beings, than in manufacturing or agriculture, directly with the material world trying to make things and produce food. The number of managers in the United States now outnumbers the number of people who are managed (Rajan and Zingales, 2003). So, it seems that the transformation has already happened, at least in part. More people today work to provide services that improve people's lives

than to produce material goods. The services provided in the future might be ever more spiritual and individual. Work is becoming ever more spiritual. What began as entirely material – work used to consist of changing raw materials into manufactured goods – is now partially spiritual – serving men and women to improve their lives. It can become even more spiritual – helping men and women to improve themselves.

It might seem impossible that millions of people can change their fundamental attitudes, but we know that it is possible, because it has happened before. The modern industrial world, in which most people work for others and receive a wage or salary for their labor, came into existence with the Industrial Revolution, beginning in Great Britain at the end of the eighteenth century, coming to America during the nineteenth century, and spreading throughout most of the world during the twentieth century. Now, it seems, another transformation is taking place. This transformation can alter the way people spend their time, and it can also change the way people value themselves and each other. The modern age is ending; the post-modern age is dawning. Because there is no longer any need to work like slaves to survive, each person is free to choose how he or she will spend his or her time. Each person must choose between virtue and vice, and that choice, made by hundreds of millions of individuals, will determine if the future is a utopia or a dystopia.

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Appendix

year	U.S. U6 unemployment rate	U.S. per cap. G.D.P. adjusted for ppp	trend	gdp-1 lag	trend sq.
1981	7.6%	\$ 13,599.99	1	\$ 13,599.99	1
1982	9.7%	\$ 14,014.58	2	\$ 13,599.99	4
1983	9.6%	\$ 15,089.23	3	\$ 14,014.58	9
1984	7.5%	\$ 16,634.80	4	\$ 15,089.23	16
1985	7.2%	\$ 17,689.60	5	\$ 16,634.80	25
1986	7.0%	\$ 18,537.76	6	\$ 17,689.60	36
1987	6.2%	\$ 19,511.16	7	\$ 18,537.76	49
1988	5.5%	\$ 20,820.82	8	\$ 19,511.16	64
1989	5.3%	\$ 22,169.18	9	\$ 20,820.82	81
1990	5.6%	\$ 23,197.70	10	\$ 22,169.18	100
1991	6.9%	\$ 23,647.57	11	\$ 23,197.70	121
1992	7.5%	\$ 24,699.63	12	\$ 23,647.57	144
1993	6.9%	\$ 25,629.12	13	\$ 24,699.63	169
1994	10.8%	\$ 26,906.53	14	\$ 25,629.12	196
1995	10.0%	\$ 27,826.60	15	\$ 26,906.53	225
1996	9.6%	\$ 29,076.55	16	\$ 27,826.60	256
1997	8.8%	\$ 30,541.33	17	\$ 29,076.55	289
1998	7.3%	\$ 31,857.84	18	\$ 30,541.33	324
1999	7.4%	\$ 33,501.68	19	\$ 31,857.84	361
2000	7.0%	\$ 35,251.93	20	\$ 33,501.68	400
2001	8.1%	\$ 36,064.52	21	\$ 35,251.93	441
2002	9.6%	\$ 36,949.99	22	\$ 36,064.52	484
2003	10.1%	\$ 38,324.55	23	\$ 36,949.99	529
2004	9.6%	\$ 40,401.20	24	\$ 38,324.55	576
2005	8.9%	\$ 42,628.55	25	\$ 40,401.20	625
2006	8.2%	\$ 44,750.29	26	\$ 42,628.55	676
2007	8.3%	\$ 46,467.46	27	\$ 44,750.29	729
2008	10.6%	\$ 46,900.91	28	\$ 46,467.46	784
2009	16.3%	\$ 45,348.46	29	\$ 46,900.91	841
2010	16.7%	\$ 46,860.24	30	\$ 45,348.46	900

The figures for gdp were taken from the following website:

http://www.indexmundi.com/united_states/gdp_per_capita_%28ppp%29.html

The figures for U6 unemployment were computed by adding the monthly figures for each year and dividing them by twelve. The monthly figures were taken from the following website:

http://portalseven.com/employment/unemployment_rate_u6.jsp?fromYear=1994&toYear=2013

year	U.S. U6 unemployment rate	Labor Productivity Output per Hour	trend	trend sq.
1981	7.6%	1.4	1	1
1982	9.7%	-1.1	2	4
1983	9.6%	4.4	3	9
1984	7.5%	2.0	4	16
1985	7.2%	1.6	5	25
1986	7.0%	3.1	6	36
1987	6.2%	0.3	7	49
1988	5.5%	1.6	8	64
1989	5.3%	0.8	9	81
1990	5.6%	1.8	10	100
1991	6.9%	1.5	11	121
1992	7.5%	4.0	12	144
1993	6.9%	0.6	13	169
1994	10.8%	1.0	14	196
1995	10.0%	0.4	15	225
1996	9.6%	2.6	16	256
1997	8.8%	1.5	17	289
1998	7.3%	2.9	18	324
1999	7.4%	3.3	19	361
2000	7.0%	3.4	20	400
2001	8.1%	2.9	21	441
2002	9.6%	4.6	22	484
2003	10.1%	3.7	23	529
2004	9.6%	2.6	24	576
2005	8.9%	1.6	25	625
2006	8.2%	0.9	26	676
2007	8.3%	1.5	27	729
2008	10.6%	0.6	28	784
2009	16.3%	2.9	29	841
2010	16.7%	3.1	30	900

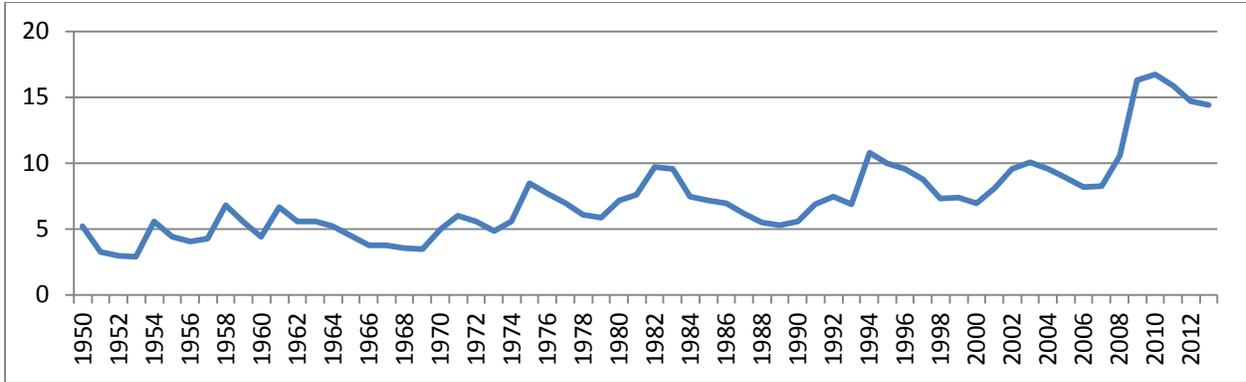
The figures for Labor Productivity per Hour come from

<http://data.bls.gov/pdq/SurveyOutputServlet>

The figures for U6 unemployment were computed by adding the monthly figures for each year and dividing them by twelve. The monthly figures were taken from the following website:

http://portalseven.com/employment/unemployment_rate_u6.jsp?fromYear=1994&toYear=2013

U6 unemployment percentages in the United States from 1950 to 2013.



I made this graph using information from the following website:
http://portalseven.com/employment/unemployment_rate_u6.jsp.

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Comercio Internacional: El Comercio Ilegal y Su Impacto en Mexico

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ABSTRACT

El Comercio Ilegal de productos basados en copias de un producto original se ha incrementado con el fenómeno de globalización y la apertura de fronteras a diversos artículos electrónicos en México. Uno de los efectos negativos que el Comercio Ilegal provoca es el alejamiento de inversiones tanto extranjeras como nacionales en el país, el daño a los fabricantes nacionales y los gastos constantes al consumidor directo. En esta investigación se pretende plantear una solución a este problema, y para lograr esto se analizan las siguientes propuestas que son: el atraer las inversiones de empresarios que fabriquen lo antes mencionado para que así se instalen plantas de manufactura en México o bien situar a empresarios mexicanos para que estos inviertan en la elaboración de estos bienes para competir con compañías mundiales. Esto tendría el fin de hacer que bajen los precios de estos insumos en el país; el propósito es motivar a las personas a dejar de comercializar ilegalmente. Se tendría como beneficio el que se pueda abrir un abanico de oportunidades para la población generando más empleos que traigan un incremento en la economía nacional. Con el paso de los años esta actividad ilícita, aun cuando está sancionada por acuerdos internacionales, todavía sigue impactando de manera negativa en el territorio Mexicano. El incremento del Comercio Ilegal se debe a diversos factores tanto sociales como mercantiles y como consecuencia ha traído que gran parte de la capital busque el minimizar los gastos en mercados que no son de primera necesidad y de calidad, debido a que la mayoría de los consumidores no cuentan con un suficiente ingreso y por lo tanto no se alcanza para invertir una fuerte cantidad de recursos en aparatos de innovación.

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Comercio Exterior: Contribuciones de las Tecnologías de la Información (TI)

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RESUMEN

A final del siglo XX las tecnologías de la información se consolidan a nivel global para solucionar diversos problemas en diferentes ámbitos, como es en el área de Comercio Internacional. Esta investigación tiene por objeto analizar las TI para elevar la competitividad y fortalecer las agencias aduanales, incrementando así el comercio en América del Norte. La creación de un Sistema Integral de Información Comercial (SIIC), compuesto por estadísticas de importación y de exportación de mercancías que generan las agencias aduanales en la región, puede incrementar los flujos de intercambio comercial en un porcentaje considerable. Se identifican como principales problemas para implementar este Sistema, la falta de recursos financieros para la adquisición de tecnología, el personal capacitado y la insuficiente coordinación entre las diversas agencias aduanales, los importadores, los exportadores y las líneas transportistas. La problemática anterior puede subsanarse mediante campañas de concientización, para los actores vinculados a este sector, enfatizando en el análisis de las ventajas económicas obtenidas con la implementación de este tipo de enlaces con la actualización de software. Esta investigación concluye que las Tecnologías de información tienen el potencial para incrementar el libre comercio en Norteamérica.

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El Comercio, las Inversiones y las Oportunidades de Desarrollo en la Migración

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ABSTRACT

INTRODUCCION. La migración se ha profundizado, los déficits de empleo y los desajustes se están incrementando en el Norte, con poblaciones envejecidas y tasas de nacimientos en declinación.

HALLAZGOS CLAVE. La migración contribuye al progreso mediante la intensificación de su comercio, las inversiones y las articulaciones del desarrollo.

TENDENCIAS Y EVIDENCIA: EL COMERCIO, LA INVERSION Y LAS ARTICULACIONES DEL DESARROLLO DE LA MIGRACION. Los países que envían se benefician de las afluencias de remesas y de las ganancias del intercambio extranjero; los países que reciben ganan consumo e impuestos. Todas las crisis afectan a la migración y a las remesas, resultando en menos migrantes.

DESAFIOS: MAXIMIZACION DEL COMERCIO, DE LA INVERSION Y DE LAS ARTICULACIONES DEL DESARROLLO. El retorno, la reintegración de los migrantes ha sido propuesta para intensificar el desarrollo de la migración.

El movimiento migratorio del trabajo temporal puede ser apoyado por convenios de cooperación laboral, y acuerdos comerciales.

CONCLUSIONES Y RECOMENDACIONES: Intensificar el comercio positivo de la migración, de la inversión y de las articulaciones del desarrollo, fortalece las contribuciones de los migrantes. La política de las intervenciones aumenta los efectos benéficos de la migración temporal y circular, reduciendo los altos costos de operación de la migración.

Pueden ser proporcionados incentivos para la migración circular para reducir la fuga de cerebros, promoviendo la transferencia de habilidades en sus economías nacionales, y estimular las inversiones por los migrantes en sus comunidades locales, construyendo articulaciones, y acuerdos comerciales y de inversión.

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El Comercio Electrónico en China y México: Un estudio Comparativo

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ABSTRACT

This article is a brief comparative study of Electronic Commerce in People's Republic of China and Mexico in Business to Consumer (B2C) and Consumer to Consumer (C2C) sectors. It shows several general statistics of the Internet, data of sales of Electronic Commerce websites, payment types and the legal framework that regulates the E-Commerce activity. Even though it exist differences between both countries —specially in market size— it also exist similarity that permit make the comparison and suggest some recommendations for E-Commerce development in Mexico.

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¿Frontera Verde? La Experiencia De Nuevo Laredo En La Conservación Ambiental

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RESUMEN

A pesar de la existencia de legislación especializada, los problemas ambientales siguen en aumento, para demostrar la importancia y relación entre la implementación de la Legislación y la conservación ambiental, esta investigación toma como caso de estudio el Reglamento para la Protección Ambiental y el Desarrollo Sustentable (RPADS) en Nuevo Laredo, Tamaulipas. Identifica obstáculos en su implementación y propone soluciones tendientes a la conservación ambiental en este Municipio.

Palabras clave: Implementación de la legislación ambiental, derecho ambiental, conservación ambiental.

ABSTRACT

In spite of the existence of specialized legislation, the environmental problems continue to grow. To demonstrate the relationship and importance between the implementation of the law and environmental conservation, this work as a case study, seeks to identify obstacles in the effective implementation of the Regulation for Environmental Protection and Sustainable Development (REPSD) in Nuevo Laredo, Tamaulipas to identify obstacles in the effective implementation of the law and it proposes solutions towards improving the environmental conservation in this City.

Keywords: Implementation of environmental legislation, environmental law, environmental conservation.

¿Frontera Verde? La experiencia de Nuevo Laredo en la Conservación Ambiental

1. Introducción

La atención al “factor” ambiental está aumentando considerablemente en la última década, científicos, académicos y la población en general tienen mayor conocimiento sobre los problemas que nos aquejan. Ante tales retos, Estados, y organizaciones internacionales han unido esfuerzos para generar soluciones. A nivel internacional, la Organización de las Naciones Unidas (ONU) es el foro por excelencia para el desarrollo y negociación de Acuerdos en varias temáticas como cambio climático, contaminación de los mares, conservación de especies, diversidad biológica, especies invasoras, entre otros. Esta organización a través de su Secretario General Ban Ki-moon, manifestó su preocupación al declarar que:

Según los últimos estudios realizados por destacados economistas a instancias del Programa de Naciones Unidas para el Medio Ambiente (PNUMA) y presentados por este organismo, bastaría con invertir el 1% del producto interno bruto mundial en tecnologías limpias, energías renovables y el uso sostenible de los recursos naturales para armonizar de manera considerable la economía mundial con el medio ambiente.¹

A pesar del gran número de acuerdos internacionales en materia ambiental, su implementación es objeto de preocupación, debido a que la problemática global parece empeorar. PNUMA reconoció los problemas y obstáculos en la implementación de Acuerdos, elaboró en el 2006 el “Manual de Cumplimiento” recomendando la inclusión de comités de implementación y ayuda financiera para que los Estados mejoren sus capacidades e implementan los Acuerdos ambientales.²

A nivel regional, en América del Norte, esfuerzos importantes para la conservación ambiental y la implementación de la Ley han resultado en la firma del Acuerdo de Cooperación Ambiental de América del Norte (ACAAN). Es importante mencionar que el ACAAN crea la Comisión de Cooperación Ambiental (CCA) para incrementar la sinergia y oportunidades de cooperación en materia ambiental, la creación y fortalecimiento de leyes y medidas para mejorar la aplicación de la legislación ambiental.³ Ante la CCA, se interpusieron en el 2007 2 peticiones ciudadanas que aseveraban que México no estaba implementando su legislación ambiental de manera efectiva, 2 en el 2008, 3 en el 2009 y 2 en el 2010.⁴

¹Declaración del Secretario General de la ONU, Ban Ki-moon, Programa de Naciones Unidas para el Medio Ambiente, Informe Anual 2009, en línea: < http://www.unep.org/pdf/UNEP_Annual_Report_2009_Spanish.pdf > . (Consultado enero 15, 2011).

² Programa de Naciones Unidas para el Medio Ambiente, División de Derecho Ambiental y Convenciones, Manual de Cumplimiento de Acuerdos Multilaterales, Guía 14 (d) en línea: <<http://www.unep.org/dec/onlinemanual/Compliance/NegotiatingMEAs/ComplianceMechanism/tabid/429/Default.aspx>>. (Consultado enero 16, 2011).

³ Comisión de Cooperación Ambiental, Peticiones Ciudadanas, Registro de Peticiones Ciudadanas, 2009, en línea: <http://www.ccc.org/Page.asp?PageID=1226&ContentID=&SiteNodeID=563&BL_ExpandID=>. (Consultado enero 16, 2011). Es importante mencionar que en el 2009, la CCA, recibió 2 peticiones que aseveran que el “Gobierno de México está incurriendo en omisiones en la aplicación efectiva de la legislación en lo que respecta al control, inspección e investigación del flujo del maíz transgénico en el Estado de Chihuahua y con respecto a la protección de la Laguna Cuyutlán en Manzanillo, Colima”

⁴Comisión de Cooperación Ambiental (CCA), Registro de Peticiones Ciudadanas, en línea:<http://www.ccc.org/Page.asp?PageID=1226&ContentID=&SiteNodeID=563&BL_ExpandID=>. (Consultado, Diciembre 1, 2010). Es importante mencionar que iniciativas binacionales han sido identificadas con gran potencial para afrontar la problemática ambiental, particularmente el Programa Frontera 2012 entre los Estados Unidos de América y México. Este programa es de suma importancia debido a que busca reducir la contaminación de la tierra, agua, aire, mejora de la salud ambiental, preparación y respuesta a emergencias, y cooperación para el cumplimiento de la ley.

México ha creado una estructura legislativa e institucional al parecer sofisticada con el objeto de cumplir con sus obligaciones ambientales. El artículo 73, XXIX-G de la Constitución Mexicana ha configurado un régimen legal que establece las bases para la concurrencia de atribuciones entre la Federación, los gobiernos de los Estados y los municipios, dentro del ámbito de sus respectivas competencias⁵. Asimismo México cuenta con: Las Leyes Generales de Equilibrio Ecológico y la Protección al Ambiente (LGEEPA), Prevención y Gestión Integral de Residuos (LGPGIR), Desarrollo Forestal Sustentable (LGDFS), entre otras. Estas Leyes Generales o “Leyes Marco” constituyen la base para la elaboración de las leyes estatales y para la emisión de la reglamentación municipal ya que establecen las atribuciones para los distintos niveles de gobierno. A nivel federal, la Secretaría de Medio Ambiente y Recursos Naturales (SEMARNAT) es la principal institución ambiental, contando con un órgano desconcentrado denominado Procuradora Federal de Protección al Ambiente (PROFEPA) para efecto de controlar el cumplimiento de las leyes ambientales.

A nivel estatal, en el 2008, Tamaulipas creó la Agencia Ambiental de Desarrollo Sustentable (AADS). En el 2011, ante el cambio de ejecutivo estatal se define una nueva arquitectura institucional ante las reformas a la ley orgánica de la Administración Pública del Estado de Tamaulipas, encargando la aplicación de la normatividad ambiental a la Secretaría de Desarrollo Urbano y Medio Ambiente.⁶ Por lo que hace a la legislación estatal, Tamaulipas cuenta con el Código para el Desarrollo Sustentable del Estado de Tamaulipas (CDSET), estableciendo en éste último las bases requeridas para confeccionar la coordinación institucional y armonización de medidas para la protección y conservación ambiental, concediendo al Estado la potestad de convenir con la Federación, otros Estados del país y con los 43 municipios de la entidad.⁷

El Municipio Tamaulipeco de Nuevo Laredo, ubicado en la frontera con los Estados Unidos de Norte América, y considerado como una de las aduanas más importantes de América Latina, es uno de los 8 Municipios de esta entidad federativa que cuentan con un reglamento ambiental.⁸ Este Reglamento se ocupa de la protección del medio ambiente, la prevención y gestión integral de residuos sólidos urbanos, la prestación de servicio público de limpia, recolección, traslado, tratamiento y disposición final de residuos, las aéreas naturales protegidas municipales, y la flora y fauna municipal.⁹ Tipifica más de 100 infracciones a la normatividad ambiental (arts. 397 y 397 bis), y utiliza la aplicación de instrumentos de control como un mecanismo principal para lograr su cumplimiento.

Este trabajo analiza los problemas en la implementación de legislación ambiental, toma como caso de estudio el RPADS y estudia sus disposiciones y problemas en su implementación efectiva. Los autores del presente trabajo piensan que aún cuando el RPADS es el primer instrumento que trata los problemas ambientales de este Municipio de manera integral y tiene potencial para conservar el medio ambiente, existen oportunidades para mejorar su implementación. El trabajo de investigación se organiza de la siguiente manera: La sección 2

⁵Constitución Política de los Estados Unidos Mexicanos, CPEUM, 1917 en línea <http://www.diputados.gob.mx/LeyesBiblio/pdf/1.pdf> (Consultado enero 16, 2011).

⁶ Decreto LX mediante el cual se reforman, adicionan y derogan distintas disposiciones de la ley orgánica de la Administración Pública del Estado de Tamaulipas, Periódico del Estado de Tamaulipas (POET) del 29 de diciembre del 2010. (Consultado Febrero 15 2011)

⁷Código para el Desarrollo Sustentable del Estado de Tamaulipas (CDSET), Periódico Oficial de Tamaulipas (POT) 5 de junio del 2008, en línea: <<http://www.ordenjuridico.gob.mx/Estatal/TAMAULIPAS/Códigos/TAMCOD09.pdf>>. (Consultado enero 16, 2011). Ver Artículos 11 y 12.

⁸ Es conveniente precisar que los 8 reglamentos que se aluden son los que tratan específicamente las materias ambientales municipales, empero, 10 municipios cuentan con reglamentos en materia de limpieza municipal que tratan lo relacionado con los residuos sólidos urbanos; a su vez, los bandos de policía sancionan conductas contrarias a la protección del medio ambiente. Para mayor información ver Gobierno de Tamaulipas, Periódico Oficial, Reglamentos Municipales en línea: <http://po.tamaulipas.gob.mx/reglamentos/regla_muni.asp> (Consultado enero 16, 2011).

⁹ Reglamento para la Protección Ambiental y el Desarrollo Sustentable (RPADS), Periódico Oficial del Estado de Tamaulipas, 19 de agosto del 2009, en línea: <<http://po.tamaulipas.gob.mx/periodicos/2009/0809/pdf/cxxxiv-99-190809F-ANEXO.pdf>>. (Consultado abril 9, 2010). Aún cuando el Artículo 1 del RPADS no señala dentro de su objeto la regulación de la flora y fauna municipal, empero ordena conductas para su protección y conservación.

trata sobre Antecedentes del RPADS, la 3 acerca de la Facultad Reglamentaria Municipal; el apartado 4 sobre Política Ambiental en Nuevo Laredo; la sección 5 sobre El Principio el que Contamina Paga; el apartado 6 sobre Sistemas de Información Ambiental y el 7 sobre Denuncia Popular.

2. Antecedentes del RPADS

La conservación ambiental en Nuevo Laredo se regulaba de manera indirecta a través del hoy abrogado Reglamento para el Servicio de Limpieza (RSL) de 1994 y por actos de la autoridad Municipal.¹⁰ El enfoque del RSL era limitado y no prestaba atención a otras áreas de la problemática ambiental tales como la calidad del aire, conservación del recurso hídrico, conservación de especies de flora y fauna, y diversidad biológica. Tenía por objeto “regular la presentación del servicio de limpieza en el Municipio de Nuevo Laredo, Tamaulipas”.¹¹



Figura 1. Áreas de importancia para la conservación ambiental

La figura muestra áreas relevantes para afrontar la problemática ambiental, los autores sugieren que el considerarlas puede atender de manera integral la problemática ambiental.

En sus seis capítulos, el RSL se ocupada de organizar administrativamente el servicio público de limpieza y formular el programa anual del mismo,¹² establecer las obligaciones de los ciudadanos para conservar limpias

¹⁰Reglamento para el Servicio de Limpieza de Nuevo Laredo de 1994, Municipio de Nuevo Laredo, en línea:<http://www.nuevolaredo.gob.mx/otros_archivos/reglamentos/regl_serv_limpieza.pdf > . (Consultado enero 16, 2011).

¹¹ *Ibid.* Art. 1.

¹² *Ibid.* Art. 6 fracción III.

las vías públicas y la disposición adecuada de residuos sólidos. Adicionalmente contenía un mecanismo administrativo y un procedimiento de inconformidad implementado por el Ayuntamiento.¹³

Artículo	Disposiciones
6	*El Municipio debe instalar contenedores para residuos, realizar barrido mecánico, establecer rutas, horarios y frecuencias para prestación de servicio público de limpieza. Adicionalmente corresponde al Municipio aplicar sanciones por violaciones al RSL.
15	* El Municipio debe vigilar la operación de hornos para incinerar residuos.
18	*Los ciudadanos deben conservar limpias las vías públicas.
19	*Los ciudadanos deben mantener limpias sus propiedades.
33	*Prohibición de arrojar o abandonar en la vía pública residuos.

Tabla 1. Obligaciones para el Municipio y ciudadanos establecidas en el RSL.

La tabla muestra algunas disposiciones del RSL en las que se enfatizan las obligaciones del Municipio y del ciudadano.

El RSL tenía como base un mecanismo de sanciones administrativas implementado por el Ayuntamiento. Este mecanismo alentaba la imposición de sanciones tomando en cuenta la gravedad de la infracción, circunstancias del infractor y modalidades de la infracción. El Artículo 36 por ejemplo, disponía que para la imposición de multas se debía de considerar la ocupación y tipo de la relación laboral del presunto infractor.¹⁴

- a) Si el infractor fuese jornalero, obrero o trabajador, no podía ser sancionado con una multa mayor del importe o salario de un día.
- b) Tratándose de trabajadores no asalariados, la multa no debía de exceder el equivalente de un día de su ingreso.¹⁵

El procedimiento administrativo del RSL contemplaba sanciones que variaban desde 1 hasta 180 días de salario mínimo. Si se aplicaran las sanciones de este Reglamento ya abrogado hoy día, las multas podrían variar de 57 hasta 10,260 pesos y en casos de reincidencia de 108 a 19,440 pesos. Cabe mencionar que la justificación del RSL en la clasificación e imposición de sanciones era cuestionable ya que no tomaba en cuenta la gravedad del daño sino el nivel socioeconómico del presunto infractor, era también poco efectivo el alto nivel de discreción que tenía la autoridad en la imposición de las multas. El RSL integraba también un recurso de inconformidad en el que el ciudadano podía hacer que la autoridad Municipal modificara o revocara resolución administrativa.¹⁶ Esta inconformidad podía interponerse dentro de los ocho días siguientes a que le fuera notificada dicha resolución y tenía que ser por escrito.¹⁷

Los residuos sólidos o basura pueden impactar de manera negativa la salud humana y el medio ambiente, por ejemplo las enfermedades se propagan por medio de roedores, mosquitos y cucarachas. El medio ambiente también sufre de contaminación de suelo, agua y el aire.¹⁸ La experiencia de México ilustra esta problemática, ya que de acuerdo a oficiales de la Secretaría de Medio Ambiente y Recursos Naturales (SEMARNAT), en

¹³ *Ibid.* Art. 18.

¹⁴ *Ibid.* Art. 36.

¹⁵ *Ibid.*

¹⁶ *Ibid.* Arts. 37, 38 y 40.

¹⁷ *Ibid.* Arts. 40 y 41.

¹⁸ Secretaría de Medio Ambiente y Recursos Naturales (SEMARNAT), ¿Y el medio ambiente? Problemas en México y el mundo, (SEMARNAT: México Distrito Federal, 2007) pág. 144.

este País se producen 95,000 toneladas de desechos al día.¹⁹ Aún cuando efectos negativos al medio ambiente y a la salud humana son asociados con la inadecuada disposición de residuos sólidos, la problemática ambiental moderna, causada por actividades antropogénicas y por el cambio climático, es mucho más compleja y requiere un enfoque integral. Lamentablemente, el RSL tenía una capacidad limitada y omitía proporcionar guías para la autoridad Municipal en la imposición de multas y la implementación del mismo.

2.1 Estructura del RPADS

La estructura del RPADS al parecer es exhaustiva, sus disposiciones forman la columna vertebral para lograr su cumplimiento. El RPADS entró vigor el 20 de Agosto del 2009, lo componen 409 artículos los cuales se dividen en 12 títulos que abarcan desde las la protección ambiental, gestión y prevención integral de residuos sólidos urbanos, ordenamiento ecológico, flora y fauna municipal e inspección y vigilancia.²⁰ El título primero establece las disposiciones generales del reglamento, está compuesto por 6 capítulos, sobre el objeto del reglamento, la legalidad y la supletoriedad, atribuciones de las autoridades ambientales municipales.²¹

El título segundo tiene como principal objetivo la protección ambiental, está dividido en 4 capítulos. El capítulo 1, trata de las atribuciones en materia de protección ambiental, la protección y control de la contaminación de la atmósfera, la prevención de contaminación por ruidos, olores, vibraciones, energía térmica y lumínica visual.²² La planeación, ordenamiento ecológico, uso de suelo y regulación ambiental de los asentamientos humanos son objeto del título tercero. Este título cuenta con 8 capítulos, trata de la planeación, ordenamiento ecológico, uso de suelo y regulación ambiental de los asentamientos humanos, y ejecución.²³

El título cuarto versa sobre la gestión y prevención integral de los residuos sólidos urbanos, está dividido en 13 capítulos. Se ocupa de las autoridades y sus facultades, del programa municipal para la prevención y gestión integral de los residuos, del plan de manejo, de las etapas del manejo integral de residuos y de las autorizaciones, de los servicios de manejo de residuos, el décimo del monitoreo y la evaluación.²⁴ El título quinto contempla las medidas de prevención, control y remediación del suelo contaminado. Está compuesto por 3 artículos, tratan sobre la prevención y control de sitios, y la remediación de sitios contaminados y.²⁵ En el título sexto se trata la prestación del servicio público de limpieza, este cuenta con un capítulo y habla sobre la recolección, traslado, tratamiento y disposición final de residuos.²⁶

El título séptimo está dedicado a las aéreas naturales protegidas municipales, se encuentra dividido en 6 capítulos, se ocupa de las reservas ecológicas del municipio, los tipos y características de estos, la concertación y participación social, y la administración de las áreas naturales protegidas.²⁷ En el título octavo se contemplan las disposiciones referentes a la fauna y flora municipales y se divide en cuatro, los cuales se ocupan sobre la tala y poda de árboles, forestación y reforestación. En el título noveno sobre obligaciones generales y contiene un capítulo con el mismo nombre.²⁸ En el título decimo se trata sobre la denuncia popular y contiene un único capítulo el cual contiene las disposiciones generales.²⁹

El título decimo primero es uno de los más extensos, contiene lo que es el procedimiento administrativo ambiental y está compuesto por 9 capítulos, versa sobre las disposiciones generales, sobre el acto

¹⁹ Gasca Sergio, Director de Manejo Sustentable de Residuos de la SEMARNAT, presentación (2008).

²⁰ RPADS, *supra* nota 8.

²¹ *ibid*

²² *ibid*

²³ *ibid*

²⁴ *Ibid*

²⁵ *ibid*

²⁶ *ibid*

²⁷ *ibid*

²⁸ *ibid*

²⁹ *ibid*

administrativo ambiental, la eficiencia del acto administrativo, el procedimiento administrativo, los promoventes, y sobre términos y plazos.³⁰ El título decimo segundo es el último, y los aspectos que en él se tratan son los de la inspección y vigilancia, está dividido en 5 capítulos, trata del acto autoridad, procedimiento administrativo, medidas de seguridad y del recurso de revisión.³¹

3. Facultad Reglamentaria Municipal y Alcances del RPADS

Antes de precisar el fundamento del RPADS es oportuno aludir a aquellas disposiciones constitucionales y legales, federales y estatales que tratan en forma puntual las facultades con base en las cuál las autoridades municipales pueden emitir disposiciones reglamentarias. La emisión del reglamento municipal encuentra apoyo constitucional en el ejercicio de la atribución prevista en el artículo 115 fracción II del Pacto Federal, que faculta al Ayuntamiento para aprobar normas reglamentarias cuando se realice de acuerdo con las leyes en materia municipal que expidan las legislaturas de los Estados³². En el mismo sentido, la Constitución Local en Tamaulipas establece la facultad reglamentaria municipal en su artículo 131³³. El ejercicio de la facultad reglamentaria establecida en la Constitución Federal y Local se encuentra limitada a las bases expedidas por la Legislatura Local en los supuestos aplicables³⁴, dentro de los cuales no se encuentra previsto el relacionado con la regulación de reglamentación en materia de protección ambiental y desarrollo sustentable.

Los temas de regulación que se pueden relacionar con aspectos medio ambientales dentro de los cuales habría que adaptarse a las bases estatales al tenor del artículo 115 constitucional, es la definición de conductas de policía, buen gobierno y respeto al ambiente, así como el establecimiento de procedimientos administrativos y medios de impugnación en materia ambiental. Por lo que el fundamento constitucional de la facultad reglamentaria municipal en materia ambiental, queda delimitada en tales términos.

Por otro lado, el Código Municipal para el Estado de Tamaulipas establece la atribución del Ayuntamiento para formular y aprobar los bandos de policía y buen gobierno, reglamentos y demás disposiciones administrativas de observancia general necesarios para la organización y funcionamiento de la administración y de los servicios municipales a su cargo y en todo caso expedir lo reglamentos referentes a limpieza, parques, vías públicas, jardines, entre otros³⁵. Como se puede apreciar aún en éste ordenamiento no se encuentra contemplada expresamente la potestad para que un Ayuntamiento emita reglamentos en materia de

³⁰ *Ibid.*

³¹ *Ibid.*

³² Artículo 115, Constitución Política de los Estados Unidos Mexicanos. <<http://www.diputados.gob.mx/LeyesBiblio/pdf/1.pdf>> (Consultado enero 16, 2011)

³³ Artículo 131, Constitución Política del Estado de Tamaulipas. En línea:<<http://intranet.congresotamaulipas.gob.mx/Legislacion/archivolegislacion.asp?idasunto=165>> (Consultado enero 16, 2011).

³⁴ Los supuestos que establece el artículo 115 constitucional con apoyo en los cuales las Legislaturas de los Estados dictarán leyes que establezcan las bases para la emisión de reglamentación municipal son los siguientes: **a)** Las bases generales de la administración pública municipal y del procedimiento administrativo, incluyendo los medios de impugnación y los órganos para dirimir las controversias entre dicha administración y los particulares, con sujeción a los principios de igualdad, publicidad, audiencia y legalidad; **b)** Los casos en que se requiera el acuerdo de las dos terceras partes de los miembros de los ayuntamientos para dictar resoluciones que afecten el patrimonio inmobiliario municipal o para celebrar actos o convenios que comprometan al Municipio por un plazo mayor al periodo del Ayuntamiento; **c)** Las normas de aplicación general para celebrar los convenios a que se refieren tanto las fracciones III y IV del artículo 115 Constitucional, como el segundo párrafo de la fracción VII del artículo 116 de la Constitución Federal; **d)** El procedimiento y condiciones para que el gobierno estatal asuma una función o servicio municipal cuando, al no existir el convenio correspondiente, la legislatura estatal considere que el municipio de que se trate esté imposibilitado para ejercerlos o prestarlos; en este caso, será necesaria solicitud previa del ayuntamiento respectivo, aprobada por cuando menos las dos terceras partes de sus integrantes; y **e)** Las disposiciones aplicables en aquellos municipios que no cuenten con los bandos o reglamentos correspondientes.

³⁵ Código Municipal para el Estado de Tamaulipas, En línea: <<http://intranet.congresotamaulipas.gob.mx/Legislacion/archivolegislacion.asp?idasunto=167>> Artículo 49, fracción III (Consultado enero 16, 2011).

protección ambiental, sin embargo este Código amplía la esfera de acción y reglamentación de la autoridad municipal al permitir la creación de otro tipo de reglamentos distintos a los contemplados en el artículo 115 constitucional, dentro de los cuales destaca el de limpieza y servicios públicos, reglamento que encuentra connotación ambiental en el tema de residuos sólidos urbanos.

Así las cosas, habría que explorar fundamentos legales para la expedición de reglamentación municipal en materia ambiental. En ese sentido, las Leyes Generales Ambientales como la LGEEPA y la LGPGIR establecen atribuciones para el ejercicio de los Municipios y prevén la potestad para que los Ayuntamientos expidan los Reglamentos y Bandos de Policía que se requieran para el ejercicio de las facultades municipales signadas en sus cuerpos normativos³⁶. En ese contexto es dable precisar que los Reglamentos Municipales en materia Ambiental y particularmente el RPADS encuentra apoyo constitucional en el artículo 115 fracción II y legal en las Leyes Generales Ambientales como la LGEEPA y la LGPGIR, lo que es muy relevante precisar y atender si se quiere elaborar una reglamentación coherente con el sistema normativo nacional en materia ambiental.

Ahora bien, es oportuno establecer que los Reglamentos Municipales en cuestión, cuentan con un mecanismo especial para su emisión, mismo que debe respetarse en cada una de sus etapas si se quiere el instrumento que se emita tenga fuerza vinculante y debida observancia. Para tales efectos el Código Municipal establece que la reglamentación municipal deberá ser aprobada por la mayoría de los miembros del Ayuntamiento, previa consulta pública y que se publique en el Periódico Oficial del Estado de Tamaulipas (POET). En el caso del RPADS tenemos que ha cumplido con estos elementos y en consecuencia justifica su existencia y validez, su publicación se dio en el POET el 19 de agosto de 2009. Es importante comentar que con fecha 10 del mes de febrero se publicó una fe de erratas, en términos de la Ley del Periódico Oficial del Estado³⁷.

Por último en el presente apartado es importante destacar que no obstante que el RPADS siguió fielmente el mecanismo para su emisión y que el Ayuntamiento tiene plenamente justificada su atribución constitucional y legal para su emisión, puede que su contenido contravenga disposiciones vigentes, ya que el ejercicio de la facultad reglamentaria que hacen los Ayuntamientos en ocasiones puede exceder sus alcances o pecar de limitaciones, por lo que en el siguiente apartado se tratará del ejercicio de la facultad reglamentaria municipal y se confrontará con su ejercicio al emitir la regulación del RPADS. La problemática mencionada con antelación debe ser tomada en cuenta en lo futuro por Ayuntamientos en Tamaulipas y el resto de México. Disposiciones ambientales municipales que regulan doblemente una conducta pueden ser también un impedimento importante en la implementación efectiva de la legislación ambiental.

3.1 Alcances de la Facultad Reglamentaria Municipal

Uno de los temas más relevantes para el ejercicio de atribuciones en materia de protección ambiental y desarrollo sustentable, es el relacionado con la distribución competencial y su recepción en la legislación estatal o reglamentación municipal. En lo tocante a la reglamentación municipal, las Leyes Generales Ambientales como ya se expuso anteriormente, regulan competencias municipales y dictan la potestad de los municipios para la aprobación y expedición de reglamentos que hagan cumplir con sus atribuciones³⁸. Por otra parte el artículo 115 de la Constitución Política de los Estados Unidos Mexicanos establece la facultad

³⁶ Ley General del Equilibrio Ecológico y la Protección al Ambiente (LGEEPA), Diario Oficial de la Federación (DOF) 28 de enero de 1988, en línea: <<http://www.cddhcu.gob.mx/Leyes/Biblio/pdf/148.pdf>> (Consultado enero 17, 2011). Art. 10.

³⁷ POET, en línea: <<http://po.tamaulipas.gob.mx/periodicos/2009/0209/pdf/cxxxiv-17-100209F.pdf>>. (Consultado enero 16, 2011). Es conveniente precisar que la fe de erratas publicada con fecha 10 de febrero de 2010 no encuentra apoyo legal en la Ley del Periódico Oficial del Estado, ya que se regularon aspectos que no se encontraban previstos en el RPADS anterior, rebasando por mucho los alcances de esta figura. Da cuenta de ello el agregado del procedimiento de flagrancia establecido en el nuevo artículo 397 bis. (obsérvese el artículo 18 de la Ley del Periódico Oficial del Estado)

³⁸ LGEEPA, *supra* nota 35.

para que los Ayuntamientos aprueben, de acuerdo a las leyes en materia municipal que expidan las legislaturas de los Estados, los reglamentos municipales y demás disposiciones legales.

En ese contexto, los reglamentos municipales ambientales que emitan los Ayuntamientos pueden derivar de una Ley General o ya bien de las bases establecidas por una Ley Estatal. Hecha la anterior precisión es conveniente determinar los alcances de la facultad reglamentaria municipal en cada uno de los supuestos de procedencia, para lo que resulta indispensable aludir a los criterios jurisprudenciales emitidos por la Suprema Corte de Justicia de la Nación (SCJN) en donde ha determinado su ejercicio, al tenor siguiente:

i) Por lo que hace a la emisión de reglamentos derivados de una Ley General se hará "...mediante la emisión del reglamento tradicional cuyos alcances y contenidos se adaptan a los principios y limitaciones que rigen la facultad reglamentaria del poder ejecutivo federal o estatal, en los cuales la extensión normativa y su capacidad de innovación está limitada, pues el principio de subordinación jerárquica exige que el reglamento esté precedido por una ley cuyas disposiciones desarrolle, complemente o pormenore y en las que encuentre su justificación y medida..."; y

ii) "...En cuanto a los reglamentos derivados de la fracción II del artículo 115 constitucional, tienen una mayor extensión normativa, ya que los Municipios, respetando las bases generales establecidas por las legislaturas, pueden regular con autonomía aquellos aspectos específicos de la vida municipal en el ámbito de sus competencias..."³⁹.

En el caso del RPADS su contenido esta precedido por las Leyes Generales Ambientales, por el Código Municipal y por la Ley que establece las bases Normativas en materia de Bandos de Policía y Buen Gobierno para el Estado de Tamaulipas, en este último caso por lo que hace a la regulación de conductas que constituyen faltas de policía y buen gobierno. Ahora bien, las Leyes Generales en ocasiones establecen atribuciones a favor de los municipios ordenando a la Legislatura Local que emita las bases para la regulación o el ejercicio de esas atribuciones, por ejemplo:

a) en materia de impacto ambiental el artículo 35 bis 2 de la LGEEPA establece que los municipios podrán participar en obras o actividades de competencia estatal atendiendo a los supuestos establecidos por la legislación ambiental estatal, siendo factible en este caso que la evaluación del impacto ambiental se efectúe dentro de los procedimientos de autorización de uso de suelo, construcciones, fraccionamientos⁴⁰ etc.

b) el municipio con arreglo a lo que establezca la legislatura local alentará en materia de investigación científica y promoción de programas para el desarrollo de técnicas y procedimientos que permitan prevenir, controlar y abatir la contaminación y propiciar el aprovechamiento racional de los recursos y proteger los ecosistemas⁴¹.

c) compete al municipio, la aplicación de las disposiciones jurídicas en materia de prevención y control de la contaminación atmosférica de emisiones de contaminantes a la atmósfera, provenientes de fuentes móviles que no sean consideradas de jurisdicción federal, con la participación que de acuerdo con la legislación estatal corresponda al gobierno del estado⁴².

³⁹ Tesis P./J. 132/2005, Semanario Judicial de la Federación y su Gaceta, Novena Época, t. XXII, octubre de 2005, p. 2069.

⁴⁰ En el CDSET no se prevé la posibilidad de que los municipios realicen la evaluación de impacto ambiental dentro de los procedimientos que cita el artículo de mérito. Este instrumento jurídico estatal prevé únicamente la participación de los municipios vía emisión de opinión.

⁴¹ LGEEPA, *supra* nota 35 Artículo 41

⁴² En esta materia podemos observar que las atribuciones establecidas por el CDSET contravienen las atribuciones establecidas en la LGEEPA ya que el Estado debería participar con el Ayuntamiento en materia de prevención y control de la contaminación generada por fuentes móviles y no arrogarse las atribuciones tal como lo prevén las fracciones VII, VIII y IX del artículo 44 del CDSET.

En el caso de las disposiciones citadas, el Ayuntamiento Municipal debe observar las bases de los Estados y no desarrollar directamente las atribuciones proporcionadas por las Leyes Generales. En cuanto a esta atribución que prevén las Leyes Generales a los Estados, es pertinente comentar que las Leyes Estatales por medio de las cuales se emiten dichas bases no pueden tener más alcances que lo establecido en la Ley General debiendo limitarse a desarrollar las competencias definidas por ésta, lo que en la especie no siempre sucede, un ejemplo claro lo tenemos en materia de prevención, control y aplicación de disposiciones en materia de fuentes móviles, en donde el Estado se arroga un conjunto de atribuciones dejando relegada la participación de la autoridad municipal en la aplicación de las disposiciones. En otras ocasiones aún que no sea en la circunstancia de regular bases que prevén las Leyes Generales, el legislador local pasa por alto la distribución competencial hecha por tales normas, por citar un ejemplo en materia de residuos tenemos que el artículo 10 fracción VI de la LGPGIR establece que el municipio tiene la atribución para establecer y mantener actualizado el registro de los grandes generadores de residuos sólidos urbanos y el CDSET en su artículo 140 establece que los grandes generadores de residuos sólidos urbanos están obligados a registrarse ante la autoridad estatal.

Todas las imprecisiones aludidas, dificultan ostensiblemente el conocimiento, entendimiento y la asimilación de las normas por parte del gobernado ya que al constatar dos cumplimientos ante autoridades distintas lo dejan en un estado de inseguridad jurídica. En el caso del RPADS, es conveniente advertir que muchas de sus disposiciones toman como marco de regulación el CDSET, siendo incorrecto, ya que un Reglamento Municipal no se encuentra subordinado a una ley estatal (con excepción de las bases que deben establecer las Legislaturas en los supuestos expresamente señalados en la Constitución o las Leyes) ya que su objeto de regulación es distinta, el Estado regula en cuanto a sus atribuciones, mientras el Ayuntamiento hace lo propio con las suyas, por lo que en este caso se debe privilegiar el principio de jerarquía normativa, en donde la Ley General “Ley Marco”, es la que establece las atribuciones directas de los Municipios. Otros de los grandes errores que cometen los Ayuntamientos, caso de Nuevo Laredo, es realizar la emisión de reglamentación si hacer adecuaciones reglamentarias concomitantes. En ese sentido se muestra el siguiente cuadro que contiene disposiciones establecidas en el Bando de Policía y Buen Gobierno (BPBG) en vigor y en el RPADS en vigor.

Artículo	BPBG CONDUCTA Y SANCIÓN	Artículo	RPADS CONDUCTA Y SANCIÓN
89, f I, III	Ocasionar molestias con emisiones de ruido que rebasen los límites máximos permisibles establecidos, y que causen molestia a vecinos. (1-10 SMV)	68 y 398	Las emisiones de ruido emanadas de fuentes fijas o móviles de competencia municipal que rebasen los límites máximos permisibles. (100-500 SMV)
89, f II, VI	Transportar por lugares públicos o poseer animales sin tomar las medidas de seguridad e higiene necesarias. (1-10 SMV)	312 y 398	El propietario o poseedor de un animal está obligado a proporcionarle albergue, espacio suficiente, alimento, aire, luz, bebida, descanso, higiene, medidas preventivas y recoger sus heces fecales cuando transiten en la vía pública (20-200 SMV)
89, f VI, I	Incitar a un perro o a cualquier animal para que ataque (1-20 SMV)	313 f IX y 398	Azuzar animales para que agredan a personas o se agredan entre sí (20-200 SMV)
89, f IV, I	Dañar, ensuciar o pintar estatuas, monumentos, postes, arbotantes, fachadas de edificios públicos, así como causar deterioro a plazas, parques y jardines. (1-10 SMV)	329 f VII y 398	Ensuciar las fuentes públicas y monumentos (10-100 SMV)

89, f V, I	Remover o cortar sin autorización, césped, flores, árboles y otros objetos de ornato en sitios públicos. (1-10 SMV)	296 y 398	Derribar o podar árboles cuyas ramas sean de un diámetro mayor a 7.5 centímetros, de conformidad con el permiso otorgado. (10-100 SMV)
89, f V, II	Arrojar a la vía pública animales muertos, escombros, sustancias fétidas o peligrosas o verter aguas sucias, nocivas o contaminadas. (1-10 SMV)	329, f II y 398	Arrojar a la vía pública, animales muertos o desechos y sustancias tóxicas y/o peligrosas, que puedan causar daños en materia de salud pública y/o al medio ambiente. (20-100 SMV)
89, f V, IV	Desviar, retener, ensuciar o contaminar las corrientes de agua de los manantiales, fuentes, acueductos, tuberías, causes de arroyo, ríos o abrevaderos. (1-20 SMV)	84 I y 398	Contaminación de cuerpos receptores. (100-500 SMV)

Tabla 2. Disposiciones en el BPBG y el RPADS.

Como se puede apreciar en la anterior tabla comparativa, existe duplicidad de infracciones entre dos ordenamientos reglamentarios municipales de igual jerarquía, atentando contra el principio de seguridad jurídica para el gobernado. No obstante lo anterior, si se quiere establecer cuál de los dos ordenamientos se debe aplicar, tendríamos que en atención al principio *ley posterior deroga a la anterior*, se aplicaría el RPADS, sin embargo no se torna tan claro cuando agregamos que el RPADS contiene multas superiores a las contempladas como importe máximo en la Ley que establece las bases normativas para la emisión de los bandos de policía y buen gobierno (20 SMV), por lo que al aplicar el RPADS se estaría contraviniendo a la Ley Estatal y a la Constitución Federal.

En tal tenor para concluir en el presente apartado, se afirma la importancia de realizar una gran labor profunda de identificación de todas y cada una de las atribuciones que establecen las Leyes Generales Ambientales a favor de los Municipios, resultando prioritario identificar además, las atribuciones que dichas Leyes dictan que se ejercerán en atención a las bases que expidan las Legislaturas de los Estados y aquellas que directamente derivan de la Ley Estatal de conformidad con el artículo 115 fracción II, del pacto Federal. Es menester asegurar los principios de subordinación jerárquica y el respeto a las bases establecidas por el H. Congreso Local al momento del ejercicio de la facultad reglamentaria. El problema citado con antelación debe ser tomado en cuenta por tomadores de decisiones y la Dependencia Municipal Ambiental a fin de evitar duplicidad de sanciones, la aplicación indiscriminada de las mismas y evitar problemas con su implementación efectiva.

4. Política Ambiental en Nuevo Laredo

Las políticas públicas pueden ser definidas como las acciones u omisiones gubernamentales en respuesta a problemas de carácter social y se expresan en metas o planes nacionales, lineamientos, reglamentaciones y la práctica de las agencias gubernamentales de un País al implementar dichos programas.⁴³ Las políticas públicas, según algunos, son la materialización del intento de cumplir ciertas metas en un periodo determinado. El termino política ambiental es criticado por algunos académicos que afirman que estas inciden no solo en el medio ambiente sino en una gama de aspectos como el económico, social, regulatorio, etc.⁴⁴ Jesús Quintana opina que las políticas son parte esencial de la gestión ambiental al igual que el derecho y la administración ambiental.⁴⁵ La obligatoriedad y características de la política ambiental dependen de la modalidad de su

⁴³ Miller, Tyler, Living in the Environment, (Belmont, CA: Wadsworth, 1979) pp.. 1-3.

⁴⁴ *Ibid.*

⁴⁵ Quintana Jesús, Derecho Ambiental Mexicano, (México: Porrúa, 2002) pag.81.

formulación. La política ambiental, puede ser formulada por las vías legislativa, administrativa y de planeación. Mediante una ley, es obligatoria en su ámbito de competencia ya sea Federal, Estatal o Municipal. En la vía administrativa obliga a las dependencias de la administración que la emitió y mediante planes, obliga dependiendo de la fuerza de los planes gubernamentales y de la factibilidad de su implementación.⁴⁶

Académicos identifican tres enfoques en la política ambiental en México, a) El enfoque sanitario (1841-1972); b) El enfoque integral (1984-1994), y c) El enfoque de desarrollo sustentable (a partir de 1995).⁴⁷ El enfoque sanitario ponía atención a los problemas ambientales solo cuando estos impactaran de manera negativa la salud humana. En el enfoque integral se inició la creación de instituciones modernas que ponían atención a diversos factores de la conservación ambiental como la Comisión Nacional de Ecología, la Procuraduría Federal de Protección al Ambiente, y la Comisión Nacional del Agua.⁴⁸ El enfoque de desarrollo sustentable busca incluir los factores económicos, sociales y ambientales en la conservación ambiental. En esta época se creó la Secretaría de Medio Ambiente y Recursos Naturales (SEMARNAT) y surgieron leyes especializadas como la Ley de Bioseguridad de los Organismos Genéticamente Modificados en el 2005 y se reformó la Ley General del Equilibrio Ecológico y la Protección al Ambiente (LGEEPA).⁴⁹

La política ambiental en Nuevo Laredo está integrada por disposiciones del RPADS, políticas de la administración pública Municipal, y por planes Municipales de Desarrollo.



Figura 2. Elementos de la política ambiental en el Municipio de Nuevo Laredo.

4.1 Política Ambiental en el RPADS

El RPADS establece la política ambiental como eje rector en la creación de principios del Desarrollo Sustentable que regirán las actividades del Municipio encaminadas a la conservación ambiental.⁵⁰ Asimismo emplea instrumentos para la política ambiental que se aplicaran en Nuevo Laredo como el establecimiento de áreas naturales protegidas, auditorías ambientales, información ambiental, educación e investigación, convenios de participación y verificación, control y vigilancia. Estos instrumentos, al parecer son

⁴⁶ *Ibid.* pag. 103.

⁴⁷ Pérez, Jesús, La Política Ambiental en México: Gestión e Instrumentos Económicos, 162 El Cotidiano (2010) pp. 91-94.

⁴⁸ *Ibid.*

⁴⁹ *Ibid.*

⁵⁰ RPADS, *supra* nota 8 Artículo 2.

comprensivos y sí se implementan, tienen el potencial de impactar de manera positiva la conservación ambiental en el Municipio.

Adicionalmente, la política ambiental busca guiar al Municipio en la firma de convenios de coordinación con otras autoridades.⁵¹ Los principios de política ambiental empleados por el RPADS abarcan: prevención, el principio precautorio, equidad intergeneracional, responsabilidad, subsidiariedad, sustentabilidad y solidaridad. El principio de prevención enunciado en este Reglamento insta al tomador de decisiones a atender en forma prioritaria los efectos negativos que se pueden producir sobre el medio ambiente. En Nuevo Laredo el tomador de decisiones debe tener conocimiento científico de primera mano para poder visualizar los impactos futuros de una actividad dentro de las áreas de su competencia para así erigir medidas que puedan minimizar los impactos ambientales.

Por otra parte, el principio precautorio invita a que la falta de evidencia científica no debe ser obstáculo para la toma de decisiones a favor de la conservación ambiental, tomando en base los costos de las medidas implementadas. Este principio ha sido identificado como difícil de implementar y aun cuando se encuentra en varios documentos de carácter internacional como el Protocolo de Cartagena de la Convención de Naciones Unidas sobre Diversidad Biológica, y a nivel nacional en la Ley sobre la Bioseguridad de los Organismos Genéticamente Modificados requiere de guías para evitar que su aplicación indiscriminada pueda minimizar el desarrollo sustentable o tener fricciones con el régimen de comercio internacional.⁵²

La política ambiental contenida en el Reglamento, insta también a que se aplique el principio de equidad intergeneracional y que el tomador de decisiones conserve el medio ambiente y tome en cuenta el goce del mismo por parte de las generaciones futuras. Adicionalmente el principio de responsabilidad enuncia el principio el que contamina paga.⁵³ Este principio puede incitar a la imposición de multas y sanciones por parte del Municipio a los proponentes de actividades que contaminen el medio ambiente. En la aplicación de este principio, es necesario definir y delimitar de manera exhaustiva las competencias y funciones de las autoridades a fin de evitar conflictos en la implementación de multas o imposición de sanciones administrativas.

El principio de subsidiariedad insta al tomador de decisiones a que coopere con otras dependencias Estatales y Federales y que en algunos casos pueda participar en forma complementaria de las acciones de los sectores social y privado. Adicionalmente, el RPADS inspira al tomador de decisiones a guiarse también por los principios de política ambiental que sean implementados por la autoridad ambiental Estatal y Federal.⁵⁴ LGEEPA, por ejemplo, emplea los siguientes instrumentos para dar cumplimiento a la política ambiental: Planeación Ambiental, Ordenamiento Ecológico, Instrumentos Económicos, Regulación Ambiental de los Asentamientos Humanos, Evaluación del Impuesto Ambiental, Normas Oficiales Mexicanas en materia Ambiental, Autorregulación y Auditorías Ambientales, Investigación y Educación Ecológica e Información y Vigilancia. Estas herramientas al igual que los principios son comprensivos y de ser implementados pueden beneficiar el medio ambiente. La inspección y vigilancia por ejemplo es el medio idóneo para verificar el cumplimiento del reglamento, sin embargo, vemos que esta herramienta puede estar limitada por el número necesario de inspectores para cubrir el Municipio de Nuevo Laredo, la infraestructura técnica y científica para realizar las inspecciones y la movilidad de los inspectores.

Las zonas de conservación ecológica, también, son el instrumento idóneo para la conservación *in situ* de las especies en el Municipio, sin embargo, para su efectividad es necesaria la elaboración de un procedimiento ágil para la designación de estas áreas y la infraestructura necesaria para su monitoreo, y mantenimiento de la

⁵¹ *Ibid.*

⁵² Herrera, Juan, Mexico's Implementation of the CBD and the Cartagena Protocol in the GMO Era: Challenges in Principles, Policies and Practices, (Germany: VDM, 2008) pag.

⁵³ RPADS, *supra* nota 8 Artículo 18.

⁵⁴ *Ibid.* Art.19

misma. La tabla siguiente menciona algunos instrumentos de la política ambiental y observaciones en cuanto a algunos obstáculos para su implementación.

Áreas Naturales Protegidas	Artículo	Observaciones
Parques Urbanos, Jardines Naturales y Zonas de Conservación Ecológica.	Artículo 243	El RPADS solo menciona las Zonas de Conservación Ecológica y no establece criterios para su conformación y regulación
Autorizaciones en materia de residuos	Artículos 155-165	La verificación del plan de manejo depende de la efectividad de los mecanismos de inspección y vigilancia
Sistemas de Información Ambiental Municipal (Inventario de Recursos Naturales en el Municipio)	Artículo 24	Efectivo sí hay los recursos financieros necesarios para realizar los inventarios
Educación e Investigación	Artículos 4,9 y10.	Impacto positivo si vincula la educación ambiental y la cultura ecología con proyectos de investigación para la conservación ambiental
Inspección y vigilancia	Artículo 372	Mecanismo efectivo solo sí hay suficientes inspectores y si estos están capacitados

Tabla 3. Instrumentos de la Política Ambiental en el RPADS.

La política ambiental en el RPADS, contiene importantes instrumentos de política ambiental y tiende a fomentar la conservación ambiental en este municipio. Las disposiciones del RPADS tendrían mayor impacto si la regulación establece la designación y manejo de zonas de conservación ecológicas y si se fortalecen las instituciones de inspección y vigilancia.

4.2 Política Ambiental Municipal en Planes Municipales

La planeación Municipal tiene su fundamento jurídico en los artículos 25 y 26 Constitucionales sobre la planeación Estatal, el artículo 115 en lo referente a la planeación Municipal; los artículos 20, 33 y 34 de la Ley Nacional de Planeación con respecto a coordinación con Municipios en el Plan Nacional de Desarrollo y artículos 2, 21, 33 y 34 de la Ley Estatal de Planeación en Tamaulipas. Los siguientes apartados se ocupan del análisis de los planes municipales de desarrollo del 2005 y 2008.

a) Plan Municipal del 2005-2007

La política ambiental en Nuevo Laredo durante este periodo se podía encontrar aún de manera indirecta en Reglamentos Municipales en materia de medio ambiente, actos administrativos y Planes Municipales. Durante este periodo etapa podemos resaltar que el RSL de 1994 se ocupaba solamente de residuos y de la imposición de sanciones dejando sin regular aspectos importantes de la conservación ambiental. Por tal motivo no tiene una aportación considerable en la formulación de la política ambiental en este periodo. Los actos administrativos de esta administración Municipal se ocuparon de tomar acciones para el monitoreo de la calidad del aire, se lanzaron ambiciosas campañas de reforestación, de reciclaje de neumáticos usados, de eliminación de escombros. Estas acciones emprendidas por la institución ambiental Municipal van en acorde con la escasa consideración al factor ambiental en este Plan Municipal.

Con respecto de la planeación, el Plan Municipal de Desarrollo 2005-2007 de Nuevo Laredo Tamaulipas, inicia con un diagnóstico de factores importantes en el desarrollo del Municipio de Nuevo Laredo, contiene 15 pilares importantes entre los cuales se encuentran agricultura, industria, turismo, comercio y servicios, desarrollo urbano, infraestructura básica y protección y mejoramiento ambiental.⁵⁵ Desafortunadamente, aún cuando el diagnóstico del Municipio considera “el mejoramiento ambiental” dentro de los 15 puntos medulares, este diagnóstico concluye que la problemática en este rubro es la “falta de lugares para el esparcimiento público en los sectores alejados del núcleo urbano”.⁵⁶ El Plan se basa en 8 estrategias concretas: 1) Equidad y Cohesión Social, 2) Educación Integral, 3) Instituciones Confiables, 4) Desarrollo Económico y Empleo, 5) Ciudades de Calidad, 6) Gobierno de Resultados, 7) Finanzas y Transparencia Administrativa y 8) Alianza Estratégica con Mujeres y Jóvenes.

La parte ambiental de este Plan se encuentra insertada en la acción 5 sección 5.3 sobre ecología. En las acciones de esta sección se pueden distinguir los elementos en la siguiente gráfica.

5.3 Ecología
Cultura de conservación
Auxiliar a la autoridad Estatal Ambiental con personal autorizado para la realización de evaluación del impacto Ambiental
Capacitación a inspectores
Residuos peligrosos
Reforestación de zonas verdes
Vigilancia e inspección en relación a basureros
Campañas de descacharrización
Monitoreo de calidad del aire
Centro de acopio de residuos peligrosos

Tabla 4. Contenidos del Plan Municipal en el rubro Ecología

Podemos afirmar que durante este periodo la política ambiental en este Municipio consideraba aspectos importantes en la conservación ambiental, los cuales sin embargo, a falta de legislación especializada, quedaban sujetos a la implementación de la autoridad ambiental. Por lo tanto, no se alcanzó mucho progreso respecto a la protección ambiental en este periodo.

b) Plan Municipal del 2008-2010

El Plan Municipal de Desarrollo tiene 5 ejes rectores Desarrollo Humano y Sociedad, Desarrollo Urbano y Medio Ambiente, Desarrollo Económico y Competitividad, Prevención y Seguridad Ciudadana, y Gobierno de Resultados. Es el segundo eje “Desarrollo Urbano y Medio Ambiente” el que considera aspectos que pueden impactar de manera positiva la conservación ambiental en Nuevo Laredo, Tamaulipas. Tiene por objetivo:

Elevar la calidad de vida de los neolaredenses con una ciudad ordenada de acuerdo a su crecimiento demográfico, con infraestructura y equipamiento urbano moderno y eficiente, con servicios públicos suficientes y de calidad, en donde se respete el entorno ecológico; en suma, un lugar donde se viva mejor.⁵⁷

⁵⁵ Plan Municipal de Desarrollo de Nuevo Laredo, Tamaulipas 2005-2007, en línea: <http://copladet.tamaulipas.gob.mx/planes_mpales_05/nuevo_laredo.pdf>. pp. 10-16. (Consultado Enero 3, 2011).

⁵⁶ *Ibid.* pág. 15.

⁵⁷ Plan Municipal de Desarrollo (2008-2010), Nuevo Laredo Tamaulipas, pp. 47-48.

Seis estrategias y líneas de acción coadyuvan al Municipio a cumplir el citado objetivo: Ordenamiento territorial, Sistemas de vialidades eficientes y modernas, Mejora de la imagen urbana, Consolidación de sistemas de agua potable, drenaje y saneamiento, sistema de transporte eficiente y moderno, y el Respeto y conservación al medio ambiente. Dentro del rubro de agua potable se distinguen estrategias tendientes a impulsar un programa de cultura del agua para promover su cuidado y uso sustentable. En el rubro de sistema de transporte moderno y eficiente, se busca crear una red de transporte urbano moderno que no contamine.⁵⁸ En el rubro de Respeto y conservación al medio ambiente, este Plan busca conservar el medio ambiente y fomentar el uso racional de los recursos naturales. Las estrategias en este Plan se pueden clasificar como aquellas destinadas a fortalecer el marco regulatorio, planeación, educación ambiental, y conservación ambiental.

Marco Regulatorio	Planeación	Educación Ambiental	Conservación Ambiental
Impulsar leyes, normas y reglamentos ambientales	Incluir el factor ambiental en las decisiones administrativas	Crear consejo ciudadano para el fomento de la cultura ambiental	Identificar zonas de atención para la conservación de los recursos naturales
Hacer respetar el marco regulatorio	Desarrollar políticas de desarrollo sustentable y cambio climático	Fomentar la cultura del agua en niños	Preservar áreas naturales y respetar cauces de arroyos
Adecuar y aplicar el reglamento para el servicio de limpieza del Municipio	Diseñar programa efectivo de auditoría ambiental	Promover cultura de reciclaje y uso de energía limpia	Implementar esquemas de tratamiento de agua residual
			Desarrollar un corredor ecológico
			Eliminar basureros clandestinos

Tabla 5. Instrumentos de la Política Ambiental en el RPADS.

No se encuentra un seguimiento importante en los Planes Municipales de 2005 y 2008 en este Municipio. Sin embargo, se observa un crecimiento en actividades y campañas para la conservación ambiental desde el 2008. La planeación Municipal en este Municipio parece estar en acorde con el RPADS y cuenta con acciones importantes para la conservación ambiental. A pesar de todo este progreso, un mayor énfasis en la implementación del Reglamento es requerido para impactar de manera positiva el medio ambiente en Nuevo Laredo.

4.3 Política Ambiental en Actos Administrativos

La política ambiental en este Municipio, en lo que respecta a actos de autoridad está plasmada en programas de mejoramiento ambiental y saneamiento y certificaciones a nivel nacional. Los programas emprendidos por este Municipio comprenden el acopio de desechos electrónicos; eliminación de tiraderos clandestinos; saneamiento de llantas de desechos y su trituración; descacharrización o remoción de escombros; limpieza de arroyos y canales; reforestación y fomento a la cultura ambiental.

⁵⁸ *Ibid.* pág. 50.

Actividad	Año	Cantidad recolectada, reciclada o superficie saneada
Residuos Electrónicos	2010	13,041.43 kgs.
Tiraderos Clandestinos	2010	397,160 kgs.
Llantas	2010	215 llantas
Remoción de Escombro	2010	223,760 kgs.
Limpieza de arroyos	2010	153,780
Reforestación	2010	451 arboles
Cultura Ambiental	2010	58 conferencias

Tabla 6. Actividades realizadas por la Dependencia Municipal Ambiental

Las actividades realizadas por la Dependencia Municipal Ambiental, se presume que pueden beneficiar el medio ambiente y que están en acorde a las disposiciones del RPADS. Existe carencia de programas que beneficiarían el medio ambiente de manera integral como inspecciones vehiculares para mejorar la calidad del aire y conservación de especies endémicas. Estos programas, además, para ser efectivos deben realizarse en forma permanente y sobrevivir los ciclos de tres años de gestión Municipal. Es importante mencionar que el Municipio de Nuevo Laredo ha emprendido programas de certificación a nivel nacional ante el Instituto Nacional para el Federalismo y el Desarrollo Municipal (INAFED) de la Secretaría de Gobernación.

5. De la Teoría a la Práctica: Principio “el que Contamina Paga”

La presente sección versa sobre la utilidad de principios en la conservación del medio ambiente, en particular analiza los principios de derecho internacional, y el principio el que contamina paga al igual que sus fundamentos teóricos y problemas en su posible aplicación. La Corte Internacional de Justicia (CIJ) enumera las fuentes del derecho internacional y la jerarquía de las mismas en el artículo 38 de su Estatuto. Respecto a las fuentes que la CIJ tiene que aplicar para resolver una controversia, se encuentran los principios de derecho internacional después de los tratados o convenciones internacionales y de la costumbre internacional. Al respecto, el Estatuto señala las “fuentes” que la Corte tiene que aplicar para resolver una controversia:

- a. las convenciones internacionales, sean generales o particulares, que establecen reglas expresamente reconocidas por los Estados litigantes;
- b. la costumbre internacional como prueba de una práctica generalmente aceptada como derecho;
- c. los principios generales de derecho reconocidos por las naciones civilizadas.⁵⁹

Del análisis del Estatuto se desprende que los principios de derecho son una fuente utilizada por la CIJ para solucionar conflictos cuando no existan tratados o costumbre internacional sobre el objeto de la controversia. Hoy día sin embargo, sigue siendo polémica la denominación que el Estatuto hace sobre “naciones civilizadas” toda vez que a nivel internacional los Estados gozan de igualdad y es tarea difícil determinar si regímenes políticos, formas de gobiernos o religión predominante hacen a un Estado menos civilizado que otro.

Los principios, normas y políticas ambientales tienen características peculiares. Las normas, por ejemplo, distan de los principios en que éstas son de carácter práctico, modifican conducta y son obligatorias. Los principios, por otra parte, expresan una verdad general que guía acciones y sirve como base teórica para ciertos actos en nuestra vida.⁶⁰ Al respecto Philippe Sands opina que las normas jurídicas dotadas de

⁵⁹ Corte Internacional de Justicia, Estatuto de la Corte Internacional de Justicia, en línea: <<http://www.icj-cij.org/homepage/sp/icjstatute.php>> (Consultado enero 18, 2011) Art. 38.

⁶⁰ Sands, Philippe, Principles of International Environmental Law, (Cambridge: Cambridge University Press, 2003) pág. 233.

positividad son la formulación práctica de los principios, mientras que los principios personifican estándares legales que no requieren tomar acciones específicas.⁶¹ Respecto al fundamento teórico de los principios, el académico Canadiense David Dzidzornu opina que de acuerdo al sentido de obligatoriedad, los principios son amplios y no contienen aspectos específicos de contenido normativo y que su flexibilidad de los mismos permite interpretarlos. Esta flexibilidad, manifiesta el Dr. Dzidornu, permite creatividad en la interpretación de los mismos y puede ayudar a que las normas evolucionen y faciliten la aplicación de principios.⁶²

Como queda establecido en las definiciones proporcionadas por los dos investigadores, los principios son guías para tomadores de decisiones que, aunque no son obligatorios, pueden ayudar a producir un resultado previsto. En el caso de los principios del derecho internacional del medio ambiente el resultado previsto o deseable sería la conservación ambiental. La utilización de estos principios ha cobrado popularidad desde su enunciación en conferencias internacionales tales como la Declaración de Estocolmo de 1972 (24 Principios) y la Declaración de Río de 1992 (27 Principios), estos también han llegado a permear Acuerdos Multilaterales Ambientales (AMAs) como el principio precautorio en el Protocolo de Cartagena sobre Seguridad en la Biotecnología del 2003. Adicionalmente estos principios han formado parte de las agendas de organizaciones internacionales como en el caso de la recomendación del Consejo de la Organización para la Cooperación y Desarrollo Económicos (OCDE) para la utilización del principio el que contamina paga.⁶³ Es importante notar que dentro de los principios ambientales más reconocidos a nivel internacional se encuentran: el desarrollo sustentable, prevención, precaución y el que contamina paga.

El Consejo de la OCDE, en 1974, recomendó una serie de principios para guiar la actuación de Estados, reducir la contaminación y mejorar la distribución de recursos. Las medidas publicas emitidas por esta organización tuvieron por objeto "...garantizar que los precios de mercancías dependiendo de la calidad y cantidad de los recursos ambientales reflejen de manera adecuada su escasas relativa, y que los agentes económicos interesados reaccionarían por consiguiente."⁶⁴ El enunciado de la OCDE se puede interpretar como que las mercancías reflejen el costo total de producción, incluyendo el costo de los principios empleados. Para ambientalistas este principio es controversial por que tiene una naturaleza confusa y difícil de implementar por requerir abundantes recursos económicos para su implementación.

La naturaleza del PCP es de carácter económico, y aún cuando este principio puede incidir en la conservación ambiental, fue creado meramente para evitar distorsiones al comercio internacional y prevenir que Estados absorban gastos en medidas de prevención y restauración del medio ambiente. Los objetivos de la OCDE, institución que impulsó este principio, nos permiten vislumbrar la naturaleza de este principio, entre esos se encuentran "apoyar el desarrollo económico sostenible, incrementar el empleo, elevar los niveles de vida, mantener la estabilidad financiera, apoyar al desarrollo económico de otros países y contribuir al crecimiento del comercio mundial".⁶⁵ Las actividades de esta organización se encuentran mayormente dentro de la esfera del comercio internacional y se puede decir que la principal función del PCP fue evitar distorsiones en los flujos comerciales mundiales y coadyuvar con esta organización a alcanzar sus metas.

Por otra parte, unos opinan que el PCP tiene una naturaleza confusa porque no existe armonía en su aplicación y este puede presentar versiones con intensidad diferente, este puede ser utilizado por ejemplo como: 1) principio de eficiencia económica, 2) principio de justa distribución de los costos, 3) principio de

⁶¹ *Ibid.*

⁶² Dzidornu, David, Four Environmental Principles in Maritime Environmental Protection: A Comparative Analysis, 29 Ocean Development & International Law 22 91-132 pág. 92.

⁶³ Beder, Sharon, Environmental Principles and Policies: an Interdisciplinary Introduction, (Sterling, Virginia, Earthscan, 2006). pp.. 32-39.

⁶⁴ Pearce, David, The Polluter Pays Principle, (London: Gatekeeper, 1988), pp. 1-2.

⁶⁵ OCDE, Acerca de la OCDE, en línea:<http://www.oecd.org/pages/0,3417,es_36288966_36288120_1_1_1_1_1,00.html> (Consultado enero 16, 2011).

armonización nacional de políticas ambientales, y 4) principio de deslinde de costos entre Estados.⁶⁶ Otros no están de acuerdo con esta postura y afirman que este principio está consolidado y reconocido como “principio de derecho internacional” porque ha sido insertado en varios acuerdos internacionales dotados de positividad como el Acta Única Europea de 1987 y el Tratado de Maastricht de 1992, y porque ha sido reconocido por organizaciones internacionales como tal.⁶⁷

Independientemente de su naturaleza basada en el comercio internacional o en la conservación ambiental, es importante mencionar que el PCP tiene el potencial de disuadir a los que infringen las disposiciones ambientales y de que industrias que contaminan empiecen la búsqueda de tecnologías limpias para optimizar costos de producción.⁶⁸ Este principio se manifiesta a través de ordenamientos basados fundamentalmente en la imposición de multas y sanciones administrativas.

PCP	Principio Precautorio
Énfasis en sanciones administrativas, multas, pago de labores de restauración.	Énfasis en requisitos de evaluación de impacto ambiental y de riesgo, certificados donde el proponente demuestre que su actividad no causará daño

Tabla 7. Diferencias en la implementación del PCP y el Principio Precautorio.

La implementación de este principio puede ser problemática puesto que requiere abundantes recursos financieros para llevar actividades de monitoreo, inspección y vigilancia; personal capacitado con perfiles técnicos en el área ambiental, y mecanismos de coordinación efectiva entre instituciones ambientales y aquellas encargadas de sancionar. En el caso de Nuevo Laredo, el RPADS tiene sus fundamentos en el PCP y se basa fundamentalmente en sanciones siguiendo un modelo similar al Norte Americano. Como lo mencionó Philippe Sands, “las normas jurídicas dotadas de positividad son la formulación práctica de los principios” y el caso de Nuevo Laredo, el RPADS es la formulación práctica del PCP.

Claramente en Nuevo Laredo existe la intención de implementar el PCP a través de un Reglamento (normas obligatorias), sin embargo se puede dar el caso en el cual el legislador mencione a un principio ambiental de “adorno” y no detone la creación de normas obligatorias. Un obstáculo que se presenta en Nuevo Laredo para la aplicación efectiva de este principio es el conflicto de doble regulación de conductas por parte del RPADS y el Bando de Policía y Buen Gobierno.

6. Sistemas de Información Ambiental

A nivel internacional, el uso de mecanismos de información y bases de datos sobre recursos naturales y desempeño ambiental ha probado ser una herramienta útil en la conservación del medio ambiente. Estos mecanismos se caracterizan por: recopilar información de fuentes gubernamentales, instituciones académicas o investigadores reconocidos; procesar la información e insertarla en bases de datos; diseminar información a ciertos usuarios, y fomentar el libre intercambio de este mecanismo de información. Varios acuerdos internacionales utilizan herramientas de información, entre estos encontramos la Convención de Naciones

⁶⁶ Bugge Hans, The Principles of the Polluter Pays in Economics and Law, en Mann Ian, A comparative Study of the Polluter Pays Principle and its International Normative Effect on Pollutive Process (2009) en línea: <http://www.consulegis.com/fileadmin/downloads/thomas_marx_08/Ian_Mann_paper.pdf > . pág. 3. (Consultado enero 16, 2011).

⁶⁷ Larsson, Marie-Louise, The law of environmental damage: liability and reparation, (Stockholm: Nijhoff, 2007) pp.. 92-93. Es importante mencionar que en 1990, la Organización Marítima Internacional (IMO) reconoció al PCP como un principio de derecho internacional.

⁶⁸ *Ibid.* pág. 13.

Unidas sobre Diversidad Biológica, el Protocolo de Montreal relativo a Sustancias Agotadoras de la Capa de Ozono, y el Programa Global de Acción para la Protección del Medio Marino contra la Contaminación debida a las Actividades Terrestres.⁶⁹

En México, herramientas de información son también utilizadas para implementar legislación ambiental. La Secretaría de Medio Ambiente y Recursos Naturales (SEMARNAT), por ejemplo, utiliza un Sistema Nacional de Información Ambiental y Recursos Naturales (SNIARN), previsto por el artículo 159 bis de la Ley General del Equilibrio Ecológico y la Protección al Ambiente (LGEEPA), que literalmente menciona:

La SEMARNAT desarrollará un Sistema Nacional de Información Ambiental y de Recursos Naturales que tendrá por objeto registrar, organizar, actualizar y difundir la información ambiental nacional, que estará disponible para su consulta y que se coordinará y complementará con el Sistema de Cuentas Nacionales a cargo del Instituto Nacional de Estadística, Geografía e Informática.⁷⁰

El SNIARN es un conjunto de bases de datos que integra información relativa a los inventarios de recursos naturales, al monitoreo de la calidad del aire, agua y suelo, al ordenamiento ecológico del territorio y a los registros, programas y acciones encaminados a la preservación del equilibrio ecológico y la protección al ambiente. Asimismo, LGEEPA contempla la cooperación entre los tres niveles de gobierno para integrar la citada red de información.⁷¹

En Tamaulipas, el Código para el Desarrollo Sustentable para el Estado de Tamaulipas (CDSET), en armonía a disposiciones de LGEEPA, contempla la creación de un Sistema Estatal de Información Ambiental y de Recursos Naturales (SEIARN), el cual, entre otras cosas, contempla el inventario de recursos naturales en Tamaulipas; el ordenamiento ecológico del territorio; registro de emisiones y transferencia de contaminantes al aire, agua, suelo y subsuelo; e información sobre cédulas, informes y autorizaciones tramitados ante la Agencia Ambiental estando actualmente la Secretaría de Desarrollo Urbano y Medio Ambiente encargada de los mismos. Es importante mencionar que el CDSET también impone obligaciones a municipios para coadyuvar en la creación del SEIARN.⁷²

Los mecanismos de información contemplados en el CDSET son un acierto y van de acuerdo a tendencias vanguardistas internacionales, y encaminadas a la conservación de los recursos naturales. A nivel Municipal, el RPADS reconoce la importancia de un registro y establece que en el sistema se integraran los siguientes elementos:

I. Información referente a los inventarios de recursos naturales existentes en el municipio, a los mecanismos y resultados obtenidos del monitoreo de la calidad del agua, del subsuelo y del aire, así como el ordenamiento ecológico local;

II. Un registro municipal de emisiones y transferencia de Contaminantes del aire, agua, suelo y subsuelo, materiales y residuos de competencia municipal. La información de este registro incorporará datos y documentos contenidos en autorizaciones, licencias, informes, reportes, permisos y concesiones que en materia ambiental se tramiten ante la Dependencia. Las personas físicas y morales responsables de fuentes contaminantes están obligados a proporcionar la información, datos

⁶⁹ Organización de las Naciones Unidas, Programa de Naciones Unidas para el Medio Ambiente, UNEP/POPs/INC.3/INF/5, en línea: <<http://www.pops.int/documents/meetings/inc3/inf-english/inf3-5/inf3-5.pdf>> (Consultado el 8 de enero del 2011).

⁷⁰ LGEEPA, *supra* nota 35.

⁷¹ *Ibid.*

⁷² CDSET, *supra* nota 6 Artículo 27. (Consultado el 10 de enero del 2011).

y documentos necesarios para la integración del registro, el cual se integrará con datos desagregados por sustancia y por fuente, anexando nombre y dirección de los establecimientos sujetos a registro;⁷³

El RPADS contempla la participación activa de las autoridades Municipales y la realización de inventarios sobre recursos naturales para conformar el Registro Municipal Ambiental (RMA). Lo anterior también incide en un SEIARN fortalecido. Contar con estos dos registros a nivel Municipal y Estatal permite a Tamaulipas cumplir con las obligaciones impuestas en la Ley General de la Vida Silvestre (LGVS), respecto a la creación del Sistema Estatal de Información sobre la Vida Silvestre (SEIVS) y la obligación que tiene el Municipio de coadyuvar a la formación del citado sistema.⁷⁴ El registro de vida silvestre al parecer es diferenciado en el libro quinto del CDSET.

Las herramientas de información del RPADS y el CDSET tienen el potencial de impactar de manera positiva la conservación del medio ambiente. Estos mecanismos pueden ser benéficos por las siguientes razones: a) permiten realizar un diagnóstico del medio ambiente en Tamaulipas y el Municipio de Nuevo Laredo; b) pueden ser la base para la planeación (Programa Estatal de Desarrollo Sustentable y los Programas Municipales de Desarrollo Sustentable), y el establecimiento de una política ambiental sólida y coordinada; c) permiten dar cumplimiento a normas oficiales mexicanas sobre especies protegidas (NOM-059-SEMARNAT-2001), al tener información sobre la ubicación de las mismas en el Estado de Tamaulipas, de esta manera facilitarían el establecimiento y manejo de áreas protegidas a nivel estatal y municipal. Por consiguiente, es menester que la Dependencia Municipal Ambiental siga apoyando la creación y fortalecimiento del RMA a fin de que esta valiosa herramienta pueda servir de apoyo para la implementación del RPADS.

7. Denuncia Popular en el RPADS

Ante los problemas ambientales de la actualidad en nuestro país, se han creado leyes especializadas con el propósito de evitarlos o de detectarlos a tiempo, a su vez también se han creado mecanismos especiales para cumplir las disposiciones que la legislación establece. Dentro de estos mecanismos encontramos la denuncia popular, y esta es un acto atreves del cual una persona hace saber a las Autoridades correspondientes sobre acciones que alteren el equilibrio ecológico. La denuncia popular tiene su fundamento en el art. 189 de la Ley General de Equilibrio Ecológico y la Protección al Ambiente (LGEEPA),⁷⁵ ley general que en el citado artículo establece las facultades de las personas, grupos sociales, organizaciones no gubernamentales, asociaciones y sociedades de denunciar ante la Procuraduría Federal de Protección al Ambiente (PROFEPA) o ante otras autoridades, cualquier acto que califiquen de perjudicial al medio ambiente o que viole alguna disposición de esta ley u otros ordenamientos que tengan que ver con esta materia.⁷⁶

Se le puede considerar como una herramienta de defensoría ambiental que tiene el ciudadano porque este puede denunciar ante las autoridades ambientales correspondientes, no solo las actividades que califiquen como dañinas al ambiente, sino que también se puede denunciar a quienes no cumplan o hagan cumplir de manera efectiva la ley en materia ambiental.⁷⁷ A nivel estatal, Tamaulipas cuenta con el Código para el Desarrollo Sustentable del Estado de Tamaulipas (CDSET), el cual establece en los artículos 278 al 283 un mecanismo de denuncia popular idéntico a las utilizadas por la LGEEPA, ambos con el fin de prevenir los daños al medio ambiente.

⁷³ RPADS, *supra* nota 8 Art. 24.

⁷⁴ Ley General de la Vida Silvestre, DOF 30-11-2010, en línea: <<http://www.diputados.gob.mx/LeyesBiblio/pdf/146.pdf>>. Artículo 10. (Consultado el 10 de enero del 2011).

⁷⁵ Ley General de Equilibrio Ecológico y Protección al Ambiente art. 189, en línea: <<http://www.redindigena.net/leyes/mex/docs/2/equileco.html>> (Consultado el 10 de enero del 2011)

⁷⁶ *Ibid.*

⁷⁷ Noticias Ambientales: Centro de Estudios Jurídicos y Ambientales, en línea: <http://www.ceja.org.mx/articulo.php?id_rubrique=22&id_article=158> (Consultado el 10 de enero del 2011).

A nivel Municipal, el RPADS posee un mecanismo de Denuncia Popular similar al de la LGEEPA, y está concentrado en el Título Decimo, el cual abarca los artículos 339 al 343.⁷⁸ El objeto principal de este mecanismo es proteger los recursos naturales del municipio. Estos artículos tratan puntos importantes, como quien puede y que actos puede denunciar,⁷⁹ así como los requisitos para hacer la denuncia,⁸⁰ ante quien deberá interponerse, a través de que vías puede realizarse, como debe de ser la denuncia,⁸¹ que acciones tomará el Ayuntamiento ó Dependencia una vez aceptada la denuncia, las diligencias necesarias que efectuaran para la comprobación de los hechos denunciados,⁸² y también hacer conocer al denunciante, el trámite que se le haya dado a la denuncia y el resultado de la verificación de los hechos y las medidas impuestas.⁸³

Bajo el RPADS, cualquier persona o grupo social puede interponer la denuncia ante el Ayuntamiento o Dependencia correspondiente y denunciar cualquier hecho, acto u omisión de competencia municipal que ocasione daños al ambiente o produzca desequilibrio ecológico.⁸⁴ Las personas que realicen la denuncia popular tendrán que cumplir con los siguientes requisitos:

- Presentarla por escrito
- Contener la razón social así como los datos del denunciante y en su caso el del representante legal.
- Los actos hechos u omisiones que denuncie.
- Los datos que identifiquen al infractor o la fuente contaminante, y
- Las pruebas que se ofrezcan.⁸⁵

La denuncia podrá interponerse por vía telefónica o por cualquier otro medio electrónico de comunicación, debiendo de levantar un acta circunstanciada el servidor público que la reciba y deberá estar ratificada por el denunciante por escrito y cumpliendo los requisitos que establece este artículo.⁸⁶ Este proceso resulta ser muy accesible para la población nuevolarensedense, ya que según datos de inspección y vigilancia del municipio, se han registrado en los últimos años un gran número de denuncias telefónicas, tan solo en el 2008 se registraron 569 denuncias, 857 en el 2009 y 595 en el 2010. Gracias a procedimientos sencillos como lo es la denuncia telefónica, se logra involucrar a la población en la difícil tarea que es la prevención ambiental.

Es importante también informar a la ciudadanía acerca de estos mecanismos para que sean aplicados de una forma que beneficie a la población y sobretodo también al medio ambiente. En Nuevo Laredo, aun cuando la denuncia popular es una herramienta muy accesible, su utilidad puede fortalecerse a través de campañas de información y difusión sobre este procedimiento y la elaboración de formatos o guías para que personas en comunidades alejadas a Nuevo Laredo puedan utilizarla.

8. Conclusión

En la presente investigación se analizó la implementación del RPADS en el Municipio de Nuevo Laredo y se busco identificar los obstáculos en su implementación efectiva. Los autores propusieron un modelo donde se

⁷⁸ Reglamento para la Protección Ambiental y el Desarrollo Sustentable, en línea:<http://po.tamaulipas.gob.mx/reglamentos/Regla_Municipales/94_Laredo_Protecc_Ambiental.pdf> (Consultado enero 25, 2011)

⁷⁹ *Ibid*, Art. 339

⁸⁰ *Ibid*, Art. 340

⁸¹ *Ibid*, Art. 341

⁸² *Ibid*, Art. 342

⁸³ *Ibid*, Art. 343

⁸⁴ *Ibid*, Art. 339

⁸⁵ *Ibid*, Art. 340

⁸⁶ *Ibid*, Art. 341

identificaban áreas de fundamental importancia en la conservación ambiental como la atención a la calidad del aire, conservación de la biodiversidad, ecosistemas, la seguridad en la biotecnología, la conservación del agua y reducción de gases efecto invernadero. Asimismo identificaron el problema de duplicidad normativa en Nuevo Laredo toda vez que dos ordenamientos Municipales de igual jerarquía regulan una conducta de diferente manera por lo que la aplicación del Reglamento puede estar contraviniendo la Legislación Estatal y Federal. Este problema de incertidumbre jurídica para el gobernado tiene que ser resuelto a la brevedad posible y adecuar las multas de acuerdo a lo establecido por el Bando de Policía y Buen Gobierno.

En cuanto a la política ambiental en este Municipio, se observa que aun cuando parece fomentar la conservación ambiental, hay carencia de programas permanentes que ataquen los problemas ambientales desde una óptica integral, y aún cuando se observa gran incremento en los programas ambientales desde el 2008, estos fueron en su mayoría de remediación. Es deseable mayor atención a acciones de prevención de daño ambiental. En cuanto a la orientación sancionadora del RPADS con base en el PCP, es necesario que haya coordinación entre autoridades a fin de una correcta y eficaz aplicación de sanciones o multas. Es deseable que se fortalezcan los esfuerzos para unificar criterios o montos con el Bando de Policía y Buen Gobierno, hasta este entonces el aparato de cumplimiento del Reglamento no puede ser del todo efectivo.

Una herramienta que tiene que ser desarrollada a la brevedad posible es el registro Municipal ambiental por lo que respecta a los inventarios de especies y recursos naturales a fin de tomar medidas para proteger los recursos naturales que se cuentan. La denuncia popular también necesita ser fortalecida con urgencia a fin de que esta herramienta pueda ser aprovechada por los habitantes de este Municipio. De ser necesario, se deben elaborar guías para que sean distribuidas en los lugares marginados del Municipio y personas que no tienen acceso a teléfono o que no saben escribir. La implementación de la ley no solo es un problema en Nuevo Laredo sino también en el resto de México y el resto del Mundo. Los municipios no dejan de implementar la Ley a propósito, sino que no se asignan los recursos necesarios para lograr este objetivo. La conservación ambiental e implementación de la Ley seguirá quedando subyugada a la disponibilidad de recursos financieros.

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Responsabilidad Social Empresarial

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ABSTRACT

Ser responsable es saber que cada uno de nosotros formamos parte de una sociedad y todos tenemos compromisos y obligaciones que debemos cumplir; la Responsabilidad Social implica una actitud madura, consiente y sensible a los problemas de nuestra sociedad y de la misma manera nos sirve para adoptar hábitos, estrategias y procesos que nos ayuden a minimizar los impactos negativos que podemos generar al medio ambiente y a la sociedad. Es por eso la importancia que cobra este tema. Si tomamos una actitud de indiferencia ante los crecientes problemas que están afectando a la humanidad como lo son la contaminación ambiental, la violencia, la pérdida de principios y de valores, será para el mundo entero lo peor vivido, por lo que consideramos que las organizaciones empresariales, los profesionales, el estado y las entidades educativas son los que deben asumir una posición de liderazgo para combatir la falta de consciencia sobre este tema. Es hora de replantear la responsabilidad social de la empresa en todas sus dimensiones y la organización debe de tomar en cuenta que sus actividades afectan positiva o negativamente, la calidad de vida de sus empleados y de las comunidades en las que realiza sus operaciones. Podemos decir, entonces, que la Responsabilidad Social Empresarial se refiere también a la actitud y al conocimiento de una entidad encaminada a mantener el equilibrio entre el desarrollo de la sociedad, un entorno sustentable, y la viabilidad comercial y económica de ella misma. Las compañías líderes en el mundo han incorporado la Responsabilidad Social Empresarial a su estrategia de negocios como elemento diferenciador y como ventaja competitiva, con resultados financieros positivos.

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Responsabilidad Social Corporativa: Un Valor Agregado Para la Empresa.

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RESUMEN

Esta investigación comparte la importancia de ser una empresa con responsabilidad social, habla de las ventajas y las desventajas y del impacto positivo generado de la empresa hacia la sociedad. Tener responsabilidad social convierte a una empresa en ser consciente de los efectos que los actos generados por ella puedan ocasionar a cualquier individuo o entorno social. Ser una empresa con responsabilidad social eleva a largo plazo la competitividad de la empresa y reduce los costos operativos.

Palabras claves: RSE, Sostenibilidad, Empresa.

ABSTRACT

This research shares the importance of being a socially responsible company, discusses their advantages and disadvantages and generated positive impact to society. Having social responsibility in a company is to be aware of the effects that they generate (acts caused to any individual or to the social environment). Being a socially responsible company raises long-term competitiveness of the company and reduces operating costs.

Keywords: CSR, Sustainability, Business.

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Responsabilidad Social y Competitividad en las Empresas

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RESUMEN

En este artículo hacemos una revisión bibliográfica sobre los factores que afectan a la responsabilidad social y competitividad empresarial. Se revisan los conceptos principales y las teorías que han abordado estos temas a lo largo de las últimas décadas.

El análisis del fenómeno de la responsabilidad social de las empresas tiene un suceso positivo en la posición competitiva de las empresas, ya que la competitividad tiene incidencia en la forma de plantear y desarrollar cualquier iniciativa de negocios

Para algunos autores son los aspectos locales, relacionados con la concentración geográfica, los que determinan la responsabilidad social y el nivel competitivo de los sectores industriales y de las empresas pertenecientes a ellos. Para otros, serán los recursos, las capacidades y las estrategias el aspecto determinante del éxito o fracaso de una empresa.

Palabras clave: Responsabilidad social, Competitividad, Ética y Formación Gerencial.

ABSTRACT

In this article we make a review on the factors that affect business competitiveness and social responsibility. We review the main concepts and theories that have addressed these issues over the last decades.

The analysis of the phenomenon of the social responsibility of enterprises has an event on the competitive position of the companies, since competitiveness has impact on how to raise and develop any business initiative

For some authors are local aspects, related to the geographical concentration, that determine the social responsibility and the competitive level of the industrial sectors and companies belonging to them. For other, will be the resources, capacities and strategies the key aspect of the success or failure of a company.

Keywords: social responsibility, competitiveness, ethics and management training

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More Evidence on Reticence and Corruption

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ABSTRACT

Recent studies have found that reticent managers, who are identified through a series of random response questions, are less likely to report problems due to corruption during firm surveys. This study confirms this result using a new data set from Bangladesh and Sri Lanka. The results also suggest that reticence affects both direct and indirect questions. That is, asking questions indirectly (e.g., about firms like yours) does not solve problems associated with reticence. Reticence affects answers to specific questions (e.g., about bribes during specific events such as tax inspections) and general questions (e.g., about whether corruption is a problem). But reticence affects answers to the specific questions more. Finally, reticence also affects response rates. We find that reticent managers were less likely to refuse to answer questions about corruption. They might do this because they believe that refusing to answer seems like an implicit admission of guilt. Therefore, they might prefer to answer 'no' rather than refusing to answer.

More Evidence on Reticence and Corruption

I. Introduction

It is difficult to get accurate information on the extent of corruption from firm surveys. Managers concerned about being identified or looking bad in front of the interviewer have little incentive to answer questions truthfully. If managers who have paid bribes admit to an interviewer that they have, it could lead to legal problems or they might face retaliation from the corrupt bureaucrat that they paid the bribe to. Even if they are not worried about this, they might be concerned about looking bad in the eyes of the interviewer or anyone else who is able to identify them. Moreover, if they doubt that surveys will succeed in changing government behavior or realize when samples are relatively large, their response is unlikely to have a significant impact on the measurement of corruption, they have little to gain from answering truthfully if they have paid bribes. Consistent with this, recent studies have found evidence that some managers lie (Azfar and Murrell, 2009; Clausen and others, 2010) and others refuse to answer (Jensen and others, 2008; Jensen and others, 2010; Jensen and Rahman, 2011) questions about corruption.

To reduce measurement error, Azfar and Murrell (2009) proposed a way to identify ‘reticent’ respondents who are more likely to lie about corruption. They found that reticent respondents in Romania, who they identified based on their responses to randomized response questions, were less likely to report corruption at one-stop shops for registration and at the health inspectorate. They found that underreporting was a problem for both direct questions about corruption (e.g., about whether bribes were paid) and indirect questions about corruption (e.g., about whether ‘other’ firms pay bribes).¹ In a later study, Clausen and others (2010) found that reticent respondents in Nigeria were more likely to deny that bribes were requested during a series of specific transactions with utility companies and government regulators. They did not, however, find strong evidence that reticent respondents were more likely to deny corruption was a problem or that bribes were needed in a series of general indirect questions about corruption.

This paper re-examines the link between reticence and corruption using data from a survey of enterprises in Sri Lanka and Bangladesh. We find that reticent managers were less likely to report problems related to corruption in these countries. The effect of reticence is large for both direct and indirect questions about corruption—although it appears to be larger for questions about specific transactions (e.g., about whether bribes are needed during tax inspections) than about general questions about corruption (e.g., whether bribes are needed to get things done in a variety of circumstances). For example, only about 2 percent of managers that had not been inspected said that bribes were typically requested or expected during tax inspections. In the absence of reticence, we estimate that between about 14 and 26 percent of managers would answer the question in this way.

¹ Indirect questions that do not directly incriminate the manager are often used to reduce underreporting. These questions are phrased so that the manager can report corruption without admitting to paying bribes. For example, managers are asked whether firms like their own pay bribes. See, for example, the questions in the BEEPS survey (Synovate, 2005), the World Bank’s Enterprise Survey (<http://www.enterprisesurveys.org>) or the Executive Opinion Survey (Schwab, 2010). Many one-off surveys use similar indirect approaches. For example, the survey used in Johnson and others (2000) asked about payments by ‘firms in your sector’, the survey of firms in Uganda used in Svensson (2003) asked how much a ‘firm in your line of business and of similar size and characteristics typically pays each year [in bribes]’.

The paper adds to the literature on reticence and corruption in several ways. First, we confirm that reticence appears to affect responses about corruption using data from a different survey administered in a different environment than previous surveys. This provides additional evidence that questions on corruption are useful in a broad range of countries and surveys.

Second, we find a larger and more statistically significant effect of reticence on questions about specific transactions involving corruption than in general questions about whether corruption is a problem or whether bribes are needed to get things done. Interestingly, this does not appear to be related to whether the question is asked directly or indirectly. For example, we find that reticent managers whose enterprise had been inspected or visited by tax inspectors were less likely to say that bribes were requested or expected during the inspections. But we also find that reticent managers who reported that they had not been inspected visited were also less likely to say that bribes were typically needed during these (hypothetical) events. Since the second group reported that they had not been visited, the question was indirect in that it did not apply to that group. This result might partly explain the difference between results in Azfar and Murrell (2009) and Clausen and others (2010). Clausen and others (2010) found that reticence affected direct and specific questions but had little effect on indirect and general questions. In contrast, Azfar and Murrell (2009) found that reticence affected responses to their questions about corruption in one-stop shops and the health ministry whether asked directly or indirectly. Together these results suggest that it is the specificity of the question rather than whether it is asked directly or indirectly that is more important when assessing the impact of reticence on responses to questions on corruption.

Finally, in contrast to previous studies (Azfar and Murrell, 2009; Jensen and Rahman, 2011), we do not find that reticent managers are more likely to refuse to answer questions about corruption. In fact, we find that reticent managers in South Asia were less, not more, likely to refuse to answer questions about corruption. This could be because they believe that refusing to answer seems like an implicit admission of guilt. Therefore, reticent managers in these countries might prefer to answer 'no' (i.e., to look less guilty) rather than refusing to answer.

It is not clear why we find a different result than previous studies. One possibility is that the cultural context is different in the countries that we are surveying. Another possibility is that it is related to the questionnaire. In particular, in contrast to the survey in Azfar and Murrell (2009), our survey was not focused on corruption – there were only three questions on corruption at the very end of the survey. Understanding why our results are different would be an important focus for future work.

II. Data

The data used in this study is from two management practice surveys conducted in Sri Lanka (588 establishments) and Bangladesh (1001 establishments) by the World Bank. The questionnaire was based on the World Bank's Enterprise Survey questionnaire, but was heavily modified to collect additional information on strategic behaviour and industrial structure. It also included several questions that were intended to identify reticent respondent that were identical to the questions proposed by Azfar and Murrell (2009). Input for questionnaire design was given by researchers in microeconomics, management and labour psychology. The data generated from the surveys are available from the World Bank on the World Bank's *Enterprise Survey* website (<http://www.enterprisesurveys.org>).

The surveys were conducted between May and June 2011 in Bangladesh and between June and November 2011 in Sri Lanka. The sample included all manufacturing sectors according to the classifications of ISIC rev. 3.1 (group D), construction (group F), Services (groups G and H), transportation, storage and communications (group I), and Information technology (sub-sector 72 in group

K). The sampling methodology is described in detail in World Bank (2012b).²

Corruption Data

Because the survey was not primarily intended to collect information on corruption—or related things such as regulation—there are only four questions related to corruption included in the survey. Three of these are identical to questions from the World Bank’s *Enterprise Surveys*. The first questions is:

“J30F. As I list some factors that can affect the current operations of a business, please look at this card and tell me if you think that each factor is No Obstacle, a Minor Obstacle, a Moderate Obstacle, a Major Obstacle, or a Very Severe Obstacle to the current operations of this establishment”

The question then lists ‘corruption’ as one of the five obstacles that is asked about.³

The second question is:

“J7. It is said that establishments are sometimes required to make gifts or informal payments to public officials to ‘get things done’ with regard to customs, taxes, licenses, regulations, services, etc. On average, how much do establishments like this one pay in informal payments or gifts to public officials for this purpose.”

The manager could answer this question either as a percent of sales or in monetary terms. Because previous research has shown that the way that the manager answers the question appears to affect the magnitude of the bribe, we focus on whether the manager reported a positive amount or not.⁴

The final questions are linked. Managers are first asked whether they have been visited or inspected by tax officials in the past year. Managers that reported that they had been inspected or visited were then asked:

“J5. In any of these inspections or meetings with tax officials was a gift or informal payment expected or requested.”

Managers who reported that they had not been inspected or visited were asked

“J6. During inspections or meetings with tax officials, are gifts or payments typically expected or requested”

The questions vary in several ways. One way they differ is in how direct the question is. The second is how general the question is. The first question is very indirect and very general. In particular, it does not ask specifically about whether the firm has paid bribes. It simply asks whether corruption is a problem for the firm. A firm could reasonable report that corruption is a serious problem even if the manager has never paid a bribe. For example, the manager of a firm that lost a contract because they refused to pay a bribe might

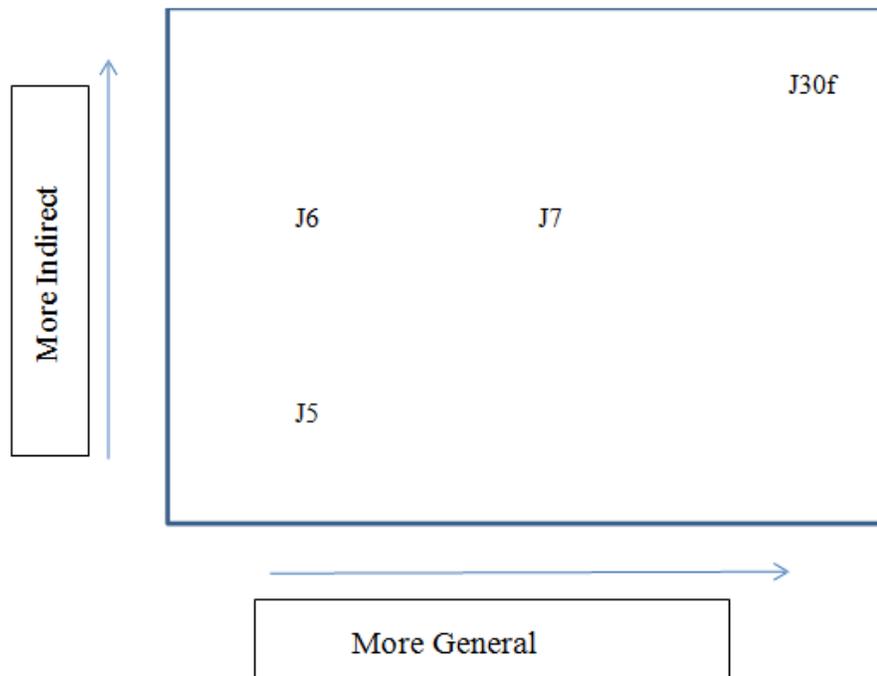
² This document is available for registered users of World Bank Enterprise Survey data on the Enterprise Survey webpage (<http://www.enterprisesurveys.org>)

³ The other four are electricity, access to finance, access to land, and political instability.

⁴ Clarke (2011a) shows that managers who report answers report paying far higher bribes than managers who answer the question in monetary terms after controlling for other things that might affect bribe payments.

say that corruption is a problem even if though they did not pay a bribe.⁵ It is also very general. In particular, it does not distinguish between grand corruption (e.g., bribes to policy makers or legislators that affect policies and laws) and petty corruption (i.e., bribes to bureaucrats to get licenses, avoid taxes, or win government contracts). Managers might say corruption is a problem because petty corruption is a problem (e.g., they have to pay a lot of bribes, face burdensome regulation, or lose contracts to competitors who bribe officials).⁶ But they also might say it is a problem because they believe that grand corruption is high and as a result infrastructure is underdeveloped or growth is slow.

Figure 1: Directness and Specificity of corruption questions



The second question is more direct and more specific than the first question. Although it is more direct than the previous question (j30f), it remains somewhat indirect in that it does not ask about the firm’s own experience. Rather it asks about ‘firms like this one’. In practice, most studies assume that firms answer question like this with their own experience in mind.⁷ Although it remains relatively general, asking about bribes in a wide variety of situations, it is less general than the previous question. In particular, it asks

⁵ Consistent with this, Clarke (2012b) shows that managers in Afghanistan that do not bid on government contracts are more likely to say that corruption is a serious problem when bidding on government contracts than managers that do bid. Clarke (2012b) argues that the most reasonable explanation for this is that firms excluded from bidding due to high levels of corruption are more concerned about corruption than firms that actually do bid.

⁶ See, for example, Jain (2001) for a discussion of grand and petty or bureaucratic corruption. Jain further distinguishes between legislative and other types of grand corruption.

⁷ See, for example, Clarke and Xu (2004, p. 2077), Johnson and others (2000, p. 504), Johnson and others (2002, p. 1337-1338) and Svensson (2003, p. 212-213).

specifically about petty corruption, excluding grand corruption, and also does not refer to bribes paid when bidding on government contracts.

The third question was only asked to managers that said that their firms had been visited or inspected by tax officials. Although this question does not directly ask whether bribes were paid, it is more direct than the previous questions. The manager is asked whether a bribe was requested or expected—rather than paid. However, it is asked about the enterprise itself—not an ‘enterprise like this one’. It is also relatively specific in that it asks about a specific transaction.

The fourth question was only asked to managers that said that their firms had not been visited by tax officials.⁸ It is relatively indirect in at least two ways. First, it does not directly ask whether tax inspectors requested or expected bribes from the firm itself—just whether such requests are typical. Second, it was only asked to firms that had not recently been expected. In this respect, the question could be interpreted as if it is about other firms (i.e., firms that had been inspected) not the firm itself. It is, however, relatively specific. That is, it asks about a specific transaction (i.e., tax inspections or visits) not about whether bribes are needed to ‘get things done’.

Managers can respond to these questions in several ways. If they choose to answer the questions, they can answer ‘yes’ or ‘no’.⁹ Although it is mostly assumed that respondents answer the questions truthfully, it is possible that some respondents. Several previous studies that have looked at the responses of reticent respondents have concluded that these respondents at least lie when answering questions about corruption (Azfar and Murrell, 2009; Clausen and others, 2010; Jensen and Rahman, 2011). It is likely, however, that other respondents also lie—after all, the main reason for asking questions indirectly is that it is hoped that by reducing the likelihood of self-incrimination that this will reducing lying.

Managers can, however, also respond in another way—they can avoid answering the question. In practice, they can do this in at least two ways. One way is that they can simply refuse to answer the question. Another is that they can say that they don’t know. Managers that have paid bribes might be especially likely to refuse to answer these questions. Treisman (2007, p. 239), for example, argues “it might be respondents in some countries are more reluctant to admit paying bribes and so would reply ‘don’t know’ or ‘no answer’ rather than ‘yes’ to survey questions about [corruption]”.

Both types of responses were common in the management practice survey used in this study (see Table 2). Non-response rates varied from about 2.5 percent on the question on whether corruption was a serious problem (j30f) to 33 percent on the question how much firms need to pay to ‘get things done’ (j7).

Interestingly, the non-response rate was higher on the more indirect question on bribe payments during tax inspections (j5 and j6). For firms that had not been inspected, the non- response rate was about 19 percent

⁸ Firms that answered “do not know” to whether they had met with or been inspected by tax officials were also asked the indirect question.

⁹ To question J7, although they cannot answer ‘yes’ or ‘no’, we will treat a positive amount as a ‘yes’ and zero as ‘no’ in the discussion.

compared to about 9 percent for firms that had been inspected. Although in part this might be because managers whose firms that had not been inspected really did not know whether bribes were needed. However, even when we exclude managers that responded ‘don’t know’ the refusal rate was still higher among managers of firms that had not been inspected.

Managers that refused to answer one question about corruption were often unwilling to answer other questions (see Table 3). For example, about 30 percent of the firms that refused to answer the question on whether bribes were needed to get things done also refused to answer the question on whether a bribe was requested during a tax inspection. In comparison, only about 2 percent of firms that answered the question on whether bribes were needed refused to answer the question on bribe requests during tax inspections.

Identifying reticent managers

We identify reticent managers—managers that are reluctant or unwilling to answer questions—using the method developed by Azfar and Murrell (2009).¹⁰ They identify reticent managers by looking at their responses to seven random response questions (see Table 1).¹¹ The interviewer asks the manager a sensitive question (for example, on tax evasion) and asks them to toss a coin out of sight of the interviewer. If the coin shows heads the manager answers ‘yes’. If it shows tails, the manager answers the question. Random response procedures are intended to encourage people to answer sensitive questions honestly.¹² If the manager answers ‘yes’ no one other than the manager, not even the interviewer, knows whether the manager is saying that they committed the sensitive act or just that the coin showed heads.

Although randomized questions reduce underreporting, firms continue to underreport sensitive behaviors even with random response procedures.¹³ Moreover even though the respondent knows the interviewer will not know whether they are answering ‘yes’ because the coin showed heads or because they have done the activity, some answer ‘no’ when the coin shows heads. Azfar and Murrell (2009) note that less than half of respondents should answer ‘no’ to the sensitive questions—even if no one has committed the sensitive act, the coin will show heads half the time. If some people who toss tails have committed the act, less than half should answer ‘no’. Azfar and Murrell (2009) and Clausen and others (2010), however, find an implausible number of ‘no’ answers, suggesting that some people whose coin comes up ‘heads’ answer ‘no’ anyway.

Table 4 shows the expected distribution of ‘no’ responses if no one had done any of the sensitive behaviors, the expected distribution if 30 percent of respondents had done each behavior, and the true distribution

¹⁰ The same, or a similar, approach has been used in Clarke (2011b; 2012a), Clausen and others (2010), and Jensen and Rahman (2011). The description in this section draws heavily on the descriptions in Azfar and Murrell (2009) and Clausen and others (2010), which provide greater detail on the methodology.

¹¹ In the list of random response questions, three less sensitive random response questions are included along with the sensitive questions. This allows sophisticated respondents who realize that it long sequences of ‘no’s’ are very unlikely to avoid giving long sequences of no answers.

¹² See Fox and Tracy (1986) for a general discussion or Recanatini and others (2000) for a discussion that is directly linked to the Enterprise Surveys. A related technique is list randomization where survey respondents are asked to report how many sensitive statements in a given list are true. Karlan and Zinman (2012) used list randomization in a study looking at use of loans by microenterprises.

¹³ Lensvelt-Mulders and others (2005) suggests that it reduces underreporting from about 45 percent to 38 percent.

of ‘no’ answers.¹⁴ If nobody had done any of the sensitive acts (i.e., everyone is an ‘angel’), we would expect the average respondent to respond ‘no’ 3.5 times. This ‘angel’ assumption, however, is unlikely to hold. If about 30 percent of respondents had done each of the acts, we would expect the average respondent to respond ‘no’ 2.5 times. In fact, no responses were far more common than this—the average manager responded ‘no’ about 4.2 times. This suggests that a significant number of managers answer ‘no’ even when the coin shows heads.

This is not just because some managers always say ‘no’. Even if all are ‘angels’ (i.e., have never done any of the sensitive acts), too many managers answered no five, six and seven times and too few managers answered zero, one, two or three times. If 30 percent of people have done each sensitive behavior, the distribution is even more skewed. That is, more people who responded ‘no’ four, five, six or seven times and less people who responded ‘no’ zero, one, two or three times than would be expected. The distribution would be more skewed if sensitive behaviors were more common than this.

This suggests that reticence is not all-or-nothing. That is, we see too many people responding no five and six times as well as too many responding no seven times. Because of this, we use the number of ‘no’ responses as a measure of reticence rather than a simple measure that labels managers reticent if they toss heads seven times.

III. Empirical Estimation

This section presents the empirical models that we estimate and the empirical results. We first estimate a model predicting whether the firm responds to the questions and then predict whether firm’s respond ‘yes’ or ‘no’.

Estimating whether firms respond ‘yes’ or ‘no’

Previous studies have looked at how reticent and non-reticent firms respond to questions about corruption (Azfar and Murrell, 2009; Clausen and others, 2010). We therefore first look at whether reticent respondents who do respond to the questions on corruption are more or less likely to report bribes or that corruption is a serious problem. We assume that each manager’s propensity to answer ‘yes’ to questions about corruption depends on how reticent they are and various firm characteristics (FC). In all cases, a ‘yes’ response implies that the respondent is saying that corruption is more frequent or a greater problem.

Firm i ’s propensity to respond ‘yes’ is therefore:

We assume that the error term, ϵ_i , is normally distributed. Since the decision to respond is a yes-no decision, we assume that the firm will respond ‘yes’ if its propensity to answer ‘yes’ is greater than zero. Positive coefficients, therefore, mean that firms or managers with those characteristics are more likely to respond ‘yes’.

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Because we assume that ϵ_i has a normal distribution, we therefore estimate the model as a Probit model.

¹⁴ The expected distribution assuming 30 percent have done each behavior is calculated assuming that the probability that an individual does each act is independent of the other probability that they will do the other acts.

The main variable of interest is the measure of reticence. We use the number of no answers to the seven sensitive questions. Firm managers that respond to the random response questions more frequently with ‘no’ (i.e., who answer ‘yes’ less frequently) are more reticent and, therefore, this variable increases as the manager becomes more reticent. If reticent managers are more likely to say corruption is a problem, the coefficient on this variable would be positive. The reverse would be true if reticent managers were less likely to answer ‘yes’.

The control variables include other firm characteristics that might how the manager answers questions about corruption—that is things that might affect whether the firm has paid bribes or whether they refuse to answer or lie. These include characteristics of the firm, characteristics of the top manager and characteristics of the respondent (who is often, but not always, the top manager). The variables include indicators indicating the gender and age of the respondent, whether the respondent is the owner of the firm (as opposed to a hired manager), the educational attainment of the top manager, the size and age of the firm, whether the firm exports, whether the firm is in Sri Lanka or Bangladesh, and the sector of operations for the firm.¹⁵

Controlling for firm and manager characteristics might be important if these characteristics affect whether the respondent is reticent and affect how they answer questions about corruption. For example, managers of large firms might be more concerned about being identified than managers of small firms based on the information in the survey, potentially making them less willing to answer sensitive questions and, therefore, more reticent. But large firms might also have more contact with the regulatory authorities, meaning that they might be more likely to have bribes requested or to see corruption as a serious problem.¹⁶ This could result in a spurious correlation between reticence and responses to questions about corruption unless the regression controls for these characteristics.

One concern is the potential for reverse causation. Firm managers that have had particular problems with corrupt officials might become reticent—that is become unwilling to admit to immoral or illegal acts if they fear that this will give those corrupt officials leverage over them. Similarly, it is possible that some unobserved characteristics of the firm or manager might affect whether the firm pays bribes and whether the manager is reticent. For this reason, it is useful to consider using instrumental variables to control for the potential for endogeneity. To do this, we need an instrument for reticence—something that affects reticence but does not affect whether the manager’s responses about corruption.

Because many things that might affect whether the respondent is reticent, such as manager gender or education or firm characteristics, might also affect the manager’s propensity to pay bribes, it is difficult to use firm or manager characteristics as an instrument for reticence. We therefore adopt a different approach. The quality of the interaction between the manager and the interviewer might affect reticence. That is, if the manager and the interviewer interact positively, the manager might be less likely to be reticent. Iarossi (2006, p. 157), for example, notes “respondents are more willing to comply with requests from people who are similar to them, people who praise them, people who are familiar to them, and people with whom they like to be associated.”

¹⁵ We do not have any information on the educational attainment of the respondent (unless the respondent is also the top manager).

¹⁶ Several studies have shown that corruption is greater when the burden of regulation is heavier (Djankov and others, 2002; Safavian and others, 2001; World Bank, 2003)

Although the quality of the interaction between the two depends on the manager, it also depends on the interviewer. Although we don't have any socio-demographic information on the interviewers, we can identify firms interviewed by each interviewer. We can therefore make interviewer-level measures of reticence (i.e., the average reticence of other managers interviewed by the same interviewer). If successful interviewers have characteristics that appeal to many managers, interviewers who get truthful answers from other managers might be more successful with the next manager.

To test whether this is the case, we construct a variable indicating the average reticence of other managers interviewed by the same interviewer. When we do this, we omit the managers' own responses (that is, it is a 'leave-one-out' average). If some interviewers are better than others, we would expect this variable to be positively correlated with the manager's own reticence. The results are consistent with this. In the first stage regression, the coefficient the leave-one out average is positive and statistically significant (F-stat=112.3, p-value=0.00). Moreover, the 'leave one out' average does not include the manager's own responses and therefore should capture characteristics of the interviewer rather than the manager.

Empirical results

Reticence. The coefficient on the indicator of reticence, the number of 'no' responses, is negative in all four regressions and is statistically significant in three of the four regressions (see Table 5). The negative coefficients indicate that firm managers that are more reticent are less likely to say that corruption is a serious problem, and that firms that were inspected by the tax authorities are less likely to say that bribes were requested or expected during tax inspections, that firms that were not inspected were less likely to say that bribes were typically needed during tax inspections. The negative, but statistically insignificant coefficient, in the final regressions indicates that reticent managers were also less likely to say that bribes are needed.

If reticent managers are lying about their experience with corruption, then estimates of corruption that do not take this into account will underestimate the prevalence of corruption. How much reticence affects the estimates of corruption depends on how reticent managers actually are—and this depends partly on how likely it is that managers have actually done the sensitive acts. That is, the coefficients tell us how much an additional 'no' response to the sensitive randomized questions affects the likelihood that managers will answer 'yes' to the questions on corruption. The impact of reticence will therefore depend on how many 'no' responses we would expect if all managers answered the sensitive randomized questions honestly. This, in turn, depends on how many managers have actually done each of the sensitive acts asked about in the randomized questions.

Table 6 shows the percent of managers that answer each question about corruption and different estimates of how many managers would answer the questions of corruption if reticence was not a problem. In the actual sample, about 41 percent of managers said that corruption was a major or very severe problem, about 10 percent said bribes were needed to get things done, about 11 percent of managers that had been inspected said bribes were requested or expected during the inspections and about 2 percent of managers that had not been inspected said bribes were typically needed during inspections.

Assuming that no one had done any of the sensitive acts, we would expect the average manager to answer 'no' to 3.5 of the 7 sensitive questions. When we replace the managers actual number of 'no' responses with 3.5 and calculate average probabilities, we would expect that if no managers were reticent that about 50 percent of managers would say that corruption was a serious problem if reticence was not affecting how managers answer the question. Similarly, if reticence was not affecting responses to the other questions, we would expect that about 11 percent would say that bribes were needed to get things done, that about 22 percent of managers that had been inspected would say that bribes were requested or expected during tax inspections and that about 14 percent of managers that had not been inspected would say that bribes are typically needed during tax inspections.

If some managers actually have done the sensitive acts, then we are underestimating the extent of reticence in the sample. If about 30 percent of managers have done each act, then we would expect that the average manager would respond 'no' to only 2.5 of the sensitive questions. In this case, we would expect that if no managers were reticent that about 65 percent of managers would say that corruption was a serious problem, that about 12 percent would say that bribes were needed to get things done, that about 35 percent of managers that had been inspected would say that bribes were requested or expected during tax inspections and that about 22 percent of managers that had not been inspected would say that bribes are typically needed during tax inspections.

Other Variables. For the most part there are few other consistent patterns among the coefficients on the other control variables. The most consistent result is that older respondents were more likely to complain about corruption than younger respondents. In particular, they were more likely to say that corruption was a serious problem, more likely to say that bribes were needed to get things done, and more likely to say that bribes were expected during tax inspections. In the final regression, the coefficient on respondent's age was positive, indicating that older respondents whose firms had not been inspected were also more likely to say that bribes were typically expected during tax inspections. The coefficient on respondent age, however, was not statistically significant in the final regression.

There is some evidence that better educated managers were less concerned about corruption than other managers and that managers of larger firms and exporters were more concerned about corruption than other managers. Although the coefficients on these variables had consistent signs, they were mostly not statistically significant.

The results suggest that reticent managers are more likely to report less corruption in response to both general and specific questions about corruption and to both direct and indirect questions. In practice, the magnitude of the effect seems greatest for specific questions. That is, the results suggest reticence has a larger effect on responses to the two specific questions than to the two general questions.

Model estimating response rates

The second question that we ask is whether reticent respondents are more or less likely to refuse to respond to questions about corruption. We assume that each manager's propensity to respond to questions about corruption depends on how reticent they are and various firm characteristics (FC). Firm i 's propensity to respond is therefore:

We assume that the error term, ϵ_i is normally distributed. Since the decision to respond is a yes-no decision, we assume that the firm will respond 'yes' if its propensity to refuse to answer the question is greater than zero

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The dependent variable is, therefore, a dummy variable. We assume that ϵ_i has a normal distribution and so we estimate the model as a Probit model.

The main variable of interest is the measure of reticence. We use the number of no answers to the seven sensitive questions. Firm managers that respond to the random response questions more frequently with 'no' (i.e., who answer 'yes' less frequently) are more reticent and, therefore, this variable increases as the manager becomes more reticent. If reticent managers are more likely to refuse to respond, the coefficient on this variable would be positive. The reverse would be true if reticent managers were less likely to respond.

Empirical results

Reticence. The coefficient on the variable indicating reticent is statistically significant and negative in all four regressions. Since the dependent variable indicates that the manager refused to answer the question and the reticence variable is larger when the manager is more reticent, the negative coefficient indicates that managers that are more reticent are less likely to refuse to answer the questions on corruption.

Combined with the previous results, this suggests that at least in the sample of firms in this study, reticent managers are more likely to say that corruption is not a problem if they answer the question but not more likely to refuse to answer the question. This would be consistent with the possibility that reticent managers are more likely to lie than to refuse to answer the question. One possible explanation for this would be that reticent managers see a refusal to answer as a tacit admission that their firm is involved in corrupt acts. As noted above, this is not an unreasonable belief. For example, on the Enterprise Survey website, measures of bribe payment are calculated treating managers that refuse to answer questions about corruption as if the manager said that bribes are needed.¹⁷ If reticent managers are concerned either about being implicated in corrupt acts or about looking bad by admitting even indirectly that corruption is a problem, then they might prefer to say ‘no’ rather than

Once again, the impact of reticence appears to be large (see Table 8). Even assuming that no one has actually done any of the sensitive acts asked about in the randomized questions, the estimates suggest that about 5 percent of managers would refuse to answer the question on whether corruption is a serious problem (compared to about 3 percent of managers in the actual sample) and about 39 percent would say that bribes are needed to get things done (compared to about 33 percent in the sample). For firms that had been inspected by the tax authorities, the estimates suggest that about 18 percent of managers would refuse to answer the question on whether bribes were requested during inspections if no managers were reticent (compared to about 10 percent in the sample). Finally, for firms that had not been inspected, about 25 percent would refuse to answer if none were reticent (compared to about 19 percent in the sample). If managers had done any of the sensitive acts, we would expect an even greater share of managers would refuse to answer.

Other Variables. As with the previous questions, there were few other consistent patterns among the control variables. Firms in Sri Lanka were more likely to refuse to say whether corruption is a problem but were more likely to refuse to answer the other questions. Managers of large firms were less willing to answer the question on whether corruption was a serious problem but more likely to refuse to answer the other questions.

IV. Conclusion

We find the reticence has a large effect on estimates of corruption. Managers that are more reticence are more likely to say that corruption is a serious problem, more likely to say that bribes were expected during tax inspections (if inspected) and were more likely to say that bribes were typically needed during tax inspection (if not inspected). Assuming that reticent respondents are lying—as most previous studies have asserted—the results suggest that corruption is likely to be far higher than

¹⁷ See World Bank (2012a). The description (p. 22) says “This indicator is created from the variable J.7. If either j7a or j7b is positive, then the firm is considered to pay. If the respondent answers -8 [refusal to answer], it is also interpreted that the firm pays.

survey results suggest. This seems to hold for both relatively direct and relatively indirect questions about corruption. The results suggest, however, that reticence appears to have a greater impact on questions about specific transactions (e.g., during tax inspections) rather than general questions on corruption that are not related to specific transactions.

We also find that reticent managers in South Asia were less likely to refuse to answer questions. This could be because they believe that refusing to answer seems like an implicit admission of guilt. Therefore, reticent managers in these countries might prefer to answer 'no' (i.e., to look less guilty) rather than refusing to answer.

Although the first result is consistent with earlier studies of reticence and corruption in other surveys and countries, this is not true for the second result. Previous studies have found the opposite—that reticent managers are more likely to refuse to answer questions about corruption. It is not clear why we find a different result than previous studies. One possibility is that it is because of the cultural context in the countries that we are surveying. Another possibility is that it is related to the questionnaire. In particular, in contrast to the survey in Azfar and Murrell (2009), our survey was not focused on corruption – there were only three questions at the very end of the survey. Another possibility is that it reflects the different refusal rates in the different surveys. Understanding why our results are different would be an important focus for future work.

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VI. Tables

Table 1: Sensitive questions used to identify reticent respondents

Question	Random response questions
1	Have you ever paid less in personal taxes than you should have under the law?
2	Have you ever paid less in business taxes than you should have under the law?
3	Have you ever made a misstatement on a job application?
4	Have you ever inappropriately promoted an employee for personal reasons?
5	Have you ever deliberately not given your suppliers or clients what was due to them?
6	Have you ever inappropriately hired a staff member for personal reasons?
7	Have you ever unfairly dismissed an employee for personal reasons?

Source: Questionnaire for World Bank's Enterprise Survey for Nigeria (2007 and 2009).

Note: Three less sensitive questions are less sensitive questions that were included to allow sophisticated reticent respondents to not have to give large numbers of 'no's' consecutively if they realized that this would be very unlikely

Table 2: Percent of firms that answered and refused to answer questions on corruption

	Corruption is serious problem	Bribes are needed to get things done	Bribe requested or expected during tax inspections	Bribes typically expected or requested during tax inspections
Sample	All		Firms that were inspected	Firms that were not inspected
<i>Answered</i>	1,548	1,070	599	736
Yes	627	105	64	16
No	921	965	535	721
<i>Refused/Does not know</i>	41	519	66	179
Refused	28	253	52	95
Do not know	13	266	14	35

Source: Authors' calculation based upon data from the World Bank's Enterprise Survey Bangladesh and Sri Lanka

Note: Counts are unweighted

Table 3: Percent of firms that refused to answer other corruption questions

		Corruption is a serious obstacle	Bribe requested or expected during tax inspections	Bribes typically expected or requested during tax inspections
Sample		All	Inspected	Not inspected
All firms		3%	10%	19%
Bribes are needed to get things done	Refused	4%	30%	51%
	Answered	2%	2%	2%

Table 4: Expected and actual distribution of 'no' responses

Number of no responses	Expected if all are 'angels'	Expected if 30% have done each act	Actual % of respondents in survey
7	0.8%	0.1%	12.9%
6	5.5%	0.8%	11.3%
5	16.4%	4.7%	18.2%
4	27.3%	14.4%	22.2%
3	27.3%	26.8%	18.8%
2	16.4%	29.8%	8.9%
1	5.5%	18.5%	4.9%
0	0.8%	4.9%	2.8%
Expected number of no responses	3.5	2.5	4.2

Source: Author's calculation based upon data from the World Bank's Enterprise Survey for Nigeria (2007 and 2009).

Note: Counts are unweighted. The 'angels' assumption assumes that no one has done any of the sensitive acts. The '30% assumption' assumes the probability of a respondent actually doing each act is 30 percent and that the probability that any given agent does each act is independent of the probability that they do other behaviors.

Table 5: IV Probit regressions for corruption questions

	Corruption is serious problem [dummy]	Bribes are needed to get things done [dummy]	Bribe was requested during tax inspection [dummy]	Bribes typically needed during tax inspections [dummy]
Observation	1,092	736	417	333
Reticence				
Number of no responses [high numbers mean more likely to be reticent]	-0.406*** (-8.78)	-0.079 (-0.71)	-0.385*** (-3.59)	-0.446*** (-3.64)
Respondent				
Respondent is owner [dummy]	0.118 (1.13)	-0.511** (-2.55)	0.335 (1.57)	-0.287 (-1.01)
Respondent is female [dummy]	-0.199 (-0.93)	0.544** (2.05)	0.368 (1.04)	
Respondent's age [natural log]	0.148** (2.05)	0.188* (1.68)	0.440** (2.49)	0.002 (0.01)
Manager Education				
Manager has secondary education [dummy]	-0.089 (-0.41)	-1.275*** (-4.18)	-0.274 (-0.54)	-0.082 (-0.19)
Manager has vocational education [dummy]	-0.179 (-0.73)	-1.506*** (-3.92)	-0.197 (-0.36)	
Manager has tertiary education [dummy]	0.067 (0.32)	-1.225*** (-4.01)	-0.069 (-0.13)	-0.719 (-1.39)
Firm Characteristics				
Number of workers [natural log]	0.057 (1.47)	0.027 (0.41)	0.269*** (3.26)	0.006 (0.04)
Age of firm [natural log]	-0.129* (-1.95)	0.167 (1.42)	-0.479*** (-3.17)	0.047 (0.19)
Firm exports [dummy]	0.063 (0.58)	0.533*** (3.12)	0.218 (1.07)	0.681** (2.27)
Firm is in Sri Lanka [dummy]	-1.053*** (-6.79)	-0.200 (-1.12)	-0.045 (-0.22)	
Retail firm [dummy]	0.094 (0.42)	-0.280 (-0.78)	-0.189 (-0.43)	
Manufacturing firm [dummy]	-0.093 (-0.94)	-0.187 (-1.05)	0.181 (0.87)	-0.465 (-1.49)
Constant	1.628*** (4.68)	-0.502 (-0.72)	-0.020 (-0.02)	1.052 (1.08)

Source: Authors' calculation based upon data from the World Bank's Enterprise Survey Bangladesh and Sri Lanka

***, ** * Statistically Significant at 1%, 5% and 10% significance levels

Note: T-statistics in parentheses.

Table 6: Estimated impact of reticence on measures of corruption

Question	Sample	Actual	All angels	30% engage in sensitive acts
Corruption is serious problem	All	41%	50%	65%
Bribes are needed to get things done	All	10%	11%	12%
Bribe expected during tax inspections	Firms inspected	11%	22%	35%
Bribes typically expected during tax inspections	Firms not inspected	2%	14%	26%

Note: Actual is the actual number of 'yes' responses to each of the corruption questions. For the column 'all angels' is the estimated number of 'yes' responses to the corruption questions if all firms answered 3.5 sensitive questions with 'no'. For the column '30% engage in sensitive acts' the probabilities are calculated assuming that all firms answered 2.5 of the sensitive questions with 'no'. Probabilities are calculated for all firms with that firm's characteristics and the number of no answers in the title.

Table 7: IV Probit regressions for refusing to answer corruption problems

	Corruption is serious problem [dummy]	Bribes are needed to get things done [dummy]	Bribe was requested during tax inspection [dummy]	Bribes typically needed during tax inspections [dummy]
Observation	1,104	1,104	470	591
Reticence				
Number of no responses [high numbers mean more likely to be reticent]	-0.458*** (-4.18)	-0.249*** (-3.61)	-0.291** (-2.26)	-0.267*** (-2.70)
Respondent				
Respondent is owner [dummy]	-0.169 (-0.70)	-0.094 (-0.88)	0.153 (0.66)	-0.277* (-1.74)
Respondent is female [dummy]	0.543 (1.57)	0.037 (0.18)	-0.205 (-0.39)	0.422 (1.42)
Respondent's age [natural log]	0.060 (0.34)	-0.142** (-2.00)	-0.147 (-1.02)	-0.134 (-1.21)
Manager Education				
Manager has secondary education [dummy]	-0.169 (-0.38)	-0.220 (-0.99)	-0.278 (-0.48)	-0.015 (-0.05)
Manager has vocational education [dummy]	-0.269 (-0.50)	-0.283 (-1.12)	-0.499 (-0.80)	0.150 (0.42)
Manager has tertiary education [dummy]	-0.095 (-0.20)	-0.207 (-0.95)	-0.142 (-0.24)	-0.359 (-1.34)
Firm Characteristics				
Number of workers [natural log]	-0.245* (-1.65)	0.071* (1.77)	0.196** (2.57)	0.000 (0.00)
Age of firm [natural log]	0.059 (0.30)	0.033 (0.48)	-0.005 (-0.03)	0.233** (2.02)
Firm exports [dummy]	-0.022 (-0.06)	-0.103 (-0.88)	-0.104 (-0.52)	-0.059 (-0.32)
Firm is in Sri Lanka [dummy]	0.776** (2.49)	-0.751*** (-5.86)	-0.969*** (-3.06)	-1.263*** (-4.50)
Retail firm [dummy]	0.133 (0.30)	-0.169 (-0.72)	0.408 (0.97)	
Manufacturing firm [dummy]	0.084 (0.23)	-0.170 (-1.64)	-0.083 (-0.44)	-0.370** (-2.35)
Constant	0.065 (0.06)	1.162*** (2.81)	0.345 (0.33)	0.645 (1.08)

Source: Authors' calculation based upon data from the World Bank's Enterprise Survey Bangladesh and Sri Lanka

***, **, * Statistically Significant at 1%, 5% and 10% significance levels

Note: T-statistics in parentheses

Table 8: Estimated impact of reticence on refusals to answer questions on reticence

	Actual	All angels	30% engage in sensitive acts
Corruption is serious problem	3%	5%	11%
Bribes are needed to get things done	33%	39%	48%
Bribe expected during tax inspections	10%	18%	26%
Bribes typically expected during tax inspections	19%	25%	33%

Note: Actual is the actual number of people who refused to answer each of the corruption questions. For the column 'all angels' is the estimated number of 'yes' responses to the corruption questions if all firms answered 3.5 sensitive questions designed to identify reticent respondents with 'no'. For the column '30% engage in sensitive acts' the probabilities are calculated assuming that all firms answered 2.5 of the sensitive questions with 'no'. Probabilities are calculated for all firms with that firm's characteristics and the number of no answers in the title.

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Does Terrorism Impede Private Investment in Pakistan?

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ABSTRACT

This study explores the effect of terrorism on private investment in case of Pakistan using annual data over the period 1975-2010. We have used the ARDL bounds testing approach to test long run relationships between the series in the presence of structural break, also a dynamic short run analysis is conducted by applying error correction method (ECM). The causal relationship between the variables is examined by applying VECM Granger causality approach.

Our findings confirm the long-run relationship between the variables. Furthermore, our analysis indicates that future private investment is stimulated by investment in current period. A rise in terrorism is detrimental for private investment in Pakistan. The size of the economy is playing a vital role in attracting private investment. A rise in raw material prices has an inverse effect on private investment, while an increase in public investment is playing a complementary role with private investment in the country. The VECM Granger causality analysis indicates feedback effect between terrorism and private investment.

Does Terrorism Impede Private Investment in Pakistan?

INTRODUCTION

For over the past decade the world has focused a great deal of its attention on the growth and development of terrorism and terrorist networks throughout the world. Transnational terrorist organizations such as Al-Qaeda have become household names the world over. The threats that terrorist organizations make as well as the devastating terrorist attacks that they partake in can have dramatic political, societal and economic effects on countries that are targeted for these attacks as well as other countries.

The majority of economic literature on the effects of terrorism on countries has focused on overall economic effects on local and global economies as well as the knock on effects on foreign direct investment in countries seen as terrorist risks. These studies have been mostly focused on transnational terrorist activities. This article sets out for a different and less researched terrorism and economic nexus. We focus on the specific economic effect of terrorism on private investment on a country specific study of Pakistan using annual data over the period of 1975 - 2011.

The current study may have four contributions to existing literature; (i), present study fills gap regarding the issue in case of Pakistan; (ii), we apply structural break ARDL bounds testing approach to test the existence of long run relationship between the variables; (iii), unit root properties of the series are tested by applying structural break unit root test; (iv), direction of causality between the variables is investigated by using the VECM Granger causality approach. Our findings confirm the existence of a long-run relationship between the variables. Furthermore, our analysis indicates that private investment is stimulated by the investment in the previous period, while a rise in terrorism is detrimental to private investment levels in Pakistan. Additionally, the size of the economy is playing a vital role in attracting private investment. A rise in raw material prices has an adverse impact on private investment. An increase in public investment is playing a complementary role with private investment in case of Pakistan. Bidirectional causal relationship is found between terrorism and private investment.

The article is broken down into the following sections. Section-II covers the literature review of terrorism in Pakistan as well as an overview of economic effects of terrorism around the world with a specific emphasis on private investment. Section-III discusses the model used in the analysis as well as an explanation of the variables used in the model. Section-IV has the methodology used in the study. Section-V has our empirical results, and Section VI-has our conclusions with policy implications.

II. Literature Review

Overview of Terrorism and Pakistan

Sandler and Enders, (2008) noted that terrorism comes in two overall forms, transnational terrorism and domestic terrorism. Transnational terrorism involves terrorist activities that have more than one country involved; this may include the location or nationality of planners, perpetrators or victims. The September 2001 attacks on the US by Al-Qaeda would be the most prominent example of transnational terrorism. On the other side, there is domestic terrorism. This homegrown terrorism has planners, perpetrators and victims all from the same country. Collier, (1999) investigated the impact of civil war on domestic terrorism or insurgencies. Both types of terrorist activities can affect the economic activities on macro and micro level, though to differing degrees.

Gassebner and Luechinger, (2011) reviewed over 100 articles on terrorism in order to reassess three major data sets and their relationship in terms of the locations, victims and perpetrators of terrorism in order to better understand the reasoning behind contradictions in observed studies. In terms of a specific country and

year, economic freedom, physical integrity rights, law and order and infant mortality are negatively related to terrorism while population, military expenditures and personnel, internal wars, guerrilla wars, strikes, foreign portfolio investments, religious and ethnic tensions are positively correlated to terrorism. Further important notes from the study include the lack of a relationship between democracy levels and terrorism and the higher importance of economic opportunities in decreasing terrorism as opposed to the level of economic development.

Table 1: Terrorist Events in Pakistan¹

	2004	2005	2006	2007	2008	2009	2010	Total
Armed Attacks	50	166	106	315	779	850	500	2,766
Bombing	97	246	247	460	673	687	415	2,825
Total Number of Terror Attacks	155	451	402	1,029	2,091	2,215	1,190	7,533
Source: Worldwide Incidents Tracking System								

Pakistan shares borders with numerous countries that have at times been contentious. The US-Afghan war of the 2000's which led to cross-border insurgencies basing themselves within Pakistani territory, the contentious relationship with India in regards to the contested Kashmir region, internal terrorist attacks (see Table 1) have all been part factors in the instability of the region and Pakistan itself. The economic impact of this instability on day to day private investment of Pakistanis has not been yet fully analyzed.

On the other hand, when focusing on the cost of the “War on Terrorism” in Afghanistan and its affect on Pakistani economy there has been some research done on a macro level. With over 35,000 Pakistanis killed between 2006 and 2011 (GoP, 2012) along with the displacement of millions more the effects and costs to Pakistani economy have been quite severe. The overall projected cost of the war on Pakistan was in the neighborhood of \$68 billion (GoP, 2012). This drag on government and private resources along with the increased security risk led to the decrease in the attractiveness of investment in Pakistan by domestic and foreign investors, drops in production and a near collapse of economic activity. In terms of overall investment in the country the investment-to-GDP ratio dropped nearly 9% from 2006 to 2011, 22.5% to 13.4% (GoP, 2012).

This article sets out to analyze the specific effects of terrorist activities within Pakistan on private investment. In 2009-2010, Pakistani economy was considered to be a country of low economic growth, with a high unemployment rate, high inflation rate as well as 40% of population lives below the poverty line. These negative economic conditions are the aftermath of poor planning, inefficient economic policies, and high-levels of military spending versus economic improving activities (Shahbaz and Shabbir, 2011).

Economic Effects of Terrorism

Aside from the traumatic emotional and physical effects of terrorism there are also economic impacts of terrorist activities on countries and local communities. There have been numerous studies focusing on the economic impact of terrorism. These studies tend to fall into three categories, overall economic effects (Collier, 1999, 2002; Sandler and Enders, 2008; Gaibullov, 2009; Fielding, 2003; Gaibullov and Sandler, 2008; Muckley 2010; Shahbaz and Shabbir, 2011), effect on foreign direct investment (Alomar and El-Sakka, 2011; Kang and Lee, 2007; Mancuso et al. 2010; Nasser, 2007; Moosa, 2009) and economic impact of government spending used to fight against terrorism (Barros, 2003; Nasir and Shahbaz, 2011; Feridun and Shahbaz, 2010; Feridun et al. 2011)

Sandler and Enders, (2008) analyzed the comparative economic effects of terrorism on developed and developing countries. Their study noted that larger countries, such as the US do not show a marked macro-level change in their economic health, while terrorist activities in smaller countries such as Israel or Colombia

¹ The authors of this study use the total number of terrorist attacks as a proxy for terrorism.

do have a more pronounced negative economic effect. The major costs born of terrorist activities relate to diversion of FDI to other countries, destruction of infrastructure, redirection of public funds towards combating terrorism. The degree of cost born by each country depends on their position on developed/developing scale. The net effect of lost FDI on developing countries has a larger negative knock on effect than that of lost FDI in developed nations. They also noted that the more diversified a country's economy, the less of an impact terrorist attacks have, economically.

Gaibulloew and Sandler, (2008) looked at the overall effects of terrorism on growth in Western Europe. They showed that negative economic impact in relatively safe and non-terrorist effected countries can be higher than those in terrorist hit countries. Muckley, (2010) focused on the case of Northern Ireland and terrorism's effect and found a significant economic impact in relation to business and specifically tourism.

Terrorism has multiple facets and faces, one such face could be termed as a civil war. Collier, (1999) focused specifically on the economic effects of civil war on countries. He found that GDP per capita declines 2.2% annually during civil war years, this decline is due to the reduction in production and gradual loss of capital stock and the exodus of private investment in-country to portfolios abroad. Also, countries that have been in long-term civil wars tend to recover economically quickly while countries that have suffered short-term civil wars economies continue to decline after the end of civil war. In a Pakistan study, Shahbaz and Shabbir, (2011) focused on the relationship between inflation, economic growth and terrorism in Pakistan. They found that increases in inflation and economic growth do have a positive correlation to terrorist attacks.

Nasir and Shahbaz, (2011) investigated the impact of military spending on terrorist activities in Pakistan. They reported that increased terrorist activities have led to an increase in military spending in order to curtail these attacks; however the findings have stated that the increased military spending has not necessarily decreased the incidents of attacks in Pakistan. A study by Barros, (2003) focused on ETA group in Spain found that a broad spectrum of programs (economic, political and other deterrents) on various possible influences in curtailing terrorism in Spain have had mixed results.

Mancuso et al. (2010) reported that a country's ability to prevent terrorist activities had the most significant impact on foreign direct investment decisions by investors from other countries. Alomar and Kang and Lee, (2007) analyzed the relationship between foreign direct investment and terrorism and showed that terrorism had a dramatic negative impact on foreign direct investment. El-Sakka, (2011) found that terrorist activities had the most significant impact (negative) on foreign direct investment in comparison to GDP and population. Moosa (2009) also stresses the importance of decreasing the level of risk in a country in order to promote and increase foreign direct investment.

Feridun and Shahbaz, (2010) and Feridun et al. (2011) analyzed the impact of military spending on terrorism and economic growth in Turkey and North Cyprus respectively. Their studies found that military spending in case of North Cyprus helped invigorate the overall North Cypriot economy while in Turkey military activities and spending alone were not able to control terrorism and that other anti-terrorism means are needed to be developed as increased in military spending did not have a negative impact on terrorist activities.

Terrorism's Effect on Private Investment

Academic research has focused mostly on foreign direct investment and macro-level data in order to determine the effects of terrorism on countries and societies, however there is a lack of in depth research on the micro-level. That is our reasoning to focus on a country specific study of terrorism's effects on private investment. The amount of country specific literature for terrorism's effect on private investment is rather miniscule especially when focusing on Pakistan.

Of the limited work Singh, (2011) focused on the impact of terrorism on farmers' levels of private investment in Punjab region of India. Punjab is marked by high levels of terrorism or sometimes termed insurgency

depending on the perspective of the analyzer. Singh's research showed significant negative effects of terrorism on long-term agricultural investment while the short-term effects are negligible in the region. These negative effects were much more pronounced in wealthy farmer private investments than the poorer farmers. In terms of actual monetary investment farmers in the region saw 17% decrease in annual investment in years that had significant insurgency attacks and farmers saw an approximate 4% lose in income due to the insurgency.

GoP, (2012) noted that the "War on Terror" had an extremely negative effect on the investment and economic environment in Pakistan. As noted above the increased levels of insecurity due to the war and knock on effects led to a nearly 9% drop in investment-to-GDP ratio for Pakistan from 2006-2011. Also of note is the estimated \$67 billion cost of the war that took away from other investment opportunities of the government as well as private domestic and foreign institutions.

Barros and Gil-Alana, (2009) investigated the affect of domestic terrorism on stock market returns in the case of Spain. They noted that ETA terrorist activities have a negative effect on returns on Basque Country and Spanish stock markets. Furthermore, effects of terrorism on private investment were analyzed by Zelekha and Bar-Efrat, (2011) in case of Israel. They focused on numerous illegal activities such as corruption, crime and terrorism and their effects on private investment. Their results indicated that sporadic terrorist events and long drawn out conflicts such as the second Lebanon war and second Intifada had differing levels of effect on private investment. They noted that long drawn out conflicts had a significant and negative effect on private investment while sporadic terrorist activities had no significant effect on private investment². However, the impact of terrorism on private investment is less than that of crime's effect on private investment. Fielding, (2003) focused on the economic impacts of the Intifada on consumption and savings and found that instability caused by the Intifada had a negative impact on growth and personal savings in Israel³.

III. Modeling and Data Collection

The objective of the present study is to examine the impact of terrorism on private investment in the presence of market size, cost of production and public investment in the case of Pakistan. We have transformed all series into logarithms because it declines sharpness into time series data. Shahbaz, (2010) disclosed that log-linear specification is superior to simple linear modeling due its merits. The use of log-linear specification provides efficient and consistent results. In doing so, our empirical equation is modeled as following:

$$\ln I_t = \alpha_1 + \alpha_2 \ln TR_t + \alpha_3 \ln Y_t + \alpha_4 \ln RP_t + \alpha_5 \ln P_t + \varepsilon_t \quad (1)$$

where, I_t is for private investment (real private investment per capita), TR_t is for terrorism is measured by terrorist's attacks, Y_t is market size proxies by real GDP per capita, RP_t is cost of production measured by prices of raw material, P_t is public investment (real public investment), \ln indicates logarithm and ε_t is error term assumed having normal distribution.

The data on real GDP per capita has been obtained from world development indicators (CD-ROM, 2012). Economic survey of Pakistan (various issues) has been sourced for data on private investment per capita and

² This may be due to the history of sporadic terrorist activities in the country.

³ Collier et al. (2002) noted that changes in the level of investment portfolios held abroad during periods of internal conflicts. The study saw an increase in foreign portfolio holdings from 9% in non-conflict periods to 20% in conflict periods. They also noted that brain drain phenomenon has increased during conflict periods.

public investment per capita. The data on raw material prices has been collected from international financial statistics (CD-ROM, 2012). The data on terrorism (terrorist attacks) is obtained from South Asian Terrorism Portal (SATP), maintained by Institute of Conflict Management, India. SATP compiles terrorist attacks in Pakistan in the form of descriptive news arranged chronologically, derived from various news sources, separating suicide attacks provides a unique dataset, to study pure effect of terrorism as opposed to effect of others forms of conflict as studies, typically, clump together insurgencies and acts of warfare and crime under the umbrella of terrorism. Furthermore, as mentioned above suicide incidents do not suffer from same degree of reporting bias as compared to other terrorist incidents, due to their inherent spectacular nature. The time period of our study is 1975-2010.

IV. Methodology

Numerous unit root tests are available on applied economics to test the stationarity properties of the variables. These unit tests are ADF by Dickey and Fuller (1979), P-P by Philips and Perron (1988), KPSS by Kwiatkowski et al. (1992), DF-GLS by Elliott et al. (1996) and Ng-Perron by Ng-Perron (2001). These tests provide biased and spurious results due to not having information about structural break points that occurred in the series. In doing so, Zivot-Andrews (1992) developed three models to test the stationarity properties of the variables in the presence of a structural break point in the series: (i) this model allows a one-time change in variables at level form, (ii) this model permits a one-time change in the slope of the trend component i.e. function and (iii) model has one-time change both in intercept and trend function of the variables to be used for empirical propose. Zivot-Andrews (1992) followed three models to check the hypothesis of one-time structural break in the series as follows:

$$\Delta x_t = a + ax_{t-1} + bt + cDU_t + \sum_{j=1}^k d_j \Delta x_{t-j} + \mu_t \quad (2)$$

$$\Delta x_t = b + bx_{t-1} + ct + bDT_t + \sum_{j=1}^k d_j \Delta x_{t-j} + \mu_t \quad (3)$$

$$\Delta x_t = c + cx_{t-1} + ct + dDU_t + dDT_t + \sum_{j=1}^k d_j \Delta x_{t-j} + \mu_t \quad (4)$$

Where dummy variable is indicated by DU_t showing mean shift occurred at each point with time break while trend shift variables is show by DT_t . So,

$$DU_t = \begin{cases} 1 \dots \text{if } t > TB \\ 0 \dots \text{if } t < TB \end{cases} \text{ and } DT_t = \begin{cases} t - TB \dots \text{if } t > TB \\ 0 \dots \text{if } t < TB \end{cases}$$

The null hypothesis of the unit root break date is $c = 0$ which indicates that series is not stationary with a drift not having information about structural break point while $c < 0$ hypothesis implies that the variable is found to be trend-stationary with one unknown time break. Zivot-Andrews unit root test fixes all points as potential for possible time break and does estimation through regression for all possible break points successively. Then, this unit root test selects that time break which decreases one-sided t-statistic to test $\hat{c}(= c - 1) = 1$. Zivot-Andrews intimates that in the presence of end points, asymptotic distribution of the statistics is diverged to infinity point. It is necessary to choose a region where end points of sample period are excluded. Further, Zivot-Andrews suggested the trimming regions i.e. $(0.15T, 0.85T)$ are followed.

The ARDL bounds testing approach is considered superior than others due to its various advantages. First, it has the characteristics of flexibility and application regardless of the order of integration. The simulation confirms the evidence of its superiority and provides consistent results for small size sample (Pesaran and Shin, 1998). Moreover, a dynamic unrestricted error correction model (UECM) can be derived from the

ARDL bounds testing through a simple linear transformation. The UECM integrates the short run dynamics with the long run equilibrium without losing any long run information. For estimation purposes, the following the ARDL model is used:

$$\begin{aligned} \Delta \ln I_t = & \alpha_1 + \alpha_D DUM + \alpha_I \ln I_{t-1} + \alpha_{TR} \ln TR_{t-1} + \alpha_Y \ln Y_{t-1} + \alpha_{RP} \ln RP_{t-1} + \alpha_P \ln P_{t-1} + \sum_{i=1}^p \alpha_i \Delta \ln I_{t-i} \\ & + \sum_{j=0}^q \alpha_j \Delta \ln TR_{t-j} + \sum_{k=0}^r \alpha_k \Delta \ln Y_{t-k} + \sum_{l=0}^s \alpha_l \Delta \ln RP_{t-l} + \sum_{m=0}^t \alpha_m \Delta \ln P_{t-m} + \mu_t \end{aligned} \quad (5)$$

$$\begin{aligned} \Delta \ln TR_t = & \beta_1 + \beta_D DUM + \beta_I \ln I_{t-1} + \beta_{TR} \ln TR_{t-1} + \beta_Y \ln Y_{t-1} + \beta_{RP} \ln RP_{t-1} + \beta_P \ln P_{t-1} + \sum_{i=1}^p \beta_i \Delta \ln TR_{t-i} \\ & + \sum_{j=0}^q \beta_j \Delta \ln I_{t-j} + \sum_{k=0}^r \beta_k \Delta \ln Y_{t-k} + \sum_{l=0}^s \beta_l \Delta \ln RP_{t-l} + \sum_{m=0}^t \beta_m \Delta \ln P_{t-m} + \mu_t \end{aligned} \quad (6)$$

$$\begin{aligned} \Delta \ln Y_t = & \rho_1 + \rho_D DUM + \rho_I \ln I_{t-1} + \rho_{TR} \ln TR_{t-1} + \rho_Y \ln Y_{t-1} + \rho_{RP} \ln RP_{t-1} + \rho_P \ln P_{t-1} + \sum_{i=1}^p \rho_i \Delta \ln Y_{t-i} \\ & + \sum_{j=0}^q \rho_j \Delta \ln I_{t-j} + \sum_{k=0}^r \rho_k \Delta \ln TR_{t-k} + \sum_{l=0}^s \rho_l \Delta \ln RP_{t-l} + \sum_{m=0}^t \rho_m \Delta \ln P_{t-m} + \mu_t \end{aligned} \quad (7)$$

$$\begin{aligned} \Delta \ln RP_t = & \sigma_1 + \sigma_D DUM + \sigma_I \ln I_{t-1} + \sigma_{TR} \ln TR_{t-1} + \sigma_Y \ln Y_{t-1} + \sigma_{RP} \ln RP_{t-1} + \sigma_P \ln P_{t-1} + \sum_{i=1}^p \sigma_i \Delta \ln RP_{t-i} \\ & + \sum_{j=0}^q \sigma_j \Delta \ln I_{t-j} + \sum_{k=0}^r \sigma_k \Delta \ln TR_{t-k} + \sum_{l=0}^s \sigma_l \Delta \ln Y_{t-l} + \sum_{m=0}^t \sigma_m \Delta \ln P_{t-m} + \mu_t \end{aligned} \quad (8)$$

$$\begin{aligned} \Delta \ln P_t = & \sigma_1 + \sigma_D DUM + \sigma_I \ln I_{t-1} + \sigma_{TR} \ln TR_{t-1} + \sigma_Y \ln Y_{t-1} + \sigma_{RP} \ln RP_{t-1} + \sigma_P \ln P_{t-1} + \sum_{i=1}^p \sigma_i \Delta \ln P_{t-i} \\ & + \sum_{j=0}^q \sigma_j \Delta \ln I_{t-j} + \sum_{k=0}^r \sigma_k \Delta \ln TR_{t-k} + \sum_{l=0}^s \sigma_l \Delta \ln Y_{t-l} + \sum_{m=0}^t \sigma_m \Delta \ln RP_{t-m} + \mu_t \end{aligned} \quad (9)$$

The notation Δ is the 1st difference operator and μ_t is the error terms. The F-statistic used to make decision about the hypothesis is sensitive with lag order selection. The latter is chosen based on the minimum value of Akaike Information Criteria (AIC). Pesaran et al. (2001) developed F-test to determine the joint significance of the coefficients of lagged level of the variables. The absence of cointegration among the series (eq. 3) is, $H_0 : \vartheta_I = \vartheta_{TR} = \vartheta_Y = \vartheta_{RP} = \vartheta_P = 0$ against the alternate of cointegration is, $H_1 : \vartheta_I \neq \vartheta_{TR} \neq \vartheta_Y \neq \vartheta_{RP} \neq \vartheta_P \neq 0$. Pesaran et al. (2001) generated two asymptotic critical values i.e. upper critical bound (UCB) and lower critical bound (LCB) to make decisions about cointegration. The LCB is used if all the series are I(0), and UCB otherwise. The computed F-statistics are based on, $F_I(I/TR, Y, RP, P)$, $F_{TR}(TR/I, Y, RP, P)$, $F_Y(Y/I, TR, RP, P)$, $F_{RP}(RP/I, TR, Y, P)$ and $F_P(P/I, TR, Y, RP)$ (equations (2) - (6) respectively). The series are cointegrated if the computed F-statistic exceeds UCB and not cointegrated if the computed F-statistic lies below LCB. If computed F-statistic falls between UCB and LCB then test is uncertain⁴. We use the critical bounds generated by Narayan (2005) rather than Pesaran et al. (2001). The latter is suitable for large samples ($T = 500$ to $T = 40,000$). Narayan and Narayan (2005) points out that the critical in Pesaran et al. (2001) are significantly

⁴In such case, error correction method is appropriate method to investigate the cointegration (Bannerjee et al. 1998). This indicates that error correction term will be a useful way of establishing cointegration between the variables.

downwards and thus may produce biased outcome. The UCB and LCB by Narayan (2005) are more appropriate for small sample ($T = 30$ to $T = 80$).

After confirming cointegration we examine causality between pairs of the series which we do using the VECM. The VECM is restricted form of unrestricted VAR (vector autoregressive). All the series are considered endogenous in the system of error correction model (ECM) where the response variable is explained both by its own lags, lags of independent variables, and the lagged residuals. The VECM in five variables case can be written as follows:

$$\Delta \ln I_t = \alpha_{00} + \sum_{i=1}^l \alpha_{11} \Delta \ln I_{t-i} + \sum_{j=0}^m \alpha_{22} \Delta \ln TR_{t-j} + \sum_{k=0}^n \alpha_{33} \Delta \ln Y_{t-k} + \sum_{r=0}^o \alpha_{44} \Delta \ln RP_{t-r} + \sum_{s=0}^p \alpha_{55} \Delta \ln P_{t-s} \quad (10)$$

$$+ \eta_1 ECT_{t-1} + \mu_{1i}$$

$$\Delta \ln TR_t = \beta_{00} + \sum_{i=1}^l \beta_{11} \Delta \ln TR_{t-i} + \sum_{j=0}^m \beta_{22} \Delta \ln I_{t-j} + \sum_{k=0}^n \beta_{33} \Delta \ln Y_{t-k} + \sum_{r=0}^o \beta_{44} \Delta \ln RP_{t-r} + \sum_{s=0}^p \beta_{55} \Delta \ln P_{t-s} \quad (11)$$

$$+ \eta_2 ECT_{t-1} + \mu_{2i}$$

$$\Delta \ln Y_t = \phi_{00} + \sum_{i=1}^l \phi_{11} \Delta \ln Y_{t-i} + \sum_{j=0}^m \phi_{22} \Delta \ln I_{t-j} + \sum_{k=0}^n \phi_{33} \Delta \ln TR_{t-k} + \sum_{r=0}^o \phi_{44} \Delta \ln RP_{t-r} + \sum_{s=0}^p \phi_{55} \Delta \ln P_{t-s} \quad (12)$$

$$+ \eta_3 ECT_{t-1} + \mu_{3i}$$

$$\Delta \ln RP_t = \varphi_{00} + \sum_{i=1}^l \varphi_{11} \Delta \ln RP_{t-i} + \sum_{j=0}^m \varphi_{22} \Delta \ln I_{t-j} + \sum_{k=0}^n \varphi_{33} \Delta \ln TR_{t-k} + \sum_{r=0}^o \varphi_{44} \Delta \ln TR_{t-r} + \sum_{s=0}^p \varphi_{55} \Delta \ln P_{t-s} \quad (13)$$

$$+ \eta_4 ECT_{t-1} + \mu_{4i}$$

$$\Delta \ln P_t = \delta_{00} + \sum_{i=1}^l \delta_{11} \Delta \ln P_{t-i} + \sum_{j=0}^m \delta_{22} \Delta \ln I_{t-j} + \sum_{k=0}^n \delta_{33} \Delta \ln TR_{t-k} + \sum_{r=0}^o \delta_{44} \Delta \ln Y_{t-r} + \sum_{s=0}^p \delta_{55} \Delta \ln RP_{t-s} \quad (14)$$

$$+ \eta_4 ECT_{t-1} + \mu_{5i}$$

Where u_{it} are error terms assumed $N \sim (\text{iid})$. A significant (ECT_{t-1}) shows the speed of convergence from short to the long run equilibrium. Estimated ECT_{t-1} if it is negative and significant, confirms long run causality. A significant F-statistic on the first differences of the variables proposes short run causality. Additionally, joint long-and-short runs causal relationship can be estimated by joint significance of both ECT_{t-1} and the estimate of lagged independent variables. For instance, $b_{12,i} \neq 0 \forall_i$ indicates that terrorism Granger-causes private investment while causality runs from private investment to terrorism is indicated by $b_{21,i} \neq 0 \forall_i$.

V. Empirical Results

Our primarily results are reported in Table-1. Descriptive statistic reveals that all the series have normal residual term with zero mean and homoscedastic variance as indicated by statistics of Jarque-Bera test. These results are significant at 5 per cent level. The unit root properties of the variables have been investigated by applying unit root tests such as ADF, PP and Ng-Perron tests. Table-2 details the results of unit root analysis. Our results indicate that all the variables are found non-stationary at level reported by ADF and Ng-Perron unit root tests. On contrary, PP unit root test reports that $\ln TR_t$ and $\ln RP_t$ are integrated at $I(0)$.

Table-1: Descriptive Statistics

Variables	$\ln I_t$	$\ln TR_t$	$\ln Y_t$	$\ln RP_t$	$\ln P_t$
Mean	7.8647	1.3453	4.3651	4.9766	7.4291
Median	7.9148	1.6120	4.4010	4.9207	7.5299
Maximum	8.3982	2.1825	4.5402	5.5010	7.6670
Minimum	7.1797	-6.73E-07	4.1629	4.6051	6.9922
Std. Dev.	0.2864	0.6176	0.1180	0.2588	0.2254
Skewness	-0.3096	-0.8881	-0.3699	0.4254	-0.7575
Kurtosis	2.6083	2.5078	1.9434	2.0307	2.0774
Jarque-Bera	0.8500	5.3788	2.6341	2.6336	4.9819
Probability	0.6537	0.0679	0.2679	0.2679	0.0828
Sum	298.86	51.1234	165.87	189.1132	282.3091
Sum Sq. Dev.	3.0364	14.1130	0.5157	2.4787	1.8799
Observations	39	39	39	39	39

Our empirical exercise indicates that at 1st difference, all the series are integrated with intercept and trend. ADF and Ng-Perron unit root tests report the unique order of integration of the variables i.e. I(1) while mixed order of integration i.e. I(0) / I(1) is reported by PP unit root test. This ambiguity of order of integration forces us to apply more unit root test. By the way, in the presence of structural break stemming in time series, ADF, PP and Ng-Perron unit root tests provide misleading and ambiguous results. To overcome this issue, we have applied Zivot-Andrews (1992) unit root test which allows information about one structural break stemming in the series.

Table-2: Unit Root Analysis

Variables	ADF Unit Root Test		PP Unit Root Test	
	T-statistic	Prob. value	T-statistic	Prob. value
$\ln I_t$	-2.8199 (2)	0.2000	-2.8507 (3)	0.1894
$\ln TR_t$	-2.7478 (1)	0.2248	-3.5532 (3)**	0.0482
$\ln Y_t$	-1.3860 (1)	0.8481	-1.2805 (3)	0.8773
$\ln RP_t$	-2.3637 (4)	0.1593	-3.2286 (6)***	0.0946
$\ln P_t$	-3.0845 (1)	0.1252	-2.1370 (3)	0.5091
$\Delta \ln I_t$	-4.5849 (1)*	0.0043	-4.9355 (3)*	0.0017
$\Delta \ln TR_t$	-7.1216 (1)*	0.0000	-10.1742 (3)*	0.0000
$\Delta \ln Y_t$	-4.7407 (0)*	0.0028	-4.7433 (3)*	0.0027
$\Delta \ln RP_t$	-4.8751 (1)***	0.0020	-6.5126 (3)*	0.0000
$\Delta \ln P_t$	-4.9967 (0)*	0.0014	-4.9956 (3)*	0.0014
Ng-Perron Unit Root Test				
Variables	MZa	MZt	MSB	MPT
$\ln I_t$	-6.48511(3)	-1.7471	0.2694	14.0553
$\ln TR_t$	-2.69140(3)	-1.1516	0.4278	33.5723
$\ln Y_t$	-4.03299 (1)	-1.3759	0.3411	22.0766
$\ln RP_t$	-2.96897(6)	-1.2183	0.4103	30.6924
$\ln P_t$	-7.70406 (1)	-1.9553	0.2538	11.8452
$\Delta \ln I_t$	-24.3249(1)*	-3.4776	0.1429	3.8046
$\Delta \ln TR_t$	-40.3466(2)*	-4.4896	0.1112	2.2683
$\Delta \ln Y_t$	-16.6892(4)***	-2.8826	0.1727	5.4965
$\Delta \ln RP_t$	-25.2511(1)*	-3.5432	0.1403	3.6679
$\Delta \ln P_t$	-35.2691(2)*	-4.1955	0.1189	2.6048
Note: *, ** and *** indicate significant at 1%, 5% and 10% levels respectively. Optimal lag order for ADF and bandwidth for PP unit root tests is determined by Schwert (1989) formula. Optimal lag order of the variables is shown in small parentheses.				

Table-3: Zivot-Andrews Structural Break Unit Root Test

Variable	At Level		At 1 st Difference	
	T-statistic	Time Break	T-statistic	Time Break
$\ln I_t$	-5.076 (1)	2001	-6.497 (0)*	1978
$\ln TR_t$	-4.370 (2)	1986	-6.780(2)*	1990
$\ln Y_t$	-3.160 (0)	1980	-5.696 (0)*	2004
$\ln RP_t$	-4.765(0)	2004	-7.477 (0)*	2004
$\ln P_t$	-2.886 (0)	1978	-6.808 (0)*	2004

Note: * represents significant at 1% level. Critical T-values are -5.57 and -5.08 at 1% and 5% levels respectively. Lag order is shown in parenthesis.

Our results are reported in Table-3. It is noted that all the series have shown unit root problem at level with intercept and trend. Variables are found to be stationary at 1st difference. This shows that order of integration of the variables is unique i.e. I(1). This property of the variables leads us to apply the structural break the ARDL bounds testing approach to examine long run rapport between private investment and its determinants in case of Pakistan. Before proceeding to the ARDL bounds testing, it is perquisite to choose appropriate lag order of the variables. The ARDL bounds testing F-statistic is very much sensitive with lag length selection. We followed AIC criterion to choose the appropriate lag length that provides appropriate information regarding lag order selection. Lag length is shown in second column of Table-3. The computed F-statistics are reported in third column while structural breaks are reported in fourth column. The structural break points are based on Zivot-Andrews (1992) unit root test. We have used critical bounds i.e. upper critical bound and lower critical bound provided by Narayan (2005) which are more suitable for small sample compared to critical values generated by Pesaran et al. (2001). The results show that computed F-statistics exceed upper critical bound at 5%, 1%, 1% and 5% once we used $\ln I_t$, $\ln TR_t$, $\ln RP_t$ and $\ln P_t$ as predicted variables. This shows four cointegrating vectors that confirm the existence of long run relationship between private investment, terrorism, market size, raw material prices and public investment in case of Pakistan over the period of 1975-2010. The ARDL model fulfills the assumption of classical linear regression model (CLRM). The results of diagnostic tests are also given in Table-4.

Table-4: The Results of ARDL Cointegration Test

Bounds Testing to Cointegration				Diagnostic tests			
Estimated Models	Optimal lag length	F-statistics	Structural Break	χ^2_{NORMAL}	χ^2_{ARCH}	χ^2_{RESET}	χ^2_{SERIAL}
$F_I(I/TR, Y, RP, P)$	2, 2, 2, 2, 1	7.889**	2001	2.9420	0.0797	0.3565	1.1432
$F_{TR}(TR/I, Y, RP, P)$	2, 2, 2, 2, 2	11.325*	1986	0.1924	1.3850	4.2624	1.9340
$F_Y(Y/I, TR, RP, P)$	2, 2, 2, 1, 2	3.747	1980	0.4774	0.8219	1.6383	0.5040
$F_{RP}(RP/I, TR, Y, P)$	2, 2, 2, 2, 2	9.452*	2004	0.4175	0.0571	1.5444	0.0334
$F_P(P/I, TR, Y, RP)$	2, 2, 1, 2, 2	8.011**	1978	0.1116	0.1807	0.9837	0.1503
Significant level	Critical values (T= 40)						
	Lower bounds $I(0)$	Upper bounds $I(1)$					
1 per cent level	7.527	8.803					
5 per cent level	5.387	6.437					
10 per cent level	4.447	5.420					
Note: * and ** show significant at 1 and 5 per cent levels respectively. χ^2_{NORMAL} is for normality test, χ^2_{SERIAL} for LM serial correlation test, χ^2_{ARCH} for autoregressive conditional heteroskedasticity and χ^2_{RAMSEY} for Ramsey Reset test.							

After finding cointegration between the determinants of private investment in case of Pakistan, the next step is to examine the impact of terrorism on private investment with other potential affecting factors. The results reported in Table-6 show that current private investment adds in future private investment. All else same, a 1 percent increase in private investment in lagged period raises private investment by 0.2736 percent in future. There is inverse relationship between terrorism and private investment. This indicates that terrorism impedes private investment. A 0.5940 per cent decline in private investment is aligned with a 1 percent increase in terrorism, keeping all else constant. Market size has a positive and significant impact on private investment. A 1 percent increase in market size adds in private investment by 2.5229 percent by keeping other things constant. The relationship between raw material prices and private investment is negative. A 1 percent rise in prices of raw material will decline private investment by 0.1229 percent. The relationship between public and private investment is positive. This shows that public investment is complementary to private investment. Assuming other things constant, 0.3566 percent private investment is stimulated with 1 percent increase in public investment.

Table-6: Long and Short Runs Results

Dependent variable = $\ln I_t$				
Long Run Analysis				
Variables	Coefficient	Std. Error	T-Statistic	Prob. values
Constant	-7.2900*	1.3090	-5.5691	0.0000
$\ln I_{t-1}$	0.2736***	0.1392	1.9652	0.0594
$\ln TR_t$	-0.5940***	0.0312	-1.9030	0.0674
$\ln Y_t$	2.5229*	0.3895	6.4773	0.0000
$\ln RP_t$	-0.1229*	0.0392	-3.1290	0.0041
$\ln P_t$	0.3566*	0.0965	3.6948	0.0009
Short Run Analysis				
Variables	Coefficient	Std. Error	T-Statistic	Prob. values
Constant	0.0008	0.0228	0.0359	0.9716
$\ln I_{t-1}$	0.7388*	0.2223	3.3221	0.0026
$\ln TR_t$	-0.4330***	0.0260	-1.6650	0.1075
$\ln Y_t$	0.7020	1.6756	0.4189	0.6786
$\ln RP_t$	-0.2217*	0.0477	-4.6425	0.0001
$\ln P_t$	0.2127***	0.1095	1.9428	0.0625
ECM_{t-1}	-0.1101*	0.3257	-3.3795	0.0022
R^2	0.5578			
F-statistic	5.6769*			
D. W	2.0329			
Short Run Diagnostic Tests				
Test	F-statistic	Prob. value		
χ^2 <i>NORMAL</i>	1.1999	0.5488		
χ^2 <i>SERIAL</i>	0.7475	0.4838		
χ^2 <i>ARCH</i>	0.6175	0.4379		
χ^2 <i>WHITE</i>	0.6037	0.8153		
χ^2 <i>RAMSEY</i>	1.0235	0.3210		
Note: *, ** and *** show significant at 1, 5 and 10 per cent levels respectively. χ^2 <i>NORM</i> is for normality test, χ^2 <i>SERIAL</i> for LM serial correlation test, χ^2 <i>ARCH</i> for autoregressive conditional heteroskedasticity, χ^2 <i>WHITE</i> for white heteroskedasticity and χ^2 <i>RAMSEY</i> for Ramsey Reset test.				

The short-run results are also detailed in Table-6. In short span of time, current private investment will affect private investment in future significantly at 1 percent level. A 0.7338 percent private investment in future is boosted by 1 percent current private investment and it is significant at the 10 percent level. Terrorism has negative effect on private investment. This indicates that a 1 percent increase in terrorism declines private investment by 0.4330 percent. The impact of market size on private investment is positive but it is statistically insignificant. The hike in raw material prices deteriorates private investment and it is significant at percent. A 0.2217 percent decline in private investment is associated with a 1 percent rise in raw material prices. Finally, public investment is positively linked with private investment. All else same, a 1 percent raise in public investment enhances private investment by 0.2127 percent.

The coefficient of lagged error term or ECM_{t-1} indicates the speed of adjustment from short-run towards long-run equilibrium path with negative sign. It is suggested by Bannerjee et al. (1998) that significance of lagged error term further validates the established long run relationship between the variables. Our empirical exercise indicates that coefficient of ECM_{t-1} is -0.1101 and significant at 1 percent level of significance. It implies that a 11.01 percent of disequilibrium from the current year's shock seems to converge back to the long run equilibrium in the next year. The full convergence process will take almost 9 years to reach a stable long-run equilibrium path which is an indication of low adjustment process for Pakistan economy in any shock to private investment equation. Results of diagnostic tests are reported in the lower segment of Table-6. These results reveal that there is no evidence found of non-normality of residual term, serial correlation, and autoregressive conditional heteroskedasticity. White heteroskedasticity does not seem to exist and model is appropriate and articulated as well. This shows that long run model meets the assumptions of classical linear regression model (CLRM).

The VECM Granger Causality Analysis

Once cointegration is found between the variables, we should apply the VECM Granger causality approach to examine causal relationships between private investment, terrorism, market size, cost of production and public investment. It is also supported by Granger, (1969) to apply the VECM Granger approach if variables are found to stationary at the same level. The direction of causal relationship between private investment, terrorism, market size, cost of production and public investment would help policy makers to promote private investment by implementing appropriate economic policies in Pakistan.

The results of the VECM Granger causality are reported in Table-7. It is found that the estimates of ECM_{t-1} have a negative sign and statistically significant in all VECMs except in market size ($\Delta \ln Y_t$) equation. It implies that shock exposed by system converging to long run equilibrium path at a slow speed for private investment equation (-0.1489) and terrorism equation (-0.1491) VECMs as compared to adjustment speed of cost of production equation (-0.7264) and public investment equation (-0.3768).

Long-run causality results reveal bidirectional causality between private investment and terrorism. Cost of production and private investment Granger cause each other. Market size Granger causes private investment. The unidirectional causality is found running from market size to terrorism. The bidirectional causal relationship exists between terrorism and public investment and, cost of production and terrorism. The feedback hypothesis exists between private investment and public investment. This shows that private and public investments are complementary. The bidirectional causality also exists between public investment and cost of production.

In the short-run, the feedback hypothesis is found between private investment and cost of production. The unidirectional causality is found running from terrorism, market size and public investment to private investment. The joint long-and-short run causality also confirms long run and short run findings.

Table-7: The VECM Granger Causality Analysis

Dependent Variable	Direction of Causality										
	Short Run					Long Run	Joint Long-and-Short Run Causality				
	$\Delta \ln I_{t-1}$	$\Delta \ln TR_{t-1}$	$\Delta \ln Y_{t-1}$	$\Delta \ln RP_{t-1}$	$\Delta \ln G_{t-1}$	ECT_{t-1}	$\Delta \ln I_{t-1}, ECT_{t-1}$	$\Delta \ln TR_{t-1}, ECT_{t-1}$	$\Delta \ln Y_{t-1}, ECT_{t-1}$	$\Delta \ln RP_{t-1}, ECT_{t-1}$	$\Delta \ln G_{t-1}, ECT_{t-1}$
$\Delta \ln I_t$	....	2.8799*** [0.0765]	5.4380** [0.0124]	7.3605* [0.0034]	1.7817 [0.1908]	-0.1489* [-4.9743]	....	11.2402* [0.0001]	14.8253* [0.0000]	9.4263* [0.0003]	9.5549* [0.0003]
$\Delta \ln TR_t$	0.5646 [0.5757]	....	0.5231 [0.5929]	2.0808 [0.1459]	0.9150 [0.4135]	-0.1491* [-5.4878]	13.5712* [0.0000]	....	10.3894* [0.0008]	11.0071* [0.0001]	10.1991* [0.0011]
$\Delta \ln Y_t$	1.0728 [0.3567]	0.6591 [0.5257]	....	0.5797 [0.5671]	0.2675 [0.7673]	....	....	....	....	....	....
$\Delta \ln RP_t$	17.6638* [0.0000]	1.0092 [0.3789]	2.0064 [0.1555]	....	0.1408 [0.8693]	-0.7264* [-4.7027]	16.0303* [0.0000]	10.7564* [0.0001]	7.5455* [0.0009]	....	8.8001* [0.0004]
$\Delta \ln G_t$	0.5876 [0.5671]	0.4869 [0.6202]	0.5687 [0.5735]	0.0950 [0.9097]	....	-0.3768* [-2.8929]	5.8511* [0.0036]	4.3557** [0.0242]	7.2186* [0.0012]	4.0603** [0.0176]	....

Note: *, ** and *** show significance at 1, 5 and 10 per cent levels respectively.

VI. Conclusion

This paper deals with the impact of terrorism on private investment in case of Pakistan over the period of 1975-2010. Other factors such market size, cost of production and public investment have also been added in model as potential determinants of private investment. In doing so, ADF, PP, Ng-Perron and Zivot-Andrews unit root tests have been applied to test the stationary properties of the variables. The ARDL bounds testing approach to cointegration in the presence of structural break stemming in the series is used to examine long run relationship between private investment, terrorism, market size, cost of production and public investment.

Our findings validate the presence of cointegration between the series. Our results unveil that lagged private investment promote private investment in future. Terrorism impedes private investment. Market size adds in private investment. A rise in the cost of production has inverse impact on private investment. The impact of public investment on private investment is positive. The VECM Granger causality analysis reports feedback hypothesis between private investment and terrorism in Pakistan.

In context of policy implications, our study suggests that the Pakistani government help promote private local and foreign direct investment in the country as soon as possible. Therefore, the government would need to take actions in order to reduce the real and perceived risk in investment in Pakistan to improve the investment environment. As the knock on effects for future periods of investment shown in the study reinforces the importance of today's investment for the benefit of future investment, therefore every investment dollar spent today will be help attract more investment in the future. This could then be the beginning of a rebound in the investment to BDP ratio and economic activity in the whole country in the foreseeable future. This would also help in curtailing high unemployment which in resulting decline terrorism.

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Corruption and Foreign Direct Investment in East Asia and South Asia: An Econometric Study

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ABSTRACT

The role of foreign direct investment in the growth dynamics of emerging economies has become a significant research topic in development economics. Many recent studies have focused on the effects of corruption on FDI inflows. Theoretically, corruption can act as either a *grabbing hand* by raising uncertainty and transaction costs, which should impede FDI, or a *helping hand* by “greasing” the wheels of commerce in the presence of weak legal and regulatory frameworks, which should facilitate FDI. This study analyzes the impact of corruption on FDI inflows in East Asia and South Asia – two regions that have recently attracted huge FDI. Using GLS methodology with 1995-2010 panel data, this study finds that the impact of corruption on FDI is significantly negative and robust, which validates the “grabbing hand” hypothesis. It is also found that, even after accounting for the economic fundamentals, East Asia seems to enjoy a locational advantage in attracting FDI vis-à-vis South Asia. These results further our knowledge of the FDI dynamics in South Asia and East Asia, which policymakers should find helpful in devising pro-FDI strategies.

Keywords: Foreign direct investment, corruption, East Asia, South Asia
JEL Classifications: D73, F21, O53

Corruption and Foreign Direct Investment in East Asia and South Asia: An Econometric Study

I. Introduction

Foreign direct investment (FDI) inflow plays a significant role in the growth dynamics of host countries. FDI can provide foreign capital and foreign currency for investment, generate domestic investment in matching funds, facilitate transfer of managerial skills and technological knowledge, increase local market competition, create modern job opportunities, increase global market access for export commodities, etc. Recognizing the manifold benefits of FDI, developing countries have generally eased restrictions on the inflow of foreign capital since the early 1980s. Trends in information and communication technologies (ICT) and globalization have also resulted in greater integration of capital markets easing the flow of capitals across the globe. As a result, the annual FDI inflow to the least developed countries (LDCs) has jumped manifold from 0.29% of their combined GDP in 1990 to 4.65% of their GDP in 2010 (World Bank 2011). The increasingly significant role played by FDI in the growth dynamics of emerging economies has created considerable research interest among development economists. A sizeable empirical literature has evolved on the determinants of FDI. Most empirical studies have generally identified domestic economic environment, market size, infrastructure, human capital, economic openness, return on capital, political stability, etc. among the key determinants of FDI. In recent years, many studies have focused on the effects of corruption on FDI inflows.

Corruption is not a new phenomenon; its history predates the dawn of modern civilization. In an interesting study of the history of corruption, Noonan (1984) has documented four millennia of history of bribes and corruption in many cultures. In ancient Greece and Rome, an inspector post was created to keep market corruption in check. In the 4th century BC, the famous Indian philosopher and statesman *Kautilya* wrote about the corruption of government tax collectors. In Islamic countries during the medieval period, the system of *hisbah* was employed to control moral decay including social and economic corruption (Ketkar et al. 2005). In modern era, corruption has become prevalent and entrenched in many parts of the world, particularly in developing countries.

Many studies have analyzed the economic consequences of corruption using alternative economic theories, such as rent-seeking, public choice, transaction cost, institution and social cost, property rights, socio-cultural perspectives, etc. (Zhao et al. 2003). The mainstream view is that corruption breeds inefficiencies and distortions, which harm the economy. Shleifer and Vishny (1993) found that disorganized corruption reduces economic growth; Besley and McLaren (1993) and Husted (1994) argued that corruption raises transaction costs; Mauro (1995) suggested that corruption entrenches inefficiency, and Gupta et al. (1998) found that corruption worsens poverty and income distribution. The alternative view is that corruption can facilitate decision-making and enhance efficiency. Rashid (1981) developed a theoretical model that showed corruption can “grease” the economic system and result in a *Pareto Optimal* outcome; Beck and Maker (1986) suggested that in bidding competition, the most efficient firms in fact pay the highest bribes; and Braguinsky (1996) argued that in a competitive market, limited corruption can boost innovation and weaken monopoly, which promotes economic growth.

Theoretically, corruption can act as a *grabbing hand* by raising transaction costs for foreign investors (Bardhan 1997). Extra costs arising from paying commissions to politicians/bureaucrats for big contracts or bribing local officials for licenses/permits, utilities connection, police protection, tax assessment, etc. raise the overall cost of doing business and lowers profitability of investment. Corruption also creates the risk of losing reputation and brand goodwill in the event of getting tangled up in an international corruption scandal (Zhao et al. 2003). Furthermore, corruption creates market distortions by providing corrupt firms preferential access to lucrative markets (Habib and Zurawicki 2002). Finally, corruption can negatively affect important

determinants of FDI, such as economic growth (Mauro 1995), productivity of public investment and quality of infrastructure (Tanzi and Davoodi 1997), and education and healthcare services (Gupta et al. 2000).

On the other hand, corruption can also act as a *helping hand* by “greasing the wheels of commerce” in the presence of weak legal and regulatory frameworks (Bardhan 1997). Several early studies, such as Leff (1964) and Huntington (1968), suggested that corruption serves as “speed money” that allows investors to bypass bureaucratic red tape. Lui (1985) also suggested that corruption creates efficiency by expediting decision making and allowing businesses to avoid heavy government regulations. Tullock (1996) argued that in developing countries bribes help supplement low wages and allow the governments to keep the tax burden low, which contributes to growth – an important determinant of FDI. Houston (2007) also found that corruption can raise economic growth in countries that have weak legal frameworks, and Swaleheen and Stansel (2007) found the same in countries with high economic freedom.

The purpose of this study is to analyze the impact of corruption on FDI inflows in East Asia and South Asia – two regions that have recently attracted huge FDI, particularly in China and India. A panel regression model is used to econometrically quantify the impact of corruption on FDI in the sample countries. The model also tests whether any regional disparity in FDI inflow exists between the two regions, which can arise due to specific locational advantages enjoyed by one region vis-à-vis the other region. The rest of the paper is organized as follows. Section II presents a review of the empirical literature, section III describes the methodology, data and estimation, section IV discusses policy implications, and section V concludes the paper.

II. Literature Review

Many studies have estimated the effects of corruption on FDI inflows, and the empirical evidence found is overall mixed, at best. A few studies have found results that support the *grabbing hand* hypothesis, i.e. the prevalence of corruption reduces FDI inflows. For example, Drabek and Payne (1999) found that high levels of non-transparency (a composite measure comprising corruption, weak property rights, poor governance, etc.) reduce FDI inflows and a 1-point rise in transparency ranking can cause as much as 40% jump in FDI. Wei (2000a) analyzed bilateral FDI flows from 12 home countries to 45 host countries, and found that corruption acted like a tax and reduced FDI. Wei (2000b) used bilateral capital flows from 14 home countries to 53 host countries to analyze the effects of corruption on different types of capital flows and found that corruption reduced FDI more than other types of capital flows. Habib and Zurawicki (2002) studied bilateral FDI flows from 7 home countries to 89 host countries, and found that foreign investors are generally corruption-averse, as they view corruption as immoral and operationally inefficient. This study also found that the degree of difference in corruption levels between the home and host countries is also important, as foreign investors are reluctant to deal with the operational uncertainties in a market with a different corruption level. Zhao et al. (2003) studied FDI inflows to 40 countries (from three different groups - OECD, Asia and emerging economies) over 1991-1997 and found that corruption and lack of transparency significantly reduced FDI inflows across regions and economic classifications. Voyer and Beamish (2004) studied a sample of nearly 30,000 Japanese FDI projects in 59 countries, and found that corruption had negative effects on Japanese FDI in emerging economies, but not in industrialized economies. Ketkar et al. (2005) found that corruption reduced FDI inflows to a sample of 54 developing and developed countries. Simulation results showed that a 1-point improvement in the corruption index can raise FDI by 0.5% of GDP.

Several studies, such as Wheeler and Mody (1992) and Henisz (2000), have found evidence supporting the *helping hand* hypothesis, and many studies found no evidence to support the *grabbing hand* hypothesis. For example, Akcay (2001) studied FDI inflows to a cross-section of 52 developing countries, and using two different indices of corruption, found no evidence that corruption significantly affects FDI. Smarzynska and Wei (2002) found that foreign investors prefer to set up joint ventures with local partners in corrupt transition economies than to establish subsidiaries. Caetano and Caleiro (2005) applied the *fuzzy logic* approach

to FDI inflows to 97 countries and found two clusters: high-corruption countries, where corruption significantly reduced FDI, and low-corruption countries, where corruption weakly affected FDI. Houston (2007) found that corruption reduced economic growth in countries with sound institutions (i.e. strong legal and regulatory frameworks), but the contrary was found in countries with weak institutions. Cuervo-Cazurra (2006) found that host country corruption reduces FDI from home countries that are signatories to a prominent anti-corruption legislation (*OECD Convention on Combating Bribery of Foreign Public Officials in International Business Transactions*). However, the contrary was found for FDI flowing from relatively corrupt home countries to corrupt host countries, which suggests that investors from relatively corrupt home countries are more likely to invest in host countries with high levels of corruption.

Several studies have concluded that other economic factors, particularly domestic institutions, are more significant determinants of FDI than corruption. For example, Abed and Davoodi (2000) found that low levels of corruption attract more FDI in transition economies, but structural reforms exert much stronger impact on FDI vis-à-vis lower levels of corruption. Egger and Winner (2006) used 1983-1999 panel data to study the effect of corruption on bilateral FDI from 21 OECD countries flowing into 59 recipient countries. This study found that intra-OECD FDI is negatively affected by the presence of corruption, but extra-OECD FDI is affected more by other economic factors (e.g. economic growth and changes in factor endowments) than by corruption, and the impact of corruption vis-à-vis other factors (such as market growth) on FDI has diminished over time. In a panel study of 117 host countries over 1984-2004, Al-Sadig (2009) found that for every one-point increase in the corruption level, the per capita FDI inflows decrease by about 11%; but when the quality of institutions in the host countries is accounted for, the negative coefficients of corruption turn insignificant, and even barely positive.

No study has been conducted to analyze the impact of corruption on FDI inflows in the sample countries/regions selected for this study - East Asia and South Asia. Although some countries from this sample have been included in other studies as developing/emerging countries, but no study has studied the topic exclusively for East Asia vis-à-vis South Asia. Given that China and India have recently emerged among top destination countries for FDI, this study will make a unique contribution to the FDI literature and improve our knowledge about whether FDI in these regions are affected more by the *grabbing hand* or the *helping hand* of corruption.

III. Methodology, Data and Estimation

The theoretical framework of FDI models is generally grounded in the OLI (ownership, location, and internalization) paradigm developed by Dunning (1988), which sought to “identify and evaluate the significance of the factors influencing both the initial act of foreign production and the growth of such production” (p. 1). The ownership (O) factor addresses the “why” aspect of foreign production and is affected by the availability of firm-specific resources and capabilities. The location (L) factor addresses “where” to locate foreign production and is driven by the search for new markets, efficiency, and strategic assets. The internalization (I) factor addresses “how” firms internalize markets and is affected by transaction and coordination costs. The level of corruption can affect the locational advantage of a host country; hence, it is typically treated as a location (L) factor. Higher transaction costs caused by corruption can also affect the internalization (I) factor (Habib and Zurawicki 2002, Voyer and Beamish 2004, Caetano and Caleiro 2005).

This study uses panel data from 1995-2010 covering 9 countries from East Asia (Cambodia, China, Indonesia, Lao, Malaysia, Philippines, S. Korea, Thailand and Vietnam) and 7 countries from South Asia (Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan, and Sri Lanka). In line with the current literature, a general-to-specific modeling approach comprising the following regression equation is used (subscript i refers to countries and t refers to time).

$$\begin{aligned} \text{FDI}_{i,t} = & \alpha + \beta_1 \text{Corruption}_{i,t} + \beta_2 \Delta \text{FDI}_{i,t-1} + \beta_3 \text{Economic Freedom}_{i,t} + \beta_4 \text{Rate of Return}_{i,t} \\ & + \beta_5 \text{Infrastructure}_{i,t} + \beta_6 \text{Human Capital}_{i,t} + \beta_7 \text{Market Size}_{i,t} + \beta_8 \text{Political Stability}_{i,t} + \\ & \beta_9 \text{Region}_{i,t} + \varepsilon_{i,t} \end{aligned}$$

Selection of these explanatory variables has been guided by the empirical literature. The lagged change in FDI ($\Delta \text{FDI}_{i,t-1}$) has been added following Noorbakhsh et al. (2001) and Quazi (2007); economic freedom has been added following Quazi and Mahmud (2006) and Quazi (2007); return on investment has been added following Edwards (1990), Jaspersen et al. (2000), and Quazi (2007); infrastructure has been added following Loree and Guisinger (1995) and Quazi (2007); human capital has been added following Hanson (1996), Noorbakhsh et al. (2001) and Quazi (2007); market size has been added following Schneider and Frey (1985), Loree and Guisinger (1995), Jaspersen et al. (2000), Wei (2000a) and Quazi (2007); and political stability has been added following Schneider and Frey (1985), Edwards (1990), Loree and Guisinger (1995), Hanson (1996), Jaspersen et al. (2000) and Quazi (2007). These variables are explained next.

Model Rationale

Corruption: The primary focus of this study is to determine the impact of corruption on FDI. Although the precise definition of corruption may be debatable, many FDI studies, e.g. Wei (2000a), Habib and Zurawicki (2002), Zhao et al. (2003), Voyer and Beamish (2004), Ketkar et al. (2005), and Egger and Winner (2006), have adopted the *Corruption Perceptions Index* (CPI) published by the Transparency International as a reliable measure of corruption. Although there are other measures of corruption, e.g. the International Country Risk Guide from Political Risk Services (ICRG-PRS), but those measures focus more on the political risk of corruption (Egger and Winner 2006).

The CPI index defines corruption as “the misuse of public power for private benefit” and uses survey data to measure the perceived levels of public sector corruption in more than 170 countries (Transparency International 2012). The index scores countries from 0 (highly corrupt) to 10 (very clean), so a higher CPI score reflects less corruption. If the estimated coefficient of the CPI index (β_1 in the regression equation) turns out positive, that would imply that higher CPI scores (i.e. less corruption) attracts more FDI, which will support the “grabbing hand” hypothesis, and a negative estimated coefficient will imply the opposite (i.e. higher level of corruption attracts more FDI), which will support the “helping hand” hypothesis.

Lagged Changes in FDI ($\Delta \text{FDI}_{i,t}$): Since foreign investors are typically risk averse and tend to avoid unfamiliar territories, it is important for host countries to establish a track record of attracting FDI, which can help dispel the foreign investors’ fear of investing in an unknown location. Also, there is evidence that many multinational corporations (MNCs) test new markets by staggering their investments, which gradually reach the desired levels after some time adjustments. Incremental lagged changes in FDI ($\Delta \text{FDI}_{i,t-1}$) should therefore contribute positively toward the current level of FDI. This study uses net foreign direct investment inflows (% of GDP) as a measure of FDI.

Economic Freedom: The general quality of investment climate in host countries plays a critical role in attracting FDI. The investment climate is, however, determined by a host of economic and non-economic factors, which makes it difficult to construct an accurate indicator of the investment climate. The annual *Economic Freedom Index*, jointly published by the Heritage Foundation and *Wall Street Journal*, can be used as a proxy for domestic investment climate. This index also includes measures of financial liberalization and trade openness – variables that have been used in many FDI studies. To avoid multicollinearity, these variables are not included separately in the regression equation.

Rate of Return on Investment: Higher rate of return on investment in a host country should attract more FDI. However, due to the absence of well-developed capital markets in most developing countries, measuring the

rate of return on investment is difficult. Several studies, such as Edwards (1990) and Jaspersen et al. (2000), have proposed a proxy variable for rate of return on investment -the inverse of per capita income. The rationale is that return on investment should be positively correlated with the marginal productivity of capital, which should be high in capital-scarce poor countries, where per capita income is low (or the inverse of per capita income is high). Therefore, the inverse of per capita income should be positively related to FDI inflow. This study uses the natural log of the inverse of per capita real GDP as a proxy for rate of return on investment.

Infrastructure: Availability and quality of electricity supply, telecommunication networks, roads, highways, airports, seaports, etc. should increase productivity and thereby boost the locational advantage of a host country. This study uses natural log of per capita electricity use (in kilowatt hours) as a proxy for the availability of infrastructure¹.

Human Capital: Although MNCs are often attracted to developing nations by the abundance of cheap labor, the cost advantages can however be counterbalanced by the low labor productivity. Higher level of human capital is a good indicator of the availability of skilled workers, which, along with cheap labor, can significantly enhance the locational advantage of a host country. This study uses natural log of per capita healthcare expenditures as a proxy for human capital².

Market Size: An important determinant of “market seeking” FDI, where the primary objective of MNCs is to serve the host market, is the market demand of MNC product in host countries. This type of FDI generally avoids poor countries, where consumers do not have adequate purchasing power. The sample countries included in this study comprise one high income country (S. Korea) and several low income but emerging economies with booming urban population (Malaysia, Thailand, Philippines and Indonesia). It is therefore possible that some FDI flowing to this sample is “market seeking” in nature, which should respond to the domestic market potential. The natural log of per capita real GDP (adjusted for purchasing power parity) is used as a proxy for the market size.

Political Stability: A significant factor in the FDI location decision of foreign investors is political stability in host countries. Political instability/uncertainty usually creates an unfavorable business climate, which seriously erodes the risk-averse foreign investors’ confidence in the host country and drives FDI away. Since measuring political uncertainty is difficult, some studies such as Edwards (1990) used strikes, political assassinations, and coups d’état to construct indices of political instability, and some studies, such as Alam and Quazi (2003), Lensink et al. (2000) and Quazi (2007), used dummy variables as proxies for political risk. This study uses the “Political Stability and Absence of Violence” indicator developed by the *Worldwide Governance Indicators* (WGI) project as a proxy for political stability. This indicator uses a large dataset collected from survey institutes, think tanks, NGOs, international organizations, and private firms, and measures “perceptions of the likelihood that the government will be destabilized or overthrown by unconstitutional or violent means, including politically-motivated violence and terrorism” (WGI 2012)³.

Regional Difference: It can be hypothesized that East Asia enjoys a locational advantage over South Asia as a destination of FDI due to several factors, such as the “China factor”, high degree of government interventions, government-led export oriented industrialization, broad-based education policies, etc. These factors may have created an overall economic orientation in East Asia that is more conducive to foreign investment than in South Asia. The estimated coefficient of the dummy variable (*Region*) will capture the regional disparity in FDI inflow, which can further explain the location (L) factor of the OLI paradigm.

It may be argued that China is a special case among the FDI recipient countries. Following the Communist takeover in 1949, which resulted in a significant outflow of capital to Hong Kong, China remained closed to foreign capital until the late 1970s. Gradually opening up to foreign capital, China has now become one the largest FDI recipients among developing countries. The lure of the “China Market” continues to attract billions of dollars worth of new FDI each year, which jumped from \$34 billion in 1995 to a peak of \$121

billion in 2007, and has thereafter receded due to the global economic slump (World Bank 2011). This spectacular success can be attributed to an abundance of natural resources and labor, geographical proximity to Hong Kong and Taiwan, “round-tripping” of domestic capital via Hong Kong, steady economic reforms coupled with the iron-fist control of government over the political system, etc.

The early reforms of late 1970s, which led to the creation of Town & Village Enterprises (TVEs) and the replacement of collectivism by household responsibility system, were the first steps for the erstwhile closed Chinese economy toward market efficiency. These reforms were subsequently consolidated in late 1980s and late 1990s leading up to China’s accession to WTO, which contributed to significantly opening up the economy. The timing of these reforms proved to be quite opportune for China, as they coincided with the massive outflow of FDI from southeast and northeast Asia. The economic prosperity enjoyed by the coastal regions of China, due to more open economic orientation vis-à-vis the interior, has now become the catalyst for extending economic reforms to the interior. Economic liberalization seems to have taken firm roots in China, which bodes well for continued FDI influx (Brooks and Hill 2004).

The unique political regime in China, run by a uni-party system with no opposition, has also yielded significant locational advantages, where political decision making is generally quick and smooth - the absence of which arguably repeals specially large FDI projects from other developing countries, such as India (Nageswaran 2004). It has been also argued that local businesses find it easier in a democratic environment to seek protection from FDI by utilizing their contacts with elected officials and politicians. Broad political participation by multiple interest groups in an open democracy may create policy outcomes that are contrary to the interest of foreign MNCs. Therefore, the iron-fist control of government over the political apparatus and the consequent absence of democratic institutions in China have possibly created a political environment that is generally conducive to FDI.

Hong and Chen (2001) noted that culture and geography also play significant roles in attracting FDI to China from Hong Kong and Taiwan. They found that nearly 65% of all FDI in China comes from these two economies. Close geographical proximity and cultural affinity to China are particularly important for FDI from Hong Kong, which is the largest source of FDI to China. Nearly 85% of all FDI from Hong Kong is located in smaller cities in southern China, where investors from Hong Kong have evidently used their Cantonese language and culture connections to establish a strong FDI base. However, it is estimated that as much as 20% of FDI flowing to China may still be “round-tripped” domestic capital (Brooks and Hill 2004).

Furthermore, as many as four of the countries in the East Asian sample (S. Korea, Indonesia, Malaysia, and Thailand) are classified as “high performing Asian economies” (HPAEs) that achieved high economic growth in recent decades – a phenomenon also referred to as the East Asian Miracle in the economic growth literature. The HPAEs achieved higher economic growth than any other developing regions during the mid-1960s to 1990s (Page 1994). S. Korea is also one of the “four tigers” (the other three are Hong Kong, Singapore, and Taiwan), and Indonesia, Malaysia, and Thailand are part of the Newly Industrialized Economies (NIEs). Other factors that may have contributed to the locational advantage of the sample East Asian countries include proximity to capital-rich countries like Japan and Taiwan and prevalence of the Confucian culture that may have created a more harmonious work environment there.

Data

Data on annual FDI inflow, per capita real GDP, infrastructure, and human capital are collected from the *World Development Indicators* (World Bank 2011), economic freedom index is collected from the *Index of Economic Freedom* (Heritage Foundation/Wall Street Journal 2011), political stability index is collected from the *Worldwide Governance Indicators* (WGI 2012), and corruption index is collected from the *Corruption Perceptions Index* (Transparency International 2012).

Results

Since the sample data comprises panel data, the Generalized Least Squares (GLS) panel estimation methodology is applied to estimate the regression model⁴. A total of seven regression models are estimated, the first four of which are presented in Table 1. Results from Model 1 show that except for economic freedom, all other explanatory variables (i.e. incremental lagged changes in FDI, rate of return, infrastructure, and regional difference) turned out statistically significant with the correct *a priori* signs, and the coefficient of *Corruption Perceptions Index* came out statistically significant and positive. In Model 2, 3 and 4, three other explanatory variables (market size, human capital, and political stability) are added to Model 1. Each one of these three variables turned out statistically significant with the correct *a priori* signs, and more importantly, the coefficient of *Corruption Perceptions Index* remained statistically significant and robustly positive in all models. It should be recalled that a higher CPI score reflects less corruption, and therefore the positive coefficient of CPI implies that higher CPI scores (i.e. less corruption) raise FDI inflow, which supports the “grabbing hand” hypothesis of corruption (i.e. negative relationship between corruption and FDI).

Table 2 presents the last three models (5, 6 and 7), which re-estimate Model 1 with different proxy variables for human capital – 1. natural log of life expectancy at birth, 2. share of GDP spent on healthcare expenditures, and 3. natural log of per capita healthcare expenditures. The estimated results show strong robustness for the coefficients of other explanatory variables, and particularly for the coefficient of CPI, which remains statistically significant and positive in all models, lending strong support to the “grabbing hand” hypothesis.

The explanatory variables included in this study generally came out with satisfactory statistical results. Three variables, incremental lagged changes in FDI, rate of return, and regional difference, turned out statistically significant with the correct *a priori* signs in all seven models; infrastructure turned out statistically significant in all but two models, and three other variables - market size, human capital and political stability, turned out statistically significant in at least one model. Only one variable, economic freedom, turned out statistically insignificant. This could be due to possible multicollinearity between the proxy variables of corruption (CPI) and economic freedom (EFI), as the latter is a composite measure that includes “freedom from corruption” along with 10 other “freedom” variables (Heritage Foundation/WSJ 2011)⁵. It is also plausible that EFI perhaps inadequately captures the true effects of economic freedom on FDI, which suggests that future studies should explore alternative proxy variables. The overall diagnostic statistics (measured by log likelihood and Wald χ^2 statistics) came out satisfactory for all models.

IV. Policy Implications

The estimated results are noteworthy for several reasons. First, in addition to the usual determinants of FDI found in the literature, this study finds that corruption is also a significant and robust determinant of FDI in South Asia and East Asia. In order to attract more FDI, these countries should therefore enforce existing policies and/or adopt new strategies to curb corruption, which however is an arduous process and may not be achieved overnight. Given the pervasive nexus that exists between politics and corruption, particularly in developing countries, adopting anti-corruption measures may be politically difficult in the short run, but these measures will likely foster a healthy economic environment in the long run that is not only ready to attract more FDI inflow, but also prepared to nurture the economic ingredients necessary for economic development.

Higher incremental lagged changes in FDI, which is a proxy variable for foreign investors’ incremental knowledge about investment opportunities in host countries, is found to significantly increase the current level of FDI. This result suggests that if a host country is able to successfully attract incremental FDI, that will boost foreign investors’ confidence in an already familiar host country, which in turn will open the door to additional FDI inflow, thus setting a virtuous cycle in motion. Since the level of FDI is not a policy

instrument for host country governments, they should utilize the available pro-FDI policy instruments, which are discussed throughout this section, to dispel the risk-averse foreign investors' fear of investing in an unknown territory, which will help attract additional FDI.

Greater market size, measured by per capita real GDP (adjusted for purchasing power parity), can attract more FDI. Since per capita real GDP is generally affected by economic growth, government strategies to promote higher FDI should comprise pro-growth economic policies, which *per se* is a desirable outcome. Political stability is found to attract more FDI, which suggests that politically destabilizing events erode foreign investors' confidence in the host country economy and reduce FDI inflow. Higher return on investment is found to have positive effects on FDI, which suggests that FDI decisions are driven by profit seeking opportunities, which is hardly surprising. Access to human capital and infrastructure can also have positive impacts on FDI, which policymakers should take into account when designing long-term strategies to enhance the locational appeal of their countries to foreign investors.

Even after accounting for the economic fundamentals (i.e. domestic market size, political stability, rate of return, etc.), East Asia seems to enjoy a locational advantage vis-à-vis South Asia as a destination of FDI. This region is home to several high-performing and newly industrialized economies that have outperformed the South Asian economies in recent years. Furthermore, a range of unique factors, such as geographical proximity to Hong Kong and Taiwan, "round-tripping" of domestic capital via Hong Kong, steady economic reforms coupled with the iron-fist control of government over the political system, etc. have enhanced the locational advantage of China. Finally, prevalence of the Confucian culture, which emphasizes discipline, harmony, submission to hierarchy, and other unique cultural traits, may have also created a less confrontational business environment in East Asia that is conducive to foreign investment.

V. Conclusions

The economic growth literature generally holds that FDI plays an important role in the growth dynamics of developing countries. This study seeks to investigate the role of corruption on FDI in South Asia and East Asia with a panel regression model using 1995-2010 data. This study makes a new contribution to the FDI literature, as it explicitly treats corruption as a determinant of FDI in the sample regions.

Results estimated in this study suggest that foreign investors' better familiarity with the host economy (measured by the incremental lagged changes in FDI), political stability, larger market size, higher return on investment, and access to infrastructure and human capital boost FDI inflow, but the prevalence of corruption causes the contrary. The estimated results also suggest that, accounting for the economic fundamentals, there still exists a regional difference in FDI inflow in favor of East Asia over South Asia, which perhaps can be explained by a combination of geo-political and economic factors discussed earlier. While these results are generally consistent with the current FDI literature, however finding corruption a significant and robust determinant of FDI in South Asia and East Asia is a noteworthy contribution.

Needless to say, strategies should be formulated and policies should be enforced to curb corruption, which will likely foster a healthy economic environment that is not only ready to attract more FDI inflow, but also prepared to nurture the economic ingredients necessary for economic development. The research focus of this study is worthwhile as it seeks to further our knowledge of the FDI dynamics in South Asia and East Asia. A better knowledge of the determinants of FDI is crucial for devising strategies to promote long-term economic development - a course that holds much at stake not only for South Asia and East Asia, but also for the developing countries in general.

End Notes

1. Two other proxy variables for infrastructure (natural log of telephone lines per 100 people and natural log of road km per 100 sq. km of land area) were also included in alternative model specifications, but neither one turned out with satisfactory statistical properties.
2. Two other proxy variables for human capital (natural log of life expectancy at birth and share of GDP spent on healthcare expenditures) are also included in alternative model specifications. Results for all three proxy variables for human capital are shown in Table 1.
3. The WGI project reports governance indicators for over 200 economies for six dimensions of governance - political stability and absence of violence, voice and accountability, government effectiveness, regulatory quality, rule of law and control of corruption.
4. The White test for heteroscedasticity was performed, which revealed no sign of heteroscedasticity. Therefore, the model was estimated with homoscedastic panels. Also, since the time series are short, it can be reasonably assumed that the panels have a common autocorrelation parameter. Details are available from the author.
5. Several studies, e.g. Quazi and Mahmud (2006) and Quazi (2007), found that economic freedom (measured by *EFI*) is a significant determinant of FDI in South Asia and East Asia. However, these studies did not include corruption (*CPI*) as an explanatory variable. Since in the present study, *EFI* did not turn out statistically significant when *CPI* was also included as an explanatory variable, multicollinearity between these two variables is a strong possibility given that *EFI* does include a measure of corruption (“freedom from corruption”).

Table 1: Generalized Least Squares (GLS) Panel Estimation

Explanatory Variables	Model 1		Model 2		Model 3		Model 4	
	Coeff.	z stat	Coeff.	z stat	Coeff.	z stat	Coeff.	z stat
Intercept	5.75	3.02	-11.88	-3.03	-38.72	-2.73	-19.93	-1.28
Δ FDI ₁	0.16	2.11**	0.16	2.31**	0.18	2.58**	0.21	2.20**
Corruption	0.64	2.93**	0.48	2.38**	0.58	2.83**	0.35	1.75*
Economic Freedom	0.03	0.89	0.02	0.62	0.02	0.58	0.01	0.44
Rate of Return	2.45	3.90**	8.69	6.41**	7.41	5.49**	2.58	5.14**
Infrastructure	1.38	3.08**	0.51	1.03	0.41	0.89	1.31	3.36**
Regional Difference	2.17	3.94**	3.50	5.54**	3.14	5.67**	1.84	4.19**
Market Size			8.27	4.93**	6.51	3.85**		
Human Capital					7.76	1.99**	6.90	1.75*
Political Stability							0.50	2.13**
Diagnostic Statistics	n = 161		n = 161		n = 161		n = 125	
	Log likelihood = -251.12		Log likelihood = -241.29		Log likelihood = -241.46		Log likelihood = -166.04	
	Wald $X^2_6 = 54.01$ (P value = 0.00)		Wald $X^2_7 = 73.57$ (P value = 0.00)		Wald $X^2_8 = 95.09$ (P value = 0.00)		Wald $X^2_8 = 101.25$ (P value = 0.00)	
<p>** Coefficient statistically significant at 5% * Coefficient statistically significant at 10%</p>								

Table 2: Generalized Least Squares (GLS) Panel Estimation (continued)

Explanatory Variables	Model 5		Model 6		Model 7	
	Coeff.	z stat	Coeff.	z stat	Coeff.	z stat
Intercept	-52.41	-3.28	5.53	2.18	7.62	3.67
Δ FDI ₋₁	0.18	2.4**	0.16	2.03**	0.15	1.98**
Corruption	0.76	3.58**	0.62	2.60**	0.60	2.63**
Economic Freedom	0.03	1.07	0.01	0.37	0.04	1.13
Rate of Return	2.60	4.51**	1.98	2.68**	3.50	4.26**
Infrastructure	0.87	2.05**	0.91	1.93*	0.74	1.59
Regional Difference	1.79	3.92**	2.64	3.84**	2.94	3.81**
Human Capital 1	14.70	3.62**				
Human Capital 2			0.13	0.81		
Human Capital 3					1.78	3.41**
Diagnostic Statistics	n = 161		n = 161		n = 161	
	Log likelihood = -247.34		Log likelihood = -256.54		Log likelihood = -254.36	
	Wald $X^2_7 = 92.00$ (P value = 0.00)		Wald $X^2_7 = 34.85$ (P value = 0.00)		Wald $X^2_7 = 41.83$ (P value = 0.00)	
** Coefficient statistically significant at 5% * Coefficient statistically significant at 10%						

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La Unión Europea en Crisis: Corregir para Seguir (The European Union in Crisis: Fix to Follow)

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RESUMEN

La crisis del euro o crisis de la zona euro, también llamada Crisis de la deuda soberana de la Eurozona es una serie de acontecimientos que han venido afectando negativamente desde principios del año 2010, a los 16 Estados miembros de la UE que conforman la Eurozona.

Éstos, como es sabido, son los países que han adoptado el euro como moneda única y componen entre sí una unión monetaria plurinacional en el seno de la Unión Europea. Durante este período los estados de la Eurozona han venido padeciendo una crisis de confianza sin precedentes, con ataques especulativos sobre los bonos públicos de varios de sus miembros, turbulencias en sus mercados financieros y bursátiles, y una caída del valor cambiario de la moneda única, en un contexto de incertidumbre y dificultad por alcanzar un acuerdo colectivo que todavía persiste.

La crisis comenzó con la difusión de rumores sobre el nivel de la deuda de Grecia y el riesgo de cesación de pagos de su gobierno. Se hizo público que durante años el gobierno griego había asumido deudas profundas, gastando sin control, lo cual contravenía los acuerdos económicos europeos. Cuando llegó la crisis financiera global, el déficit presupuestario subió y los inversionistas exigieron tasas mucho más altas para prestar dinero a Grecia.

Todos los países de la eurozona se vieron afectados por el impacto que tuvo la crisis sobre la moneda común europea. Hubo temores de que los problemas griegos en los mercados financieros internacionales desataran un efecto de contagio que hiciera tambalear los países con economías menos estables de la eurozona como Portugal, Irlanda, Italia y España que, como Grecia, tuvieron que tomar medidas para reajustar sus cuentas.

A partir de marzo de 2010, la eurozona y el Fondo Monetario Internacional (FMI) debatieron conjuntamente un paquete de medidas destinadas a rescatar la economía griega, bloqueado durante semanas debido en particular a los desacuerdos entre Alemania, economía líder en la zona, y los otros países miembros. Durante esas negociaciones y ante la incapacidad de la eurozona de llegar a un acuerdo, la desconfianza aumentó en los mercados financieros, mientras el euro experimentó una caída regular y las plazas bursátiles caían.

Finalmente, el 2 de mayo la Unión Europea (UE) y el FMI acordaron un plan de rescate de 750.000 millones de euros, para tratar de evitar que la crisis se extendiera por la eurozona. A esta medida se añadió la creación, anunciada el 10 de mayo, de un fondo de estabilización colectivo para la eurozona. Al mismo tiempo, todos los mayores países europeos tuvieron que adoptar sus propios planes de ajuste de sus finanzas públicas, inaugurando una era de austeridad.

Palabras clave: Unión Europea, Crisis, Globalización, Política Fiscal, Deuda Soberana, Bloque Económico, Euro, Regulación económica.

ABSTRACT

The crisis of the euro or euro zone crisis, also called sovereign debt crisis in the Eurozone is a series of events that have affected negatively since the beginning of 2010, the 16 EU Member States that make up the Eurozone.

These, as we know, are the countries that have adopted the euro as their single currency and interweave a multinational monetary union within the European Union. During this period the states of the Eurozone have been suffering from an unprecedented crisis of confidence, with speculative attacks on government bonds of several members, turbulence in financial and stock markets, and a decline in the value of the euro exchange rate, in a context of uncertainty and difficulty to reach a collective agreement that still persists.

The crisis started spreading rumors about the level of Greece's debt and the risk of default on their government. It was revealed that for years the Greek government had taken deep debt, uncontrolled spending, which contravened European economic agreements. When the global financial crisis, the budget deficit rose and investors did demand much higher rates to lend money to Greece.

All Eurozone countries were affected by the impact of the crisis on the European common currency. There were fears that the Greek problems in international financial markets unleashed a contagion effect that did shake the countries with less stable economies in the Eurozone as Portugal, Ireland, Italy and Spain, like Greece, had to take measures to adjust their accounts.

From March 2010, the Eurozone and the International Monetary Fund (IMF) jointly discussed a package of measures to rescue the Greek economy, blocked for weeks due to disagreements especially between Germany, leading economy in the area, and other member countries. During those negotiations and at the inability of the Eurozone to reach an agreement, increased distrust in the financial markets, while the euro experienced a regular fall and falling stock markets.

Finally, on May 2, the European Union (EU) and the IMF agreed a rescue plan of 750,000 million euros, to try to prevent the crisis from spreading through the Eurozone. This measure was added as announced on 10 May of a collective stabilization fund for the Eurozone. At the same time, all major European countries had to adopt their own plans adjustment of public finances, inaugurating an era of austerity.

Keywords: European Union, Crisis, Globalization, Fiscal Policy, Sovereign Debt, Trade Bloc, Euro, Monetary Regulation.

La Unión Europea en Crisis: Corregir para Seguir (The European Union in Crisis: Fix to Follow)

Introducción

Es innegable que en la actualidad nos encontramos en un proceso de cambio profundo en la economía mundial, esa economía globalizada tan interdependiente, relacionada y a la vez compleja ha provocado que las naciones que históricamente habían sido considerados como los actores principales, los protagonistas, los que dictaban la pauta en el escenario mundial, están perdiendo esas posiciones de privilegio, mientras que al mismo tiempo un número muy importante de los países llamados emergentes o en vías de desarrollo, van ganando terreno, junto con las naciones que acumulan un gran excedente de ahorro por su riqueza en recursos naturales y materias primas.

En este contexto de cambio radical en el panorama económico mundial, nos encontramos que las grandes potencias como Estados Unidos y los países que integran la Unión Europea ven en riesgo su hegemonía y dominio, y a la vez hoy viven con incertidumbre y temor respecto a lo que les depara el futuro. En la Unión Europea en específico, esas dudas se acentúan con la pérdida de la competitividad y el grave problema de la deuda soberana de muchas de las naciones que la integran, lo cual desencadena un muy grave problema de sostenibilidad del estado de bienestar.

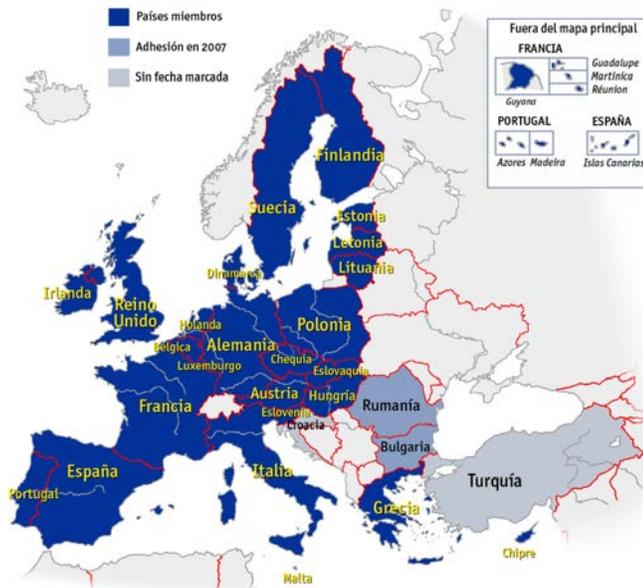
Pero ¿por qué la Unión Europea, siendo tan poderosa económica y políticamente, se encuentra en serios problemas? No debemos de olvidar que la Unión Europea es una comunidad política de derecho constituida en régimen de organización internacional sui generis, creada para propiciar y acoger la integración y gobernabilidad en común de los estados europeos. En la actualidad está compuesta por veintisiete países de Europa y fue establecida con la entrada en vigor del Tratado de la Unión Europea (Europea, 2012)ⁱ el 1 de noviembre de 1993.

La Unión Europea como bloque económico

La Unión Europea es un bloque económico o comercial pues agrupa a un conjunto de países con el propósito de obtener beneficios mutuos en el comercio internacional y en general en cuestiones económicas. En esta agrupación se da de manera natural lo que es una integración económicaⁱⁱ, la cual origina políticas económicas y leyes en conjunto, procurando siempre el logro de los objetivos por los cuales fue creado el bloque.

De manera específica, la Unión Europea es una unión económica, pues es una suma de los acuerdos que plantea la zona de libre comercio y la unión aduanera, pero además incluye la creación de una moneda común: el euro. Es necesario destacar que el euro es la segunda moneda de reservaⁱⁱⁱ, así como la segunda moneda más negociada en el mundo después del dólar de los Estados Unidos.

Hablando específicamente en términos económicos, la Unión Europea es, en su conjunto, la primera potencia económica del mundo, superando a los Estados Unidos. Según los datos del FMI en 2010^{iv}, el PIB (nominal) de la Unión Europea fue de 14,82 billones de dólares mientras que el estadounidense fue de 14,66 billones. Por su parte, el PIB per cápita de la UE en 2010 fue de 32 700 dólares, por lo que se sitúa en el puesto número 42 a escala global.



Países Miembros de la Unión Europea. http://es.wikipedia.org/wiki/Archivo:Mapa_union_europea.png

Aun con todo lo anterior y el enorme potencial que tiene la Unión Europea, se encuentra en una delicada y grave crisis económica, conocida como la crisis de la deuda soberana europea o crisis del euro, lo que ha causado que el crecimiento económico en países como Grecia, Irlanda, Portugal, España o Italia haya sido negativo en algunos ejercicios.

Sin embargo, a pesar de los grandes problemas económicos que agobian a todos los países que integran la Unión Europea, ésta intenta aumentar la integración económica y política entre sus estados miembros, habiendo aprobado para ello medidas comunes de carácter fiscal, una mayor coordinación económica de la eurozona, el refuerzo de los fondos de rescate para países en dificultades económicas y adelantando la puesta en funcionamiento del Mecanismo Europeo de Estabilidad, lo que nos lleva automáticamente a analizar los problemas de fondo que se le presentan a la UE para definir estrategias de medio y largo plazo. La crisis podemos tomarla como detonante para reaccionar ya que de lo contrario la situación se tornaría mucho más complicada de lo que se encuentra.

La crisis del Euro

La delicada situación que se vive en la Zona Europa y que tiene al resto del mundo con la incertidumbre y el miedo de un gran colapso económico es el resultado de una serie de acontecimientos que han venido afectando negativamente desde principios del año 2010 a los 16 estados miembros de la Unión, esto es, que han adoptado el euro como moneda única y componen entre sí una unión monetaria plurinacional en el seno de la Unión Europea. Durante este período los estados de la Eurozona han venido padeciendo una crisis de confianza sin precedentes, con ataques especulativos sobre los bonos públicos de varios de sus miembros, turbulencias en sus mercados financieros y bursátiles, y una caída del valor cambiario de la moneda única, en un contexto de incertidumbre y dificultad por alcanzar un acuerdo colectivo que todavía persiste.

DATOS CLAVES DE LAS PRINCIPALES ECONOMÍAS EUROPEAS						
País	PIB		Desempleo		Deuda Pública sobre PIB	
	2009	2010	2009	2010	2009	2010
Alemania	-5,4	0,3	8,6	10,4	73,4	78,7
Francia	-3	-0,2	9,6	10,7	79,7	86
Reino Unido	-3,8	0,1	8,2	9,4	68,4	81,7
Italia	-4,4	0,1	8,8	9,4	113	116
España	-3,2	-1	17,3	20,5	50,8	62,3

Fuente. Elaboración propia a partir del informe sobre Previsiones Económicas editado por la Comisión Europea en la primavera del 2009.

Se podría decir que la crisis económica mundial 2008 -2009 trajo como una de sus más graves consecuencias el desencadenamiento de los problemas financieros en Europa, esto a pesar de que cuando la crisis financiera estalló en EEUU, muchos europeos abrigaban la esperanza de que ella sólo los afectaría marginalmente. Algunos, incluso, presumían que la debacle de las hipotecas basura en Norteamérica podía hasta beneficiar relativamente a Europa y a su modelo de organización regional. Sin embargo, pronto, resultó evidente que los bancos europeos estaban tan cargados de activos tóxicos como los norteamericanos. Y, como lo revela la situación reciente en Grecia, el marco de la Comunidad Europea y las naturales exigencias de una moneda única genera una complicación adicional para superar esta crisis financiera.

Los grandes problemas de esta situación se agravaron cuando se difundieron rumores sobre el nivel de la deuda de Grecia y el riesgo de suspensión de pagos de su Gobierno. Se hizo público que durante años el Gobierno griego había asumido deudas profundas y había llevado a cabo gasto público descontrolado, lo cual contravenía los acuerdos económicos europeos.

Todos los países del hasta entonces imponente y fuerte bloque económico se vieron afectados de gran manera por el impacto que tuvo la crisis sobre la moneda común europea. Se produjeron temores de que los problemas griegos en los mercados financieros internacionales pudieran desatar un efecto de contagio o efecto domino que hiciera tambalear las economías de los países con economías menos estables de la Eurozona, como Portugal, Irlanda, Italia y España, los cuales, como Grecia, tuvieron que tomar medidas para reajustar sus economías.

En marzo de 2010, cuando el problema alcanzó uno de sus puntos más críticos, la Unión Europea y el Fondo Monetario Internacional se reúnen para buscar posibles soluciones a la crisis, ya que de no hacerlo la crisis se extendería al resto del mundo y provocaría un colapso en la ya muy delicada economía mundial.

La Unión Europea y el Fondo Monetario Internacional después de analizar el problema, aprueban conjuntamente un paquete de medidas destinadas a rescatar la economía griega, bloqueado durante semanas debido en particular a los desacuerdos entre Alemania, economía líder en la zona, y los otros países miembros. Durante esas negociaciones y ante la incapacidad de la Eurozona de llegar a un acuerdo, la desconfianza aumentó en los mercados financieros, mientras el Euro experimentó una caída continuada y las plazas bursátiles caían.

¿Dónde estuvo el error?

Ante esta situación es necesario analizar una y otra vez cómo es que se fueron dando las cosas para que se pudiera dar el grave problema que hoy en día angustia a todos los gobernantes europeos y del mundo. Algunos analistas piensan que esta grave crisis comenzó a gestarse mucho tiempo atrás, ya que en su opinión es el resultado de múltiples errores que se cometieron a la hora de crear la unión monetaria. Pero ¿cómo es

posible que un problema se manifieste tanto tiempo después? La respuesta podría ser que no se puede crear una unión monetaria sin que antes se produzca una unión fiscal^{vi} y también política. Y advierten que una unión monetaria sólo es económicamente factible en el caso de que los países miembros de la misma constituyan un área económica homogénea.

Es importante destacar que en un bloque económico las economías deben de estar al mismo nivel o en un nivel muy similar de desarrollo para poder lograr un crecimiento sostenible y a largo plazo sin que se produzcan problema de rezago o en este caso de endeudamiento como claramente estamos viendo en la Unión Europea. Estos críticos observan que se ha puesto de manifiesto la existencia de dos grupos de países claramente diferenciados, advierten de la progresiva ralentización del crecimiento económico de la Eurozona y critican los letales perjuicios que está ocasionando la política monetaria expansiva impuesta, principalmente desde el año 2001, por el Banco Central Europeo (BCE)^{vii}.

La moneda común se creó antes de que se hiciera una unión fiscal y política entre los países que adoptaron la moneda única europea. Con lo cual, según los citados analistas, el euro carece de futuro por no haberse impuesto una disciplina de homogeneización fiscal entre los países miembros que hubiese permitido alcanzar la austeridad en el gasto público con presupuestos equilibrados y bajo endeudamiento soberano.

Las diferencias entre los países periféricos y el núcleo duro de la UE en vez de disminuir, aumentaron. Las divergencias económicas entre países como Grecia, Irlanda, España y Portugal y países como Alemania o Francia harían inviable el proyecto de la moneda única y la salida de ella por parte de los países periféricos. Estos economistas creen que la zona euro desde su creación no era una zona monetaria óptima, defienden que el Pacto de estabilidad y crecimiento no se aplicó con la suficiente firmeza, por ejemplo, Alemania desde el principio incumplió los criterios para mantenerse en la zona euro. Además, Grecia mintió para entrar en la eurozona con lo que en realidad no estaba preparado para su ingreso en la unión monetaria.

Esta desigualdad de los países europeos provocó que al momento de estar unidos y de tener las mismas exigencias al mismo tiempo, se perdieran esa eficiencia que un bloque económico contrae, si bien en un principio el problema no se vislumbraba, sí seguía creciendo y creciendo conforme pasaba el tiempo y al momento en que viene una inestabilidad financiera, sale a la luz como algo ya muy difícil de manejar y contener.

Estados miembros	PPA 2012 millones de <u>euros</u>	PPA per capita 2012 euros	Porcentaje sobre EU27 PPP per capita 2012
 Unión Europea	15.172.536	24.800	100%
1  Alemania €	3.709.810	30.100	113%
2  Francia €	2.447.105	28.800	116%
3  Reino Unido	2.344.444	27.600	111%
4  Italia €	1.500.475	26.200	103%
5  España €	1.189.174	26.500	105%
6  Países Bajos €	530.564	32.500	131%
7  Polonia	515.608	13.300	54%
8  Bélgica €	319.867	29.300	118%
9  Suecia	274.499	30.300	126%
10  Austria €	264.472	31.800	128%
11  Grecia €	271.206	24.300	98%
12  Rumania	217.012	10.100	41%
13  República Checa	209.773	20.300	82%
14  Portugal €	194.502	18.500	75%
15  Dinamarca	171.298	30.500	123%

Principales Economías de la Unión Europea y su PPA: http://europa.eu/index_es.htm

Posibles Soluciones

En mi punto de vista el problema de la Unión Europea se debe a dos razones principales: la primera es conformar un bloque económico en el cual no existe una equidad en los países que integran dicha unión y que por consiguiente no puede existir una competencia perfecta, si bien esto se pudo haber prevenido al momento de reformar los términos y condiciones para pertenecer y permanecer en la unión. El segundo error o causa de la crisis europea actual se da al momento de adoptar al Euro como moneda común sin haber adoptado antes las medidas y políticas fiscales necesarias. No se puede trabajar sin un sistema único que regularice las transacciones y el contexto financiero de la unión.

Para que se dé una estabilidad económica y se pueda dar solución a la grave crisis que azota a Europa y que no permite el crecimiento económico global, se requiere de una política fiscal común, antes que implementar controles en la cartera de las inversiones.

Un aspecto muy importante a tener en cuenta es el gasto público que ejercen cada uno de los países que integran la Eurozona, ya que muchas de las naciones se encuentran sobre endeudadas al punto que en algunas de ellas la deuda pública asciende al 100% de su Producto Interno Bruto. Para prevenir y evitar este grave problema es necesario un nuevo tratado intergubernamental que ponga estrictos límites al gasto y endeudamiento de los gobiernos, con sanciones para aquellos países que violen los límites.

Una medida que ayudaría en gran medida a mejorar la situación económica y financiera en la que se encuentra la zona europea en estos momentos, es la que propone la Comisión Europea y que sugiere que la emisión de eurobonos^{viii} conjuntamente por las 17 naciones del Euro, podría ser una vía efectiva de atajar la crisis financiera. Utilizando el término "bonos de estabilidad", José Manuel Barroso insistió en que un plan de este tipo debería venir acompañado por supervisión fiscal estricta y coordinación de la política económica como una contrapartida esencial para evitar el riesgo moral y asegurar unas finanzas públicas sostenibles.

Y sin duda alguna la más fuerte acción correctiva al problema es el Mecanismo Europeo de Estabilidad (MEDE) en inglés European Stability Mechanism (ESM) el cual es un organismo intergubernamental creado por el Consejo Europeo en marzo de 2011, que funciona como un mecanismo permanente para la gestión de crisis para la salvaguardia de la estabilidad financiera en la zona euro en su conjunto. Este mecanismo que entro en vigor el 1 de julio de 2012, sustituyendo las estructuras temporales que constituyen el Fondo europeo de estabilidad financiero (FEEF) y el Mecanismo Europeo de Estabilidad Financiero (MEEF).

Conclusión

El panorama en el que se encuentra la Unión Europea hoy en día, tiene como origen el origen mismo de la unión. El haber establecido una moneda común como el Euro en todos los países sin antes haber hecho las reformas y regulaciones monetarias y fiscales necesarias en todos los países que integrarían el bloque económico, fue un grave error que poco a poco se fue incrementando y que muchos de los políticos y líderes de estado ignoraron, pero que al momento en el que el problema se volvió incontenible, éste había crecido tanto que ha provocado una gran inestabilidad e incertidumbre en todos los mercados del mundo, no sin dejar de mencionar que esta crisis vino a golpear enormemente la ya muy frágil y débil economía mundial que había dejado la crisis económica de 2008-2009.

Sin embargo el error más grande de Europa es haber creado un bloque comercial o mercado común con una gran diversidad y diferencia económica de los países que la integrarían, si bien es cierto que un bloque económico se da para poder trabajar en equipo y juntar las fortalezas de los participantes, para que en conjunto logren alcanzar sus objetivos y hacer más competitiva y fuerte a la región, es necesario que todas las naciones que participarán en dicha agrupación cuenten con un mismo poder económico o que se encuentren en el mismo nivel, ya que de otra forma esto no generara más que el rezago de los países más pequeños y en el largo plazo la pérdida de competitividad de la zona.

En Europa existen grandes monstruos económicos como Alemania o Francia, pero también es cierto que existen países muy pequeños en materia económica como Portugal o Grecia, sin embargo esta unión se dio sin imaginar las graves consecuencias que traería el poner en competencia a países que se encuentran tan distantes y hasta cierto punto en gran desventaja en referencia con otros.

Es necesario que se tomen medidas correctivas lo antes posible para que la Unión Europea logre una estabilidad a corto y mediano plazo pero sobre todo que pueda asegurar su competitividad y protagonismo en la economía global. Muchas veces es inevitable corregir para seguir.

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- i) Tratado sobre la Unión Europea - Tratado de Maastricht. Firma: 7 de febrero de 1992. Entrada en vigor: 1 de noviembre de 1993. <http://eur-lex.europa.eu/es/treaties/dat/11992M/htm/11992M.html>
- ii) La integración económica (IE) consiste en la eliminación de fronteras económicas entre dos o más economías. Una frontera es una demarcación que limita la movilidad de bienes y servicios, y factores. A ambos lados la determinación de los precios, y la calidad de productos y factores sólo resultan marginalmente influidos por los flujos entre ambos lados. Universidad de Cantabria <http://ocw.unican.es/ciencias-sociales-y-juridicas/integracion-economica-europea/material-de-clase-1/modulo-3-integracion-europea/tema-3.1-integracion-economica-europea>
- iii) Divisas extranjeras que un Banco central conserva en su poder como medio de saldar obligaciones internacionales. Glosario Financiero de Grupo Santander <http://www.gruposantander.es/iecb/glosario/glosario.htm>
- iv) Datos obtenidos del Informe Anual 2011 del Fondo Monetario Internacional. http://www.imf.org/external/spanish/pubs/ft/ar/2011/pdf/ar11_esl.pdf
- v) Es un organismo intergubernamental creado por el Consejo Europeo en marzo de 2011, que funciona como un mecanismo permanente para la gestión de crisis para la salvaguardia de la estabilidad financiera en la zona euro en su conjunto. <http://www.european-council.europa.eu/media/582869/01-tesm2.es12.pdf>
- vi) Unificación de las políticas económicas nacionales. http://europa.eu/legislation_summaries/taxation/index_es.htm
- vii) Banco central de la moneda única europea, el euro. Su función principal consiste en mantener el poder adquisitivo del euro y, con ello, la estabilidad de precios en la zona del euro. <http://www.ecb.int/ecb/html/index.es.html>
- viii) Títulos de renta fija emitidos por una empresa privada o entidad pública en el mercado de capitales de otro país, bien sea en la misma o en distinta moneda de la del país al que pertenece la entidad emisora. <http://www.ecb.int/ecb/html/index.es.html>

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El Genesis de la Competitividad en las Empresas: La Necesidad Motivadora del Emprendedor.

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RESUMEN

El mayor desafío de todos los empresarios es llegar a dominar el mercado global. Esta investigación está orientada a la solución del problema de lograr el crecimiento y la competitividad de las empresas. Pretende abrir la mirada del emprendedor permitiéndole dimensionar el camino que debe seguir para lograr el éxito empresarial manteniéndose siempre motivado y con una visión global. Se hace una revisión de los estudios que han tenido lugar previamente en los campos del desarrollo de emprendedores que pretenden ser competitivos mediante el análisis de los diferentes modelos o sistemas motivacionales que se van generando en los distintos países en el proceso de implementación de estrategias, tácticas, políticas administrativas y operativas de este tipo de enfoque.

Si se logran realizar estas recomendaciones, mediante la formación de una conciencia emprendedora, el resultado será la creación, el desarrollo y el éxito de empresas más competitivas y con un enfoque internacional.

Palabras clave: Mercado global, competitividad, emprendedores, motivación.

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México Ante el Desafío de Incrementar la Inversión Extranjera Directa Mediante la Implementación de Reformas en Áreas Estratégicas.

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RESUMEN

La situación financiera mundial atraviesa por una serie de problemas económicos muy serios y preocupantes. En muchos de los países su recuperación sigue siendo muy lenta, las finanzas se encuentran debilitadas, el desempleo continua provocando situaciones muy difíciles y la desigualdad económica sigue aumentando. En este contexto internacional incierto y complejo, México atraviesa por una transición política importante esto le representa una gran oportunidad de consolidar sus avances hacia un camino de bienestar más elevado.

Esta investigación propone que el país tiene que enfrentar el desafío de efectuar cambios estructurales implementando reformas en áreas estratégicas como la energética y la hacendaria, eliminando las restricciones con el fin crear un entorno propicio para atraer y fomentar la inversión extranjera directa (I.E.D.) en nuestros país.

Si esto se logra, lo convertiría en una de las economías más eficientes y competitivas con mayores perspectivas de crecimiento mundial.

Palabras clave: inversión, crecimiento económico, competitividad.

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“Factores Que Influyen En La Decisión Para Elegir La Ubicación, Y Lograr El Crecimiento Y Competitividad De La Industria Maquiladora En Tamaulipas”.

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RESUMEN

Esta investigación está orientada a identificar el problema y lograr el crecimiento, la competitividad de la industria IMMEX en Tamaulipas. Con la finalidad de reconocer las variables que influyen significativamente, en la toma de decisiones y ofrecer a los inversionistas información útil, para decidir la ubicación de la empresa. Permitiendo desarrollar un ambiente propicio para la instalación de nuevas empresas, así como re-ubicación de las ya existentes.

Para ello, se proponen investigaciones relevantes relacionadas con el tema enfocadas a las facilidades que ofrece el Estado para la inversión extranjera, de la industria IMMEX en la frontera noreste, donde se localizan las ciudades dinámicas, en la recepción y ubicación de empresas manufactureras, además se muestran los sectores industriales más destacados de esta zona del país; cuáles son las organizaciones que ya han decidido establecer sus planta productora en esta entidad.

Palabras clave: Localización, Competitividad, Inversión Extranjera.

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Narco-trafficking Violence and Crime Can Democracy Survive in Mexico?

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ABSTRACT

Mexico is a young and uncertain democracy under stress. In the past six years Mexico has suffered a well-publicized, unprecedented outbreak of violence and murder associated with organized criminal drug-trafficking. Since 2006, the death toll is over 95,000 (LeMonde 2012). Furthermore, the violence has become more and more macabre and more brazen (O’Neil 2010, 69). For example, in January 2011 the decapitated bodies of 14 men were discovered in the popular resort city of Acapulco (Flores 2011). Towards the end of February 2011 in the border town of Nuevo Laredo during the night “. . .gunmen entered a busy Nuevo Laredo plaza and laid out the nude bodies of four slain men next to their severed heads on a sheet. . .” (Agence France-Presse 2011).

The violence and apparent inability of authorities to fully exercise control begs the question: can Mexican democracy survive? This work will examine Mexican public opinion using AmericasBarometer data for Mexico of the Latin American Public Opinion Project of Vanderbilt University of 2004, 2006, 2008, 2010 and 2012. These data will be examined and reported to detect waning opinions on the viability of democracy in Mexico.

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Wind Energy for Sustainable Development in Mexico: The Key Component in China.

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ABSTRACT

This forum, which the Western Hemispheric Trade Center of TAMIU, has prepared for the Congress event, really does allow dialogue in our academic environment to examine the sustainable development challenges and opportunities between countries of Eastern and Western Hemispheric countries.

The main criteria adapted for the elaboration of this paper stemmed from the essential agreement of Copenhagen Accord and Kyoto Protocol as an international agreement linked to the United Nations Framework Convention on climate change (COP 15) in order to arrive at the elaboration of proposals which encourages sustainable development in Mexico as one of the western developing countries by taking as a reference an eastern country; China, the leader in one of the most important renewal energy; the Wind Energy.

Over the past century, Western developed countries have used relatively cheap, plentiful fossil fuels to support industrialisation, urbanisation and modernisation. Today, however, population growth and widespread development are increasing the demand for energy, while fossil fuel supplies are decreasing annually by 15 billion tonnes coal equivalent. With this rate of decrease expected to grow, the conflict between limited fossil fuel resources and an infinite demand for energy will only worsen. At the same time, the climate change caused by combustion of fossil fuels is becoming more and more significant.

Since China implemented its opening and reform policy 30 years ago, its energy development model followed the path of industrialisation seen in developed countries, which is fundamental for the formulation of proposals on these important concern in Mexico.

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Market Efficiency Gap and Access Gap in Mexico: The Regulatory Challenges of Facilitating Competition and Equitable Access to Telecommunications Services

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ABSTRACT

This study examines public policy designed to guarantee communications service provision to low-income populations in Mexico (1990-2010). It takes as its starting point the distinction made in the literature between “market efficiency gap” and “access gap”. In relation to the former, it is argued that failures in regulation occur as a result of a weak institutional framework and a marked imbalance of power between the regulatory authorities and operators making up the market-dominant conglomerate in Mexico. On the question of access gap, such market power has become an enormous means to influence, allowing operators to evade accountability for commitments undertaken to implement social coverage schemes, in addition to limiting monitoring efforts on the part of the regulator and preventing penalties from being imposed by the authorities in the event of failure to comply. Based on recent official sources, the study examines the coverage of telecommunications services in various regions of the country, ranked according to their respective level of development. It is analysed the scope of public policies on universal service provision and present the main results of research into these policies. In the light of available evidence, the paper discusses possible explanations for the apparent failure of previously-implemented policies to bring telecommunications services to those regions of Mexico lacking coverage (reasons for the *access gap*). It also examines the difficulties faced by the regulatory bodies behind the design and implementation of pro-competition policies that could help to improve service density through increased affordability (i.e. close the *market efficiency gap*).

Keywords: Universal Service; market power; institutions; digital divide; Mexico.

Market Efficiency Gap and Access Gap in Mexico: The Regulatory Challenges of Facilitating Competition and Equitable Access to Telecommunications Services

1. Introduction

Telecommunications services are a critical factor in achieving greater equality and social inclusion by making services available and affordable to all citizens regardless of their level of income or the geographic location of their homes and workplaces. Taken together, it is estimated that a 10% increase in mobile service penetration may account for a 0.81% increase in the economic growth of developing countries. Further estimates suggest that access to mobile telephony may represent a 0.8% increase in GDP per capita (Bold and Davidson, 2012). Likewise, an increase in the penetration of broadband services can mean economic growth of 1.4% (Qiang & Rosetto, 2009).

More than two decades have elapsed since the privatization of Telmex in 1990, and universal service is still an unfinished business; it is among rural populations, in the poorest states of the country, where the greatest challenge lies in providing *social coverage* or *universal telecommunications services* for all citizens. In effect, Mexico's poorer states, home to 18% of the country's population and 32% of the rural population, where the availability of household landlines is limited (34.6%), such regions also suffer from low mobile line density (53%). The number of non-residential lines is extremely low, with an estimated density of between 2 lines per one hundred employed personnel.¹ In the poorest states, fewer than 2 households in 10 have Internet and Pay TV (SCT, 2011). The low density of Pay TV is an indicator of these states' low potential for access to broadband at home in the near future (see Table 1) (Instituto Nacional de Estadística y Geografía [INEGI], 2012; Comisión Federal de Telecomunicaciones [COFETEL], 2011 & 2012).

The lack of connectivity is unlikely to be made up for by the availability of mobile lines. A shortage of lines in workplaces and institutions is a situation that serves to perpetuate low productivity, ultimately impacting on the creation and availability of quality employment. In the poorest states, fewer than 2 households in 10 have Internet and Pay TV (SCT, 2011). The low density of Pay TV is an indicator of these states' low potential for access to broadband at home in the near future (see Table 1).

¹ This figure takes in account the people employed in both, the formal and the informal sector. In Mexico 6 out of 10 employed personnel work in the informal sector (INEGI, 2012).

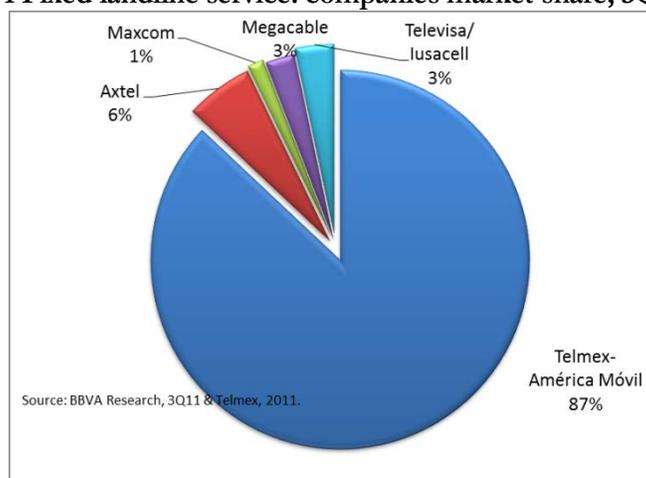
Table 1. Telecommunication service in the 6 poorer states, 2010 and 2011.

State	Land line density ¹	Resid. Lines / household	Non resid. lines ⁴	Cellular density ⁵	Cellular growth ⁶	% Internet ⁷	% Pay TV ⁷	Poverty Indexes ⁸
National Average	15.9	48.1	4.7	84.2	17.2	21.3	28.9	45.8
Group Average	9.6	35.9	2.0	57.5	17.8	10.9	20.7	61.6
Chiapas	5.2	18.4	1.4	53.1	25.5	5.1	13.7	78.4
Guerrero	11.1	43.4	2.4	53.7	14.4	15.7	19.6	48.5
Oaxaca	7.2	24.5	1.7	50.1	18.7	8.4	10.3	67.2
Tlaxcala	10.4	41.4	1.6	58.7	17.1	9.8	21.4	60.4
Zacatecas	11.5	42.6	2.3	58.0	16.2	13.0	27.3	60.2
Michoacán	12.2	45.3	2.4	71.4	14.6	13.3	31.9	54.7

The ordering of the states is based on the level of poverty. 1/Telmex, 2011. 2/Annual average growth: COFETEL, 1999-2011. 3/Residential lines per 100 households, 2010 (COFETEL, 2011 & INEGI: Census, 2010). 4/Nonresidential lines per 100 of occupied personnel (COFETEL 2010; ENOE, 4Q2010). 5/Cellular lines, per 100 people (COFETEL, 2011). 6/Annual average growth: COFETEL, 2000-2011. 7/Household access to Internet and pay TV. SCT: Annual Report, 2011 & INEGI: Census, 2010. 8/ National Council for the Evaluation of Social Policy, 2010.

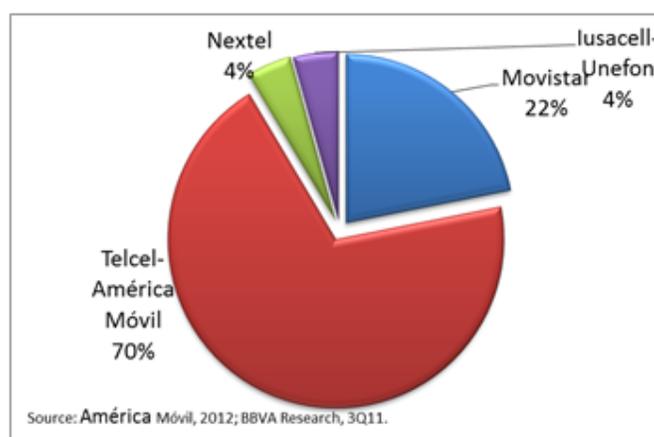
The present study examines public policy intended to ensure communications service provision to low-income populations in Mexico. The study takes as its starting point the distinction made in the literature between a “market efficiency gap” and an actual “access gap” (Muenste-Kunigami and Navas-Sabater, 2009:2). In relation to the former, it is argued failures in regulation occur as a result of a weak institutional framework and a marked imbalance of power between the regulatory authorities and operators from the market-dominant conglomerate comprising Telmex, with 87.7% of landlines², and Telcel, with 69.5% of mobile lines.

Fig. 1 Fixed landline service: companies market share, 3Q 2011.



² This figure includes public booths (Telmex, 2011).

Fig. 2 Mobile services: companies market share, 3Q 2011.



Difficulties in attempting to regulate these operators have meant a limited ability to remove barriers to entry into these markets and to counter the anti-competitive practices in which the operators engage. The latter behaviour has impeded new operators by raising costs, not least those relating to risk and uncertainty, in the absence of a fair playing field.

A recent study found that the lack of competition among telecommunications providers in Mexico has imposed significant costs on the Mexican economy and burdened the welfare of the country's population. It has resulted in low market penetration rates and poor infrastructure development (OCDE 2012).

On the question of *access gap*, Telmex's dominance has led to the various difficulties faced by government authorities in enforcing the social coverage commitments agreed to by the company, both those initially set out in the company's operating licence signed in 1990, and subsequently as operator of the government-funded Social Coverage Fund, resulting in a lack of process transparency in the allocation of resource use and little improvement to service accessibility (FONCOS, 2002). The present study documents the limited achievements of universal service and social coverage policies implemented over the past two decades (1990-2010). These policies have proven to be of limited impact in view of the unmet needs of the poorest population, especially in rural areas.

It is argued that the access gap involves a set of factors relating to the market power of the dominant operators. In practice, this market power has represented an enormous means to influence, allowing operators to evade accountability for commitments undertaken in the implementation of social coverage schemes, in addition to limiting monitoring efforts on the part of the regulator and preventing penalties from being imposed by the authorities in the event of failure to comply.

In short, the two types of gap—market efficiency and access—have different underlying causes and each has its own policy implications. However, in the case of Mexico, there is a common factor in both cases: the power exercised by the dominant operators over regulatory authorities. As a result, it is in Mexico's poorest states, home to 33.3% of the country's population and 37.8% of the rural population, that low penetration rates are most evident.

The power of these operators, along with institutional weakness on the part of the authorities, has hampered efforts to regulate in favour of greater market competition and efficiency. Telmex's dominance has restricted the authorities' ability to monitor compliance with coverage agreements undertaken by the company, resulting in processes that are opaque in terms of how resource usage is allocated, and largely ineffective in terms of their impact on service coverage and affordability.

In most cases it is not possible to pinpoint the means by which Telmex-Telcel exercises its influence over the regulators since such instances are not public. However, logical inference allows us to deduce that such events took place (Morgan & Winship, 2007) given the limited results of regulation efforts, including the declarations of market dominance issued by Mexico's Federal Competition Commission, (CFC) and the thus far failed attempts to impose sanctions in response to the monopolistic practices employed by these operators.

Article 63 of the Federal Telecommunications Act (*Ley Federal de Telecomunicaciones*, LFT) establishes that when an operator is declared to be dominant by the CFC in any particular telecommunications services market, asymmetric regulation is put in place around tariffs and quality of service and information, with all of these measures intended to prevent anticompetitive practices or, where appropriate, aid in the identification of such practices and in appropriate sanctions being imposed.

Below, it is presented a summary of the declarations of market dominance issued by the CFC, in which Telmex was declared to be a dominant operator in call organisation, call termination and call carrying (2007) as well as in the dedicated connection and broadband Internet markets (CFC, see Fig. 3):

Fig. 3
Telmex-Telcel Market Dominance

In 2009, Telmex-Telnor was declared by the Federal Competition Commission (CFC, 2009) to be an operator with considerable power in the market of local intercity call traffic, specifically in the organisation, termination and carrying of local landline traffic. To date, the Federal Telecommunications Commission (COFETEL) has not issued an asymmetric regulation ruling to prevent monopolistic practices. Nor is there a publicly documented reason for why such a ruling has not been delivered.

In 2009, Telmex was declared by the CFC (2009) to be an operator with considerable power in the market of dedicated connections. As of March 2012, four years on, COFETEL is now working on asymmetric regulation measures within this market.

As of 21 **January 2010**, the CFC (2010) declares Telcel to be an agent with considerable power in the national market of telephony services (Telcel has accumulated four times more users and five times more turnover than its closest competitor). Its profits are inconsistent with those of a competitive market. In **February 2011**, the head of COFETEL's Regulatory Planning Unit stated that asymmetric regulation was not a necessary outcome of a declaration of market dominance. This statement contravenes Article 63 of the Federal Telecommunications Act.

On 13 May 2011, the CFC (2011) concluded that Telmex holds considerable power in the market of landline access to *Internet* and broadband access (Telmex has 61% of subscribers, with its closest competitor having a share equivalent to 23% of users). The CFC ruled that the company is not engaging in the monopolistic practices reported and investigated and for this reason the case was not referred to COFETEL. The official declaration on market dominance on internet and broadband access, did not take place (La Razón, 2012). Asymmetric regulation prevents anticompetitive practices, and hence this argument is not legally tenable

The aim of the present research is to examine the implications of such market power when it comes to achieving socially equitable and affordable access to high-quality telecommunications services (1990-2011). The study examines the coverage of telecommunications services in various regions of the country, ranked according to their respective level of development, analyses the scope of public policies on universal service provision and presents the main results of research into these policies.

The first section here presents existing public policies on social telecommunications coverage and what they have achieved. The second section evaluates social coverage and its distribution. Finally, a number of factors that have led to poor service coverage, notably in the poorest regions of the country, are identified.

The sources underlying this research are the recently published *Household Survey of Access to and Use of Information Technologies* (2010) and *Household Survey of Income and Expenditure*, recent information on regional economic development based on Poverty Index (Coneval, 2011) and growth and employment figures from Mexico's Census Bureau (1991, 2006, 2011), and statistics published by the Ministry of Communications (2000-2010, 2012) and *Federal Telecommunications Commission* (2011).

In the light of available evidence, the paper examines the difficulties faced by the regulatory bodies behind the design and implementation of pro-competition policies that could help to improve service density through increased affordability (i.e. to close both, the *market efficiency gap* and the *market access gap*).

2. Economic concentration and political power: an institution-based approach

An answer has yet to be given to the question of how operators' market power influences government decision-making. It is concerned with various instances of political influence, from the drafting of public policy (as observed in the definition of “universal service obligations” in Telmex's operating licence), to regulations (such as those to remove market barriers) and their implementation, along with measures to combat anticompetitive behaviour. In all of these cases, it may be asked by what mechanism such market power actually manifests itself as political power and influence (Casanueva-Reguart 2012; Estache & Wren-Lewis, 2009; North, 1990; Williamson, 1985; Levy & Spiller, 1994; Laffont & Tirole, 1991).

Institutional theory explains the importance of the environment in which regulation is drawn up, ratified and implemented, such regulation being the result of a process of reconciling the interests of the various groups involved. The various different interests adjust as a whole to the institutional environment and to a given political context, in which economic interests emerge as political interests. This institutional environment shapes and limits the government's means of ratifying and implementing policies and regulations which put the public interest first (Auriol, 2005; 2010; Kaufmann, et. al., 2009; Gasmí, 2009; Auriol & Blanc, 2008).

In Mexico, the interests of major economic conglomerates are both the cause and effect of institutional deficiency (Levy & Walton, 2009; Guerrero et. al., 2009). Among institutions sharing such weakness include the Ministry of Communications and Transport (*Secretaría de Comunicaciones y Transportes*, SCT), the Federal Telecommunications Commission (COFETEL) and the Federal Competition Commission (CFC), all of whose mandate, be it directly or indirectly, is to regulate the telecommunications markets.

From the above observations stems the central thesis of the present work, which posits that in the case of Mexico, the market power of Telmex-Telcel over telecommunications services has manifested itself in an ability to influence the decisions of telecommunications authorities, both in the case of regulatory authorities and in the case of those charged with drawing up public policy on social coverage. In the following section, it is analysed the scope of public policies drawn up by the authorities to close the access gap and improve coverage of telecommunications services.

3. Public policy on universal telecommunications service provision

In this section, it examined the scope of public policies drawn up by the authorities to close the access gap created by service providers being part of the Telmex-Telcel conglomerate, specifically: (1) monitoring compliance with the universal service obligations undertaken by Telmex as a condition of its operating licence (1990), some of which remain in place; (2) setting up the Social Coverage Fund (FONCOS) in 2002 with the aim of providing telecommunications services to rural localities of between 400 and 2,500 inhabitants. In response to a public call for tenders, Telmex was chosen as the provider for these services.

3.1. Universal service obligations agreed to under Telmex's its operating licence (1990)³

The content of these universal services obligations and the timeline for their implementation, as well as the limited progress achieved in addressing the issue of communications provision to rural communities, can be traced back to the context in which the privatisation of Telmex took place.

In 1980, the Mexican economy was severely in debt. This extreme debt burden and fiscal deficit had a major impact on the approach adopted in the privatisation of Telmex, which led to maximize revenues from the privatization —i.e. the funds which the government would obtain from the sale of the company—being prioritised over the objective of encouraging competition and improved telecommunications service coverage, despite the potential negative effects on consumer well-being and economic efficiency (del Villar, 2009; Casanueva & del Villar, 2003).⁴

As a result of that negotiation, Telmex was spared the obligation of serving communities of fewer than 500 inhabitants, which according to the Population Census of 1990 accounted for 21.6 million people and almost half of the country's rural localities (47.2%, INEGI, 1991). Furthermore, the requirement to comply with most of these obligations ceased 1994.

Since 1994, outcomes have fallen short of the goal of providing basic services in rural areas. Only the telephone booth installation scheme would continue, until 1998, along with Telmex's network expansion programmes which remain in place to this day.

In the next section, it is presented a summary of the universal service conditions, which form part of Telmex's operating licence. In addition, data are presented showing the results of implementing these policies, both for network expansion and installation of public telephone booths (1990-1998).

3.1.1. Expansion of landlines at a rate of 12% per annum

The requirement to expand the network by 12%, as mentioned above, ceased in 1994, just 4 years following privatisation. Network expansion between 1991 and 1996 was 11.8%, a figure very close to the 12% requirement set out in the contract.

As a result of government weakness in negotiating the privatisation process (see Table 1)⁵, most of the universal service obligations ceased to apply in 1994, as set out in Telmex's operating licence. The commitment to provide basic service fell way behind target. This is particularly true in view of the severe shortage of telecommunications services in Mexico's rural communities⁶.

³Telmex Licence: *Modificación al Título de Concesión de Teléfonos de México*.

⁴ By creating a horizontally and vertically integrated telecommunications company, the government could receive a higher price for the privatizing firm and reach a short term public finance goal. For potential buyers, the company was very attractive. They were allowed to buy a stream of monopoly excess profits, which are more valuable than a stream of competitive returns (Noll, 2000: 3). The government was also able to sell the company faster. Separation of Telmex would have taken time as would have the discussion of institutional design and the design of the rules of interconnection between the different companies.

⁵ There are discrepancies between the number of lines installed between 1990 and 1994 (16 524) and 1995 (16 738) and figures derived from taking the sum of the number of lines installed by Telmex in each unit: 16 236, according to information reported in the SCT's Statistical Yearbook (2000-2010).

⁶ In 1995, via the Directorate of Rural Telephony, part of the Office of Communications launched a scheme to tackle the needs of communities with fewer than 500 inhabitants. In addition, it launched a community project to provide Internet access in the year 2000 through a series of Digital Communications Centres. The Directorate has held various public tenders since 1995 for service provision to rural localities of fewer than 500 inhabitants. These programmes have resulted in the installation of 33 458 mobile lines by various providers including Telcel, who installed 25,8% of the lines (8.358), Iusacell, another mobile service operator who installed 33.9% of the lines (10 338) and satellite company TELECOMM, at the time state-owned, who installed 41,4% of the lines (13 762). The average growth in the number of lines installed between 1995 and 2000 was 50,7% annually. The installation of lines all but ceased from 2000, with an average of only 1,2% growth being observed annually between 2000 and

Table 1. Fulfilment of social obligations from in Telmex’s operating licence in rural communities (500-2.500 inhabitants): 1990-2010.

Cumulative	Annual	%
4.350	2.854	190,8
16 542	4.006	32,0
Average annual growth: 1990-1994		39,6
16 738	193	1,2
1995-2010	0	0,0
Average annual growth: 1994- 2010		0,00138

SCT: “Statistical Yearbooks” (2000-2009) and “Key Statistics” (2010).

3.1.2. Rural telephony: communities with more than 500 inhabitants. (1990-1998).

The estimated figure for telephone density post fulfilment of Telmex’s obligations in rural localities⁷, calculated as the number of lines installed, divided by the number of rural communities (of 500-2.499 inhabitants), was greater than 100%. Specifically, the average figure was 110% and in some cases such as in the state of Nuevo León, coverage of these communities reached as high as 290% (Chihuahua 200% and Tamaulipas 230%. INEGI: 1991 y 1996). These potentially inflated statistics in the rural communities covered in 25 states contrasts with coverage in other states, for example Baja California, where only 20% achieved connectivity, or Chiapas, with 40% (Baja California Sur: 80%; Morelos and Tlaxcala: 90%; see Table 2).

If the assumption is that coverage of communities of 500-2.499 inhabitants means only one telephone booth per community⁸, then as a measure of what this coverage actually means, there is an average of 228 972 inhabitants of 12+ years per telephone line or booth installed (INEGI: 1990).

2010. Clearly, the policy of providing social connectivity to these communities was suspended with the change of administration in 2000 and has not been re-started. The result of an audit of the operation of this service carried out in 2009 showed that only 41,5% of these lines were in service and that of these 58.5% had ceased to function and had been abandoned by users SCT, 2000-2009 & 2010. On the public Access to the Internet, since 2002 the Ministry of Communications installed Digital Communications Centres. During the first decade (2000-2009) the number of Centres grew 15,9% annually, from 3.200 to 8.971 in 2009 (there is no information for the following years, 2010 and 2011). Recently, in April 2012, the Minister of Communications revealed the figure of 6.788 that represents 8,9% decrease annually between 2002-2009, see Agenda Digital Nacional (2012).

⁷ Condition 3-5 of the operating licence: “Provide a public telephony service to those communities with more than 500 inhabitants by the end of 1994 and increase market penetration of public telephones from 0.5 per thousand inhabitants to five per thousand inhabitants by the end of 1998.”

⁸ As set out in Clause 3-4 regarding “Rural Telephony” in Telmex’s operating licence.

Table 2. Number of lines installed by Telmex in rural localities of 500-2,499 inhabitants along with line density 1990-1994 (selected states).

Area / state	No. localities¹	Total localities connected²	Proportion (%) of communities with at least one line installed by Telmex	No. persons of 12+ years per line per community³
National total	13 580	16 236	NA	8 630 520
National average	424	917	130	228 972
Baja California	100	24	20	456 040
Chiapas	1.063	950	40	534 804
Baja California Sur	35	29	80	253 818
Morelos	187	107	90	700 088
Tlaxcala	118	109	90	128 988
Guerrero	803	932	110	638 815
Oaxaca	996	1.362	130	84 520
Puebla	990	1.040	191	28 324
San Luís Potosí	448	646	130	114 987
Veracruz	1.534	1.779	120	59 475
Zacatecas	375	516	140	302 851
Chihuahua	187	372	200	9.177
Nuevo León	75	232	310	1.752

¹/INEGI, 1991; ²/SCT, 2000-2010; ³/INEGI, 1991.

The previous analysis suggests a lack of close monitoring of Telmex's contractual obligations on the part of the Department of Communications and Transport (SCT), given that in some cases the reported number of communities connected is more than twice the number of communities actually present.

3.1.3. Agreements between Telmex and the Office of Communications: network expansion programmes (1995 to date)

A condition of Telmex's operating licence which remains in force is that every four years from 1995 onwards, the company must publish figures on its network expansion and modernisation programmes, in agreement with the Office of Communications (*Subsecretaría de Comunicaciones*), as they relate to its rural telephony and telephone booth installation programmes.

In 1995, an exchange of documents took place between Telmex and the Office of Communications. However, this exchange did not materialise into a plan of action. It was not until 1998 that Telmex launched its rural telephony programme, supposedly in agreement with the Office of Communications, effective retroactively from 1995. In December 1998, Telmex submitted a report stating that it had reached the programme targets. The apparent achievement of these targets consisted of additional coverage of 4.288 communities via public telephone booths. However, the service provided to these communities was part of a rural telephony project launched and funded by the SCT's Office of Communications. Telmex was involved in this scheme as a provider and it was in that separate capacity that the company received payment for those services. Hence, this provision was not part of the company's fulfilment of its universal service obligations.

Telmex submitted its results on network and rural telephony expansion for the periods 1995-1998, 1999-2002 and 2003-2006 in July of 2006, the final year of the 2000-2006 presidential and ministerial administration. The documents submitted by Telmex to the Office of Communications were accompanied by a request for

confidentiality, which the Office granted. Nevertheless, the Statistical Yearbooks published by the Department of Communications and Transport (2000-2009) along with the Key Statistics (*Estadísticas Principales*) of 2010 put the number of lines installed by Telmex at 16 738, of which 16 542 were installed prior to 1994. This confirms that Telmex practically ceased to install lines from 1994 onwards (see Table 1).

3.1.4. Social coverage fund (FONCOS)

In 2000, a 75 million dollar allocation from the national Tax Office⁹ was used to set up the Social Coverage Fund (FONCOS) administered by the Office of Communications, with the aim of serving the needs of localities of between 400 and 2.500 inhabitants. The Office of Communications put out two public tenders. The first was for *Basic Telephony Service 1* (STB-1) in which the subsidy paid to the operator consisted of a monetary payment plus radio spectrum bandwidth reserved for the provision of telecommunications access services (renewable after 10 years). End-user equipment was subsidised and the user would incur only the cost of calls, paid for with pre-pay cards. For *Basic Telephony Service 2* (STB-2), the operator subsidy consisted only of bandwidth resources (also renewable). Telmex was chosen as the winning bidder for both systems.

The terms of the original contract were modified, with the most major change consisting of bandwidth substitution: bandwidth resources reserved by the government for social coverage were exchanged for spectrum frequencies with a higher commercial value for Telmex. This exchange resulted in increased bandwidth and infrastructure resources for Telmex.

Specifically, in November 2006, just a few weeks following the 2000-2006 term of office, the following frequency exchange took place: a 21 MHz allocation in the 1.5 GHz band originally granted to Telmex under the Social Coverage Fund was exchanged for 10 MHz allocations in the 450 MHz band (COFETEL, 2008).

Modifying the radio spectrum allocation in this way proved commercially advantageous for Telmex-Telcel since the 450 MHz band is more appropriate for the provision of wireless services based on CDMA450 technology, which at the time of the change offered significant advantages such as:

- Digitised conversations which, by assigning an identifier code to each call, allow a greater number of callers to use the bandwidth simultaneously without issues of static or interference.
- Improved coverage per cell compared to higher frequencies (800 MHz, 1.5 GHz, etc). Lower implementation costs, due to fewer cells being needed.
- An improved range of services such as Internet access, residential voice services, data transmission, videoconferencing, connectivity between local access networks, fax and other services.
- The use of CDMA2000 1X technology, allowing greater voice capacity as well as improved data transmission speeds of 153 kbps (Rel 0) and 307 kbps (Rev A).
- The use of CDMA2000 1xEV-DO technology, which allows high-speed data transmission comparable with “Digital Service Line” (DSL) systems.

The exchange by Telmex, backed by the Department of Communications, of spectrum bandwidth originally allocated to social telephony for bandwidth of higher commercial value gave the company access to these resources while avoiding the need to make bids for spectrum bandwidth via the usual auctioning mechanism as set out by the Federal Telecommunications Act for spectrum allocation for commercial use¹⁰.

With the change of administration in 2007, a process of monitoring the results of this government-funded, Telmex-operated programme was set up. This auditing process revealed that, compared to the target installation of 109,016 telephone lines (75 797 lines under STB1 and 33 219 under STB2), only 88 791 were

⁹ The total amount in stated in Mexican currency was 750 million pesos (MEX) at the exchange rate of the time, then 10 pesos to the dollar (USD).

¹⁰Article 14 of the Federal Telecommunications Act stipulates that the allocation of radio spectrum bandwidth for certain uses must be subject to a public tender.

actually installed. This means that 20 225 lines were never installed. A number of irregularities were identified. Among these was the practice, less costly to Telmex but less socially beneficial, of installing two lines in a single residence. This practice involved almost twenty thousand (19 397) lines. It was also discovered that just under seven thousand (6.983) lines were not connected to a specific residence. Hence, the current status of these lines is unknown and it is uncertain whether they were actually installed. Paradoxically, prior to the change of administration, in December 2006, the Office of Communications made a one-off payment of all invoices submitted by Telmex.

The role of the regulator is clearly seen in this analysis: firstly, in the tender process for spectrum bandwidth allocation and its re-allocation; and subsequently, in not penalising Telmex for failing to fulfil its contractual obligations as the provider of social telecommunications service coverage. The role of the regulator was overshadowed, quite possibly by a whole set of lobbying actions, resulting in failure from the point of view of the social welfare and inclusion of a low-income sector of the population.

Thus far, the limited success of public policies intended to promote access to telecommunications services is explained by the limited scope of clauses governing social obligations in Telmex's operating licence and by the failure of the latter operator to fulfil its obligations as a provider of government-funded services, including those funded by FONCOS.

The foregoing analysis brings to the fore two key findings. Firstly, the provision of universal access in an attempt to bridge access gaps has proved extremely limited and the density of such services in regions without provision remains very low. And secondly, government authorities have limited room for manoeuvre in enforcing compliance with contracts and agreements, as well as in imposing penalties in the event of breaches of contract.

The low density of telecommunications services, as explained in the following section, has forced the population to rely increasingly on mobile services. As shown, such services are offered at high prices when compared to those of mobile services worldwide.

4. Mobile services as an alternative form of connectivity

Where available, some rural communities lacking telecommunications coverage may well have turned to mobile services as an alternative form of connectivity despite the low quality of such services. The prepay card system allows users to monitor their consumption and this, along with the decreasing cost of mobile devices and the option of paying in instalments, has enabled connectivity for users in socially excluded areas of cities as well as in some rural communities. However, the use of mobile phones as an alternative proves to be the more expensive form of communication for the end user, especially in Mexico where mobile services are the most expensive when prices among OECD countries are compared.

The excessive prices paid by end consumers in Mexico can be expressed as the net percentage, for each call package offered by Telcel, by which the latter operator's prices exceed the cheapest, offered among OECD countries. For example, Telcel is 65.5% more expensive than the cheapest operator of the OECD countries with respect to its 100-call package, 32,5% more expensive with respect to its 30-call package and 9,5% in the case of its 300-call package. Only with 900-call and prepaid 40-call packages is Telcel slightly below the cheapest operator of the OECD countries (see Table 3).

Table 3. Excess pricing of Telcel mobile call package compared to OECD averages, 2011.

	%	Cheapest of OECD
30 calls	32,50	270,44
100 calls	65,52	698,96
300 calls	9,51	444,72
900 calls	-3,97	528,16
40 calls, pre-paid	-5,08	238,19

OCDE, 2012.

The high tariffs observed for mobile services in Mexico suggest extraordinarily high profit margins. These margins can be inferred from Telcel's earnings in Mexico if a comparison is made with companies with the greatest market share in 48 countries. In addition, Telcel has the highest market concentration for these services (see Table 4)¹¹.

Table 4. EBITDA / Service margin and market concentration indices for Telcel in Mexico along with averages per block among 48 countries. December 2010.

Country / block		EBITDA / service margin	HHI
Mexico	Telcel	62,0	0,545
Averages per geographic region of companies with greatest market share			
Latin America		50,7	0,407
EEMA ¹		46,5	0,349
Emerging Asia		44,2	0,341
Asia Pacific		44,2	0,341
Europe		41,1	0,332
North America		40,6	0,269

EEMA¹: Eastern Europe, Middle East and Africa. HHI (Herfindhal Hirschman market concentration index), Bank of America Merrill Lynch (December, 2010).

Despite the fact that Telcel has been declared as having considerable market power, this has been without any further consequences for the company and any provision made to prevent further harm being caused by such market concentration has failed. The Federal Competition Commission found Telcel to have engaged in "limited monopolistic practices" (Article 10 of the Federal Competition Act) for charging a higher tariff to other operators with which it competes than to Telcel's own subscribers¹².

In April, 2011, Telcel, was fined MXN 12 billion (USD 1 billion), 10 percent of Telcel's fixed assests. The regulator claimed that Telcel charged its rivals higher interconnection rates than for connecting calls between its own customers. Telcel's price squeezing behaviour leads to an increase in costs for competitors, while offering a more competitive price to end users within its own network, a clear infringement with the purpose of hindering competition in both mobile and land line services. Telcel successfully appealed against the Competition Commission's decision, arguing that the President Commissioner had a personal bias against Telcel. Following a second hearing, the CFC agreed to revoke Telcel's fine on condition that the company must reduce interconnection tariffs and cease the practice of charging higher tariffs to its competitors than it does to its own end users. The CFC argued that it was preferable to avoid a lengthy court case, potentially lasting several years with no certain outcome, while the commitments imposed on Telcel will—according to

¹¹ Profitability is assessed as EBITDA divided by service margin. EBITDA is a financial indicator, standing for Earnings Before Interest, Taxes, Depreciation and Amortisation".

¹² Article 10, Federal Competition Act.

the CFC—guarantee immediate results. In taking this approach, the CFC lost credibility in terms of its ability to penalise the anticompetitive practices engaged in by Telmex-Telcel or any other economic agent and the decision casts doubt over the ability of CFC and Cofetel to monitor compliance with these commitments.

The lack of prompt outcomes to cases such as these, with lengthy litigation usually ending in a ruling in favour of Telmex-Telcel, allows us to infer an institutional weakness on the part of the regulators in the face of the power and influence wielded by the representatives of these companies (Solano et. al., 2006).

7. Conclusions

Two decades following privatisation, the connectivity and density of telecommunications services remain a challenge for public policy and regulation in Mexico.

As we have highlighted, the conceptual distinction proposed in the literature on universal coverage between *market efficiency gap* and *access gap*, along with overall differences in policies deriving from each of these concepts, is equally valid in the case of Mexico.

Despite the fact that both types of gap have different underlying causes, a common factor lies in the power wielded over the regulatory authorities by the dominant operators. The power of these operators, along with the institutional weakness of the authorities, has hindered attempts at regulation in favour of greater market competition and efficiency. Similarly, Telmex's power has limited the authorities' means of monitoring compliance with coverage commitments undertaken by the company, resulting in processes which lack transparency in terms of the allocation of resources and which have limited outcomes in terms of improving service coverage and affordability.

In short, public policies and regulatory measures intended to close both market and access gaps, in both their drafting and implementation, face two challenges. The first of these relates to the market efficiency gap and lays in fostering pro-competition measures in the telecommunications services markets. This means a robust institutional environment with the means to bring in regulations, monitor compliance with these regulations and impose penalties for non-compliance, thus ensuring that markets operate efficiently.

The second challenge relates to the access gap and lies in the drafting and implementation of universal service policies that are efficient and transparent and which incorporate close compliance monitoring with the aim of meeting the currently unmet demand among poorer communities, especially in rural areas.

Acknowledgements

I would like to express my thanks for the invaluable assistance of Neil Coffey, in the translation and editing of this paper.

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The Impact of Globalization on Education and the Profile of the International Manager: A Perspective View from Mexican Universities

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ABSTRACT

The universities in Mexico, and fundamentally their education system in the higher education environment, are being transformed in a very interesting manner, with the objective of meeting the requirements of their respective business communities. And it is precisely now, in these times of adaptation to free trade and the global economy, when the business community requires special attention from universities with regard to the development of professionals. In contrast to the United States, we see that in our country, the universities and business enterprises play a different role in terms of their connections to one another.

Keywords: Globalization, Labor Force, Baccalaureates, Universities, Professional Practices

The Impact of Globalization on Education and the Profile of the International Manager: a perspective view from Mexican Universities

The universities in Mexico, and fundamentally their education system in the higher education environment, are being transformed in a very interesting manner, with the objective of meeting the requirements of their respective business communities. And it is precisely now, in these times of adaptation to free trade and the global economy, when the business community requires special attention from universities with regard to the development of professionals. In contrast to the United States, we see that in our country, the universities and business enterprises play a different role in terms of their connections to one another. Let us see why:

In the United States, when a firm needs to discover and apply the newest technology and management systems, it turns to the university to learn the corresponding theories (an example of this being the fact that we often see technological, scientific and administrative advances revealed and patented by the universities in the United States).

In Mexico, on the other hand, when the student finishes college and needs to procure employment, consequently applying the knowledge, so the newly graduate turns to the firm. However, it is there that it becomes evident for him or her, that has not learned anything which can really be applied at the company, and that it will be there where he will be updated on the latest knowledge. It is clear that this person's entry into the firm is merely as an "apprentice".

Is the firm really the place where the baccalaureate actually learns?

Currently, it is clearly evident that our participation environment is highly competitive. The business community finds itself totally in a territory previously unexplored by Mexico's micro, small and medium-size enterprises: international trade. Therefore, it requires support, assistance and orientation; and the university is the most viable medium for providing enterprises with highly trained executives and managers, who are capable of helping firms in the internationalization of their business. And it is most important that they succeed in maintaining their participation in an aggressive trade environment, due to the presence in Mexico of so many multinationals ready to gain a good portion of the market. The cases of Mexican businesses which have completely yielded to foreign companies are innumerable, especially in the area of food and services.

This shows us that it is indispensable for Mexican enterprises, just as for foreign companies, to be able to obtain human resources specialized in visualizing opportunities and risks at the international level, and also willing to create and develop strategies for the internationalization of business.

The business community is beginning to take a predominantly active stance within the universities in such a way that it is the most effective feedback instrument for the development of study programs and design of workshops and seminars oriented toward the development of professionals able to immediately become integrated into their workplaces without the need to begin "learning" and accumulating experience, but to begin modifying structures and developing new and more secure marketing models.

One interesting characteristic among this new professional elite is that in their professional and academic development, there should be two fundamental features (Zethanl, Bitner, 2000):

- Internationalization incorporated into the professional degree
- Direct training in the discipline of customer orientation.

For this reason, universities are most actively interested in the following activities:

- Include internationally-oriented courses in study programs, both at the Bachelor's and Master's levels

- Encourage research activities in the area of international trade in Mexican, as well as in foreign enterprises, and
- Support international academic mobility and exchange programs for students and professors.

With respect to the last point, the situation has advanced a bit more than expected; now it is not enough for the student only to take some international marketing or economics courses to be considered ready to integrate into the workplace; rather, enterprises seek a student profile portraying someone who, during the educational process, has had the opportunity to go abroad to live the trade experiences of the multinational firms, consequently eliminating one of the great barriers to international trade which Mexicans have: the language, specifically English.

Universities have been given the task of reforming study programs according to academic models which offer the graduate, at both the Bachelor's and graduate levels, a new international profile just at the moment when the firm needs it most.

Universities now know that the competence, attitudes and abilities called for are all characteristics referred to in the academic programs or models which coincide with regard to something very fundamental: professionals capable of developing in global scenarios, possessing technical and methodological tools which support small and medium-size businesses in their integration into international trade (Ziberhmann, 2001).

My experience in the updating of study programs, through which I have had the opportunity to participate with foreign universities, has brought me to the conclusion that there is not much difference between the study programs at foreign universities and those at domestic ones. The academic symmetry is very convincing in most cases. This observation provides a good point of departures.

The next step within this internationalization process in education consists of analyzing which characteristics firms see.

According to studies done regarding trends that can be recognized by the majority of firms, the following is the profile of managers in the immediate future:

1. The globalization phenomenon implies the development of a new manager, who becomes a leader with a great ability to learn, since he / she will confront unprecedented contextual situations. This demands the possession of well-established knowledge in diverse disciplines, such as: the contents of trade treaties among nations; international negotiating techniques; appreciation of the cultural geography of countries and financing techniques for operations, among others.
2. The fields of knowledge probably include: several languages, customs procedures, global marketing plans, logistical techniques and flexible production, all of which are oriented toward the so-called new technologies. These are fields of knowledge in which developing nations can have profitable opportunities for involvement.
3. In finances, they must learn to work with instruments; to operate with tax, civil and penal codes different from our own; to study ways of presenting financial statements in foreign currency; to deal with exchange rates in the presentation of price quotations, and in the long run, operations which have futures (the market of the future needs standardized products and production volumes based on norms in order to function adequately, a situation which is not very probable at the current time in Mexico).
4. In the area of personnel, changes involve the hiring of people who now also ask about the firm's activities, whether that which the firm really does is correct, or if more research in certain areas is needed; with knowledge and acceptance of different types of hiring by the firm, whether for fees or by integration onto the payroll (for example, there are at least twelve different forms of labor relations in

Spain); incorporation of minority groups into organizations, and consequently, the creation of a new organizational culture, which should be channeled into collective objectives. Perhaps in the long run, personnel selection techniques need to be related more to the abilities, values and knowledge possessed by the candidate. Managers can also make innovations in the personnel control and evaluation mechanisms, leaving behind the existing mechanisms of retroactive nature, replacing them with other, a priori tools. Some companies seek candidates who, upon becoming employees, propose projects to be incorporated into the firms' activities. This provides an a priori control parameter with regard to personnel.

5. The future manager must be proficient in the use of computers, and above all, information systems. He / she must also know how to use multimedia equipment which combines image, sound and the transmission of information via computerized mechanisms. This idea arises out of the transformation observed in the world. Communications have turned the face of the earth into a great network, where information has acquired a fundamental role, and at the same time, this has allowed firms to hugely facilitate the internationalization of their business.
6. Finally, we must not lose sight of management training in service enterprises. If we observe the trends in the economy, there are more and more firms involved in this business sector. Other possible fields with a future are those related to energy substitutes (including their creation, development and management), biotechnology, the environment and ecology.

To conclude, it is important to make it clear that, in addition to professional development in the fields of knowledge required by business communities, it is extremely necessary that educational centers emphasize that which is currently known as "integrated education" as a priority, precisely in the area of human values, since the fast-paced existence of an industrialized society involves a *dehumanization* process. This dehumanization is frequently found in the workplace, due to the sacrifices necessary concerning employees' family time, recreation, education and culture, in order to attain the optimal levels of quality and standardization which international markets demand as entry requirements. For this reason, value formation is an indispensable part of the education of professionals. It is also necessary to mention that the establishment of so-called *cooperation agreements* between universities and companies, the business-classroom and workshop-school arrangements, are the most effective instruments for realizing this union between firms and universities.

In conclusion, I would like for us to always remember that universities must not only provide people with professions, but also with an education for life (Galan, 2000).

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A Career in MIS: Attitudes and Gender Differences Among Hispanic Students

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ABSTRACT

Success in today's work environment demands a high degree of technological literacy. While demand for graduates from programs like Management Information Systems (MIS) has generally remained strong, the supply of students choosing the major tends to be cyclical. As a result, there has been a push over the last two decades to identify factors that might affect a student's choice to enroll in a technology program like MIS. Factors such as gender and race have been shown to influence student decisions to major in technology. In this study we examine the attitudes of Hispanic students toward a career in MIS and whether any gender differences exist. Though not statistically significant, we find that females tend to have a more favorable attitude than males toward MIS educational and career goals, and MIS courses and instructors. Students do not perceive MIS majors to be popular. Females seem to be more concerned about this lack of popularity than males, but the difference in attitude is not statistically significant.

A Career in MIS: Attitudes and Gender Differences Among Hispanic Students

Introduction

The use of information technology in the workplace has increased substantially over the last decades and success in today's work environment demands a high degree of technological literacy. This has resulted in an increasing need for workers who are qualified in all aspects of IT. While projections for technology workers indicate continuing growth (Bureau of Labor Statistics, 2010; English, 2012), the supply of students majoring in computer related fields such as Management Information Systems (MIS) and Computer Science has fluctuated over the last decade (Hunsinger et al., 2010; Johnson, 2010; Thibodeau, 2011). This fluctuation has led researchers to examine the process by which a student selects a major and identify influences that play a pivotal role in this process.

Race and gender are also seen as factors that influence a student's intent to major in technology. Examples of this issue include a report in Blackvoiceneews (2011) which states that only 1.8 African Americans were hired at the 15 largest Silicon Valley firms in 2008, the CNNMoney report (Pepitone, 2011) drawn from voluntarily submitted EEO-1 forms of three Silicon Valley companies revealing that about 12% of the companies' technology jobs were held by African Americans and Hispanics (even though these ethnic groups constitute over 25% of the labor force), and a National Science Board (2010) report that African Americans and Hispanics are proportionally underrepresented in science and engineering occupations (including computer science) and earn about 26% less than other racial groups. Hunsinger et al. (2009) found that stereotype and role model influences, coupled with a lack of knowledge, time, confidence and intent, influence female student decisions to major in MIS. Ong (2011) also notes the existence of a digital divide which leaves women of color underexposed in terms of technology and computer skills. These conditions of minority under-representation, lower pay, negative student perceptions and unequal technology access may be acting as barriers to the entry of African Americans and Hispanics into computer related majors at US colleges and universities.

Hunsinger et al. (2009) found that stereotype and role model influences, coupled with a lack of knowledge, time, confidence and intent, influence female student decisions not to major in MIS. This is exacerbated by the existence of a digital divide which leaves women of color underexposed in terms of technology and computer skills (Ong, 2011). However, Mento et al. (2006) notes that the availability of constructive technology role models has a positive impact on women's attitude toward computing.

The purpose of this study is to examine the attitude of Hispanic students toward a career in MIS. Using a sample of students from a Historically Minority-serving Institution, we examine whether gender differences exist in terms of attitude toward MIS educational and career goals, attitude toward MIS courses and Instructors, and attitude toward the social impact of an MIS career.

The Survey Instrument

Drawing from the literature, a survey instrument was created to assess student attitudes toward a variety of MIS-related attitudes and perceptions. The survey includes a section to collect demographic information, followed by sections assessing student attitudes toward MIS educational and career goals, MIS courses and instructors, and the social impact of an MIS career. All the attitude and perception questions are measured on 5-point Likert-type scale, where 1 = Strongly Agree and 5 = Strongly Disagree. This paper reports the findings related to MIS career stereotypes among Hispanic students, and tests for a differences in attitudes and perceptions toward MIS between Hispanic males and females.

The Sample

The sample was drawn from a cross-section of students at a Historically Minority-serving Institution (HMI) in Southwestern United States. The students were enrolled in introductory level business core courses that were also open to non-business majors. Each student was sent an e-mail invitation to participate in the survey. No financial incentives were given to the students for completing the survey, although some instructors offered bonus points for participation.

145 surveys were completed and submitted. Of these, 126 were usable. Since the study focuses on the attitudes of Hispanic students, non-Hispanics were excluded from the analysis. This resulted in a total sample size of 114.

Demographics

A total of 114 Hispanic business majors submitted usable surveys. Of these respondents, 55 were male and 59 were female. By class standing 7 were Freshmen (males =4, females = 3), 30 were Sophomores, (males =15, females = 15), 54 were Juniors (males =23, females = 31) and 23 were Seniors (males =13, females = 10). In terms of self-reported grades, 1 reported a GPA of less than 2.000, 23 reported a GPA of 2.000 to 2.499, 36 reported a GPA of 2.5000 to 3.000, 30 reported a GPA of 3.000 to 3.499 and 24 reported a GPA of 3.500 or higher. Among the respondents, 31 were Accounting majors, 37 were Business Administration majors, 3 were Economics majors, 16 were Finance majors, 10 were Management Majors, 9 were MIS majors, 7 were Marketing majors and 1 was a double major.

Results

Attitude Toward MIS Educational and Career Goals

The first series of questions was taken from Beyer (2004). The respondents are asked to indicate the extent of their agreement with four statements about MIS educational and career goals. Responses are measured on a 5-point scale from 1 = Strongly Agree to 5 = Strongly Disagree.

The first statement asserts that “A career in MIS would give meaning to one’s life.” The mean response for males was 2.98. The mean response for females was 2.85. The difference is not statically significant.

The second statement asserts that “A degree in MIS would enable one to help others.” The mean response for males was 2.58. The mean response for women was 2.46. The difference is not statistically significant.

The third statement asserts that “A degree in MIS would enable one to earn lots of money.” The mean response for males was 2.60. The mean response for females was 2.47. The difference is not statistically significant.

The fourth statement asserts that “Doing well in MIS would enhance career opportunities.” The mean response for males was 2.38. The mean response for females was 2.24. The difference is not statistically significant.

None of the differences between male and female responses to these statements is statistically significant. However, females seem to have a consistently better attitude toward a career in MIS, responding on average about 5% more favorably than males to the statements.

Attitude Toward MIS Courses and Instructors

The second series of questions was taken from Beyer (2004).The respondents are asked to indicate the extent of their agreement with four statements about their experience with MIS courses and instructors. Responses are measured on a 5-point scale from 1 = Strongly Agree to 5 = Strongly Disagree.

The first statement asserts that “The atmosphere in the MIS department is personal.” The mean response for males was 2.98. The mean response for females was 3.25. The difference is not statically significant.

The second statement asserts that “MIS faculty try to make students feel comfortable in coursework.” The mean response for males was 2.73. The mean response for females was 2.41. The difference is not statistically significant.

The third statement asserts that “MIS faculty are sensitive to the needs of students.” The mean response for males was 2.62. The mean response for females was 2.56. The difference is not statistically significant.

The fourth statement asserts that “MIS faculty expect too much.” The mean response for males was 3.09. The mean response for females was 3.20. The difference is not statistically significant.

None of the differences between male and female responses to these statements is statistically significant. However, females seem to have a consistently better attitude toward a career in MIS, responding on average about 5% more favorably than males to the statements.

Attitude Toward The Social Impact Of An MIS Career

The final series of questions was taken from Beyer (2004). The respondents are asked to indicate the extent of their agreement with four statements about their perceptions regarding the social impact of choosing a career in MIS. Responses are measured on a 5-point scale from 1 = Strongly Agree to 5 = Strongly Disagree.

The first statement asserts that “Students majoring in MIS are popular.” The mean response for males was 3.07. The mean response for females was 3.29. The difference is not statically significant.

The second statement asserts that “Computer related majors interfere with social life.” The mean response for males was 3.04. The mean response for females was 3.56. The difference is statistically significant.

The third statement asserts that “It is difficult for men to combine a family and a career in MIS.” The mean response for males was 3.16. The mean response for women was 3.63. The difference is statistically significant.

The fourth statement asserts that “It is difficult for women to combine a family and a career in MIS.” The mean response for males was 3.02. The mean response for females was 3.56. The difference is statistically significant.

Students do not perceive MIS majors to be popular. Females seem to be more concerned about this lack of popularity than males, but the difference in attitude is not statistically significant.

Students generally do not believe that choosing an MIS major would interfere with their social lives or the family lives of anyone, male or female, choosing to pursue an MIS career. There is however, a difference in attitudes about the social impact between males and females, with females have significantly stronger disagreement with the concept that an MIS career would interfere with social or family life. This seems to disagree with the general theme found in the literature regarding the digital divide between men and women.

Summary

This study examines the attitudes of Hispanic students toward a career in MIS. Using a sample of students from a Historically Minority-serving Institution (HMI) in a southwestern U.S. state, we assess students' overall attitudes and examine whether gender differences exist regarding perceptions of MIS educational and career

goals, attitude toward MIS courses and Instructors, and attitude toward the social impact of an MIS career. Though the differences are not statistically significant, we find that females tend to have a more favorable attitude than males toward MIS educational and career goals, and MIS courses and instructors. Students generally do not perceive MIS majors to be popular and, while the difference between genders is not statistically different, females seem to be more concerned about this lack of popularity than males. There is, however, a statistically significant difference in the perceptions of males and females regarding the impact of an MIS career on social and family relationships. While neither gender believes an MIS career will negatively impact their social or family lives, females seem to be significantly less concerned about this impact than males.

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Preparing Students to Enter International Business

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ABSTRACT

The growth of Internet connectivity has enhanced many organization's ability to engage in international business. Success factors focus on properly addressing culture, geography, climate, education, economy, politics, laws, religion, transportation, population, technology, fluctuating exchange rates, accounting standards, natural resources, and dissimilar ethical standards in countries of trade.

Most US students enter higher education with naïve perceptions of international business as they have limited culture exposure. Textbook content provides familiarity with terms and concepts; case analyses develop critical thinking skills; and presentations encourage organization and public speaking, but this provides only a rudimentary preparation for entering international business. Simulation games can enhance methodology by providing students with an opportunity to address issues in a world of realistic interactive business simulation.

At Texas A&M University-Texarkana, the senior-level international business course includes a strategy simulation game to provide student teams an exposure to the complexity of global business operations in a dynamic, competitive environment. Teams representing mobile telecommunication companies compete by making international business strategy decisions in different areas of international business management such as marketing, finance, logistics, investments, and production. Teams are evaluated based on the cumulative total shareholder return, which indicates the value created for the company's shareholders over the period under play.

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Mathematical Feedback Model of Trade, Economy, and Environmental Quality: Application to the CAFTA-DR Region

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ABSTRACT

The relationship between trade openness, economy, and environmental quality has been studied for many years but the results have been inconclusive. In this paper, we attempt to shed some light on the relationship by simulating a mathematical deterministic model based on a feedback approach. The model uses SO₂ emissions as a proxy for environmental quality, population, export and import volume, economic level (GDP per capita), environmental standards, and the perception that MNCs have of environmental standards enforcement as the main variables. The mathematical feedback model we developed is based on the characteristics of the countries in the CAFTA-DR region (Guatemala, Honduras, El Salvador, Nicaragua, Costa Rica and the Dominican Republic). The model provides a glimpse of the trade scenarios a relatively new trading bloc such as CAFTA-DR may present.

Keywords: Trade, Economy, Environmental Quality, CAFTA-DR, Mathematical Feedback Loop Model

Mathematical Feedback Model of Trade, Economy, and Environmental Quality: Application to the CAFTA-DR Region

Introduction

The Central American Free Trade Agreement (CAFTA-DR) is a trade agreement between the United States and five Central American countries: Guatemala, Honduras, El Salvador, Nicaragua, Costa Rica and the Dominican Republic. CAFTA-DR is unique in that it is the first free trade agreement between a large and developed country (the United States) and a group of smaller countries that are considered developing economies. The initial intent of this trade agreement was the creation of new economic opportunities through the traditional free trade arrangements that include the elimination of tariffs, the opening of markets to foreign investors, the reduction of barriers to services, and the promotion of transparent practices that altogether are designed to facilitate trade and investment among the seven member countries and further increase regional integration (Hornbeck, 2005a; USTR, 2005). This free trade agreement also provides the United States a chance to pursue other issues of commercial importance such as intellectual property rights, environmental and labor regulations, government procurement, e-commerce, and financial services (Hornbeck, 2005b).

The CAFTA-DR region was the 15th largest U.S. export market in the world in 2010, and the third largest in Latin America behind Mexico and Brazil. The United States exported \$24.2 billion in goods to the five Central American countries and the Dominican Republic in 2010, an increase of 21% over 2009. For the five-year period that CAFTA-DR has been in force (2006-2010), U.S. exports grew by 43%. Before CAFTA-DR was implemented, the percent growth during 2001 and 2005 was 25%. U.S. exports to all the CAFTA-DR countries have experienced significant growth during the first five years of the agreement (Export.gov, 10/11/2012). In summary, the CAFTA-DR constitutes an attractive region for furthering foreign investment and fostering trade.

CAFTA-DR member countries such as Costa Rica have a good record of environmental standards (OECD, 2007). However, several studies show that regionalization can significantly affect the environmental quality when trade and FDI increase. On the other hand, in general, increases in trade volume are good for the overall economy of a country. Thus, studying the relationship between trade, economy, and environmental quality as separate factors does not provide a thorough understanding of the trade-off that each country needs to make. In this paper, the deterministic model we developed should help to better understand the relationship between trade, the economy, and environmental quality as a whole.

The majority of the current literature focuses on the unidirectional relationship of trade effects on environmental quality, the economic effect on environmental quality, or the environmental quality effects on trade. In this paper, we argue that the relationships between these factors are bi-directional and every change has a feedback effect. The mathematical feedback model we developed is based on the characteristics of the countries in the CAFTA-DR region. The model produces provides a glimpse of the trade scenarios a new trading bloc such as CAFTA-DR may present.

Literature Review

Some business analysis predicted that CAFTA-DR would consolidate and encourage further economic and domestic legislative reforms that will improve the enforcement level in areas like intellectual property rights, labor and environmental regulations. All CAFTA-DR countries have labor and environmental regulations and policies in place, but not always have the capacity and the resources to enforce the laws and regulations. As investments increase and the institutions become more effective, the net impact of these efforts is expected to be positive (Doughman, 2004; Kose & Rebucci, 2005; Walecki, 2007).

Trade and Environmental Regulation

The links and relationship between environmental degradation and economic activity are complex and difficult to predict. Similarly, the links and relationship between foreign direct investment (FDI), trade openness and environmental use are complex and not easily determined. It is presumed that any impacts of trade openness, foreign direct investment and the environment have a two-way impact and are circumstantial (Managi, Hibiki, & Tsurumi, 2009).

The linkage between trade and environmental protection has been a controversial subject. Table 1 provides a summary of the main arguments of the pro-environment and the pro-trade positions.

Table 1. Pro-environment and pro-trade arguments

Pro-environment group	Pro-trade group
<ul style="list-style-type: none"> • Trade damages natural resources • Trade allows environmentally harmful goods and processes to transfer to “pollution haven countries” in exchange for economic gains • Trade undermines existing environmental protection laws • Trade affects international environmental agreements 	<ul style="list-style-type: none"> • Trade enhances economic development • Trade-derived income can improve environmental management and disseminate environmentally sound technology • Trade provides incentives for environmental policy reform • Trade enhances environmental harmonization among countries

Table adapted from: (Jayadevappa & Chhatre, 2000)

Grossman and Krueger (1995) pioneered research that studies the relationship between economic variables and the environment. They discovered an inverted-U relationship between per capita income and air quality measurements when studying data from 42 countries (Grossman & Krueger, 1995). Following the framework established by Grossman and Krueger, many other scholars have been using “emissions” data as a proxy for all forms of environmental quality. Further research established that the amount of emissions an economy generates depends on three essential factors: the size of the economy (or scale effect), the share emissions produced by different industrial sectors (or composition effect) and the intensity degree of the emissions in those sectors (or technique effect). In other words, any change in pollution emissions can be decomposed into scale effects, composition effects and technique effects.

The *scale effect* refers to the size of the economy. This means that an increase in emissions is associated with a larger GDP, provided that the share of emissions and the intensity of the emissions remain constant. The *composition effect* refers to the emissions output share. Some industries generate more emissions than others. With a constant size of the economy (scale effect) and no change in emissions intensities per industry, a rise in the share of emission intensive goods (or dirty goods) would increase the total pollution. The *technique effect* refers to a change in the amount of emissions per unit of output across sectors (an emissions-intensity change). For example if producers improve technologies as a response to a higher pollution tax, then pollution should decrease, *ceteris paribus*. This methodology has been used to analyze the impacts on the environment of trade liberalization and FDI (Antweiler, Copeland, & Taylor, 2001; Grossman & Krueger, 1995; He, 2006).

Trade Openness and Pollution

The most prominent study on trade openness and pollution was done by Antweiler et al. (2001). They studied the effects of trade liberalization on air pollution. Specifically they found that international trade creates relatively small changes in Sulfur dioxide (SO_2) concentrations. The Sulfur dioxide (SO_2) concentrations decrease proportionally as GDP per capita increases. In addition, they found that the related *scale* and *technique*

effects reduce pollution. Their general conclusion for their sample was that an increase in trade openness reduces air pollution on average (Antweiler, et al., 2001).

Many scholars have argued that the relationship between trade and the environment cannot be forecasted nor determined theoretically since the effects of trade on the environment are the a combination of multiple effects such as the economic activity or a nation, the promotion of cleaner production processes and environmentally friendly technologies, as well as government policies (Antweiler, et al., 2001; Bommer & Schulze, 1999; Copeland & Taylor, 2004; Feiock & Stream, 2001; Grossman & Krueger, 1995).

There are many other studies following the model proposed by Antweiler, et al. (2001). For example, Gale and Mendez (2001) found that higher per capita income is associated with improved environmental quality, but that increases in economic activity degrade the environment. They also find evidence that countries with high capital abundance tend to favor capital-intensive industries, which are usually high-emissions industries and therefore pollution increases in those countries. But increases in labor and land abundance decrease pollution (Gale & Mendez, 1998).

Frankel and Rose (2005) found little evidence that trade openness increases air pollution. Their findings indicate that trade openness seems to have a positive effect on some measures of air pollution such as SO_2 (Frankel & Rose, 2005). Chintrakarn and Millimet (2006) also found evidence of the positive impact trade has on pollution levels (Chintrakarn & Millimet, 2006).

A more recent study by Managi, Hibiki and Tsurumi (2009) expanded the framework and argued that the effects of trade on the environment depend on the pollutant and the country. In general, they found that in OECD countries the environment benefits from trade. However, in non-OECD countries trade has detrimental effects on sulfur dioxide (SO_2) and carbon dioxide (CO_2) emissions. They also determined that the trade impact on emissions is small in the short term, but in the long term it is large (Managi, et al., 2009).

The Pollution Haven Model and Hypothesis

Another approach to study the trade-environment linkage is in terms of how the governmental protection standards are impacted by FDI and trade. The well-known “race to the bottom” argument is a theoretical scenario that would occur when competition between nations would lead to the progressive dismantling of environmental regulatory standards. In this theoretical scenario, if the competitive advantage of one country is achieved by reducing the environmental regulations of a firm, then competing firms in other countries will demand even weaker regulation from their governments. This will create a spiral effect where environmental regulation reaches minimal levels in the countries. Some scholars state that the attraction of high emission (dirty) industries to a country with lenient environmental standards creates a pollution haven or a concentration of polluting industries in that country. A corollary to the *pollution haven hypothesis* (PHH) is that the governments of developing countries do not have another choice but to destroy their environment or face the possibility of high unemployment and social unrest (Copeland & Taylor, 2004; Daly, 1997; Lofdahl, 2002; Xing & Kolstad, 2002).

The *pollution haven hypothesis* (PHH) has been studied extensively. The original analysis by Copeland and Taylor (2004) was mostly applied theory. Their two-country static general equilibrium model of international trade with a continuum of goods differentiated by their pollution intensity was the framework from which they derived their concept. The model was designed to reflect the differences in industrial production pollution intensity, the unequal distribution of income worldwide, and that environmental quality is considered a normal good (Copeland & Taylor, 2004). The scholars used the model to predict trade patterns and pollution levels and postulated what became known as the *pollution haven hypothesis*. In simpler terms, the *pollution haven hypothesis* is generated when countries differ only in human capital levels, which means that the transition from autarky to free international trade in goods leads to the relocation of dirty goods production to low income, low environmental regulation country from the high income strict environmental regulation country. Their

model also provided two corollaries: Pollution rises in the lax regulation country and falls in the tight regulation country. In other words, world pollution rises with trade because the world's dirtiest industries locate in the country with the lowest environmental standards (Copeland & Taylor, 2004; Ederington, 2007; Taylor, 2004).

The main criticism of the model is that it is an oversimplified model because there are no two countries in autarky conditions. In addition, even though the statement of the *pollution haven hypothesis* is easily understood, it has proven difficult to test empirically with real data since conditions of autarky are non-existent in the world. To make inferences about the actual pattern of trade, it would be necessary to weigh the influences derived from environmental policy against other determinants of trade. Unfortunately the authors provided no guidance as to how empirical work should go about weighing these various influences and subsequent empirical work yielded conflicting results (Millimet & List, 2004).

In later studies, Taylor (2004) and other researchers make a further distinction between the so-called *pollution haven effect* and the *pollution haven hypothesis*. The *pollution haven effect* states that the tightening of environmental regulation will have an effect on trade flows and the location decisions of a firm (Ederington, Levinson, & Minier, 2004; He, 2006; Javorcik & Wei, 2004; Levinson & Taylor, 2008; Taylor, 2004).

Research exploring "pollution haven" questions using both empirical and theoretical methods is abundant. The recent research has expanded into new areas, and also has questioned the assumptions made in the original Copeland & Taylor analysis. Research using the "pollution haven" concept related to the location of industries and regional integration is quite varied. The following research studies are relevant and related to this line of research.

An empirical study done by Levinson and Taylor (2008), found evidence that changes in environmental stringency affected U.S. imports. They also provided a theoretical demonstration of the existence of a *pollution haven effect* in trade patterns and in environmental regulations (Levinson & Taylor, 2008).

Kahn and Yoshino's (2004) findings complement Levinson and Taylor's (2008) findings. They found evidence of the existence of the *pollution haven hypothesis* outside regional trade agreement blocs. Their conclusion was that participation in a regional trading block decreases the *pollution haven effect* observed outside of regional trading blocs (Kahn & Yoshino, 2004).

McDermott (2006) found evidence for the pollution haven hypothesis in the NAFTA region for the period from 1982 to 1999 (MacDermott, 2006). A more recent study by Kellenberg (2009) found a statistically significant pollution haven effect on U.S. outward multinational affiliate production. In addition, his conclusions that less polluting industries are more affected by environmental regulations than high polluting industries, and that the enforcement of the environmental regulations rather than the amount of environmental regulations is a deterrent of pollution support Ederington et al.'s (2005) findings (Ederington, Levinson, & Minier, 2005; Kellenberg, 2009).

Another study by Botcheva-Andonova, Mansfield and Milner (2004) found evidence of the *pollution haven hypothesis* and the "race to the bottom" argument in Central and Eastern Europe after the Iron Curtain fell. The authors found that as FDI and trade openness increased, the governments in the region placed less emphasis on the implementation of strict environmental policies. Their study concludes that the costs of production increased due to stringent environmental regulation. This in turn, made import-competing firms to be pushed out of the competition by exporting firms and less expensive foreign products. In other words, as firms demanded lower environmental standards, the governments lost their ability to enforce regulation and collect taxes. However, Botcheva-Andonova et al. (2004) also emphasize that during the period they studied, environmental regulation was practically non-existent and environmental concerns were minimal (Botcheva-Andonova, Mansfield, & Milner, 2004).

Finally, Dean et al. (2009) found no evidence of pollution haven seeking behavior of OECD firms in China. They also found that highly polluting Chinese industries in Hong Kong, Macao and Taiwan were significantly deterred by pollution taxes. They attribute this phenomenon to the fact that companies tend to introduce cleaner technologies and new processes to avoid taxation (Dean, Lovely, & Wang, 2009; Zeng & Eastin, 2007).

Research by Busse (2004) also explored the linkages between international trade flows and environmental regulations and. In his empirical study, there was no evidence to support the *pollution haven hypothesis* except for the iron and steel industries. He found evidence that as countries have more stringent environmental regulations, the trade in the iron and steel industries is reduced (Busse, 2004).

Eskeland and Harrison (2003) worked with data for Mexico, Venezuela, Morocco and Ivory Coast. They found evidence that foreign firms tend to be less polluting than their domestic equivalents, and thus that there was no evidence of the *pollution haven hypothesis* in those countries. Therefore, they suggest that governmental policy makers should focus on developing specific pollution control policies as opposed to regulating investment (Eskeland & Harrison, 2003).

Birdsall and Wheeler challenge the *pollution haven hypothesis*. They argue that the increase in foreign investment and trade in Latin America has not been related to pollution-intensive industrial development. They conclude that trade openness actually promotes the development of cleaner technologies through the environmental standards foreign companies bring to the country. Thus, closed economies would be the ones more likely to have pollution intensive industries (Birdsall & Wheeler, 1993).

Research Methodology

In this study, a deterministic mathematical model was developed to analyze the effects of the trade on the environmental quality of a host country. The mathematical model has a theoretical foundation and follows logical reasoning. In simple terms, the model incorporates the actions of MNCs and the government of the host country using the feedback approach.

The feedback approach is a method used in the engineering's control theory (Ogata & Yang, 1990). This approach is based on the concept that every action has feedback and the feedback can be positive or negative. A positive feedback will reinforce the initial action while a negative feedback will counterbalance the initial action. The feedback approach has been used in social science research mainly on the simulation approach method such as system dynamics and agent-based modeling (Epstein & Axtell, 1996; Sterman, 2000). The feedback approach has also been applied to analyze environmental policies and sustainability (Georgiadis & Besiou, 2008).

Mathematical models with feedback approach have been used by several researchers in the international business arena. There are examples of using mathematical models with feedback approach for international business research such as trade relationships (Saeed, 1998), foreign direct investment (Samii & Teekasap, 2010), and regionalization (Frutos, Teekasap, & Samii, 2011).

The mathematical feedback model suggested in this paper is developed based on the characteristics of CAFTA-DR members and focuses on the relationship between trade, economy, and environmental quality. The details of the model are explained in the next section.

Model

This paper presents a mathematical feedback model through mathematical equations as well as the use of stock and flow diagrams. The stock and flow diagrams can show the relationship between each factor and

illustrate how each factor interacts with each other in the feedback loops. Due to the characteristics of the data that is published on the annual basis, a discrete equation is used. Since time series data is used, the subscript t is used to identify the time of the variable.

First, we start with the environmental quality. Sulfur dioxide (SO₂) emissions are used a proxy for environmental quality. The SO₂ emissions (E) vary with the GDP (Y) and the GDP per capita (YC). Due to the scale effect, increased in GDP will increase the SO₂ Emission (Grossman & Krueger, 1995). For the GDP per capita, a higher per capital income is negatively associated with the SO₂ emission level (Antweiler, et al., 2001). The relationship is illustrated in Figure 1

$$E_t = \alpha_0 + \alpha_1 Y_t + \alpha_2 YC_t \quad (1)$$

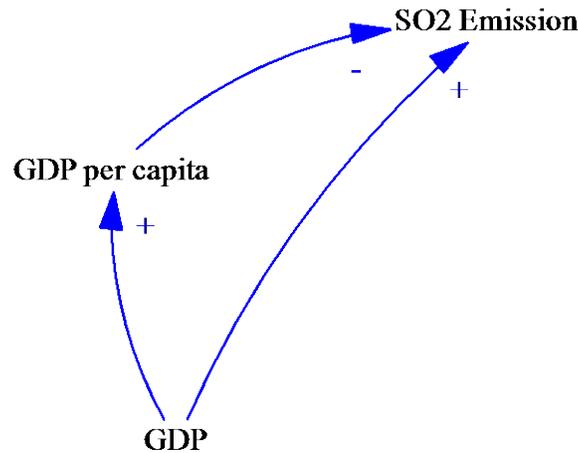


Figure 1 SO₂ emission, GDP, and GDP per capita

The GDP per capita is calculated by dividing the GDP by the population (N). Even though the population increases continuously, due to the characteristics of the data, a discrete equation is used for the population. It is assumed the population increases at a constant population growth rate (g). The relationship described is illustrated in Figure 2.

$$YC_t = Y_t/N_t \quad (2)$$

$$N_{t+1} = N_t(1+g) \quad (3)$$

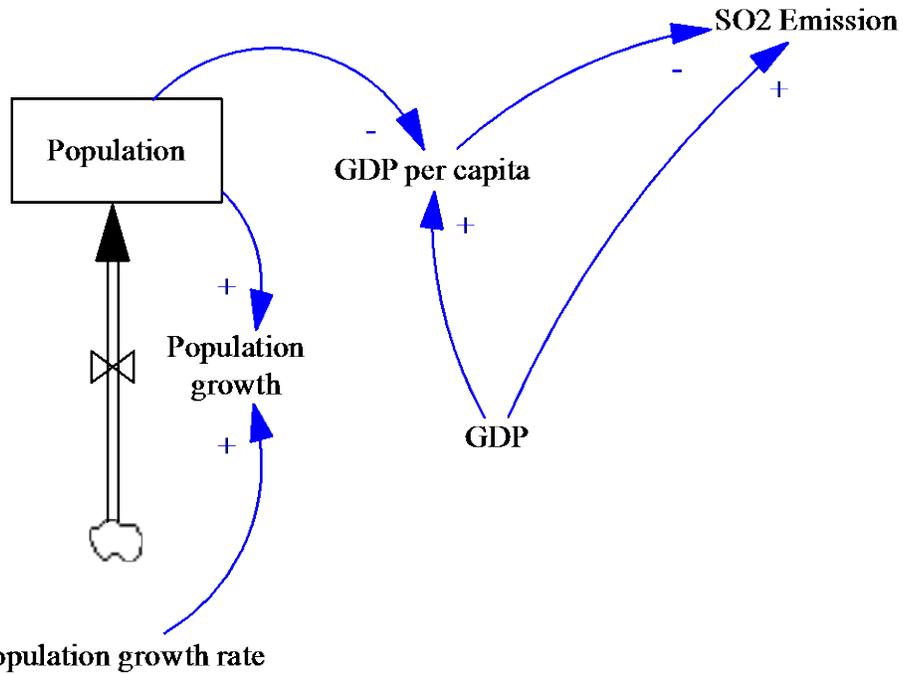


Figure 2 GDP per capita and the population

The GDP is the sum of the consumption (C), investment (I), government spending (G), and the trade balance which is the export (X) minus import (M). The consumption, investment, and the government spending are not in the scope of this model. Therefore, these variables are modeled as constant as shown in Figure 3.

$$Y_t = C + I + G + X_t - M_t \quad (4)$$

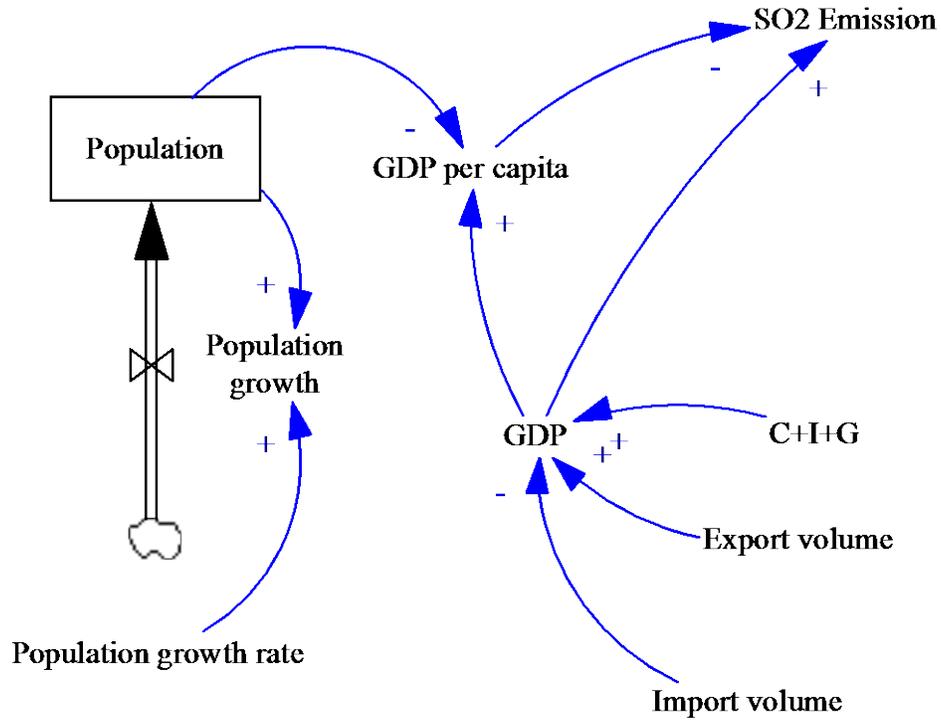


Figure 3 GDP Calculation

High SO₂ emissions will create a concern (Φ) for the population of CAFTA-DR members. In this model, the SO₂ emission threshold (T) is used to measure the level that the citizens of CAFTA-DR members think they should publicly demand for a better environmental quality. However, the relationship between the emissions and the concern is a non-linear relationship. The relationship is an S-shaped relationship which represents the situation when emissions are low and the public does not have a concern, but when emissions are higher, a few people begin to be concerned and the number of people concerned about the environment will grow with increases in the level of emissions. Finally, the concern levels out when almost all people become aware of the emission problem (Sterman, 2000). It is assumed that people concerned about environmental quality will affect the popular of the government. When the demand is strong, the government is pushed to improve the environmental standards (S) to reduce the SO₂ emissions. The relationship is illustrated in Figure 4.

$$\Phi_t = f(E_t/T_t) \tag{5}$$

$$\Delta S_t = \beta_0 + \beta_1 \Phi_t \tag{6}$$

$$S_{t+1} = S_t + \Delta S_t \tag{7}$$

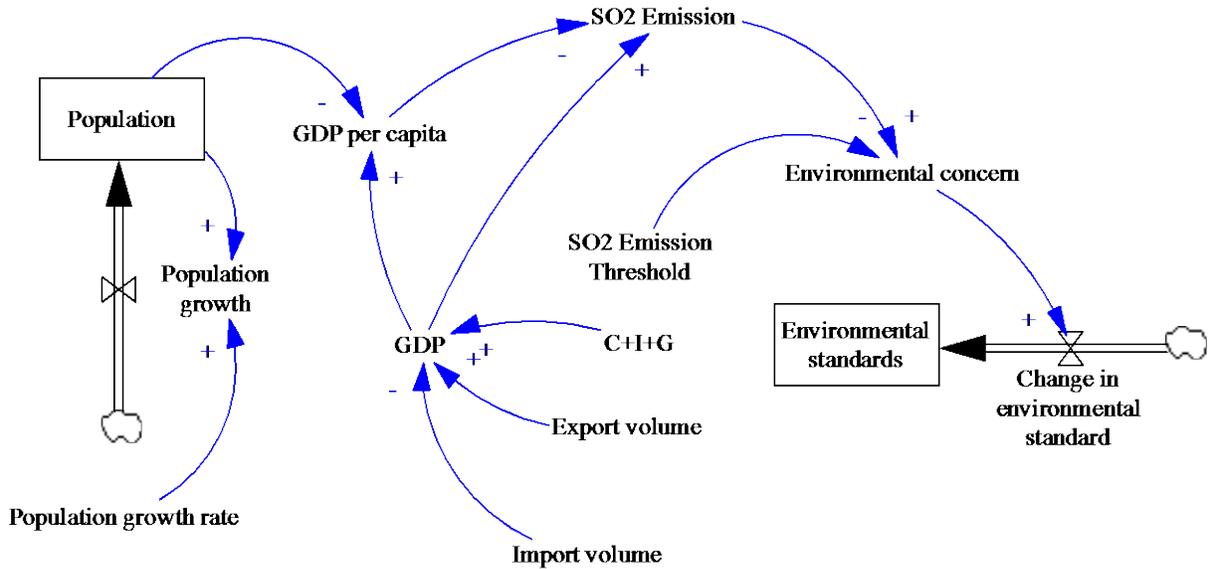


Figure 4 Environmental concern and Environmental standards

Countries in the CAFTA-DR region have environmental standards but, due to the limited capacity and resources, these standards are not strictly enforced. MNCs determine if the standards are strictly enforced through the level of emission that it should be comparing to other countries with the same regulation. In this model, the SO₂ emissions level is used to determine the perception that MNCs have on the enforcement strictness of environmental standards (P). When considering enforcement strictness of environmental standards, the emission levels are compared with the average emissions level of other countries that have the same level of standards (A). The relationship between the perception on the enforcement strictness of environmental standards and the emissions level is non-linear. The relationship has an inverse S-shape form, which shows that the perception on the strictness will be lower if the emission is higher until the MNCs perceive that the standard is not enforced (Sterman, 2000). The relationship is shown in Figure 5.

$$A_t = \gamma_0 + \gamma_1 S_t \quad (8)$$

$$\Delta P_t = g(E_t/A_t) \quad (9)$$

$$P_{t+1} = P_t + \Delta P_t \quad (10)$$

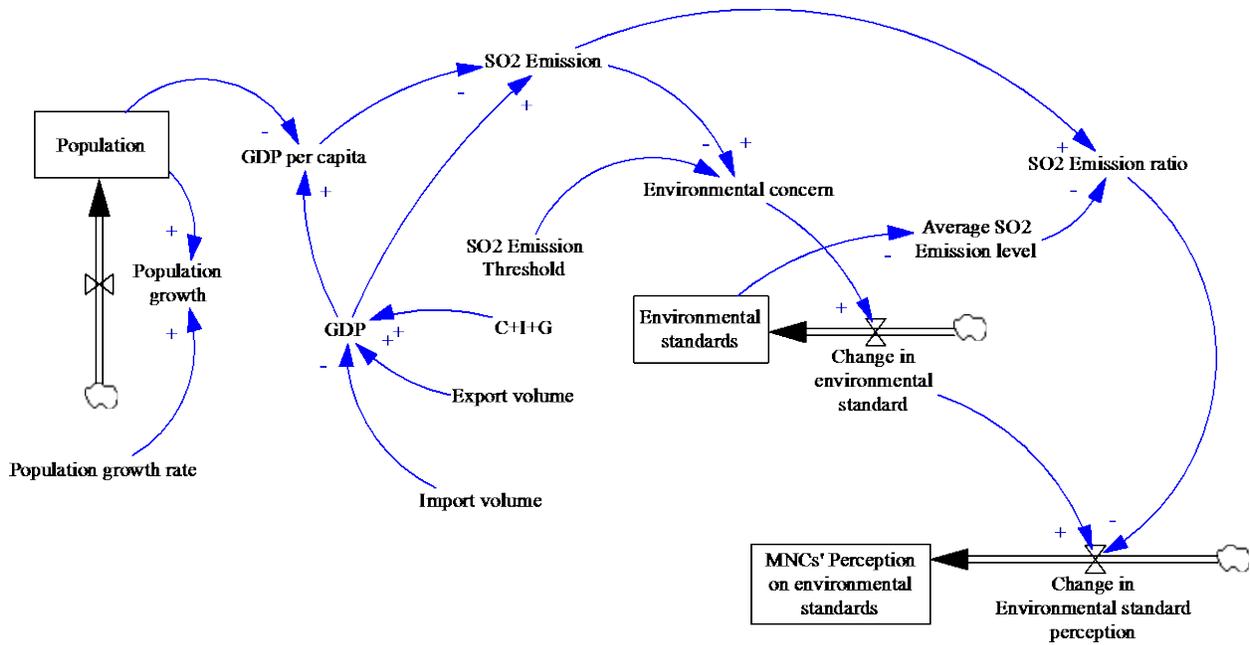


Figure 5 Perception on the enforcement strictness of environmental standards

It is assumed, that the environmental standard and the perception that MNCs have over the standard enforcement affect the export and import volume. Strict environmental standards benefit exporting because the local firms can export products to more countries. However, strict environmental standards and the perception that the standards are strongly enforced will reduce the import volume because fewer products comply with the standard. In addition, if the per capita income is high, people will demand more imported products. The relationship is illustrated in Figure 6.

$$X_t = \delta_0 + \delta_1 S_t \quad (11)$$

$$M_t = \varepsilon_0 + \varepsilon_1 S_t + \varepsilon_2 P_t + \varepsilon_3 YC_t \quad (12)$$

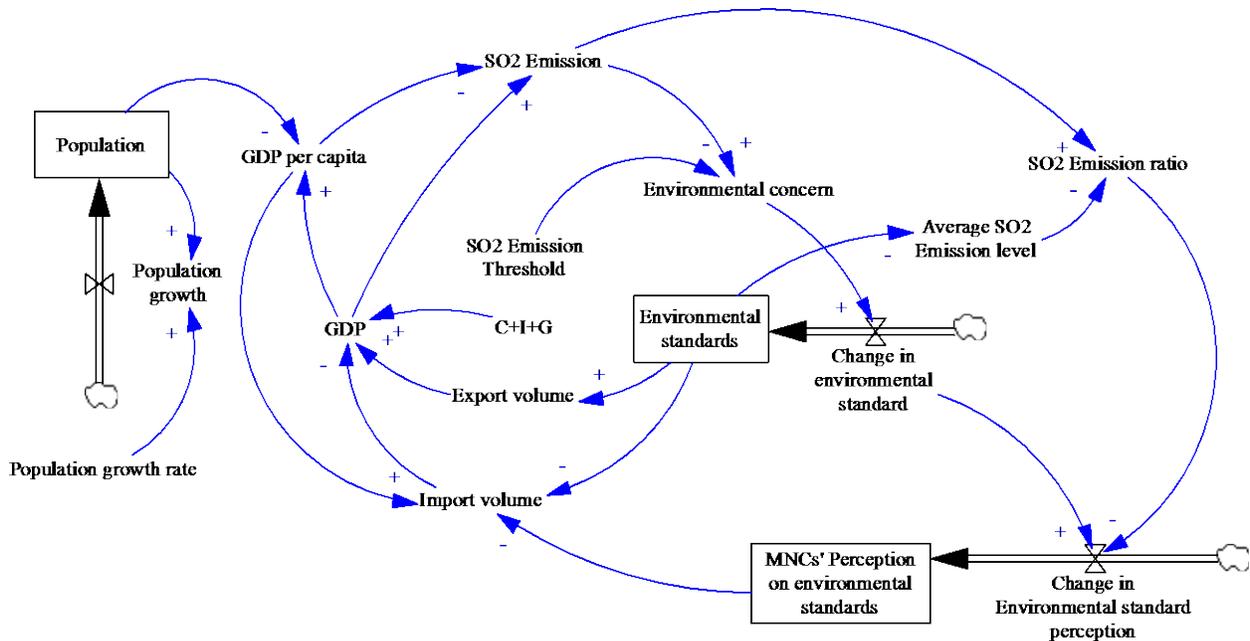


Figure 6 Complete model

The Relationship between Trade, Economy, and Environmental Quality

The model consists of multiple causal loops that illustrate the relationships between the factors that are related to environmental quality. More specifically, the model includes variables representing environmental quality, environmental standards, the economy, trade, and the perception of MNCs.

The causal loops in the model can be grouped into two types – positive loop and negative loops. In a positive loop the feedback reinforces the initial action. In a negative loop the feedback counteracts the initial action. In other words, if SO₂ emissions increase, the feedback from the positive loops will drive the emissions to be even higher, whereas the feedback from the negative loop will reduce the emissions.

In the model, there are three main positive loops. The first two loops illustrate the situation when the SO₂ emissions increase, the public becomes more environmentally-concerned. Hence, the environmental standards will either increase or be stricter. An increase in environmental standards will reduce the import volume as well as strengthen the export capability. An increase in exports with a reduction in imports will improve the economy of the country as measured by a higher GDP. From the literature, a higher GDP is correlated with higher SO₂ emissions. Another positive loop illustrates the situation when emissions increase above the average emission level of countries with similar environmental laws, MNCs perceive that the regulation is not strictly enforced or implemented. Therefore, products that are at the margin of environmental requirements will be imported more. More imports will reduce the GDP as well as the GDP per capita. From the literature, a lower GDP per capita is correlated with higher SO₂ emissions.

There are four negative loops in the model. The first two loops reflect the situation that when SO₂ emissions increase, a more environmentally concerned public results in the improvement of environmental standard. Tougher environmental standards increase exports and reduce imports which increase the GDP as well as GDP per capita. A higher GDP per capita is correlated with lower SO₂ emissions. Another negative loop is when SO₂ emissions increase, MNCs perceive that the environmental regulation is not strictly enforced, which will in turn increase imports. Higher imports lower the GDP which is correlated with lower SO₂ emissions. The last negative loop is when the GDP per capita increases, people will have more purchasing power and they would want more imported products, which in turn increases the import volume. A higher import volume will reduce GDP as well as GDP per capita.

Conclusion and Implications

In this paper, we developed the mathematical feedback model to better understand the relationship between trade, economy, and environmental quality. The model was developed based on the characteristics of the countries in the CAFTA-DR region which are developing countries with weaker environmental regulations than developed countries. The model incorporates variables that represent environmental quality, population, export and import volume, economic level, environmental standards, and the perception of MNCs toward the enforcement of environmental standard.

The model shows that the relationship between environmental quality, economy, and the trade is complex. An increase in SO₂ emissions can stimulate pressure from an environmentally-concerned public which can lead to an increase in environmental standards. Tougher environmental standards tend to increase the GDP of a country which can have both a positive and a negative effect on environmental quality. A higher GDP is correlated with higher SO₂ emissions whereas higher GDP per capita tends to reduce the SO₂ emissions. Higher SO₂ emissions can also be interpreted as the enforcement of the environmental standards not being strict enough. Therefore, products that do not fully meet the environmental requirements may be imported into the country, which reduces the GDP and has both a positive and a negative effect on the environmental quality as mentioned before.

This deterministic model can be developed further into a simulation model based on empirical data. The simulation model developed from the mathematical feedback model proposed in this paper can be used by scholars, practitioners, and governments to analyze the relationship between the environment, trade, and the economy. Practitioners can use the simulation model to analyze the effect of trade on the environment and also to determine an international trade strategy that minimizes negative environmental effects. Governments can also use this simulation model in planning international trade public policy and environmental quality policies.

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Border Trade and Regional Integration

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ABSTRACT

There is very little study in border trade between neighboring countries, which is one important aspect of regional integration. This paper fills the gap by examining the pattern and determinants of China's border trade with its twelve neighboring countries. First, we use the disaggregated firm-product level trade data during 2000-2006 to provide a detailed overview of border trade growth and dynamic. Second, we use gravity model to investigate the determinants of border trade. The results suggest that multilateral, regional, and bilateral integration and collaborations play important roles in promoting the border trade. Increasing market size and economic growth in the neighboring countries significantly encourage China's border exports while the institutional quality of importing countries is negatively related to the border trade. New private firms account for the majority of the border export expansion, and shift the export to more sophisticated structure.

Keywords: Border Trade, Extensive Margin, Intensive Margin, Gravity Model

JEL Code: F10, F12, F14

Border Trade and Regional Integration

1. Introduction

Border trade is defined as the exchange of goods and services across international land borders within a reach of up to thirty kilometers. Studies on border trade are very limited due to the difficulty of recording border transactions and its relatively small scale. While the border trade only accounts for a small proportion of total international trade, it has important effects on economic development of border regions and plays a significant role in regional integration of inland area.

China is an interesting case for the study on border trade. China has experience rapid economic growth but sharply increasing regional disparity. It has been well recognized that international trade is one engine of economic growth, and access to international trade is one driving force of substantial gap between coastal and inland area (Gao, 2004, Fu, 2004, Kanbur and Zhang, 2005). Figure 1 shows the geographic distribution of the regions involving in the border trade. China adjoins 14 countries with its inland border of more than 22,000 kilometers. Eight provinces are involved in border trade: Liao Ning, Ji Lin, Hei Long Jiang, Inner Mongolia, Xin Jiang, Tibet, Yun Nan, and Guang Xi. Most of them are located in the inland area far away from coast line and regional income level is below the national average. For example, Yunnan, Tibet, and Guangxi are least developed area in China¹. Border trade has benefited the local economy by promoting local production and service provision, increasing local employment and household income. Border trade has also strengthened the community ties across borders and facilitated regional integration with neighboring countries.



Figure 1 Map of China

Note: Darker areas with labeled names are border provinces in China. They are Liaoning Province, Jilin Province, Heilongjiang Province, Inner Mongolia Autonomous Region, Xinjiang Uygur Autonomous Region, Tibet, Yunnan Province, Guangxi Zhuang Autonomous Region. The 12 neighboring countries that are included in our data are labeled in dark bolded font. They are People's Republic of Korea, Russia, Mongolia, Kazakhstan, Kyrgyzstan, Tajikistan, Afghanistan, Pakistan, Nepal, Berma, Lao, and Vietnam

There are a few studies on China's border trade, mainly focus on the economic and political relationship between China and specific trade partner. For example, Womack (1994) studied the border trade between China and Vietnam and found that the border trade has significantly improved regional integration of Vietnam and southwestern regions in China. He also found that policy change has played an important role in the border trade. Roper (2000) has examined the effects of Sino-Vietnamese political ties on the economic development of Vietnamese border regions. Cao et al. (2011) has shown that the China-Vietnam border trade structure reflects the comparative advantage, with China exporting technology-intensive manufacturing products to Vietnam. They found that the infrastructure investments on border regions significantly promote the border trade. Kim (1994) suggested that China has become the largest trading partner of Russian Far East since the collapse of the Soviet Union, mostly through the border trade. Wu and Chen (2004) examined Sino-Central Asian economic integration, and found that the border trade liberalization has great impacts on economic development of the border regions. Raballand and Andresy (2007) also emphasized the important role of the Sino-Central Asian border trade in China's Go West policy, and suggested that Central Asia countries to further develop trade ties with China through border trade.

Previous studies focus on specific trade partner and use aggregate data of bilateral trade flow. There is no systematic analysis on China's border trade based on disaggregated trade data. In this paper we fill the gap by providing an integrated perspective of China's border trade with its twelve neighboring countries. We use disaggregated Customs trade dataset which covers all exporters and importers involving in border trade during the period 2000-2006. This micro level trade data provides us a unique opportunity to examine the pattern and determinants of China's border trade.

First, we provide a detailed overview of border trade growth and dynamic at the national level, firm level, and product level. The evidences suggest that trade liberalization has significantly encouraged new firms especially private traders to enter the exporting markets. New private firms account for majority of six fold export expansion, and shift the export to more sophisticated structure. In contrast, China's border imports grow much slower and are dominated by less sophisticated products such as crude materials and mineral fuels.

Second, we use gravity model to investigate the determinants of border trade. We find that multilateral, regional, and bilateral integration and collaborations play important roles in promoting the border trade. Increasing market size and economic growth in the neighboring countries are positively related to China's border exports while the institutional quality of importing countries is negatively related to the border trade.

The remainder of the paper is organized as follows. Section 2 describes the patterns of border trade at the national, firm and product levels. Section 3 contains an analysis of the determinants of China's border trade using the gravity model. Section 4 concludes the paper.

2. The Patterns of China's Border Trade

Data

We use the disaggregated trade transaction data at the 8-digit HS level from Chinese Customs. The dataset covers monthly import and export for the period 2000-2006. We aggregate the dataset to annual frequency. The variables include trade regime, value, quantity, ownership and contact information of the firm (e.g., company name, telephone, zip code, contact person). The statistics are summarized in Chinese Customs Statistical Yearbooks. Our sample covers all trade transactions with trade regime classified as the border trade. China is bordered by Afghanistan, Bhutan, Burma, India, Kazakhstan, Kyrgyzstan, Laos, Mongolia, Nepal, North Korea, Pakistan, Russia, Tajikistan, and Vietnam. Our sample include about 0.2 million product-firm level trade transactions with twelve neighboring countries².

General Patterns of Border Trade

During the sample period, the border trade grew slower than total value of international trade. The total commodity trade in China increased 2.7 times, from USD 474.3 billion in 2000 to USD 1,421.9 billion in 2006. Chinese exports increased by 2.9 times and imports increased by 2.5 times. The border trade has increased by 2.5 times, from USD 4.6 billion in 2000 to USD 16.1 billion in 2006. Figure 2 shows the overall trend of the border trade growth. It shows that the growth of border trade was quite unbalanced. The border exports increased by more than 6 times while the imports grew by only 92%. Another interesting feature of border trade is that China kept on running a trade deficit until 2005, in contrast to increasing trade surplus in total trade during the sample period.

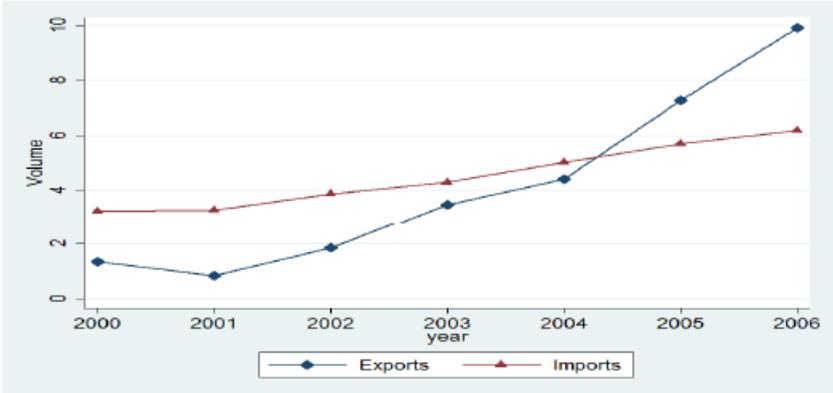


Figure 2 Trend of Border Trade Growth (USD Billion)

Figure 3 shows the industry composition of the border trade. Manufacturing products accounted for more than 85% of border exports during the period 2000-2006. In contrast, main products in border imports are crude materials and mineral fuels, and manufactured products only account a small portion of border imports.

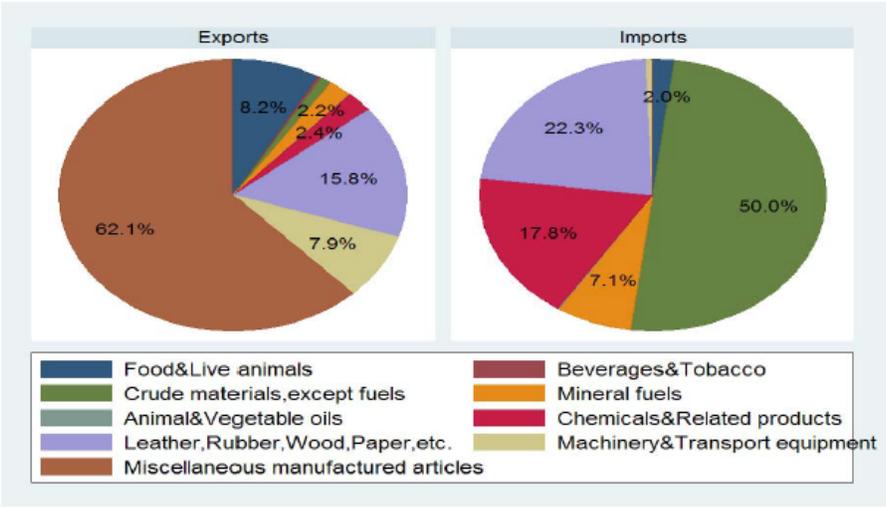


Figure 3 Industrial Composition of Border Trade

We use the definition and methodology in Rodrik (2006) to calculate the sophistication of China’s border trade as the follows:

$$Soph_t = \sum_i \theta_{it} h_i \quad (1)$$

where θ_{it} is the export (or import) share of HS 6-digit product i in year t and h_i is the sophistication of product i .

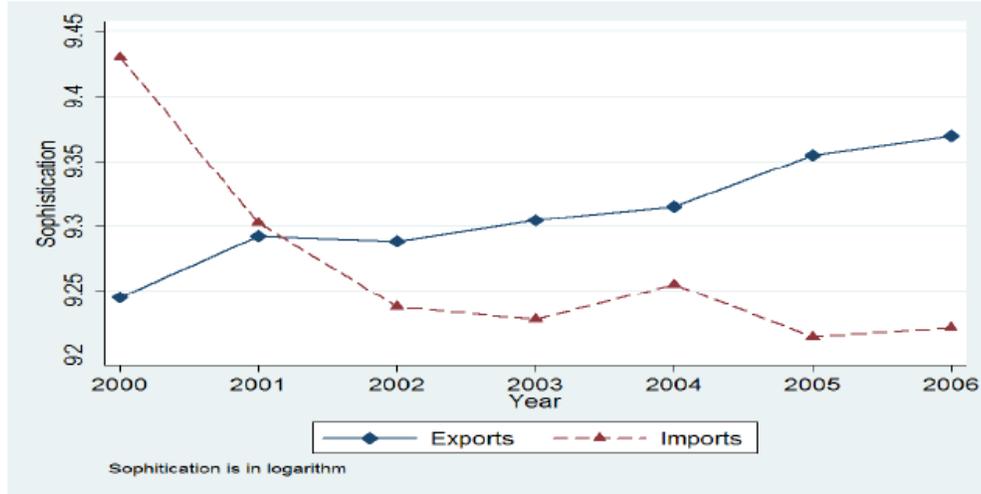


Figure 4 Export and Import Sophistication

Figure 4 describes the change of sophistication of the border trade and suggests that the sophistication of border exports significantly increased. This upgrade in border export structure is consistent with previous findings that China's export basket has become more sophisticated and increasingly overlapped with that of more developed countries (Rodrik, 2006; Schott, 2005). Figure 5 also shows an opposite trend in import sophistication, which reflects that crude materials and mineral fuels play a dominant role in China's border imports.

Firm-Level Dynamics of Border Trade

We use micro-level trade data to examine the patterns of both exporters and importers. In 2000 there were only 874 exporters and 1,030 importers involving in the border trade. This is consistent with previous finding that only a small number of firms involve in international trade (Bernard, et al. 2005). The number of traders has significantly increased due to trade liberalization. The number of exporters has increased to 1,694 in year 2006 and the number of importers has increased to 1,595.

We decompose the growth of border trade into extensive and intensive margins. The growth in extensive margin shows the increase of trade value due to new products or entry of new firms. The growth in intensive margin refers to the increase of trade value of existing products or firms. We follow Amiti and Freund (2010) and use the following decomposition equation:

$$\underbrace{\frac{TV_t - TV_{t-1}}{TV_{t-1}}}_{\text{growth}} = \underbrace{\frac{SV_t - SV_{t-1}}{TV_{t-1}}}_{\text{intensive}} - \underbrace{\frac{DV_{t-1}}{TV_{t-1}}}_{\text{extensive}} + \frac{NV_t}{TV_{t-1}} \quad (2)$$

Where TV is the total trade value; SV is the trade value of the survival firms (or products) that continue to trade; DV is the trade value of firms (or products) that exist in the previous year but exit in this period; NV is the trade value of new firms (or products) that enter trading market in this period.

Table 1 Trade Growth in Extensive and Intensive Firm Margins (%)

Period	Exports			Imports		
	Intensive	Extensive	Growth	Intensive	Extensive	Growth
2000-2001	-37	0	-37	-10	12	2
2001-2002	84	33	117	18	0	18
2002-2003	26	64	90	-8	19	11
2003-2004	0	27	27	16	1	17
2004-2005	43	22	65	9	4	13
2005-2006	18	18	36	4	4	8
2000-2006	45	600	645	5	86	91

Table 1 reports the border trade growth in extensive and intensive margin. The results suggest that most growth of China's border trade came from the extensive margin. During the period 2000-2006, the border exports expanded more than six fold, mainly come from the contribution of new exporters. The border imports almost double and new importers account for 86% growth.

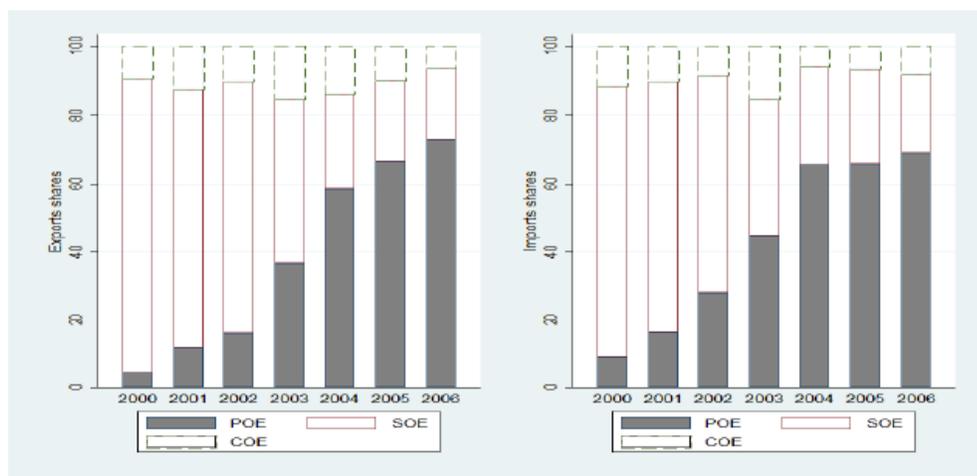


Figure 5 Ownership Composition of Traders

Figure 5 reports the ownership composition of the traders. The patterns of the border exports and imports are similar. In 2000, State-owned enterprises (SOEs) dominated the border trade, and private-owned enterprise (POEs) only accounted for about 5% of the border exports and about 10% of the border imports. The ownership structure of the border trade has significantly changed during the trade liberalization, especially China's access to WTO. In 2006, the share of POEs in both border exports and imports increased to more than 70%, while the share of SOEs significantly shrunk.

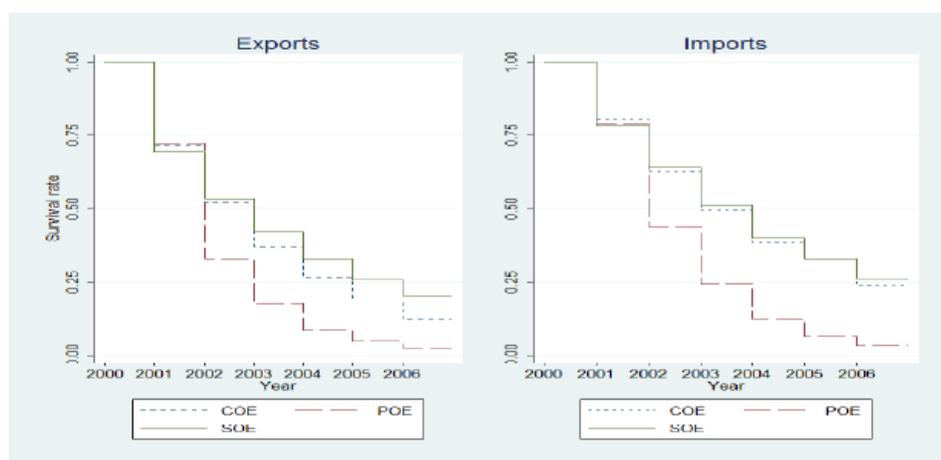


Figure 6 Firm-Importer-Exporter Kaplan-Meier Survival Rate

To examine the dynamic of the border traders, we report the Kaplan-Meier survival rate of trading firms in Figure 6. The results suggest that the border trade market is quite dynamic. Only 10% of the traders survived in exporting market during the sample period. About 29% of the firms exit the exporting market after the first year, and the median time length of a firm exporting to a specific neighboring country is two years. SOEs have the highest survive rate, about 20%. The survive rate of collectively-owned enterprises (COEs) is about 12%, and that of POEs is only 3%. The median length of survival for the border importers is two years. The survival rate of firms after the first year in the importing market is 79%, which is slightly higher than the survival rate in the exporting market. The survival rate of the SOEs, COEs, and POEs during whole period is 26%, 20%, and 3%, respectively.

Product-Level Dynamics of Border Trade

To investigate the product-level dynamic of border trade, we decompose the trade growth into intensive and extensive product margin. There are total 5,828 HS 8-digit products in the border exports. Among them, 1,654 products were persistently exported from year 2000 to 2006, and these products account for 75% of the total value of the border exports. The intensive margin dominated the growth of the border exports with a growth rate of 574% During the sample period, while the growth rate in extensive margin is only 71%.

Table 2 Trade Growth in Extensive and Intensive Product Margins (%)

Period	Exports			Imports		
	Intensive	Extensive	Growth	Intensive	Extensive	Growth
2000-2001	-36	-1	-37	-1	3	2
2001-2002	105	13	118	19	-1	18
2002-2003	87	3	90	9	2	11
2003-2004	25	1	26	17	0	17
2004-2005	62	3	65	16	-3	13
2005-2006	36	0	36	9	-1	8
2000-2006	574	71	645	12	79	91

The pattern is slightly different in the border importing market. Although the border imports have grown

much slower than the exports with a total growth rate of 91% in seven years, most growth came from the extensive margin (about 79%). There are 697 HS 8-digit products imported by China in year 2000 and the number of imported product has increased to 779 in year 2006. There are only 224 products which were persistently imported during whole period and the share of these products in total imports shrank from 59% to 37%.

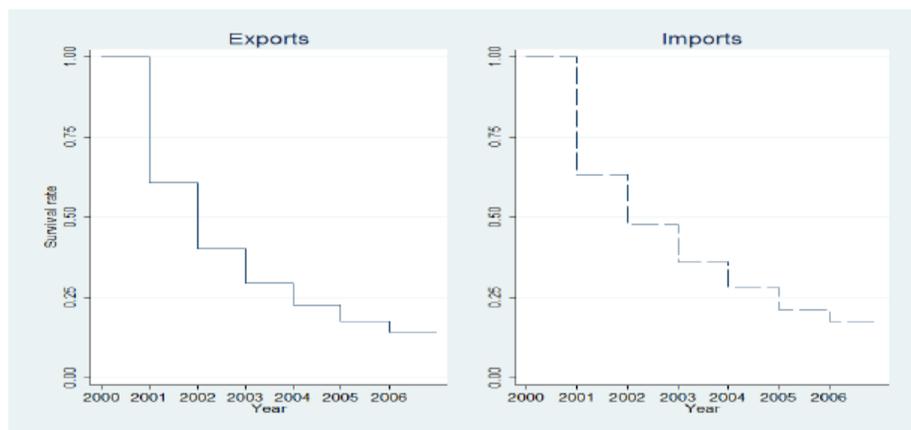


Figure 7 Product-Importer-Exporter Kaplan-Meier Survival Rate

Figure 7 shows the Kaplan-Meier survival rate of trading products. The median time length of trading products is two years. About 40% of products trading with a specific neighboring country disappeared after the first year. Only 14% of exporting relationship has continued to survive throughout the whole period, and 18% of importing has survived during seven year. This pattern is similar to the trade duration in the U.S. (Besedes and Prusa, 2006a, 2006b) and the EU (Hess and Persson, 2011). The median time length of the product-importer-exporter relationship in the U.S. is 2-4 years and the trade duration is even shorter in the EU.

In summary, both firm-level and product level analysis suggest a quite dynamic feature of China's border trade. Consistent with aggregated analysis, trade liberalization has significantly encouraged new firms especially private traders to enter the exporting markets. New private firms account for majority of six fold export expansion, and shift the export to more sophisticated structure. In contrast, China's border imports grow much slower and are dominated by less sophisticated products such as crude materials and mineral fuels.

3. Determinants of China's Border Trade

In this section, we use the gravity model to identify the important determinants of China's border exports. The gravity equation is one of the most successful empirical relationships in economics, which relates the bilateral trade value to the size of countries and trade cost. The specific feature of the border trade is that the geographical distance between the trading countries is zero.

We use the disaggregated firm-product level trade data to examine the determinants of the border trade³. We focus on not only export value, but also the unit price and quantity of products. We adopt the following gravity equation:

$$\ln X_{fjht} = \beta_1 \ln GDP_{jt} + \beta_2 Growth_{jt} + \beta_3 WTO_{jt} + \beta_4 SCO_{jt} + \beta_5 Pact_{jt} + \beta_6 Institution_{jt} + \beta_7 POE_f + \delta_h + \lambda_t + \gamma_j + \varepsilon_{fjht} \quad (1)$$

where X_{fjht} represents for export value, unit price, or quantity of an HS 8-digit product h that is exported from China to the neighboring country j at year t ; GDP_{jt} is the GDP of neighbor j at year t , which measures the market size of the importing country; $Growth_{jt}$ is the growth rate of GDP in country j ; WTO_{jt} is a dummy variable which is equal to one if both China and the importing country j are WTO members in year t , and zero otherwise. SCO_{jt} measures the membership of Shanghai Cooperation Organization (SCO), which takes the value of one if both China and neighbor j are in SCO in year t and zero otherwise; $Pact_{jt}$ is the number of economic pact signed between China and country j at year t , which measures how close the political and economic relationship are between two countries. $Institution_{jt}$ is the institutional quality of country j at year t . We use two indexes from the World Governance Index (WGI) of World Bank. The first index is “Law” and the second one is “Control of Corruption”. Both indicators take values between -2.5 and 2.5 with a larger value representing better governance. POE_f is a dummy variable which is equal to one if the exporter f is a private firm and zero otherwise. δ_h , λ_t and γ_j are product, year and country fixed effects, respectively ε_{fjht} is error term.

Table 3 Determinants of Border Trade

	Export Value		Quantity		Unit Value		Export Value	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
LnGDP	0.519*** (0.037)	0.455*** (0.036)	0.245*** (0.037)	0.199*** (0.036)	0.273*** (0.018)	0.255*** (0.018)	0.295*** (0.051)	0.195*** (0.050)
GDP Growth	2.704*** (0.430)	1.781*** (0.425)	1.639*** (0.423)	1.046** (0.418)	1.066*** (0.205)	0.735*** (0.200)	3.802*** (0.495)	2.852*** (0.492)
WTO	0.217*** (0.029)	0.156*** (0.033)	0.209*** (0.030)	0.128*** (0.034)	0.008 (0.015)	0.027 (0.017)	0.149*** (0.042)	0.076* (0.045)
SCO	0.817*** (0.038)	0.669*** (0.037)	0.632*** (0.038)	0.499*** (0.037)	0.185*** (0.019)	0.169*** (0.019)	0.615*** (0.053)	0.383*** (0.051)
PACT	0.017*** (0.002)	0.015*** (0.002)	0.010*** (0.002)	0.009*** (0.002)	0.006*** (0.001)	0.006*** (0.001)	0.011*** (0.002)	0.008*** (0.002)
Law	-0.688*** (0.051)		-0.593*** (0.051)		-0.094*** (0.024)		-0.860*** (0.061)	
Control of Corruption		-0.369*** (0.045)		-0.401*** (0.045)		0.031 (0.022)		-0.470*** (0.053)
POE	0.027** (0.011)	0.029** (0.011)	0.019* (0.011)	0.021* (0.011)	0.009 (0.005)	0.008 (0.005)		
Sophistication							1.441*** (0.315)	1.436*** (0.315)
Sophistication Squared							-0.114*** (0.017)	-0.113*** (0.017)
Country fixed effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year fixed effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Product fixed effect	Yes	Yes	Yes	Yes	Yes	Yes	No	No
Firm fixed effect	No	No	No	No	No	No	Yes	Yes
R-squared	0.379	0.379	0.734	0.734	0.900	0.900	0.301	0.300
Observations	156,080	156,080	156,080	156,080	156,080	156,080	156,080	156,080

Note: Robust standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1

The estimation results of the gravity model are reported in Table 3. Column 1 and 2 report the results of export value, Column 3 and 4 report the results of export quantity, and Column 5 and 6 report the results of unit value. The results suggest that GDP of importing country has significant and positive impact on export value. The growth rate of GDP, which measures the future market potential of importing countries, has also significantly promoted the border trade. The results show that income and GDP growth rate of destination countries are positively correlated with unit value of the border exports. This is consistent with recent studies on quality differentiation that firms charge higher prices in richer destinations (e.g., Schott, 2004, Hallak, 2006, Baldwin and Harrigan, 2011).

The results in Table 3 show that multilateral, regional, and bilateral integration and collaborations play important roles in promoting the border trade. In the literature there is some debate on the impact of multilateral trade liberalization and regional trade agreement on trade flow. While WTO membership is usually expected to promote bilateral trade between member countries, Rose (2004) found that the GATT/WTO does not play a strong role in encouraging trade. Our results show that WTO has a significant and positive effect on export value and quantity of the border trade. However, the impact of WTO on unit value of the border exports is insignificant. The effects of SCO membership on the border trade are much larger than the one of WTO membership, which suggests that regional economic and political cooperation plays more significant role in promoting the border trade. This is consistent with previous study of World Bank (2007) that Central Asia Regional Economic Cooperation facilitated border trade within member countries and border trade buttressed prosperity in these countries⁴. Bilateral economic collaboration, measured by the number of bilateral economic pacts between China and trader partners, also has a positive impact on both quantity and quality of the border trade.

The institutional quality of importing countries might play a significant role in the border trade. There is a large literature on the effects of institution on international trade. Most studies focus on the “extortion effect” that bad institutions and corruption in the importer’s country increase trade costs and thus deter international trade. For example, Anderson and Marcouiller (2002) show that when law enforcement institutions are ineffective, corrupt government officials and other predators are able to steal and to collect bribes from traders at the importer’s border. On another hand, bad institutions can be trade enhancing due to the “evasion effect” that rent-seeking corrupted officials allow traders to evade tariff barriers. For example, Dutt and Traca (2010) found that the marginal effect of corruption is trade enhancing in high-tariff environments. Our results show similar patterns for both indexes of institution: “Law” and “Control of Corruption.” The institutional quality is negatively correlated with China’s border exports. Since most of China’s border trade partners are less developed countries with low institutional quality, our results suggest that the “evasion effect” dominates the “extortion effect” in the border trade.

Previous section on the border trade pattern shows a significant trend of increasing importance of private firms in the border trading market. Using gravity model, we investigate the linkage between ownership of firms and the border exports. The results in Table 3 show that export value is positively correlated with private ownership, which is consistent with trade pattern.

For robustness check, we control firm fixed effects instead of product fixed effects to investigate the linkage between the border trade and the product attributes. We include product sophistication and its squared term in the gravity model. The sophistication index of HS 6 digit product is defined and calculated by Rodrik (2006). The results are reported in Column 7 and 8 in Table 3. The estimated coefficient of product sophistication is positive and significant, which is consistent with the findings in previous section that China’s border exports shift toward more sophisticated products. However, the linkage between the border exports and product sophistication is not linear. The coefficient of the quadratic term is negative, which suggests that the border exports concentrate to the manufacturing products with medium level sophistication.

4. Concluding Remarks

In this paper we use disaggregated firm-product level trade data to examine the pattern and determinants of China's border trade. We find that trade liberalization has significantly encouraged new firms especially private traders to enter the exporting markets. New private firms account for majority of six fold export expansion, and shift the export to more sophisticated structure. In contrast, China's border imports grow much slower and are dominated by less sophisticated products such as crude materials and mineral fuels.

Gravity equation analysis shows that multilateral, regional, and bilateral integration and collaborations play important roles in promoting the border trade. Increasing market size and economic growth in the neighboring countries are positively related to China's border exports while the institutional quality of importing countries is negatively related to the border trade.

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Note

¹ In year 2010, GDP per capita of five of these provinces were below the national average level with Yunnan, Tibet, and Guangxi ranked 30, 28, and 26, respectively. Per capita annual income levels of urban households of seven out of the eight border provinces were below the national average, and Heilongjiang, Jilin, and Yunnan ranked 31, 29, and 27, respectively, among 31 provinces and municipal cities in China. Similarly, per capita net annual income levels of rural households of seven out of the eight border provinces were below the national average, and Heilongjiang, Xinjiang, and Tibet ranked 30, 28, and 26, respectively.

² Chinese Custom dataset does not include the trade with India and Bhutan.

³ A small proportion of firms involving in the border trade are not located in the border region. In order to examine the determinants of the border trade more precisely, we only include the traders located in border regions. For robustness check, we have also estimated the gravity model using the full sample and the results are very similar with our benchmark results in Table 3. These results are available upon requests.

⁴ The members of Central Asia Regional Economic Cooperation include Afghanistan, Azerbaijan, China, Kazakhstan, Kyrgyzstan, Mongolia, Tajikistan and Uzbekistan.

Corporate Social Responsibility and Supply Chain in the Emerging Markets

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ABSTRACT

This paper examines ethical issues that multinational corporations need to deal with when sourcing from developing countries. It discusses why it is important for these multinationals to develop and maintain a clear corporate social responsibility policy. The paper discusses the benefits of being proactive rather than retroactive in dealing with social responsibility. We have developed a model which illustrates how firms that are proactive rather than reactive to social responsibility will in the long-run have lower average costs. However, this conclusion might not be true in the short-run. The paper concludes that while we are moving towards a more socially responsible business culture, there is still a long way to go, especially when it comes to emerging markets with lax regulations and influenced by the financial power of multinational corporations. We introduce a ten-step strategy towards better global citizenship, divided into three categories -- education, legislation, and incentives-- which further serve as recommendations for future research.

¹ We acknowledge the contributions of Anelya Akezhanova, Mahak Hamid, Pranav Dasot, Soren Riber and Yonodu Osung to the development of the initial draft of this paper.

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Cross-Border Economic Linkages: Estimating Differential Impacts of the United States in Mexico

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ABSTRACT

The differential economic impacts of United States border region with the Mexican one is being estimated at an aggregate level, following NAFTA (North American Free Trade Agreement) enforcement. By means of a panel model, the following function is being estimated:

$$GSP_{MXi} = f(GSP_{USj}, p_i/E_o/p_j)$$

where GSP_{MX} stands for the Gross state product of a Mexican state/region, GSP_{US} is the Gross state product of a state/region of the United States, p_i is the implicit price index (ipi) of the GDP of a Mexican state/region, E_o is the peso/dollar nominal exchange rate, p_j the ipi of a state/region of the United States. The second independent variable evaluates the effect of a regional real exchange rate in the output of a Mexican state/region. Here, $i = 1, 2, 3$, where 1 stands for Baja California, 2 for Sonora, 3 for Chihuahua, Coahuila, Nuevo Leon and Tamaulipas. Meanwhile, $j = 1, 2, 3$, as 1 stands for California, 2 for Arizona and 3 for New Mexico and Texas. This paper intends to expand the knowledge of the differential impact of the United States borders states in their Mexican counterparts, considering a foremost economic border region.

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A Wider Canal, a Wider Role for Texas in the Global Economy

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ABSTRACT

Widening the Panama Canal means that ports on the Gulf of Mexico can better compete with those on the west coast. Houston's port, already the largest in the U.S. (both import and export tonnage), has been a contributing factor in Texas' first place rank among all states in exports. An estimated 1 million jobs in Texas, \$178.5 billion in total statewide economic activity, and \$499 billion in U.S. economic activity result from Houston's port. This port may also benefit more from canal expansion than others on the Gulf and expects a 15% increase in cargo, since Houston is already the top destination for ships crossing the canal.

Corpus Christi also stands to see significant increases in traffic and subsequent economic growth, and is investing to upgrade its facilities, including deepening the port. As a large deepwater port – and the closest U.S. port to the canal - Brownsville also stands to gain from the canal expansion, as do other Texas ports. Canal expansion also coincides with increased natural gas production from the Eagle Ford Shale Formation located near the Houston, Brownsville, and Corpus Christi ports. A new refinery is planned in Corpus Christi and railroads are being upgraded to better link the rest of Texas and the U.S. to the Ports in Houston, Corpus Christi and Brownsville. As part of an ongoing study tracking both the potential and progress of the Canal Expansion, this paper discusses the potential for expanded trade and what is being done to prepare for it in Texas.

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Cross-border Alliances: The Role of Cultural Distance, Institutional Distance, and Trust

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ABSTRACT

We examine the role of cultural distance, institutional distance, and trust on the propensity to form cross-border alliances. We find that cross-border alliances are more likely to occur between countries that have shorter spatial distance, cultural distance, and higher level of trust. We do not find institutional distance to have a significant impact.

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“ME-Best” – A Successful Effort in South Texas STEM Workforce Development

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ABSTRACT

TAMIU has been awarded a \$500,000 NSF S-STEM grant from October 2006 to March 2012, entitled “Mathematics and Engineering Best – ME-Best”. ME-Best offered scholarships in the amount of \$3,125 each to 26 undergraduate students and \$6,250 each to 5 graduate students in Computer Science, Engineering, and Mathematics at TAMIU per year. The program provided student scholars academic enrichment and mentoring, together with career exploration and placement activities in addition to financial assistance. The priority was given to underrepresented minority students from low-income families. During the project lifetime, the ME-Best program offered 282 semester-wise scholarships to 132 students, which helped them completed 3664 credit hours. By fall 2011, 43 students have graduated from TAMIU and entered STEM workforce.

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The WTO, the Doha Round Impasse, PTAs, and FTAs/RTAs

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ABSTRACT

Beginning in 2001 the Doha Rounds afforded World Trade Organization (WTO) members the opportunity to develop equitable trade rules between the developed and developing member states. However, the Single Undertaking ground rule states that before achieving a completed agreement, there must be consensus among all members on all issues. The fundamental divide between the developed and developing nations over agriculture combined with the Single Undertaking Rule, has contributed greatly to the Doha Development Agenda stalemate. The WTO, evolving from the General Agreement on Tariffs and Trade (GATT), has been successful in advancing multilateral international trade; however, since the Doha Rounds stalemate, it has witnessed the development of more than 300 Preferential Trade Agreements (PTAs) and over 500 Free Trade Agreements (FTAs). Typically these agreements are bilateral, although multilateral agreements are being created as well. This article attempts to answer two questions: first, has the failure of the Doha Rounds contributed to the proliferation of PTAs and FTAs, and the second are these agreements threatening the regulatory authority of the WTO, which, in turn, reduces its ability to effectively promote and govern free trade, and its mission?

The WTO, the Doha Development Agenda Impasse, PTAs, and FTAs/RTAs

Introduction

First initiated in Doha, Qatar in 2001 in an effort to reach equitable trade rules between the developed and developing nations, the Doha Rounds, now called the Doha Development Agenda (DDA) have proved to be a major obstacle for the WTO. The December 2011 meeting of the WTO in Geneva turned into a stalemate for the Doha negotiations, and it collapsed as did the 2008 Round. The Doha stalemate raises two questions. The first is has the failure of the Doha Rounds contributed to the proliferation of Preferential Trade Agreements (PTAs), and Free Trade Agreements (FTAs) / Regional Trade Agreements (RTAs), and the second follows on by questioning whether these agreements are threatening the regulatory authority of the WTO, which, in turn, threatens its ability to effectively promote and govern free trade?

Background

The 1944 Bretton Woods Conference initially contained three pillars. The first was the creation of the International Monetary Fund (IMF). The second was creation of the International Bank for Reconstruction and Development, better known as the World Bank, and the third was the International Trade Organization (ITO), which was purposed to supervise the administration of an open and non-preferential multilateral trading system. The first two have proven to be very visionary and equally successful, but the latter was stillborn as the American Congress objected to its formation on the grounds that it would sacrifice national sovereignty to an international trade body.

The failure of the ITO to gain momentum precipitated the formation in 1947 of the General Agreement on Tariffs and Trade (GATT) with 23 “contracting parties” for the purpose of facilitating a multilateral trade system. The take away is the “contracting parties” were not called members, and the agreement was only provisional. Thus, it was not considered a legitimate international trade body, so the U.S. agreed to it. .

The GATT had several weaknesses. In addition to being only a provisional agreement as its “contracting parties” were not members, there were issues with its dispute system because decisions could be vetoed by the defendant, and no formal enforcement procedures existed. Additionally new members often were not required to comply with GATT rules or provide market access to their national trading system. Another issue was that its trade promotion activities applied only to manufactured goods with few standardized trade agreements among its participants. These shortcomings led to the formation of the World Trade Organization (WTO) in 1995 as a new and “improved” version of the GATT

The WTO was created in the Uruguay Round as a structured international organization with a fully accepted membership. It overhauled the GATT's dispute-veto settlement process by implementing the Single Undertaking rule which requires a unanimous vote of the membership. In addition to regulating trade, it also included intellectual property protection, which was a glaring omission of the original GATT agreement.

Since its establishment the WTO has successfully adopted a full range of trade rules including the very effective and highly respected dispute-resolution settlement system. Additionally, through continuous network dialogue among committee members it has maintained a smoothly functioning world trading system. In fact, since the inception of the WTO in 1995, up to 2010, international world trade increased 308.33% or 2.5 trillion in current U.S. dollars.

Table 1
Total World Trade in Goods and Services 1995-2010 in Trillions

1995	2010	Increase
1.2	3.7	308.33%

Source: UNCTADSTAT, *Exports and Imports of Merchandise and Services*, Annual, 1980-2010. UNCTAD.org. <http://unctadstat.unctad.org/TableViewer/tableView.aspx>. Accessed 11/06/2011.

But how much (if any) of this increase in trade is attributable to the WTO? Research by Myeong Hwan Kim demonstrates that the GATT/WTO increased trade by 10.6 percent between members, and over time it has steadily continued to increase (Kim, 2011). This study used extensive trade data from 1948-2007, and its results are statistically significant.

The Doha Rounds

A major failure, hopefully not fatal, is the WTO's inability to achieve forward progress in the Doha Rounds. These negotiations face several challenges. First of all there is the Single Undertaking rule:

Virtually every item of the negotiation is part of a whole and indivisible package and cannot be agreed separately. This is known as the 'single undertaking': 'Nothing is agreed until everything is agreed.' (WTO The Doha Round 2011)

Whereas the original GATT had twenty-three members ("contracting parties"), currently the WTO organization has 153 members. WTO members are all sovereign states, and the membership includes not only the developed nations of the world, but also a broad cross section of developing nations. Thus, there are widely divergent national interests, and very complex trade and economic implications. This makes achieving the required consensus by the single undertaking rule an extremely challenging, if not impossible, objective intensified as it is by the extremely dynamic and ever changing international trade and economic climate.

The Single Undertaking principle makes it particularly challenging for the Doha Rounds to come to a resolution since there is no agreement unless "everything is agreed." Officially, there are twenty-one bargaining items in the Doha Rounds, but some, such as Agriculture, are more challenging than others, and almost every area is contentious. In his report to the General Council on November 30, 2011, Director-General Pascal Lamy succinctly stated the following political nuances of the issues surrounding the 2011 Doha Round:

... I believe that Ministers need to address the essential question which in my view is behind the current impasse: different views as to what constitutes a fair distribution of rights and obligations within the global trading system, among Members with different levels of development. This is a political question to which a political response will be required. (Lamy 2011)

Indeed, a major issue is the steadily increasing rhetoric between the developed and developing nations:

The WTO has long confronted a challenge to its legitimacy from the perception in developing countries that it exists as a tool to enable the United States and European countries to control international trade. A criticism of the WTO and other multilateral organizations holds that great powers use international institutions to conserve and extend their authority (Daemmrch 2011).

However, as a result of the December 2011 Geneva Doha stalemate Ambassador Michael Punke, U.S. permanent representative to the WTO, stated "We need to explore new negotiating approaches to end the

stagnation on the Doha Round" (Robinson, 2011). In reality, however, "a Doha-weary world faces a difficult 'trilemma' over whether to implement all or part of the draft agreements as they stand today, to modify them substantially, or to dump Doha and start afresh" (Martin, 2012).

For purposes of this discussion, the critical Doha issues can be condensed to the following major areas:

- Agriculture

"Agriculture has become the linchpin of the Doha Development Agenda" (Fergusson, 2008). The main issues center around the amount of import duties a developed country would charge on agricultural products being exported by a developing country, and the duty amount a developing country could charge a developed country for imports. In particular the developing countries, which are largely agricultural economies, sought in the 2008 Doha Round to protect themselves from the developed countries' agricultural surges. The developed countries refused this request, and the 2008 Doha Round collapsed.

The basic argument put forward by the developed nations in support of subsidies is that they even out commodity price fluctuations created by various unpredictable events including weather conditions, insect infestations, floods, disease etc.

A second rationale of developed nations is that food production is essentially a security issue in that the subsidies prevent farmers from making a nation vulnerable to the vicissitudes of international trade, terrorist attacks, or energy price spikes. Poorer countries could be devastated by uncontrollable agricultural price swings. A third argument is that there is little public support for eliminating agricultural subsidies since it provides a predictable food supply.

However, those who criticize subsidies, often developing nations, state that the real culprits are modern agribusiness and advanced farming techniques. The critics also argue that the agriculture industry has created superb lobbying methodologies that have forced governments worldwide, usually developed nations, to implement trade restrictive subsidies that place developing nations at a severe disadvantage.

The impact of a developed nation having subsidized agricultural products with free access to export to an underdeveloped nation is best illustrated by the United States' free access to Mexico's economy as a result of the NAFTA agreement: It created devastation for the rural Mexican farmers:

American agricultural imports displaced many Mexican farmers who were not as automated as [America – comment added] and thus less productive American agricultural production is too competitive for the average Mexican farmer. U.S. farm subsidies have rendered obsolete Mexican farming, and millions of farmers have lost their livelihoods (Hartman 2008).

The Mexican experience illustrates another major area of concern. The amount of product support a country is able to give its farmers for the production and export of agricultural products varies greatly. These supports are delineated in the box categories:

Green box: supports considered not to distort trade and therefore permitted with no limits. Blue box: permitted supports linked to production, but subject to production limits, and therefore minimally trade-distorting. Amber box: supports considered to distort trade and therefore subject to reduction commitments (WTO 2012).

In view of the Mexican outcome with NAFTA's free access rules, it is very rational that the developing nations do not want to open their agricultural markets to the highly developed and governmentally supported agricultural industry exports from the developed nations. This governmental support is an example of an amber box that distorts trade.

Another very difficult area for agriculture in the Doha negotiations is cotton. The cotton producing group of African nations consisting of Benin, Mali, Chad and Mali (the C4 nations) have consistently pointed out that both the United States and the European Union have been the largest subsidizers of their domestic cotton farmers, resulting in detriments to C-4 economies. C4 leaders also claim:

their attempts to negotiate an agreement at WTO talks have been ignored. "We have received no responses or counterproposals from the U.S. How can we have a solution if there is no dialogue? Our proposal is on the table. It has been on the table too long with no response" (Kurtzleben 2012)

A final issue for agricultural access involves the G20 group of developed nations. The G20 was formed in 1999 and currently consists of Argentina, Australia, Brazil, Canada, China, European Union, France, Germany, Italy, India, Indonesia, Japan, Mexico, Russia, Saudi Arabia, South Africa, South Korea, Turkey, United Kingdom, and the United States. Brazil has been leading a general opposition to the developed countries within the G20 insisting they must drop their agricultural subsidies. Additionally the opposing members do not want to agree to a quid pro quo where they will reduce their own border barriers to finished products from the developed countries. So far, however, there has been no movement by the developed countries to reduce their domestic agricultural subsidies. Thus, this is another intractable agricultural issue.

The December 2011 Doha meeting was a stalemate, and basically nothing was achieved in the agriculture area.

- Non-agricultural market access (NAMA)

The basic NAMA objective is to reduce tariffs and nontariff barriers (NTBs) in all sectors exclusive of agriculture for all members. The purpose of these sessions was to make progress on the working documents concerning the Ministerial Decision on Procedures for the Facilitation of Solutions on Non-Tariff Barriers to reach an understanding on the Interpretation of the Agreement on Technical Barriers to Trade with respect to the Labeling of Textiles, Clothing, Footwear, and Travel Goods (textile labeling).

On the tariff component of these negotiations, the Director General states in his report on the Doha Round to the General Council on November 30, 2011 that it "still represents a challenge" (Lamy November 30, 2011). This is another major stumbling block for the WTO although some progress was made on the other (NAMA) issues, but more needs to be done.

- Services

This negotiation issue covers services in areas such as telecommunications, banking, insurance, construction, distribution and transport to help enhance performance as well as open access from outside sources to increase trade. A major concern is that the WTO should not force nations to privatize and deregulate all services, including public services, to allow foreign competition from transnational corporations.

However, in 1997 the:

WTO's Financial Services Agreement (FSA) locked in domestically, and exported internationally, the model of extreme financial service deregulation that most analysts consider a prime cause of the current [financial] crisis. Deregulation (not only liberalization) of the financial service sector – including banking, insurance, asset management, pension funds, securities, and more – is among the most important, but least discussed, aspects of the WTO. (Citizen, 2010).

In the United States the Clinton administration, which participated in the WTO FSA negotiations, complied with its terms and passed the Gramm-Leach-Bliley Act in 1999 and repealed provisions of the 1933 Glass-

Steagall act that prohibited a bank holding company from owning other financial companies effectively deregulating the U.S. financial services industry. When this was coupled with the passage of the 1992 Housing and Community Development act that allowed the HUD secretary to insure a first-time buyer's mortgage whose principal amount exceeded 97% of the property's appraised value if the mortgagor completed an approved program of counseling on homeownership responsibilities and financial management, the subprime mortgage race to the bottom was launched.

The ensuing 2008 American and international financial crisis created concern that re-regulation of the U.S. financial services industry was a necessary prerequisite to resolving the issue. This gave impetus to the passage of the Dodd–Frank Wall Street Reform and Consumer Protection Act of 2010, the details of which at this writing are still being developed.

The reality is, however, the “United States – and U.S. based financial service firms - used WTO negotiations to export the U.S. model of extreme financial service deregulation to 105 other WTO signatory countries who are bound under the Financial Service Agreement” (Citizen, 2010). While there is little doubt the financial services industry needs tighter regulation, any national effort to re-regulate its own financial industry is a violation of the FSA.

The national sovereignty limitations raise serious issues. This is highlighted by the U.N.’s *Report of the Commission of Experts of the President of the United Nations General Assembly on Reforms of the International Monetary and Financial System* states:

Agreements that restrict a country’s ability to revise its regulatory regime—including not only domestic prudential but, crucially, capital account regulations—obviously have to be altered, in light of what has been learned about deficiencies in this crisis. In particular, there is concern that existing agreements under the WTO’s Financial Services Agreement might, were they enforced, impede countries from revising their regulatory structures in ways that would promote growth, equity, and stability. (UN, September 21, 2009).

This is a critical issue for the Doha Round on services. The WTO’s FSA language needs to be clarified and revised to allow nations to re-regulate their national financial services sector in order to remedy the damage done by the international financial crisis set in motion in 2008 and to prevent further proliferation of the problem. One conclusion of the UN Commission, otherwise known as the Stiglitz commission, is “one of the lessons of the current crisis is that there should be no presumption that *eventually* there should be full liberalization. Rather, even the most advanced industrial countries require strong financial market regulations.” (UN, September 21, 2009)

However, there has been no movement in the Doha Rounds to do this as they are in a state of impasse. Instead what has been happening is that the developed nations, in particular the United States, have been providing loans and subsidies to their own financial sectors that developing countries cannot match in breadth nor scale for their own countries. The concept of too big to fail through governmental guarantees in the developed countries provides a distinct advantage over banks in the less developed countries (LDCs). This is a major issue of disagreement that is another strong contributor to the Doha impasse.

- Rules

The Negotiating Group on Rules covers anti-dumping, subsidies and countervailing measures, including fishery subsidies and regional trade agreements. More than 3,500 anti-dumping investigations have been launched since WTO came into being in 1995. A group of fifteen developing nations, calling themselves “Friends of Anti-Dumping Negotiations” (FANs), believe that the existing WTO Anti-Dumping Agreement should be improved to counter what they consider to be an abuse of the way anti-dumping measures can be applied primarily to benefit the United States and other major nations.

However, in an April 21, 2011 WTO report by the Chairman of the Negotiating Group of Rules, Ambassador Dennis Francis, states the committee is at impasse:

To conclude, it is clear that notwithstanding the mandate in Doha and the Ministerial Declaration in Hong Kong, China:

in essence, the objectives of various Members in these negotiations remain conceptually different, and gaps persist in Members' positions on all elements proposed.

I reaffirm my advice to Members that unless they adopt a pragmatic, flexible and less doctrinaire approach to these negotiations it is unlikely that this impasse will be overcome (Francis, April 21, 2011).

But on a bright note, and despite the impasse, the Council for Multilateral Business Diplomacy (CMBD) reported that a new chair was appointed for the Group, Ambassador Wayne McCook from Jamaica (CMBD, March 13, 2012). Thus there may well be life after death, at least for the Group, but it does not look good.

- Trade-Related Aspect of Intellectual Property Rights (TRIPS)

The TRIPS agreement came into effect on January 1, 1995, and to date is the most comprehensive multilateral agreement on intellectual property.

The areas of intellectual property that it covers are: copyright and related rights (i.e. the rights of performers, producers of sound recordings and broadcasting organizations); trademarks including service marks; geographical indications including appellations of origin; industrial designs; patents including the protection of new varieties of plants; the layout-designs of integrated circuits; and undisclosed information including trade secrets and test data (WTO, 2012).

There are three main features in the TRIPS agreement. They include Standards. for the main areas of intellectual property covered by the TRIPS Agreement where The Agreement provides minimum standards of protection to be complied with by each Member. A second standard is Enforcement of the set of provisions deals with domestic procedures and remedies for the enforcement of intellectual property rights as the agreement specifies. The third area is dispute settlement. The agreement makes disputes between WTO Members regarding TRIPS obligations subject to the WTO's dispute settlement procedures.

The main area of disagreement occurs over enforcement of the TRIPS agreement between the developed and underdeveloped nations in the area of healthcare where the underdeveloped nations claim the cost of many patented medicines are unaffordable, and they, therefore, seek generic drugs that can be made available at affordable prices. In 2001, developing countries, concerned that developed countries were insisting on an overly narrow reading of TRIPS, initiated a Round of talks that resulted in the Doha Declaration. Adopted on November 14, 2001 it reaffirmed flexibility of TRIPS member states to circumvent patent rights for better access to essential medicines.

Specifically it is stated in the Doha Declaration on the TRIPS Agreement and Public Health in paragraph 6 that:

We recognize that WTO Members with insufficient or no manufacturing capacities in the pharmaceutical sector could face difficulties in making effective use of compulsory licensing under the TRIPS Agreement. We instruct the Council for TRIPS to find an expeditious solution to this problem and to report to the General Council before the end of 2002 (WTO November 14, 2001).

This was a provisional agreement, but it was particularly important for those nations challenged by epidemics of HIV/AIDS, tuberculosis, malaria and other serious diseases as detailed in paragraph 5 part C of the declaration. In 2007 the European Union's (EU) Commissioner, Peter Mandelson, announced that the EU approved a 2005 WTO declaration formally amending the Doha Declaration to make the paragraph 6 provision permanent.

However, the EU has never obtained the required signatures for this agreement to be effective. Thus, this remains a serious issue between the developed and developing nations in the TRIPS DOHA discussions.

- Trade and environment

In a report to the WTO on June 7, 2012 Director General Lamy stated:

For the first time since the beginning of the crisis in 2008, this report is alarming.

The accumulation of ... trade restrictions is now a matter of serious concern. Trade coverage of the restrictive measures put in place since October 2008, excluding those that were terminated, is estimated to be almost 3% of world merchandise trade, and almost 4% of G-20 trade. (Lamy June 7, 2012)

As a result of the financial crisis of 2008, the subsequent recession, and the tenuous economic recovery, nations have been imposing restrictive trade measures in an effort to protect their own domestic economies. This poses a direct threat to the WTO and multilateralism.

This situation has occurred despite ongoing environmental services negotiations under the Committee on Trade and Environment in special session. The negotiations, part of the Doha Development Agenda (DDA), address two main themes: the relationship between the WTO and multilateral environmental agreements (MEAs); and the elimination of barriers to trade in environmental goods and services. The Committee on Trade and Environment, in special session, is striving to reconcile ideas put forward by WTO members on the relationship between the WTO and multilateral environmental agreements (MEAs).

Additional progress was made with respect to the negotiations on the reduction or elimination of tariff and non-tariff barriers on environmental goods and services. Members had progress in the identification of environmental issues termed "goods." The "goods" discussed to date (December, 2011) include environmental categories, such as air pollution control, renewable energy, waste management, water and waste-water treatment (WTO, 2012).

However, little progress was made in the December 2011 Doha meeting, and no final agreements have been reached regarding trade and development. Indeed, increased national trade restrictions pose deep concern for the international trade environment.

[Special and differential treatment](#)

The special provisions are contained within the WTO agreements that provide developing countries special rights and allow other members to treat them more favorably. These are termed the "special and differential treatment provisions" (Briefing Notes 2012). Special provisions can include such elements as longer time periods for implementing agreements and commitments or measures to increase trading opportunities for developing countries. However, at the December 2011 meeting, the deliberations came to impasse, and nothing was formally approved.

The basic issue of the Doha Rounds is that while some progress has been made in the main categories, the reality of the December 2011 meeting impasse is that these issues coupled with the single undertaking rule

threatens the entire Doha process and the viability of the WTO as an organization as well as its ability to promote international trade.

PTAs

A unilateral Preferential Trade Agreement (PTA) is a non-reciprocal preferential trade scheme. Free Trade Agreement (FTAs) or a Regional Trade Agreement (RTAs) is a reciprocal trade agreement between two or more partners. PTAs typically are between a developed nation and developing nation where the developed nation favors the developing nation by reducing a tariff for trade purposes. At the present time there are over 300 PTAs.

FTAs can be between any type of nation or nations and feature a reduced or no tariff for the FTA members. While the overwhelming majority of FTAs/RTAs are bilateral, many FTAs/RTAs are multilateral particularly those created after 2001. Currently there are over 500 FTAs/RTAs worldwide. However, both PTAs and FTAs/RTAs share a common tariff to nonmembers. Therefore, they are inherently discriminatory toward nonmembers.

FTAs were permitted to be developed under Article XXIV of the original GATT agreement. The purpose of this was to encourage additional free trade through the creation of voluntary agreements of closer integration of the economies of the member countries in order to facilitate trade (GATT, 1994).

While the Doha Rounds are basically in a stalemate, there has been a steadily increasing number of Preferential Trade Agreements (PTAs) during the same period of time. At the time of this writing there are over three hundred PTAs and more than 500 FTAs/RTAs worldwide. However, the accuracy of this data may be offset by a lack of clarity on the definition of a PTA and FTAs/RTAs and some of the data may include both trade agreements being considered together.

The reality is that the use of these terms is somewhat confusing:

The term "RTA (regional trade agreement)" is the general term used in the WTO for trade agreements in which the parties offer more preferential treatment to each other than to other WTO members. It may be a *slightly confusing* (italics added) term, since not all RTAs are "regional"; so for example a possible agreement between the EU and India would be termed an RTA.

An FTA is a subset of RTAs. "Free trade" in such agreements may be a matter of interpretation, since there are typically exceptions to the product coverage in these agreements. One way of thinking about this (though I would add not a wholly satisfactory way) is to see what WTO provision the RTA has been notified under. If it is notified under GATT Article XXIV, chances are it will be closer to an "FTA" than if it is notified under the Enabling Clause (the Enabling Clause allows flexibilities for RTAs between developing countries in terms of product coverage or depth of preferences). RTAs in services are also possible (these are notified under Article V of the General Agreement on Trade in Services).

As for unilateral preferential schemes, it so happens that in the WTO - in the context of negotiations that took place recently - these are now called preferential trade arrangements. *Again, the terminology can be somewhat confusing, especially since some authors use the term "PTA" to describe what I have defined above as an "RTA"!* (italics added) Essentially, though, these are arrangements where one country (or in some cases more than one country) offers preferential treatment to other countries - typically developing countries - and the beneficiaries do not offer any preferential treatment in return. (Iyer, 2013)

Nonetheless, a hypothesis of this article is that the failure of the Doha Rounds has contributed to the proliferation of these agreements. However, as with everything, it is not that simple.

PTAs are not new. As of 1990 there were over ninety PTAs worldwide. But, by 2010 there were over three hundred. Thus between 1990 and 2010, twenty years, there was an increase of 210 (233.3%) PTAs worldwide. The Doha Rounds commenced in November 2001. One could surmise that there could be at least a partial correlation between the Doha stalemate and the growth of PTAs.

However, this reasoning overlooks some major characteristics of PTAs. The rapid growth of PTAs and the launch of the Doha Rounds may be a simple coincidence:

PTAs may be part of a broad pattern seen since the Second World War – where some countries want to move “further and faster” in trade rule-making than others, where bilateral and regional agreements can have a positive, “domino effect”, encouraging the pace of multilateral cooperation (and vice versa), and where regional and multilateral agreements are becoming coherent, not conflicting, approaches to managing a more complex and integrated world trading order.

There is no reason to assume that PTAs will cease to grow in number or that they will not form part of the long-term tapestry of international trade relations. Secondly, the content of PTAs continues to evolve and deepen, reflecting important changes in the world economy (World Trade Report, 2011).

Furthermore the WTO’s Director General Pascal Lamy states:

The continuing proliferation of PTAs in parallel with the Doha Round has provoked a debate about coherence, compatibility and potential conflict between multilateral and regional approaches to trade cooperation. Among the questions addressed in this debate are whether burgeoning regionalism signals a weakening of international commitment to open trade, and foreshadows a return to a more fragmented trading system (World Trade Report, 2011).

A different perspective may be that the formation of these bilateral agreements is simply a needed development in managing trade and foreign relations in an extremely complex and integrated world. Every WTO member (with the exception of Mongolia) belongs to one PTA or another. In fact, many members belong to several PTAs. Yet, the Director General states “One of the key challenges currently facing WTO Members is how to ensure that the trade opening conferred by preferential agreements synergizes with the multilateral trading system” (Lamy March 18, 2012).

The United States has concluded a series of FTAs, including the Obama administration’s successful October 2011 effort in getting the Congress to approve three more with Colombia, Panama, and South Korea. Additionally the Obama administration (as of this writing July, 2012) is in the process of negotiating a plurilateral Trans-Pacific Partnership (TPP) with Australia, Brunei, Chile, Malaysia, New Zealand, Peru, Singapore, and Vietnam. Additional negotiations are also underway with Canada, Mexico, and Japan to join the partnership as well.

The motivations for the U.S. to complete the TPP are strong financial benefits, as well as recognition of the political risks and rewards of the Doha agreement:

...the TPP will add billions to the U.S. economy and solidify Washington’s political, financial, and military commitment to the Pacific for decades to come. Given the potential windfall, the Obama administration believes that the TPP has a better chance of overcoming domestic opposition than would a Doha agreement or new bilateral deals (Gordon 2012).

Not only has there been a rapidly increasing number of PTAs and FTAs/RTAs, but also their characteristics have been evolving. An increasing number have broader geographical scope including being cross-regional.

Others, such as the evolving U.S. TPP deal, have been consolidated into plurilateral agreements as well as bilateral agreements across regions between developed and developing countries.

The Director General states that as a result of this confluence of regional agreements there is a trend toward “increased fragmentation of trade relations, with countries belonging to multiple, sometimes overlapping PTAs” (World Trade Report, 2011). However, one can question the reason for the rapid increase in PTAs since the general “reduction of tariff rates over time – through multilateral, preferential and unilateral processes – has reduced the scope for securing meaningful trade preference” (World Trade Report, 2011). Therefore it would seem the motivation extends beyond tariff reduction alone.

Prior to both the GATT and the WTO the motivation for creating a PTA agreement more than likely was to avoid the Most Favored Nation status granted between two or more nations in a bilateral or multilateral trade agreement that implemented a reciprocal trade agreement. However, with both the GATT and the WTO MFN status is a cornerstone of both agreements.

A more basic motivation, to avoid tariffs, is not, however, a primary driver of the formation of PTAs simply because WTO members are legally forced to reduce or eliminate tariffs under the terms of the agreement. A deeper investigation into recent PTAs shows they are expanding beyond the legally enforceable provisions of the WTO agreement.

A study performed by Horn, Mavroidis and Sapir entitled “Beyond the WTO? An anatomy of EU and US preferential trade agreements” analyzed the content of the European Community (EC) and US preferential trade agreements, and divided the areas covered by these agreements into:

- ‘WTO plus’ (WTO+): commitments building on those already agreed to at the multilateral level, e.g., a further reduction in tariffs.
- ‘WTO extra’ (WTO-X): commitments dealing with issues going beyond the current WTO mandate altogether, e.g., on labor standards

The study “covers all the provisions in all 14 EC and US agreements respectively with WTO partners signed by the parties and, generally, notified to the WTO as of October 2008. It examines to what extent these provisions are legally enforceable” (Horn, 2010).

Basically the PTAs labeled WTO+ stay strictly within WTO guidelines and legally are totally enforceable, while WTO-X exceeds the WTO mandate, and is not legally enforceable under WTO guidelines. However, with many PTAs covering a number of issues not covered by the WTO, existing rules are considered to be of limited relevance as there has never been any enforcement action brought against them by the WTO. This is termed a “deeper” agreement which essentially disregards the WTO rules. Table 2 illustrates the policy area differences between the two categories.

Table 2
WTO+ and WTO-X Policy Areas in PTAs

WTO+ Areas	WTO-X Areas	
	Anti-corruption	Health
PTA industrial goods		
PTA agricultural goods	Competition Policy	Human Rights
Customs administration	Environmental laws	Illegal Immigration
Export taxes	IPR	Illicit Drugs
SPS measures	Investment measures	Industrial Cooperation
State trading enterprises	labor Market regulation	Information society
Technical barriers to trade	Movement of Capital	Mining
Countervailing measures	Consumer protection	Money Laundering
Anti-dumping	Data Protection	Nuclear Safety
State aid	Agriculture	Political Dialogue
Public procurement	Approximation of legislation	Public Administration
TRIMS measures	Audio Visual	Regional Cooperation
GATS	Civil Protection	Research and Technology
TRIPS	Innovation policies	SMEs
	Cultural cooperation	Social Matters
	Economic Policy Dialogue	Statistics
	Education and Training	Taxation
	Energy	Terrorism
	Financial Assistance	Visa and Asylum

Source: WTO, *World Trade Report 2011, D. Anatomy of Preferential Trade Agreements, Table D.2: WTO+ and WTO-X policy areas in PTAs, p. 129.*

The authors found that the EC agreements have four times as many instances of WTO-X provisions as the 14 US agreements, and the EC agreements have “legal inflation” that contain numerous obligations that are not enforceable under the WTO mandate. In fact, there are very few legally enforceable WTO-X provisions in the EC and US PTAs. The legally enforceable WTO-X provisions primarily deal with regulatory issues.

A main finding of the study is that the EC and US PTA agreements result in the two regions exporting their own regulatory approaches to their PTA partners (Horn, 2010). Therefore, the PTA agreements analyzed in the study would be considered to have more “depth” than is permitted within the traditional WTO mandate since the extent of the provisions clearly exceeds the WTO’s regulatory enforcement capability. This finding adds credibility to the hypothesis that PTAs are essentially competing with the WTO by adding additional regulatory authority beyond the scope of the WTO agreement. “There is now also an institutional

acknowledgement that PTAs should be regarded as a serious concern for the multilateral trading system” (Horn, 2010).

Another question is whether PTAs create or deflect trade. On the one hand a PTA between two nations could create increased trade volume not only between the partners, but even stimulate trade outside of the partnering countries under certain circumstances. The downside, however, is that PTAs could also create trade diversionary tactics formulated as non-tariff public policy measures of all types including health, safety, and environmental regulations that have the same effect as tariffs in reducing or eliminating trade. The net effect in the latter circumstance is preference based discrimination that could lead to market disintegration predicated on regulatory trade diversion. As the Director General notes “...we should be mindful of the possibility that even in the absence of intent, market segmentation and discriminatory outcomes could be an unavoidable consequence of (PTAs) (World Trade Report, 2011).

One of the conclusions that can be drawn from Doha’s stalemate at the very least is that member states have been unable to advance the WTO multilateral agenda to general consensus. There is little doubt that one of the outcomes of Doha’s stalemate has been the proliferation of PTAs and FTAs/RTAs. Since the prospect of obtaining a multilateral Doha trade agreement in the near term is currently minimal, at best, countries begin to reason that a PTA would help control current cross border trade policies that are volatile and unmanageable. Another compelling factor for advancing PTAs is that they give greater multilateral bargaining power because trade partners could add more to a multilateral trade agreement than an isolated nation. Additionally, PTAs are attractive since the agreement is based on trade cooperation rather than competition or a thinly disguised trade war. A nation could also agree to join a PTA to open wider markets for their domestic production with the added benefit of being more attractive for foreign direct investment (FDI). This is particularly true for the less developed nations that have small markets and capital reserves (World Trade Report, 2011). Another practical consideration is that PTAs, FTAs/RTAs are far less complicated to develop than completing the Doha Rounds, and they can be done very expeditiously.

It goes without saying that if a viable multilateral trade agreement were in place with genuine cooperation, there would be little rationale for creating or joining a PTA. But nations exist in a dynamic real time environment, and they have to make political decisions in their own interests. Trade is the lifeblood of national economic survival, and when a multilateral trade system does not respond to a nation’s needs, PTAs becomes the path of least resistance.

The number of PTAs and FTAs/RTAs has grown steadily throughout the world while the Doha Round has been unable to achieve significant progress. This raises a core question about the WTO and the whole concept of multilateralism. Is a binding multilateral trade agreement that meets the interest of all of the members realistic? Secondly, are PTAs more effective instruments than the WTO’s concept of multilateralism?

Questioning the viability of the WTO’s core multilateralism goal is a challenge. The basic rationale for seeking a multilateral trade agreement to eliminate trade restrictions is very viable. As Table 1 illustrates there has been a 308% increase in trade since the beginning of the WTO in 1995. There is simply no going back nor is there any reason to. The primary purpose of the PTAs and FTAs/RTAs is to create trading partners on a bilateral or plurilateral basis, but “...despite the explosion of PTAs in recent years, 84 per cent of world merchandise trade still takes place on a non-discriminatory most-favored nation (MFN) basis (World Trade Report, 2011). All WTO members are MFN nations.

The fundamental issue with multilateralism for the WTO is satisfying the highly disparate interests of 153 nations ranging from those which are economically advanced to the very poor developing nations. Additionally, there are the structural issues of national subsidies given to the agrarian sector in a significant majority of the membership where removing trade barriers would require removing the subsidies. The latter is a very hot-button issue and a huge obstacle in the agriculture negotiations.

Conclusion

In terms of whether or not the failure of the Doha Rounds contributed to the proliferation of Preferential Trade Agreements (PTAs) and FTAs/RTAs, the fact that the number of new PTAs and FTAs/RTAs has accelerated since the beginning of the Doha Rounds lends support to the hypothesis. However, it is also a reflection of the basic failure of the developed nations to continue liberalizing their stance on the main issues of the Doha Rounds. This is particularly true with the agriculture negotiations where talks have basically broken down between the developed and the developing nations.

Creating PTAs can be viewed as an end-run play around reaching a consensus on the main issues between the developed and developing nations. The creation of PTAs is cheaper, easier, faster, and engenders less domestic political opposition than reaching a Doha consensus on the main agenda issues. Additionally, PTAs are accommodative to major financial interests rather than threatening. The recent trend toward creating deeper PTA agreements gives the developed nations increased control over their trading partners thus reducing risk. As PTAs become more entrenched and developed, the motivation to reach consensus on the Doha Rounds steadily diminishes.

Regarding the second hypothesis that the PTAs are threatening the regulatory authority of the WTO, which, in turn, threatens its ability to effectively promote and govern free trade, is a more complex question. The Director General has repeatedly expressed his concern about the surge in PTA agreements. Traditionally PTAs were bilateral agreements. A more recent trend is the development of plurilateral PTA agreements having three or more partners. NAFTA set the trend in this direction followed by the Caribbean Free Trade Agreement (CAFTA) and, of course, the development of the European community where free trade is a cornerstone of the agreement. The current negotiations by the United States to create the plurilateral (TPP) is just one more example of an increasing trend.

Certainly the WTO's Director General has reasons to be concerned. Should the Doha Rounds completely fail with no additional meetings being scheduled, which is not currently the case, the WTO agreement would be seriously compromised. It may be possible, just as is currently occurring, to continue the WTO while PTAs continue to proliferate. However, if the Doha Rounds completely collapse, the WTO would then become comparable to the failed League of Nations. If no new efforts were to be made to get the industrialized nations to form a consensus trade agreement with the developing nations, the WTO would lose its legitimacy.

The Director General stated the importance of the completion of the Doha Round for the WTO and the world:

Unless we can complete the Doha Round in the near future, and maintain markets open, we will find it harder to address other challenges where international cooperation is essential. This involves issues such as climate change, coherence between a future climate change regime and the trade regime, managing increasing prices and scarcity of some raw materials, and ensuring adequate coherence between regional and multilateral approaches to trade cooperation. This is not an exhaustive list, but it does convey the urgency, I believe, for all of us to play our parts in advancing the trade agenda (Lamy, March 18, 2010).

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China-Japan-Korea (CJK)'s FTA Strategy towards ASEAN Countries: A Game Theoretical Approach

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ABSTRACT

This paper analyzes the FTA strategies of China, Japan and Korea (CJK) toward ASEAN countries using a three-player game. It explores the implications of China, Japan, and/or Korea participating in an FTA with ASEAN and the corresponding rewards in a payoff matrix. The Nash equilibrium occurs when China, Korea and Japan all choose to participate in an FTA with ASEAN. Dominant strategies and response functions for each country are analyzed using Error Correction Mechanism (ECM) and Vector Auto Regression (VAR) models. The paper also finds that Japan's action to create FTA will be the most effective for regional settings. Although the game analysis is backward looking, it is a useful benchmark for understanding future FTA policies in East Asia.

Keywords: FTA, Game Theory, Error Correction Mechanism, Vector Auto Regressive F13, C70, C22

China-Japan-Korea (CJK)'s FTA Strategy towards ASEAN Countries: A Game Theoretical Approach

1. INTRODUCTION

The new millennium has witnessed the ongoing process of East Asian intra regional trade expansion that establish Regional Trade Agreements (RTAs) in the form of Free Trade Agreements (FTAs) and Economic Partnership Agreements (EPAs). Regionalism acts as a powerful mantra that spells the word “whether you with us or against us”. The act of exclusion from regionalism will only lead to marginalization. Therefore, the general idea is how to make it work. Having said this, the study of regionalism is very vital since the trend has indeed created a profound regional and indeed global significance (Harvey and Lee, 2002).

Unfortunately, there have been only a limited number of efforts that empirically evaluated the degree of economic integration among East Asian economies based on FTA analysis. In addition, no study has yet critically investigated the possible formation of an East Asian FTA related mainly to FTA strategies consisting of ASEAN and CJK countries using a game theoretical approach. This paper defines FTA strategies as the choices between two options of creating or withholding FTAs. This paper sets up three player game incorporating China, Japan and Korea (CJK) with their FTA strategies toward ASEAN member countries. Regionally speaking, it is very important to see how CJK countries decide their FTA strategies as to reach the goal of setting East Asian wide FTA.

The remainder of this paper is organized as follows. The second section studies the basic concepts from literature review. The third section covers materials and methods. The fourth section examines the result of the regressions. The last section presents conclusion and some concluding remarks.

2. LITERATURE REVIEW

Since Baldwin and Clarke in 1985, there have been very limited literatures discussing FTA strategy using game theory. Harrison and Rutstrom (1987) and Gander (2008) are among the relatively few. Baldwin and Clarke (1985) use actual trade and tariff data for the United States and the European Community to demonstrate how to model a Tokyo Round (as a form of trade negotiation) into a game among countries attempting to minimize individual welfare loss functions. They found that, while the game model tracks closely the decisions of the negotiators in the Tokyo Round, later unilateral political decisions resulted in less optimal tariffs.

Harrison and Rustrom (1987) suggest an alternative approach to the quantitative analysis of trade policy evaluation suggested by the notions of non-cooperative trade wars and cooperative trade negotiations. They specifically illustrate their approach by computing the outcome of a trilateral trade war between the United States, the European Union (EU) and Japan, and then a bilateral trade war between the United States and Canada. In each case they assume that other trading blocs do not react against the warring blocs. They found that the United States and the EU would each 'win' in the former trade war whilst Japan would lose, using the trilateral Free Trade outcome as a basis for comparison. They also found that both Canada and the United States would lose from a bilateral trade war, with the losses to Canada around ten times larger than those of the United States as a percent of GNP. They show that most of the substantive aspects of a trilateral agreement between the EU, the United States and Japan can be achieved bilaterally by the EU and the United States, whether or not Japan reacts strategically to that bilateral negotiation process.

Gander (2008) uses a game theoretical approach to FTA made within ASEAN countries and between ASEAN countries and outside countries and the rest of the world (ROW). Using dynamic game theory, he found that as the number of players within ASEAN increases, the number of potential coalitions increases

very rapidly. The FTA's multiply and become very complex. The same potential complexity holds for FTA's between ASEAN as a single entity and non member countries.

What is the incentive (Payoff) for countries in doing FTA? On the theoretical side, we have the so-called "endogenous growth theories" embracing the proposition that trade liberalization with greater openness might promote long-run economic growth under certain conditions. For example, Grossman and Helpman (1991) and Feenstra (1996) argue that if a free trade system is formed under conditions in which technology transfer occurs between the involved economies, production efficiency can be improved, and thus free trade can ultimately induce economic growth among the FTA member countries. Another theoretical link between trade and growth was described in a "learning-by-doing" model, as emphasized by Lucas (1988) and Young (1991). If free trade allows countries to specialize in industries with economies of scale, then their long-run economic growth can be increased. These examples demonstrate that certain economic conditions are required in order to realize a positive relationship between free trade and economic growth; thus, it can be inferred that the theoretical models do not necessarily yield an unambiguous prediction regarding the relationship between free trade and economic growth.

Given the limited amount of scholars using game theory for FTA strategy, let alone East Asian FTA, this paper aims to enrich the shelf of knowledge by doing a game theoretical approach on CJK FTA strategy towards ASEAN countries.

3. METHODOLOGY

3.1 Assumptions

1. Non Cooperative game

The most fundamental solution concept in game theory is Nash equilibrium. A game model with n -countries and their strategies can be formulated as $G = (S, u)$, where $S = (s_1, s_2, \dots, s_i)$ is the strategy of every country i and $u = (u_1, u_2, \dots, u_i)$ is the utility (payoff) of country i . From a specific combination of possible strategies of n -country game, a collective strategy s_i^* for every country i , is Nash equilibrium if no country i could improve her payoff by changing only her own strategy. In other words, in Nash equilibrium, no country wants to deviate from her strategy if the other countries do not deviate from their strategies. A collective strategy (s_i^*, s_{-i}^*) , where s_i^* played by country i and s_{-i}^* played by other countries (except country i), is a Nash equilibrium if and only $u_i(s_i^*, s_{-i}^*) \geq u_i(s_i, s_{-i}^*)$ for every country i , and $s \in S$. We can say that for country i and her strategy s_i , (s_i^*, s_{-i}^*) is at least as good as (s_i, s_{-i}^*) . Under the non-cooperative Nash game model, a country is assumed to have concern only for the impact of proposed tariffs on its own welfare. We can find the Nash equilibria of a game in which each country has only a few actions by examining each action profile in turn to see if it satisfies the conditions for equilibrium. Consider country i , for any given actions of the players other than i , country i 's actions give her various payoffs. We denote the set of country i 's best actions when the list of the other country's actions is a_{-i} by $B_i(a_{-i})$. Then we can define function B_i by $B_i(a_{-i}) = \{a_i \in A_i : u_i(a_i, a_{-i}) \geq u_i(a_i', a_{-i}) \text{ for all } a_i' \in A_i\}$: any action in $B_i(a_{-i})$ is at least as good for country i as every other action of country i when the other countries' actions are given by a_{-i} . We call B_i the best response function of country i . The function B_i is set-valued as it associates a set of actions with any list of other countries' actions. Every member of the set $B_i(a_{-i})$ is the best response of country i to a_{-i} if each other countries adheres to a_{-i} , then country i can do no better than choose a member of $B_i(a_{-i})$.

2. Players

The players involved in this game are China, Japan and Korea. Being acknowledged as the economic front runners, Japan, China and Korea are assumed to have heavy responsibility for the economic welfare in the East Asian region. It is very obvious that East Asian regionalism cannot be put into practice without these countries' strong support.

3. Strategies

This paper divides the strategies into two: (i) creates FTA with ASEAN member countries or (ii) withholds FTA with ASEAN member countries. The agreement data is compiled from UNESCAP Interactive Trade Indicators (ITI) component of Asia Pacific Trade and Investment Agreement Database (APTIAD). Given the nature of the data (*ex post*), the strategies is described as backward looking in a way that strategy selection is based on experience measured by relative past realized outputs. Although the China, Japan and Korea are involved in a non cooperative game, this paper assumes each countries share a common goal which is to reach a sound regional economic growth in East Asia. A sound trading partner within the region is prerequisite for ensuring sustainable market in the future.

3.2 Payoff scheme

As we have defined that the players are aiming regional target (economic growth) as their common goal, we can now set the payoff for each countries. The Payoff scheme is taken from the work of Robert Barro (1996) on GDP determinants. He finds that GDP is enhanced by higher initial schooling and life expectancy, lower fertility, lower government consumption, better maintenance of the rule of law, lower inflation, and improvements in the terms of trade. A year after, Edwards (1997) suggests adding productivity as one of influential variable for GDP. Many recent studies including Hansen and Rand (2004), Agrawal and Khan (2011) also include FDI as one of GDP determinants. Furthermore, Grossman and Helpman (1991) and Feenstra (1995) show that FTA is also enhancing the signatory country's economy. The macroeconomic data is taken from World Development Indicators (WDI) while the FTA data is taken from the UNESCAP Trade Agreement database. The data is ranging from the year of 1998 to 2007 in a way that it can match the emerging FTA which mostly took part within this period.

The paper employs a panel data model to generate the payoff schedule. There are several reasons for the increasing interest in panel data sets. An important one is that their use may offer a solution to the problem of bias caused by unobserved heterogeneity, a common problem in the fitting of models with cross-sectional data sets. A second reason is that it may be possible to exploit panel data sets to reveal dynamics that are difficult to detect with cross-sectional data. The static panel data model is specified as follows:

$$GDP_{it} = \beta_1 Wage_{it} + \beta_2 Governance_{it} + \beta_3 FTA(CJK)_{it} + \beta_4 Tax_{it} + \beta_5 FDI_{it} + \varepsilon_{it} \quad (1)$$

Where GDP_t , $Wage_t$, $Governance_t$, FDI_t , Tax_t are Gross Domestic Product, monthly wage, governance indicator, FDI inflows and Tax rate for CJK and ASEAN4 at time t . The monthly wage is used to measure labor productivity within the East Asian region. We expect to have a positive and significant impact of labor productivity on regional GDP. Along with productivity, we also expect to have positive and significant impact of FDI inflows on GDP. Tax rate is rather ambiguous since it could create positive and negative impact to GDP, although the latter is more common.

Governance is measured by the six governance indicators following the work of Kaufmann (2003). These indices describe various aspects of the governance structures of a broad cross section of countries, including measures of Voice and Accountability, Political stability, Government Effectiveness, Regulatory Quality, Rule of Law, and Control of Corruption. In general, the Governance index provides explanatory power to explain the capability and quality of governance from each member country. The better indicator a country has the more it has the chance to enhance the regional welfare.

$FTA(CJK)_t$ is the key variable in this paper that explains China, Japan and Korea FTA to ASEAN countries. The variable is taken from the number of FTAs for each country. The coefficient (incremental) value of the FTA of China, Korea and Japan to the GDP will serve as a corresponding value for the payoff matrix.

3.3 Response Function

In some cases, we cannot decide player's best response function. Thus said, Nash Equilibrium cannot be decided. Fortunately for this FTA game, we have an alternative that is called Baldwin's domino effect. The interest to become a hub for Regional Trade Agreement (RTA) will create Baldwin's (2006) domino effect that is expected makes the most of East Asian countries join the RTA. The big signings in FTA can trigger other countries to have similar signings. This is true even for the countries whose governments that were previously decided the "no FTA" as their politically optimal objective function. We have two major actors here, which are pro-membership (export competing firms) and anti-membership (import competing firms) forces. The model describes a political equilibrium resulting from a balance on the two major forces. The pro-membership will gain preferential access if the nation decides to join the RTA and go through with marginalization if the nation stays out. On the other hand, the anti-membership forces will be marginalized if the nation decides to join while it will win the domestic market if the nation stays out. Naturally, the export competing firms have larger output than the import competing one. Having said this, the shock resulted from nation's decision for not joining the RTA would be bigger for the pro-membership side. This in turn will force the policy makers to join the existing RTA. As the membership expands, the incentive to join the RTA becomes more attractive even for those who previously found the political optimal decision by staying out. The cycle repeats itself until a new political equilibrium membership in RTA is met.

The basic logic is simple, as Baldwin (2006) argues, the decision to join or not to join FTA is a function of a political equilibrium that meets the balance of anti-FTA and pro-FTA forces (Typically the pro-FTA group is made up of exporters who would like better market access; the anti-FTA group is made up of import competing firms and workers employed by them.). Deeper integration among CJK countries is very beneficial to be considered as South East Asian countries benchmark decision. Moreover Baldwin (2006) has the faith that the economic grouping in the North East Asia stimulates exporters in South East Asia to be engaged in greater pro-FTA political activity. The mechanism is as follows; if one of the other nations' government was previously close to indifferent, politically speaking, to signing an RTA with CJK countries then the extra political activity of their exporters may tilt the balance, leading the country to sign an RTA. This can be thought of as one domino knocking down the next one (think of the first RTA signing as someone pushing over the first domino, and the second FTA as the second domino falling). Countries that are out of the scheme will be marginalized due to the shrinkage of foreign market access. In the political sphere this new disadvantage will result in greater political pressure – pressure on their own governments to negotiate with the existing RTA.

To simulate this logic, the author constructs a simultaneous equation model on RTA/FTA in China, Japan and Korea. Although they have individual action, most of them are influencing each other. The paper employs Vector Auto Regression (VAR) as a part of simultaneous equation model. VAR model is one of the most successful, flexible, and easy to use models for the analysis of multivariate time series. It is a natural extension of the univariate autoregressive model to dynamic multivariate time series. VAR is a statistical model used to capture the linear interdependencies among multiple time series. VAR models generalize the univariate autoregression (AR) models. All the variables in a VAR are treated symmetrically; each variable has an equation explaining its evolution based on its own lags and the lags of all the other variables in the model. VAR modeling does not require expert knowledge, which previously had been used in structural models with simultaneous equations.

The VAR approach assumes all variables in the system are potentially endogenous, so each variable is explained by its own lags and lagged values of the other variables. The author will start by formulating a general VAR model of the relationship between China, Japan and Korea Individual RTA.

$$CFTA_t = \alpha_1 + \sum \beta_{1j} CFTA_{t-j} + \sum \lambda_{1j} JFTA_{t-j} + \sum \gamma_{1j} KFTA_{t-j} + \varepsilon_1 \quad (2)$$

$$JFTA_t = \alpha_2 + \sum \beta_{2j} JFTA_{t-j} + \sum \lambda_{2j} KFTA_{t-j} + \sum \gamma_{2j} CFTA_{t-j} + \varepsilon_2 \quad (3)$$

$$KFTA_t = \alpha_3 + \sum \beta_{3j} KFTA_{t-j} + \sum \lambda_{3j} JFTA_{t-j} + \sum \gamma_{3j} CFTA_{t-j} + \varepsilon_3 \quad (4)$$

The equations above show that all variables are endogenous variables within the simultaneous equation. The variables are influencing each other, as for example the growth of Chinese FTA in year “t” is influenced by the Chinese FTA, Japanese FTA and Korean FTA from previous period. Likewise, the growth of Japanese FTA at year t is influenced by Japanese FTA, Chinese FTA and Korean FTA from previous period. Furthermore, Korean FTA at year t is influenced by Korean FTA, Japanese FTA and Chinese FTA from the previous period.

3.4 Dominant Strategy

A strategy is dominant if, regardless of what any other countries do, the strategy earns a country a larger payoff than any other. Hence, a strategy is dominant if it is always better than any other strategy, for any profile of other countries’ actions. Depending on whether “better” is defined with weak or strict inequalities, the strategy is termed strictly dominant or weakly dominant. If one strategy is dominant, the other is dominated. This paper employs Error Correction Mechanism (ECM) to describe this phenomenon.

According to the Engel-Granger (1987) theorem, if two variables y and x are cointegrated, then the relationship between the two can be expressed as an ECM in which the error term from the OLS regression, lagged once, acts as the error correction term. In this case the cointegration provides evidence of a long-run relationship between the variables, whilst the ECM provides evidence of the short-run relationship. A basic error correction model would appear as follows:

$$\Delta y_t = \chi_0 + \chi_1 \Delta x_t - \tau(u_{t-1}) + \varepsilon_t \quad (5)$$

Where τ is the error correction term coefficient, which theory suggests should be negative and whose value measures the speed of adjustment back to equilibrium following an exogenous shock. The error correction term u_{t-1} , which can be written as: $(y_{t-1} - x_{t-1})$, is the residual from the cointegrating relationship. From this explanation we can say that ECM is a technique to correct short-run disequilibrium to its long run long run equilibrium. The equation of ECM is as follows:

$$\Delta GDP_{CountryX} = \beta_0 + \beta_1 \Delta Export_{CountryY} + \beta_2 u_{t-1} + e_t \quad (6)$$

u_{t-1} is a cointegrated error lag 1, or could be noted mathematically as:

$$U_{t-1} = GDP_{CountryX}_{t-1} \beta_0 - \beta_1 Export_{CountryY}_{t-1} \quad (7)$$

In this equation, $\Delta GDP_{CountryX}$ is the difference in GDP for Japan, Korea and China, while $\Delta Export_{CountryY}$ is the difference in export from country X to Country Y. As for example, $\Delta GDP_{Japan} = \beta_0 + \beta_1 \Delta Export_{China} + \beta_2 u_{t-1} + e_t$ applies for the effect of Japan’s export to China on Japan’s GDP.

4. Results and Discussion

4.1 Payoff Matrix

Table 1: Payoff Matrices

		Japan: Creates	
		China	
		Creates	Withholds
Korea	Creates	3240.14, 4809.101, 5362.959	3194.533, 0, 5679.006
	Withholds	0, 4788.361, 5265.277	0, 0, 1097.702

		Japan: Withholds	
		China	
		Creates	Withholds
Korea	Creates	2368.986, 6090.883, 0	815.0657, 0, 0
	Withholds	0, -82.75891, 0	0, 0, 0

Note: the numbers in the matrices are taken from the coefficient value of the CJK FTA to the GDP after regressing equation 1.

This game scheme yields the payoff matrices in Table 1. Payoffs in the three-player game are given to the row player (Korea), the column player (China), and the matrix player (Japan) respectively. Below is the detailed explanation

i. Japan

If Japan decides to conduct FTA with ASEAN member countries, she will yield several payoffs given other countries' actions. Japan will yield 5362.959 if China and Korea decide the same thing. Japan will have 5679.006 as a reward if Korea decides to create the FTA while China withholds her action. 5679.006 will serve as Japan's payoff if Korea decides to withhold while China creates FTA. If China and Korea withhold from the FTA, Japan will have 1097.702.

On the other hand Japan's action to withhold from FTA with ASEAN member countries will give zero (0) contribution given other countries' actions. Having these facts in mind, we can say that Japan best response function is to create FTA with ASEAN member countries. This is true since it produces the most favorable outcome for Japan, taking other countries' strategies as given. This is also a dominant strategy in view of the fact that creating FTA earns Japan larger payoffs than withholding it.

ii. Korea

Korea's strategy to create FTA with ASEAN member countries, will give her several payoffs given other countries' actions. Korea will take 3240.14 if China and Japan decide to do the same thing. 3194.533 will serve as her reward if Japan decides to create FTA while China withholds her action. Korea will get 2368.986 as her payoff if China decides to do the same while Japan withholds. If China and Japan withhold from the FTA, Korea will have 815.0657.

Alternatively Korea's action to withhold from FTA with ASEAN member countries will give zero (0) contribution given other countries' actions. Since FTA creating strategy to ASEAN member countries produces the most favorable outcome for Korea, taking other countries' strategies as given, we can say that it

is the best response function for Korea. This also functions as dominant strategy for Korea in since creating FTA gives better payoffs than withholding it.

iii. China

Following the same scheme, China's strategy to create FTA with ASEAN member countries, will give her several payoffs given other countries' actions. China will get 4809.101 if Korea and Japan are moving along the same line. If Korea withholds while Japan decides to create FTA, China will yield 4788.361 as her payoff. China will have 6090.883 as payoff if Korea chooses to create FTA while Japan withholds. But China will suffer from the game if she is the only country that creates FTA with ASEAN since she will receive -82.75891 as payoff.

Then again China's strategy to withhold from FTA with ASEAN member countries will give zero (0) contribution given other countries' actions. From the payoff matrix, China's best response function and dominant strategy are still ambiguous. It is fair to say this since China's strategy still has the possibility to deviate from creating FTA with ASEAN.

Given the less ideal situation above for China, we cannot decide the Nash Equilibrium yet. It still has the tendency to deviate from *Pareto superior* to *Pareto inefficient* equilibrium that is often associated with strategy traps. Baldwin's domino effect using VAR simulation below will bring the answer.

4.2 Response Functions

From the VAR result in Table 2, we can see that Chinese FTA is influenced by her own FTA in t-1 and Japanese FTA in t-2 while Korean action to conduct FTA does not give significant influence to Chinese FTA strategy. Japanese FTA, on the other hand, is clearly influenced by her FTA in t-1, Chinese FTA in t-1 and Korean FTA in t-2. Implicitly speaking, Japanese put more attention in Chinese FTA rather than Korean FTA. It is stated from the difference in time lag. Korean strategy in conducting FTA is rather unique compared with Japanese and Chinese FTA. Korean FTA is surely neglecting her previous FTA policy and put more focus on Japanese and Chinese action. Chinese FTA in t-1 and t-2 give an abundant dominance for Korean FTA while Japanese FTA gives different influence in t-1 and t-2. Japanese FTA in t-2 boost the tendency of the Koreans to have their FTA with others while Japanese FTA in t-1 stalls the Korean FTA.

From the regression, we can find that China's strategy is relatively dependant with Japan's strategy. Since we already have Japan's best response function, the decision to create FTA with ASEAN countries will be the Nash Equilibrium for China. The analysis of dominant strategy in the next section will serve to complement this finding.

Table 2. VAR Result

Sample(adjusted): 1992 2009			
Standard errors & t-statistics in parentheses			
	CHINA_FTA	JAPAN_FTA	KOREA_FT A
CHINA_FTA(-1)	0.628205 (0.26004) (2.41582)	0.948718 (0.27010) (3.51246)	0.410256 (0.09456) (4.33861)
CHINA_FTA(-2)	-0.517094 (0.42724) (-1.21033)	-0.726496 (0.44377) (-1.63711)	0.811966 (0.15536) (5.22641)
JAPAN_FTA(-1)	0.088034 (0.19291) (0.45636)	0.391453 (0.20037) (1.95364)	-0.331624 (0.07015) (-4.72749)
JAPAN_FTA(-2)	0.873504 (0.25506) (3.42467)	0.223932 (0.26493) (0.84524)	0.408547 (0.09275) (4.40483)
KOREA_FTA(-1)	0.191453 (0.51012) (0.37531)	-0.663248 (0.52986) (-1.25173)	-0.294017 (0.18550) (-1.58500)
KOREA_FTA(-2)	-0.141880 (0.34976) (-0.40565)	1.670085 (0.36330) (4.59701)	-0.960684 (0.12719) (-7.55333)
C	0.084615 (0.09355) (0.90453)	0.046154 (0.09717) (0.47500)	0.030769 (0.03402) (0.90453)
R-squared	0.866164	0.914038	0.951648
Adj. R-squared	0.793162	0.867149	0.925275
Sum sq. resids	1.137607	1.227350	0.150427

4.3 Dominant Strategy

In this part, two scenarios are included. In the first scenario, the author used the period when FTAs/EPAs were not a major trend while in the second scenario the author used the period when it has emerged as snowball. From the trade agreement database, we have the most FTAs/EPAs in force after the year of 2005. Therefore, the scenarios are differentiated by the time period. In the first scenario, the author uses the data from 1985 to 2005. As for the second scenario, the data from 1990 to 2009 is employed.

i. First Scenario

China: The residuals for the relationship between China's GDP with China's Export to Japan and Korea are significant. These suggest that there is an equilibrium error in the short run. The negative signs put the Export for a constant rise to reach the long run equilibrium. In China's case, the adjustment rate or the phase of acceleration for the long run equilibrium is very fast. It can be seen through the absolute value of the equilibrium error coefficients which are 1.09 and 1.33 for China's relationship to Korea and Japan

respectively.

Japan: In the short run, there is an equilibrium error for Japan's Export to China with its relation to Japan's GDP. The coefficient of residual gives negative sign (-0.18), which means that Japan's Export to China is below the long run equilibrium. This will only lead to a rise of export for the following periods. But it is important to note that the absolute value of the coefficient (adjustment rate) is very small (0.18). This suggests that Japan's Export to China is moving in a slow phase to reach the long run equilibrium.

As for the relationship between Japan and Korea, the equilibrium error of the export trend is not significant. These suggest that Japan's GDP is adjusting to the change in Japan's export to Korea in the same period of time. In other words, Japan and Korea relationship in terms of export has already reached steady state level.

Korea: Korea's case is somewhat similar to China. The residuals for the relationship between Korea's GDP with Korea's Export to Japan and China are significant. It yields similar explanation with China's case. However, the adjustment rate for the case of Korea is slower than China's but it is still faster than Japan's. It gives the absolute value of 0.23 and 0.48 for Korea's trade relationship to Japan and China respectively.

Table 3. Equilibrium Errors

Dependent Variables	GDP (Japan)	GDP (China)	GDP (Korea)
Independent Variables			
<i>Equilibrium error for Export to Japan</i>	<i>na</i>	-1.09 ***	-0.23 *
<i>Equilibrium error for Export to China</i>	-0.18 ***	<i>na</i>	-0.48 ***
<i>Equilibrium error for Export to Korea</i>	0.017773	-1.33 ***	<i>na</i>

Note: Statistical significance is indicated by *(10%), **(5%), and ***(1%)

From the ECM result in scenario one (see Table 3), we can conclude that North East Asian region is not moving at the same phase to reach the long run equilibrium, which in this case Japan is the slowest one. The insignificant value of acceleration rate for the case of Japan trade relationship with Korea is also important point to note since it can be interpreted as an exhausted Korean market for Japanese products (steady state condition). These facts are very crucial since it diminishes Japan's role as the sole leader in the north East Asia. The stalled effect of a country's economic growth in this region will only serve as stumbling blocks in creating East Asian welfare. The rising growth of China and Korea will soon meet its end mimicking the pattern of Japan if no serious action is sited. The absence of an appropriate action will only lead to a shock for the long run equilibrium hence lowering the projected welfare growth. Therefore, in order to strengthen regional welfare and accelerate the phase of adjusting, regional action should take place.

ii. Second Scenario

The majority of FTAs/EPAs that are in force since 2005 has given a considerable impact in the CJK countries constellation. In scenario one, we see Japan as a sick partner for the CJK triangular scheme. But here in scenario two, Japan has been successfully proven in revitalizing their condition. It can be seen from the change in coefficients of acceleration which are getting better compared with the one in scenario one. In particular, we can see the Japan is no longer facing a steady state level with Korea, or to put it in other words, Japanese products have recovered its market in Korea. Korea has also grown well in this scheme. The coefficients of acceleration have found betterment compared to the one in scenario one, hence giving a major boost in welfare. However, the improving condition of Japan and Korea has given a slight shock for China. The fact is clearly described from the decreasing rate for the coefficients of acceleration. But, the shock is not significant enough if we calculate the overall welfare impact from the FTAs/EPAs that are in force. Table 4 summarizes the ECM result in scenario two.

Table 4. Equilibrium Errors

Dependent Variables	<i>GDP</i> <i>(Japan)</i>	<i>GDP (China)</i>	<i>GDP (Korea)</i>
Independent Variables			
<i>Equilibrium error for Export to Japan</i>	<i>na</i>	-0.45 **	-0.88 ***
<i>Equilibrium error for Export to China</i>	-0.54 *	<i>na</i>	-1.07 ***
<i>Equilibrium error for Export to Korea</i>	-0.57 *	-0.29 *	<i>na</i>

Note: Statistical significance is indicated by *(10%), **(5%), and ***(1%)

Comparing the first and second scenario, the strategy to create FTA has created a regional difference. FTA creation has been helping the region to reach sustainability. Given this fact, it is fair to say that FTA creation is a dominant strategy for China, Japan and Korea.

4.4 Discussion

As it has been stated in section 4.2, China, Japan and Korea's strategy to create FTA with ASEAN member countries is the Nash equilibrium for this game. In this game, we have found that China, Japan and Korea strategy is interdependence to each other with China giving the most influence to others in making their move. But with the absence of Japan and Korea, China's strategy will give a negative impact economically given her shallow and unclear FTA/RTA strategy in ASEAN. According to Nakagawa and Liang (2011), China has excluded sensitive sectors and issues that may be difficult to deal with in the short term such as intellectual property protection, dispute settlement mechanisms, special sectoral liberalization, environment, and labor standards. Moreover, they argue that China and ASEAN have placed a wide range of important industrial products (such as automobiles, appliances, chemical products, iron and steel, and textiles) as well as farm goods (such as rice and palm oil) on the sensitive track. China has negotiated more than half of its FTA agreements by placing geopolitical/security/strategic goals over economic considerations (Nakagawa and Liang, 2011).

China's attempt with China-ASEAN FTA (ACFTA) is widely seen as an example of the dominance on geopolitical considerations in its engagement in Southeast Asia region as stated by Nakagawa and Liang (2011). A worrying and uncomfortable region can only be a distraction from a focus on economic development. China also accepts very flexible plan, requested by its FTA partners, to reach FTA. As with China's FTA negotiation with ASEAN members, China agreed to negotiate trade in goods agreement (signed in 2004) separately from trade in services agreement (signed in 2007) to ease the political tensions in some of the ASEAN countries. .

The greater flexibilities demonstrated by China unilaterally also shows that reaching agreements with these countries will meet primarily its political and foreign policy objective and instead of reaching economic target such as GDP growth. In fact, Chinese government officials admitted that geopolitical considerations trump any economic benefit when China is negotiating economic issues with its neighboring countries (Nakagawa and Liang, 2011). This is quite understandable since the rivalry between ASEAN4 members and China has been prolonged for ages. Holst and Weiss (2004) point out China's emergence for creating short and medium term direct and indirect competition between ASEAN and China. They argue that ASEAN and China are experiencing intensified export competition in prominent third markets. This can lead to painful domestic structural adjustments within the ASEAN in the short run. Then again the mind set in viewing the economic opportunity or threat depends on whether China's economy is perceived as complementary or competitive vis-à-vis individual ASEAN economies and on whether the latter economies are able to exploit their complementary opportunities and overcome the competitive threats.

In constituting East Asian regionalism, leadership plays a very important role. The Korea Herald once posed the crucial question for the future direction of Asian regionalism: "Which country is capable of taking the lead? It boils down to either China or Japan" (Korea Herald, 10 October 2002). Sino-Japanese antagonism and aspirations to leadership on both sides have, in consequence, been a major source of structural change in the region, resulting in a dynamic interplay between bilateral FTA and multilateral institutions. This paper argues that it is important for East Asia to give Japan an extensive role in designing East Asian wide FTA given the shallow impact of China's FTA the region. From the payoff matrix we can see that Japanese decision to create FTA, given Chinese and Korean decision, yields superior payoff not only for Japan but also for the East Asian region. Although we must admit that the possibility to have Japan as an ideal leader for East Asia is quite difficult, but it is worth trying given the potential effect for enhancing the regional welfare. Their joint strategy to create FTA will eventually bring the East Asian Region to the next level.

5. Concluding Remarks

The Nash equilibrium in this game happens when China, Korea and Japan are playing the same strategy which is to create FTA with the ASEAN member countries. Although the game is analyzed as backward looking, but what we have learned from it has created a benchmark towards the future FTA policy. In a sense of creating integration in East Asia, there is a need to set up more formal institutional mechanisms for trade. It is rational for such mutually dependent countries in the region to institutionalize de facto integration through the establishment of regional arrangements (Kawai, 2005). The growing significance of China, Japan and Korea market for ASEAN will then serve as the basis for a single East Asian Wide FTA. Eventually, China, Japan, and Korea's FTA will find its way to have a greater grip in East Asia (domino effect).

To wrap up, East Asian Regionalism (EAR) will enable the region to cope with the future challenges of globalization and remain internationally competitive. Moreover, Chia (2007) states that EAR could help the less developed East Asian economies which would otherwise become marginalized as they lack the attraction of sizeable market and lack negotiating resources. As Bahrumshah (2007) et al argue, regional integration through RTAs is expected widens the markets of the participating member countries. Large and growing markets will create greater confidence for both domestic and foreign investors.

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Corporate Decision of Diversification and Internationalization Strategies for Chinese Companies

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ABSTRACT

As the open-door policy has been furthered in Chinese market, an increasing number of Chinese companies enhanced their global involvement through the boosting development of export market. Also due the deregulation of production and pricing activities, Chinese companies are more diversified by operating a larger number of product lines. The companies which take both diversification and internationalization strategies can be more advantageous in gaining market power, but also forced to confront resource limitation and management complexities. This study finds the relationship of diversification, internationalization strategies and firm performance of Chinese companies, and also tells the stationary point where Chinese companies can be settled, concerning these two strategies and other control variables. The result of this research can be helpful to global managers and policy makers in their corporate decisions.

Corporate Decision of Diversification and Internationalization Strategies for Chinese Companies

Introduction

Since 1978, The Chinese government initiated the open policy for greater relationship with the global economy. The objective of the policy was to earn foreign exchange, import foreign technology, and strengthen managerial practices for higher level of industrial development. The policy aims to shift the Chinese economy from traditional import substitution to export promotions. Meanwhile, the policy will also confront the manufacturing constraints and the risk to expose premature domestic industries to the global competitions (Fischer, 1989).

With the deregulation of foreign investment in China and the relaxation of the products, the Chinese companies have been challenged by fierce competition with competitive international brands. According to the Ministry of Commerce of China, the FDI to China has increase continuously with an increasing number of new companies built by foreign investors. The open policy of China has increased the competition of Chinese companies and foreign investors. The increased competition has forced the Chinese companies to be transformed from central planned economy to market oriented economy to overcome the operational redundancies, bureaucratic stagnation, and technological obsolescence. In the co-operations and competition with foreign companies, the Chinese companies have transferred their management and technical skills to the international standards for entry to higher value-adding markets. On the other hand, the Chinese companies have increased the global expansion with the increased trade and the service as a manufacturing planet of world market. According to the Statistical Bulletin of FDI from Ministry of Commerce of China, the export of China has increased from 438.37 billion \$US in 2003 to 1577.93 billion \$US in 2010. Therefore, the domestic constraints and the pressures of global competition provided the dynamics for Chinese companies in foreign markets (Child & Rodrigues, 2005).

The reasons of the internationalization of Chinese companies are as following:

(1). The productivity of Chinese companies has been increased for the export

The structure in output growth of Chinese companies shows that the structure has been developed to fulfill not only the consumption demand, but also the investment demand, export demand and intermediate uses. It has been found that the output growth is a multi-component driven rather than the single factor driven (Liu, 1998).

(2). The open policy developed the internationalization of Chinese companies with advantages in labor resources

The export driven growth of Chinese companies results from the open policy and the GDP growth rate of Chinese economy. Foreign trade of Chinese international companies could also increase the demand for labor resources and services. The international corporations between Chinese companies and the global market could help the Chinese companies to obtain sustained development at a high growth rate (Guisan, 2004).

(3). The reform of market-oriented economy also increases the export trade of Chinese companies

The reform of market-oriented economy in China is more concerned to the guide of market power and the relationship between the demand and supply in the global market. The production and the pricing of products are deregulated and the operations of the Chinese companies are more decentralized. Thus the Chinese companies are more concerned to the increase of market size in the global competition and

increased the export of their products.(Lo & Chan, 1998) Furthermore, the Chinese companies has been developing the high-tech products in the export, and it has been trying to take advantage of the technology transfer from the international productions and corporations (Lall & Albaladejo, 2004).

Diversification into related businesses can have a positive impact on performance by allowing firms to make better use of the resources of a core business. The diversification of operations leads to better all-around management in the company, performance, and shareholder wealth enhancement. Diversification into new products could be guided by the newness of the technology and market to the firm and its degree of familiarity with the new technology and the new market. As a result of the difference of sales, diversified firms with market power perform better than diversified firms that are not market leaders. Diversification has a significant and positive influence on the value of the firm (Ramanujam & Varadarajan, 1989).

The Chinese government encouraged a number of Chinese companies to expand their global market through specialized foreign trade corporations and the objective was to enlarge the export and to secure the raw material supplies. As the economy reform progresses, more Chinese companies are also encouraged to acquire foreign companies in the global market and aim to obtain higher level of management and technical skills. An increasing number of Chinese companies are encouraged by the government to go abroad to acquire advanced technology and R&D capabilities through the differentiation of their products in their internationalization process (Child & Rodrigues, 2005).

Therefore, the relationship between diversification, internationalization, and firm performance is important to the global managers of Chinese companies, and the result of diversification and internationalization strategies on Chinese companies is worth to be examined. More importantly, the trade-off between diversification and internationalization strategies can be a determinant to the corporate decisions of Chinese managers. This study can be a further decision support for Chinese companies to identify the fine-balance of diversification, internationalization and firm performances.

Literature Review

1. Internationalization and Firm Performance

Hitt et al. (1997) found the internationalization could have a positive relationship to the performance of the companies. Firms with unique internal capabilities will apply the firm resources and advantages in international markets to increase profitability by achieving economies of scale, rationalizing production, making investments over broad market bases, and achieving greater organizational learning. Firms with unique resources can leverage these across national markets. Firms will achieve differential benefits of international expansion based on their capability to maximize the gains of internationalization while minimizing the relevant costs of expansion. (Hitt, Hoskisson, & Hicheon, 1997)

International companies will confer advantage over domestic firms. International firms have opportunities to gain greater returns to intangible resources, to use market power, to spread their market risks, and to seek less expensive inputs and less price-sensitive markets. The international companies have greater opportunities to leverage resources while lowering market risks, thus raising its performance. The international companies can arbitrage across factor markets and leverage their market power to both reduce input costs and control output markets. The internationalization has helped to improve operating performance. A firm with profit-making capabilities will seek additional profits in international market locations. This expansion may be limited by related product scope expansion of global market. Experience in international markets permits firms to gradually increase their commitment to international expansion. The ability to manage extensive networks of international subsidiaries at low transactional costs seems to be a key capability of successful multinational firms. (Tallman & Li, 1996)

Kim (2010) found the internationalization of companies could increase their global brand value. The global

value can help the international companies develop international operations in the world market. The foreign sales ratio has been found a significant relationship with the global brand value. The global brand value is positively related to the internationalization of the companies, and the higher global brand value will result in more international operations. The negative and unfavorable brand association may be an obstacle to international operations. (Kim, 2010)

Internationalization of the companies could increase the firm value with the access to the international market and the achievement of special assets. The internationalization could increase the firm value with higher operational flexibility. The internationalization could increase the firm value with tax reduction. By comparing the value relevance of foreign and domestic portion of earnings in U.S. companies, it is found that greater growth opportunities are associated with the foreign operations. (Dastidar, 2009)

2. Diversification and Firm Performance

A firm will choose to diversify to modify its business so it can better satisfy the performance objectives of the target customer groups. Diversification is the level at which firms classified in one industry produce goods classified in another. Diversification could be an increase in the number of industries in which firms are active. The diversified business can be managed independently on the firm's other activities. It is found that the firms that diversified but restricted their range of activities to a 'central skill or competence' have better performance than other firms. Related-diversification firms show superior profitability when compared with unrelated diversification firms. (Ramanujam & Varadarajan, 1989)

Servaes (1996) pointed out there could also be a diversification discount that the diversified firms are less profitable than the specialized firms operating in the same industry. There is a negative relationship between the diversification and capital market development. They found the value of diversification is increased in the weak capital market. (Servaes, 1996) It is found that firms in less developed capital market are more likely to diversify the products for greater benefits of internal capital markets. The information advantage of internal capital market will be reduced when the capital markets are more developed. It is also found that the shareholders in U.S firms benefit more from the less diversified productions since the U.S. is a well developed capital market and negatively related to the diversification. Shackman (2007) pointed out one consequence of the internationalization of capital markets could be the worldwide trend towards vertical integration and away from diversification. Emphasis of investor protections and more integrated capital markets in the global expansion of international companies could be associated to lower levels of diversification. (Shackman, 2007)

3. Diversification and Internationalization

With the deregulation of Chinese economy from central-planned to market-oriented, the production of Chinese companies is more diversified. The internationalization of Chinese companies increased the competition for larger market share and also enhanced the research and development in the product diversification. The diversification of Chinese companies can be helpful to improve their firm performances. However, the diversification of Chinese international companies can also increase the cost of the product development, the management and communication in foreign markets with different cultural and economic background.

Markides and Williamson (1996) found diversification can support superior returns only when it allows a firm to exploit resources or assets that are unavailable to its rivals at a competitive cost. Diversification can enhance performance only if it allows a business to obtain preferential access to skills, resources, assets, or competences that can not be purchased by non-diversified companies in a competitive market or replaced by some other asset that can be purchased competitively. Only accumulated competences that enable a diversified firm to build new strategic assets more quickly and efficiently than competitors can allow it to sustain supernormal profits (Markides & Williamson, 1996).

Barney (1991) suggested that the resources of firms which create competitive advantage should be valuable resources. The resources should also be rare. As long as the firm has valuable resources that have not been found by a large number of competitors, these resources have the potential of generating a competitive advantage. Furthermore, firm resources could be imperfectly imitable. There may not be substitute firm resources that offer the same advantages to an organization and these resources might not be equivalent in the implementation of the strategies. Williamson (1999) pointed that resources may be imperfectly mobile because the transactions costs associated with their transfer are very high. The immobile and imperfectly mobile resources are non-tradable and remain bounded to the firm.

The international companies of China have benefited from internationalization at home by cooperating with global players who have transferred technological and organizational skills, allowing emerging market enterprises to later undertake outward internationalization in some unconventional ways. However, The global success of Chinese international companies is still highly dependent on their performance at home and their home base to serve as the manufacturing center for their worldwide operations (Luo & Tung, 2007).

There are also difficulties for the product diversification in internationalization of Chinese companies, and this could limit the global expansion of the international companies. It has been found that the diversification of international companies associated with administrative complexity grow so quickly they can soon overwhelm any potential economies of scale or scope offered by diversification. Moreover, as firms diversify further away from their core businesses, managers are less likely to have an intimate understanding of their different businesses or markets. Poor decision making can follow, with lower performance levels an inevitable result. The combination of administrative complexity, poor strategic decision making, and the financial controls employed by large diversified firms may lead to poor management of business units, or to underinvestment in business opportunities. Stimpert and Duhaime (1997) pointed out diversification will have a significant indirect and negative impact on performance if it leads to underinvestment in new product and process technologies, thereby reducing competitiveness at the business level.

Although the world market has become more integrated, the differences across the countries and the cultures still exist. The national differences such as the customer preferences and market environment distinctions can affect the performance of diversification of international companies in the foreign markets and delay the entrance of international companies to the new markets. A highly differentiated product or a strong brand image is usually related to the national identity of the home country. When the products enter a foreign market with a highly different culture from the home country, the strength of the brand equity will be reduced. Thus, the resources are determinant to the foreign market expansion and the diversification of international companies could increase the cost and affect the internationalization of the firms while they compete in foreign countries. Additionally, the diversification will increase the management complexity in the internationalization due to the differences of cultural and economic background across different countries. Moreover, the know-how of international companies could be different across the countries, and it could be difficult for the firms to translate the knowledge into local context.

Therefore, the hypothesis of relationship between diversification, internationalization, and firm performance of Chinese companies are as following:

H1: Internationalization has a positive relationship with firm performance of Chinese companies

H2: Diversification has a positive relationship with firm performance of Chinese companies

H3: Internationalization and Diversification have quadratic relationships with firm performance of Chinese companies while these two strategies function together

$$Performance == \int (Diversification, Globalization, \varepsilon)$$

Research Method

Kim (2010) used the ratio of foreign sales to total sales to define the internationalization level of the companies and found a significant relationship between the internationalization and the global brand value. Hoskisson et al. (1993) employed the entropy method to measure the product diversification of the firms. Hult et al. (2008) also pointed out that the financial performance can be measured by sales of international companies. Additionally, Qian et al. (2008) pointed out that firm age and firm leverage could be control variables that influence the firm performance. Li and Wong (2003) set firm size as a control variable in their measure of performance for the Chinese companies. Berger & Ofek (1995) also pointed out that the growth opportunity could affect the excess value of the firms. Bhaumik et al. (2010) found that firms with concentrated ownership are less likely to have diversification in the global competition.

Therefore, dependent variable is the sales performance of Chinese companies, independent variables are internationalization and diversification of Chinese companies, and control variables include firm size, firm leverage, growth opportunities, ownership concentration and firm age. The sample include Chinese listed companies that are publicly traded in Shanghai and Shenzhen stock exchange market, and their financial statements are audited by major international and domestic accounting firms. And the data is transformed by the logarithm for the regression analysis (Hair, 2010). Ridge max regression analysis is processed by SAS 9.2 to find the stationary point of Chinese companies, and surface response of diversification and internationalization is visualized by 3D plot.

Result

The relationship of diversification, internationalization and firm performance is firstly examined by a lackfit test. The model is as following:

$$\text{Lnsale} = a + b(\text{Lndiver}) + c(\text{Lnintl}) + d(\text{Lndiver} * \text{Lnintl}) + e(\text{Lndiver})^2 + f(\text{Lnintl})^2$$

The total R-square is 0.1079, which is relatively low. It is found that the linear and quadratic relationships of diversification, internationalization and firm performance is also not significant (see Table 1). The reason could be that control variables such as firm size, firm leverage, growth opportunity, ownership concentration, and firm age. Therefore, control variables are added to the function concerning their covariate effect.

The result of ridge max regression is show in Table 2. Both values of diversification and internationalization strategies are coded. New variables Lndiver1 and Lnintl1 are generated, and control variables are also included for covariate functions. The function for ridge max regressions analysis is as following:

$$\text{Lnsale} = a + b(\text{Lndiver1}) + c(\text{Lnintl1}) + d(\text{Lndiver1} * \text{Lnintl1}) + e(\text{Lndiver1})^2 + f(\text{Lnintl1})^2 + g(\text{size}) + h(\text{lnowner}) + i(\text{Lnlever}) + j(\text{Lngrowth}) + k(\text{Lnage})$$

The R-square is improved to 0.69 after the control variables are included in the function (see Table 2). From Figure 1, it is found that the residuals are randomly generated following the predicted value, and the distribution of residuals is following a normal distribution. Diversification is found to have a significantly positive relationship with firm performance of Chinese companies ($p < 0.05$). Internationalization is found to have a significant quadratic relationship with the firm performance of Chinese companies ($p < 0.05$). Control variables are found to have significant relationship with firm performance except the firm age. The function can be updated as following:

$$\text{Lnsale} = 4.92 + 0.14(\text{Lndiver1}) + 0.25(\text{Lnintl1}) - 0.18(\text{Lnintl1})^2 + 0.53(\text{size}) + 0.51(\text{lnowner}) - 0.31(\text{Lnlever}) - 0.35(\text{Lngrowth})$$

From Table 2, it is also found that the stationary point of Chinese companies is positioned on a saddle point. As the variables of diversification and internationalization are coded before the ridge max regression analysis,

both coded and uncoded values of diversification level (Indiver1) are -0.19, and coded value of internationalization level (Inintl1) are 0.77. Therefore, the Indiver value is -0.96, and Inintl is -0.44. Figure 2 shows the changes of predicted sales performance following the changes of diversification and internationalization of Chinese companies. And Figure 3 is the response surface of sales performance. By controlling size=10.74, lowner=-0.16, lnlever=0.39, lngrowth=-0.61, lnage=1.06, the predicted value of sales performance is visualized as the response surface which is dependent on diversification and internationalization levels of Chinese companies.

Conclusion

With the development of open-door economy, a number of Chinese companies enhance their involvement in global competition. Acquiring higher level of technology and management skills, Chinese companies are also diversified in a larger number of product lines. On the other hand, due to the mobility barriers of resources and competitive advantages, Chinese companies are also confronted with a number of difficulties such as resource limitations and management complexities while taking both diversification and internationalization strategies. It is found in this study that internationalization strategy has a quadratic relationship with the sales performance of Chinese companies, while the diversification strategy contributes a positive linear effect. The stationary point of Chinese companies is a saddle point, and the study also pointed out the coded value of diversification and internationalization levels which holds this stationary saddle position. Additionally, the response surface of sales performance is visualized through 3D plot, while concerning the functions of diversification and internationalization strategies.

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Appendix

Table 1. Lackfit Test of Internationalization, Diversification and Firm Performance

The RSREG Procedure

Coding Coefficients for the Independent Variables

Factor	Subtracted off	Divided by
lnDiver	-0.811767	0.786416
lnIntl	-1.863940	1.835030

Response Surface for Variable lnSale: lnSale

Response Mean	10.607335
Root MSE	0.409853
R-Square	0.1079
Coefficient of Variation	3.8639

Regression	DF	Type I Sum of Squares	R-Square	F Value	Pr > F
Linear	2	2.976467	0.0699	8.86	0.0002
Quadratic	2	1.085958	0.0255	3.23	0.0413
Crossproduct	1	0.527109	0.0124	3.14	0.0778
Total Model	5	4.589535	0.1079	5.46	<.0001

	DF	Parameter Estimate	Standard Error	t Value	Pr > |t|	Parameter Estimate from Coded Data
Intercept	1	10.438477	0.141466	73.79	<.0001	10.543807
lnDiver	1	-0.101299	0.341236	-0.30	0.7668	0.394878
lnIntl	1	-0.403549	0.131651	-3.07	0.0024	0.212800
lnDiver*lnDiver	1	-0.121574	0.206129	-0.59	0.5559	-0.075187
lnIntl*lnDiver	1	-0.217842	0.122976	-1.77	0.0778	-0.314367
lnIntl*lnIntl	1	-0.091923	0.035003	-2.63	0.0092	-0.309535

Factor	DF	Sum of Squares	Mean Square	F Value	Pr > F	Label
lnDiver	3	3.043809	1.014603	6.04	0.0006	lnDiver
lnIntl	3	1.627673	0.542558	3.23	0.0232	lnIntl

Residual	DF	Sum of Squares	Mean Square	F Value	Pr > F
Lack of Fit	226	37.963329	0.167979	.	.
Pure Error	0	0	.	.	.
Total Error	226	37.963329	0.167979		

Table 2. Ridge Max Regression Analysis of Diversification, Internationalization and Firm Performance of Chinese Companies

The RSREG Procedure

Coding Coefficients for the Independent Variables

Factor	Subtracted off	Divided by
lndiver1	-0.000000319	1.000000
lnintl1	5.6893102E-8	1.000000

Response Surface for Variable lnSale: lnSale

Response Mean	10.607335
Root MSE	0.244186
R-Square	0.6903
Coefficient of Variation	2.3020

Regression	DF	Type I Sum of Squares	R-Square	F Value	Pr > F
Covariates	5	27.572820	0.6480	92.48	<.0001
Linear	2	1.150912	0.0270	9.65	<.0001
Quadratic	2	0.566198	0.0133	4.75	0.0096
Crossproduct	1	0.085416	0.0020	1.43	0.2326
Total Model	10	29.375346	0.6903	49.27	<.0001

	DF	Parameter Estimate	Standard Error	t Value	Pr > |t|	Parameter Estimate from Coded Data
Intercept	1	4.922109	0.334234	14.73	<.0001	4.922109
lndiver1	1	0.143465	0.068037	2.11	0.0361	0.143465
lnintl1	1	0.252977	0.065830	3.84	0.0002	0.252977
lndiver1*lndiver1	1	0.112378	0.079571	1.41	0.1593	0.112377
lnintl1*lndiver1	1	-0.130999	0.109451	-1.20	0.2326	-0.130999
lnintl1*lnintl1	1	-0.180304	0.074070	-2.43	0.0157	-0.180304
Size	1	0.526423	0.029780	17.68	<.0001	0.526423
lnOwner	1	0.505272	0.159184	3.17	0.0017	0.505272
lnLever	1	-0.307207	0.048356	-6.35	<.0001	-0.307207
lnGrowth	1	-0.350484	0.039769	-8.81	<.0001	-0.350484
lnAge	1	-0.094292	0.063344	-1.49	0.1380	-0.094292

Factor	DF	Sum of Squares	Mean Square	F Value	Pr > F
lndiver1	3	0.784659	0.261553	4.39	0.0051
lnintl1	3	1.074526	0.358175	6.01	0.0006

Canonical Analysis of Response Surface Based on Coded Data

Factor	Critical Value	
	Coded	Uncoded
lndiver1	-0.189338	-0.189339
lnintl1	0.770312	0.770312

Predicted value at stationary point: 10.573974

Eigenvalues	Eigenvectors	
	lndiver1	lnintl1
0.126367	0.977943	-0.208872
-0.194293	0.208872	0.977943

Stationary point is a saddle point.

Estimated Ridge of Maximum Response for Variable lnSale: lnSale

Coded Radius	Estimated Response	Standard Error	Uncoded Factor Values	
			lndiver1	lnintl1
0.0	10.490120	0.042825	-0.000000319	5.6893102E-8
0.1	10.517620	0.039671	0.055818	0.082972
0.2	10.542367	0.037054	0.128834	0.152976
0.3	10.565345	0.034523	0.222412	0.201328
0.4	10.587902	0.031682	0.330423	0.225433
0.5	10.611234	0.028639	0.442969	0.231901
0.6	10.636086	0.026254	0.554909	0.228200
0.7	10.662860	0.026103	0.664917	0.218826
0.8	10.691776	0.029712	0.772988	0.206128
0.9	10.722959	0.037338	0.879422	0.191353
1.0	10.756485	0.048270	0.984531	0.175204

Figure 1. Fit Diagnostics for Sales Performance of Chinese Companies

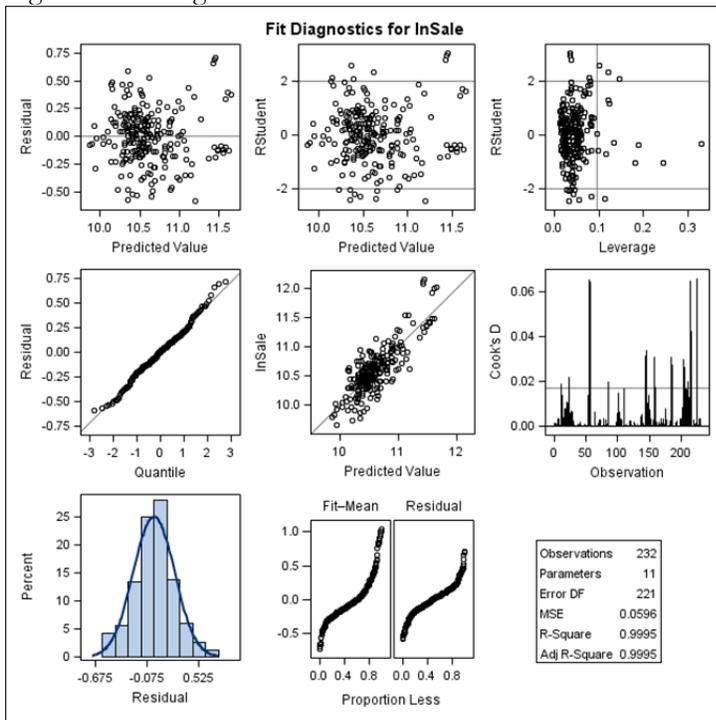


Figure 2. Ridge Plot of Sales Firm Performance

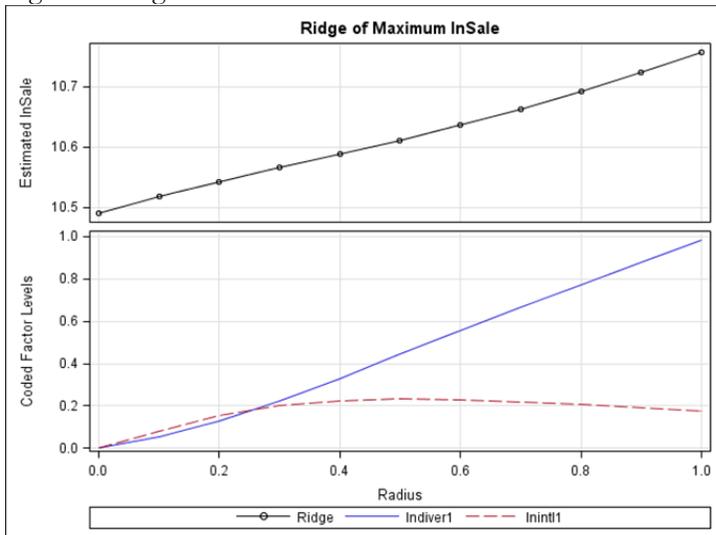
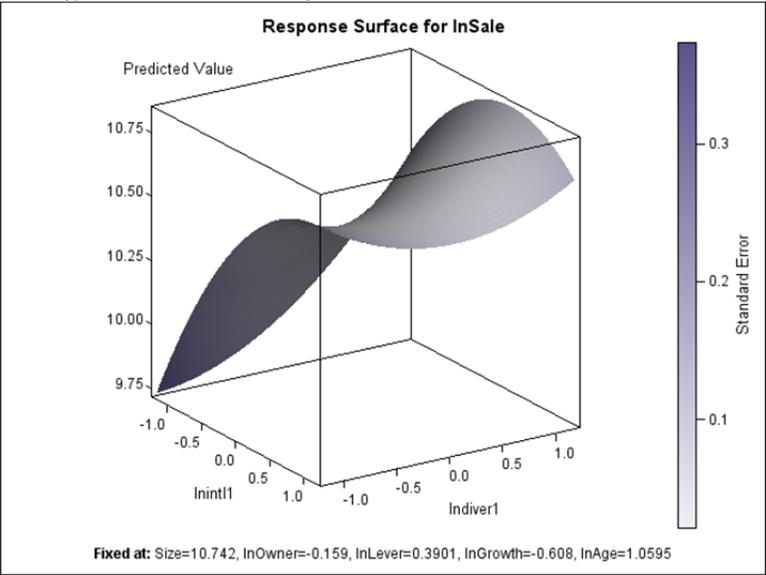


Figure 3. 3D Response Surface for Firm Performance based on Diversification and Internationalization Strategies of Chinese Companies



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“Los Recursos Tecnológicos Como Medio Para Fortalecer El Intercambio De Experiencias Académicas Y Profesionales: Eliminando Las Fronteras Entre Continentes”

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RESUMEN

El artículo propone fomentar la participación de los estudiantes universitarios en eventos académicos virtuales tales como conferencias, simposiums y seminarios organizados en cualquier parte del mundo; en este trabajo también se propone intensificar la actividad académica de los alumnos en las redes sociales, todo esto con la finalidad de fortalecer el intercambio de experiencias profesionales valiosas como parte de su formación. Se destacan los eventos virtuales como un recurso académico valioso y se identifican factores que pueden limitar a los estudiantes para participar en ellos. Como un caso particular, se analizan los resultados de una investigación conducida entre estudiantes de la carrera de Contador Público de la Facultad de Comercio, Administración y Ciencias Sociales de la Universidad Autónoma de Tamaulipas con el objetivo de conocer los recursos tecnológicos a los que tienen acceso, su experiencia como usuarios de internet, así como su postura ante las clases y eventos virtuales. Los resultados apoyarán la toma de decisiones relacionada con una propuesta de involucrar en mayor medida a los alumnos de esta carrera en encuentros virtuales académicos.

Palabras clave: recursos, tecnología, universidad, intercambio, virtual

ABSTRACT

This paper aims to promote the participation of university students in virtual academic events such as conferences, symposia and seminars organized anywhere in the world. This paper also intends to intensify the students' academic activity on social networks with the purpose of strengthening the exchange of valuable work experience as part of their education. Virtual events are highlighted as a valuable academic resource, and factors that can limit students to participate in them are identified. As a particular case, the results of a survey conducted among students pursuing a degree in Accounting at Facultad de Comercio, Administración y Ciencias Sociales, Universidad Autónoma de Tamaulipas are analyzed in order to learn about the technological resources to which they have access, their internet user experience and their position on classes and virtual events. The results support the decision-making process related to a proposition to further engage students in academic virtual scenarios.

Keywords: resources, technology, university, exchange, virtual

“Los Recursos Tecnológicos Como Medio Para Fortalecer El Intercambio De Experiencias Académicas Y Profesionales: Eliminando Las Fronteras Entre Continentes”

Introducción

El presente trabajo identifica a los eventos académicos virtuales como un recurso tecnológico para enriquecer las experiencias de los estudiantes universitarios. También aborda los factores que pueden limitar la participación en estos escenarios y propone fomentar la participación de los alumnos en estos foros organizados en cualquier parte del mundo, así como usar las redes sociales con fines académicos. El artículo está dividido en los siguientes apartados: Primero se abordan los eventos virtuales en general y su clasificación, luego, se presentan de forma particular los eventos académicos virtuales y la manera en la que derriban las fronteras geográficas; después, se enfatizan los factores que pueden limitar la participación en estos foros. Posteriormente, se expone un caso particular en el que se conduce una investigación para conocer la experiencia, los recursos tecnológicos a los que tienen acceso y la postura de los estudiantes de la carrera de Contador Público de la Facultad de Comercio, Administración y Ciencias Sociales de la Universidad Autónoma de Tamaulipas. Después se presentan las recomendaciones y finalmente se exponen las conclusiones, así como una perspectiva del trabajo futuro.

Los eventos virtuales

Las Tecnologías de la Información y Comunicación han convertido en realidad los eventos virtuales desde hace ya varios años. De esta manera, es posible participar activamente en foros de exposición e intercambio sin necesidad de trasladarse al lugar físico del evento; basta tener un dispositivo con acceso a internet configurado con los requerimientos tecnológicos indicados para establecer la conexión.

El término “evento” hace referencia a un suceso importante y programado, de índole social, académica, artística o deportiva; mientras que el adjetivo “virtual” implica que su existencia es aparente y no real (Real Academia Española, 2013). Esto es, los sucesos se llevan a cabo en ámbitos artificiales a los cuales se accede por medios informáticos.

Los eventos virtuales pueden clasificarse, de acuerdo a su carácter, en: congresos, foros, conferencias, paneles, simposios, talleres, seminarios, asambleas, convenciones, misiones comerciales, ferias y exposiciones (Experteam, 2012). En todos los casos, el ámbito de participación puede estar abierto al mundo entero. Cada evento tiene un modelo definido de interacción, con objetivos propios y un público destino particular.

En los eventos virtuales se busca establecer nuevos contactos y obtener información útil en corto tiempo. Las relaciones y el intercambio son claves fundamentales entre los participantes. Esta interacción en donde las fronteras entre países son irrelevantes, da paso a un escenario globalizado en el que cualquier individuo con acceso a internet puede ser protagonista.

Los eventos virtuales como recurso académico valioso en la universidad

La educación universitaria delimitada por las paredes de un salón de clase y protagonizada por un profesor, un pizarrón y la verdad absoluta de su cátedra muestra signos de agotamiento y obsolescencia. El empleo de las Tecnologías de Información (TI) y la participación globalizada de los estudiantes desvanece las fronteras impuestas por la ubicación física de un grupo de estudiantes.

Los eventos académicos virtuales permiten desplegar un considerable conjunto de opciones que van desde la participación aislada como espectador hasta la intervención completa en un curso o carrera profesional. Los

eventos académicos pueden ser extra curriculares o formar parte de la retícula oficial de una carrera. En cualquier caso, estas actividades fortalecen el proceso educativo y preparan a los estudiantes para la vida. El objetivo de participar en estos foros es conformar redes humanas para aumentar la interacción entre las personas y fortalecer la generación e intercambio de conocimiento contextualizado para cada ámbito profesional y social (Regalado Miranda, Regalado Miranda, & Abreu García, 2005).

Los encuentros académicos virtuales derriban fronteras

En las universidades es frecuente que, con la intención de ampliar los horizontes académicos de los alumnos se promueva la convivencia con profesionistas destacados quienes, mediante charlas o talleres comparten sus experiencias y generan una dinámica enriquecedora para los involucrados. Resulta muy interesante observar la manera en la que las preguntas de los estudiantes que se plantean desde una posición escolar son contestadas por profesionales que pueden matizar las respuestas con vivencias propias. En otras ocasiones, es deseable que algún personaje académico externo de renombre funja como instructor o facilitador de un curso en particular ofertado por la universidad.

Estos encuentros presenciales suelen estar limitados por la ubicación geográfica del invitado, su disponibilidad para viajar y el presupuesto existente en ese momento para tal efecto. Es aquí donde los encuentros de naturaleza virtual adquieren una relevancia destacable al acercar a las personas y conjuntarlas en un mismo escenario sin importar las limitantes mencionadas.

Con los foros virtuales, los límites geográficos entre continentes no son obstáculo para la comunicación; los medios para acceder al conocimiento y a las experiencias de otros se redimensionan y el binomio de interacción humana - profesional genera nuevas perspectivas. Las actividades académicas virtuales son herramientas poderosas que se deben aprovechar al máximo en las universidades y deben ser valoradas por los beneficios que proporcionan.

Factores limitantes para la participación en eventos académicos virtuales

Existen algunos factores de riesgo que pueden limitar la participación de los alumnos en estos eventos: el nivel de acceso a los recursos tecnológicos, el nivel de dominio de las tecnologías de información involucradas y la postura o actitud ante los escenarios virtuales.

Para participar en eventos virtuales, se requiere contar con una alta disponibilidad de recursos informáticos tales como computadora, conexión a internet de banda ancha, bocinas, micrófono y cámara web. Estos requerimientos pueden variar para cada caso concreto, según la naturaleza del evento. Un acceso reducido a estos recursos impediría total o parcialmente la participación de los estudiantes.

La participación en un evento virtual también requiere de cierta experiencia previa con TI, por ejemplo, navegación en la web y manejo básico de software ofimático y correo electrónico. Un usuario sin un nivel mínimo de experiencia puede perderse fácilmente en procesos de registro, operación o configuración propios de estos escenarios. Para alumnos de carreras relacionadas con informática o sistemas computacionales, esto podría resultar demasiado obvio, sin embargo, es un aspecto importante que debería tomarse en cuenta en carreras en donde el énfasis académico es otro. Por otra parte, si bien es cierto que el estar matriculado en una carrera universitaria supone un manejo estandarizado de TI, al menos, en nivel principiante, también es cierto que hay casos especiales de alumnos cuyas experiencias con la tecnología no han resultado del todo favorables, dando como resultado que su perfil en esta área sea débil.

Otro aspecto importante es la postura de los alumnos frente a los eventos académicos virtuales: un bajo grado de interés podría disminuir el nivel de participación. Esta postura podría abordarse desde dos perspectivas: los eventos académicos virtuales como parte del programa oficial de estudios y como una actividad adicional de carácter complementario y extracurricular.

Por otra parte, una postura oficial de participación restrictiva por parte de los organismos institucionales intra-universitarios de evaluación investigativa y docente a este tipo de eventos puede desmotivar su instrumentación y por ende la pérdida de interés en la promoción de espacios académicos virtuales.

Caso particular: Análisis de los factores limitantes para la participación virtual de los estudiantes de CP de la UAT - FCACS

En la Facultad de Comercio, Administración y Ciencias Sociales de Nuevo Laredo (FCACS) de la Universidad Autónoma de Tamaulipas (UAT) se desea implementar una estrategia para involucrar mayormente a los alumnos de la carrera de Contador Público (CP) en eventos académicos virtuales, para lo cual se realizó una investigación (Roque Hernández, Mota Martínez, & González, 2012) con el objetivo principal de determinar la situación actual de los alumnos en cuanto a los factores limitantes para su participación en estos foros, los cuales fueron mencionados en el apartado anterior de este artículo. De manera concreta, el objetivo de la investigación fue conocer: los recursos tecnológicos a los que tienen acceso, su nivel de experiencia en la red y su postura respecto a la inclusión de actividades académicas virtuales en su formación profesional.

Metodología

El primer paso para realizar esta investigación se centró en una revisión bibliográfica que permitió identificar estudios similares realizados con anterioridad. Posteriormente, se analizaron, seleccionaron y adaptaron las preguntas. Después, se consultó el sistema de información universitario para determinar que el número total de alumnos inscritos en la carrera en el periodo de otoño de 2012 era de 541. Con esta información se calculó el número de la muestra necesario (246) para tener un nivel de confianza de 95%. El número de alumnos encuestados fue distribuido proporcionalmente en ambos turnos de la carrera a lo largo de los distintos semestres.

Una vez que se aplicaron los cuestionarios, los datos fueron capturados en el software SPSS en donde posteriormente fueron analizados.

Resultados obtenidos

Los alumnos encuestados son predominantemente jóvenes solteros menores de 25 años (84%). El 44% es del turno matutino y 56% del turno vespertino. El 50% de los encuestados son hombres y el 50% son mujeres. Sus edades se encuentran en el rango de 15 a 20 años (39%), entre 21 y 24 años (45%), y entre 25 y 30 años (12%). Solamente el 4% de los encuestados son mayores de 30 años. En cuanto al estado civil, el 77% de los participantes son solteros, el 14% son casados y el 6% vive en unión libre.

Acceso a los recursos tecnológicos

En las encuestas se encontró que el 92.2% de los alumnos tienen por lo menos una computadora de cualquier tipo en su casa. La mayoría cuenta con equipos de escritorio (73.8%), y aproximadamente la mitad de ellos cuenta con equipo móvil: celular inteligente (50.2%), computadora portátil (46.4%), tableta (13.9%). El 86% de los encuestados tiene internet de alta velocidad en su casa y se conecta desde ahí regularmente.

En cuanto a los dispositivos necesarios para realizar videoconferencias, el 56.1% cuenta con una cámara web y solamente el 29.1% tiene micrófono; esto muestra un panorama en el que aproximadamente la tercera parte de los estudiantes podría participar sin problemas de hardware en una reunión virtual de este tipo.

Experiencia en el uso de internet

La experiencia en el uso del internet de los estudiantes encuestados es destacable. La mayoría tiene entre 1 y 10 años usando el ciberespacio: el 44.4% tiene de 1 a 5 años de ser usuario, mientras que el 34% lo es desde hace 6 a 10 años; el 16.2% tiene 11 años o más de experiencia.

Postura acerca de escenarios académicos virtuales

En la encuesta se realizaron algunas preguntas para conocer la postura de los alumnos acerca de varios escenarios académicos virtuales. Se encontró que la mayoría de los estudiantes (64.6%) estaría de acuerdo en cursar materias de su carrera si fueran completamente en línea (Tabla 1). Por otra parte, el 72.2% definitivamente tomaría clases virtuales si fueran ofrecidas como actualización profesional complementaria y no como parte de la retícula de su carrera, mientras que el 25.7% tal vez los cursaría (Tabla 2). Por otra parte, el 80% de los encuestados estuvo de acuerdo en que se organizaran eventos virtuales que fueran transmitidos en vivo o bajo demanda como parte de las actividades de apoyo a su carrera (Tabla 3). Esto demuestra que los alumnos están abiertos a utilizar las opciones tecnológicas que apoyen su formación académica y profesional.

Las redes sociales y las actividades universitarias

En la investigación se encontró que las redes sociales han tenido un impacto fuerte en la vida de los estudiantes. Facebook es, por mucho, la red social más utilizada: el 95% de los estudiantes tiene un perfil activo; en segundo lugar se encuentra Twitter con el 29% y en tercer lugar está Google+ con el 27.6%. Además de un uso personal, los estudiantes dan a las redes sociales enfoques académicos. Casi todos los participantes (91.3%) las utilizan para estar en contacto con los compañeros y compartir información de las clases a las que asisten juntos. El 55% de los alumnos dijo haber entregado trabajos escolares a sus profesores a través de una red social. El 54.5% de los estudiantes también las utiliza para estar en contacto constante con sus profesores, y el 13% ha pedido en alguna ocasión asesoría por estos medios. Por otra parte, el 46.8% de los encuestados las ha utilizado también para solicitar información académica.

¿Le gustaría tener la posibilidad de cursar materias de su carrera totalmente en línea?	Porcentaje de los encuestados
Totalmente de acuerdo	36.7%
De acuerdo	27.9%
Ni en acuerdo ni en desacuerdo	21.24%
En desacuerdo	10.5%
Totalmente en desacuerdo	3.5%

Tabla 1. Postura frente a la posibilidad de cursar materias de la carrera totalmente en línea.

¿Si se ofreciera un curso de actualización de su profesión adicional a las materias de su carrera y fuera totalmente en línea, lo cursaría?	Porcentaje de los encuestados
Sí	72.2%
Tal vez	25.7%
No	2.2%

Tabla 2. Postura frente a la posibilidad de tomar un curso de actualización profesional adicional a la carrera.

¿Le gustaría que, como parte de apoyo a su carrera se organizaran eventos virtuales como por ejemplo vídeo conferencias las cuales pudiera ver en vivo o grabadas desde cualquier parte con acceso a internet?	Porcentaje de los encuestados
Totalmente de acuerdo	46.3%
De acuerdo	33.6%
Ni en acuerdo ni en desacuerdo	14.4%
En desacuerdo	4.4%
Totalmente en desacuerdo	1.3%

Tabla 3. Postura frente a la posibilidad de acceder a eventos virtuales como parte de su carrera.

Discusión de resultados

Los resultados de la investigación mostraron un panorama favorable para la implementación de la estrategia propuesta. Los alumnos actualmente cuentan con un buen nivel de acceso a los recursos tecnológicos necesarios, tienen un nivel de experiencia aceptable en el manejo de internet y estarían dispuestos a participar en foros virtuales de distinta índole. Por otra parte, los estudiantes también utilizan las redes sociales como parte de su vida personal y escolar, lo cual es un escenario que apoya el establecimiento de vías de comunicación académica por estos medios.

A pesar de la perspectiva optimista mostrada por los resultados de la investigación, es necesario analizar con más profundidad la disponibilidad real de los recursos tecnológicos en el campus universitario así como la postura institucional ante los eventos académicos de carácter virtual y el uso de redes sociales con fines académicos.

Recomendaciones

Existen académicos y funcionarios de universidades que perciben a los entornos virtuales de intercambio académico y las redes sociales como una amenaza para la enseñanza, la imagen de la universidad, la seguridad de infraestructura informática y como una relajación negativa para la evaluación investigativa y docente. El acceso a este tipo de sitios en el web está bloqueado en muchas facultades y campus; los docentes temen que pueda ser un elemento distractivo y los funcionarios del área de TI sostienen que pueden generar problemas de seguridad.

Es importante fomentar entre los alumnos y docentes el empleo de las redes sociales y los foros de intercambio de conocimiento académico. Estos foros y las redes sociales pueden ser útiles y aprovechados en el proceso de enseñanza-aprendizaje. El empleo de herramientas de seguridad pertinentes en las TI minimiza la amenaza que potencialmente pueden representar para la infraestructura informacional de las instituciones de Educación Superior.

Conclusiones

Ante el nuevo entorno social en el que estamos inmersos debido a la convergencia digital y el empleo cotidiano de la Web, cambian las estrategias de enseñanza y en consecuencia, también los roles de profesores y alumnos.

Para enriquecer la vida académica, las TI proporcionan recursos importantes que no deben ser temidos ni segregados de la cotidianidad universitaria. Por el contrario, el uso de medios tecnológicos debería ser potenciado con prácticas como la organización de encuentros virtuales y la comunicación académica por redes sociales, todo esto enmarcado en un ambiente de apoyo institucional.

Con la participación en eventos virtuales, los alumnos pueden interactuar con profesionistas reconocidos que se localizan físicamente en cualquier parte del mundo sin los inconvenientes de desplazamiento que implicaría un encuentro presencial. Por otra parte, los alumnos ya han incorporado en gran medida las redes sociales a su vida personal y las utilizan también para actividades escolares; esto brinda oportunidad para potenciar las relaciones académicas en el mundo universitario.

La participación de los estudiantes en foros virtuales de intercambio académico se puede ver afectada por algunos factores, los cuales deberían ser analizados antes de implementar cualquier propuesta concreta relacionada. Algunos de estos factores son: el nivel de acceso a los recursos tecnológicos que tienen los participantes, su nivel de dominio de las tecnologías involucradas y su postura ante los encuentros virtuales. Desde la perspectiva institucional, también es importante evaluar la disponibilidad real de los recursos tecnológicos y la actitud ante la naturaleza virtual de los eventos académicos y el uso de las redes sociales.

Trabajo futuro

Como trabajo futuro se plantea identificar y evaluar más factores facilitadores y limitantes para la participación de estudiantes en eventos académicos virtuales, investigar las expectativas que tienen los alumnos acerca de los foros virtuales, y encontrar las características que ellos valoran más. También queda como trabajo por realizar el desarrollo de una metodología general para la implementación de propuestas relacionadas con eventos académicos virtuales.

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Comercio Internacional: El Sistema Sancionador En El Régimen Jurídico Aduanero Mexicano

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ABSTRACT

El régimen jurídico aduanero mexicano establece los derechos y obligaciones de las personas que importan y/o exportan mercancías y tiene como eje rector las disposiciones contenidas en la Ley Aduanera, la Ley de Comercio Exterior y el Código Fiscal de la Federación. Uno de los problemas que hemos identificado en el régimen jurídico aduanero mexicano, es la falta de seguridad jurídica originada por la consecuencia jurídica de la realización de algunos actos (muchas veces desarrollados por terceros) de quienes intervienen en el comercio exterior, que pone en peligro el patrimonio y en algunos casos la libertad de dichas personas, habiendo una desproporción entre la obligación incumplida y las sanciones aplicables. La consecuencia jurídica de los actos de los gobernados debe estar vinculada de manera directa a la obligación incumplida, es decir, la sanción o consecuencia legal debe estar acorde a la gravedad del incumplimiento de la obligación legal y solo debe de afectar a la persona que haya incumplido la obligación.

Proponemos una revisión de las disposiciones que establecen las infracciones y los delitos relaciones con el comercio exterior, para establecer un sistema que distinga por una parte a las conductas que tienen plenamente acreditado el dolo o la mala fe en la actuación de los particulares, cuidando en todo momento que las sanciones guarden una proporción con la falta cometida y por otra parte a las conductas que deben ser castigables por faltar a deberes de supervisión o revisión, en las que hay culpa o negligencia, más no dolo o mala fe, cuidando que dichas conductas sean castigadas con sanciones de menor dureza o severidad. La propuesta que se hace tiene como propósito incentivar el comercio exterior en México, eliminando la principal causa de inseguridad jurídica en las personas o empresas que deciden comerciar con nuestro país.

COMERCIO INTERNACIONAL: El Sistema Sancionador en el Régimen Jurídico Aduanero Mexicano

1. Las infracciones y los delitos en el Sistema Jurídico Aduanero

En el sistema jurídico aduanero mexicano, las conductas de los particulares que falta a las obligaciones aduanales son castigables en el ámbito administrativo, es decir la propia autoridad aduanera impone la sanción y en el ámbito judicial donde un juez es quien determina la comisión de la conducta sancionable. Las sanciones impuestas en el ámbito administrativo, se realizan como consecuencia de la comisión por parte del particular de un conducta tipificada en la ley a la que se le denomina infracción, la cual consiste en una sanción que tiene una implicación para el gobernado de carácter económico.¹ Las sanciones impuestas en el ámbito judicial, se imponen como consecuencia de la comisión de conductas tipificadas en la ley a las que se les denominan delitos, a las que les corresponden sanciones más severas que implican la privación de la libertad de la persona a la que se le encuentre responsable. Estas sanciones se manejan dentro del llamado sistema penal mexicano.²

En ambos casos, las sanciones se aplican por realizar conductas prohibidas o por faltar al cumplimiento de las obligaciones que imponen las normas de carácter fiscal y/o aduanero. Hay conductas que están tipificadas como infracción y también están tipificadas como delito, en estos casos la imposición de las sanciones pueden imponerse en el ámbito administrativo y en el ámbito judicial, y en el caso de que la conducta castigable sea el incumplimiento de obligaciones que imponen la necesidad de realizar pago de contribuciones o aprovechamientos, dichas contribuciones y/o aprovechamientos se determinaran y se cobran al particular incluyendo las actualizaciones y recargos que se hayan generado.³

Así las cosas, el sistema sancionador es independiente del cobro de las contribuciones o aprovechamientos que se hayan omitido, ya que la sanción aún y cuando en el ámbito administrativo tiene un carácter económico, dicha sanción no es supletoria de la actualización y los recargos y se acumulan en las determinaciones de los créditos fiscales que determina la autoridad aduanera.⁴

2. Proporción entre la sanción y la falta cometida

En exposiciones anteriores hemos afirmado que es indispensable que las condiciones de simplicidad y estabilidad de las normas tributarias y aduaneras existan para que el gobernado pueda entender las consecuencias jurídicas de sus actos, sin embargo ello basta para alcanzar la seguridad jurídica en el gobernado, toda vez que para que una persona tenga seguridad jurídica se requiere que la consecuencia jurídica de sus actos no ponga en peligro su patrimonio y su persona en ninguna circunstancia que no esté

¹ La Ley Aduanera en el Título Octavo, establece las conductas tipificadas como Infracciones y sus correspondientes sanciones, que se incluyen de los artículo 176 al artículo 200.

² El Código Fiscal de la Federación en el Título Cuarto, Capítulo II establece una serie de delitos de naturaleza fiscal, dentro de los que se encuentran s de naturaleza fiscal

³³ La Actualización es un concepto que se deriva al artículo 17-A del Código Fiscal de Federación en que se establece que los pagos que habría de realizarse en una fecha determinada, se ajustaran aplicando un factor que se obtienen del índice nacional de precios al consumidor (publicado por el Banco de México) que mide la inflación que ha existido en el país en el periodo comprendido desde la fecha en que se debió de realizar el pagó y le fecha en que se realizará. Los recargos por otra parte, tienen la naturaleza de intereses moratorios, es decir es un porcentaje que se cobra por la demora en el pago.

⁴ Las contribuciones en México son los impuestos, los derechos, las aportaciones de seguridad social y las contribuciones de mejoras. En materia aduanera se causan impuestos y derechos.

Los aprovechamientos son ingresos que tiene el Estado en funciones de derecho público distintas de las contribuciones. En materia aduanera, las cuotas compensatorias y las medidas de transición son cobros que se realizan y tienen la naturaleza de ser aprovechamientos.

caracterizada por el dolo y la mala fe y se trata de una falta grave. Cuando en un orden jurídico cualquiera que éste sea, el gobernado puede ser drásticamente sancionado por la comisión de una conducta que lo pueda llevar a perder gran parte de su patrimonio o inclusive su libertad por la comisión de un delito y no esté claro la existencia de la mala fe o el dolo, evidentemente no existe seguridad jurídica para el gobernado.

La sanción que se aplique, ante la conducta castigable del gobernado debe de tener una relación directa con la realización de dicha conducta, es decir, la sanción o consecuencia legal debe estar acorde a la gravedad del incumplimiento de la obligación legal y evidentemente solo debe de afectar a la persona que haya incumplido la obligación. En el sistema jurídico aduanero mexicano no es extraño encontrar que ante el incumplimiento de una obligación el gobernado tenga que soportar terribles consecuencias que ya conocía de ante mano sucederían si incumplía con la referida obligación y que por mucho tiempo hizo lo necesario para que ello no sucediera, pero que sin embargo por un descuido o error finalmente sucedió.⁵

Las sanciones de los actos que realizan los particulares deben estar acordes a los actos que realiza, por lo tanto si incumple con una obligación, la sanción o consecuencia debe ser de acuerdo a la falta que cometió y para imponer la sanción se debe tener en cuenta la posibilidad de que el incumplimiento se pueda cometer por descuido o error.⁶⁷ Para ejemplificar lo que se expone ubiquémonos en un ejemplo concreto, que hemos venido utilizado para ilustrar el argumento que se hace.

Sabemos que todos los que conducimos un automóvil debemos de contar con una licencia de conducir vigente (es una obligación que todos conocemos). Imaginemos que la sanción y consecuencia de incumplir con esa obligación fuera la imposición de una multa equivalente al valor del automóvil y mientras ésta no sea liquidada el automóvil se embarga como garantía del pago de la multa.

Aún y cuando sabemos que las personas que conducen un automóvil deben estar capacitadas para hacerlo, ya que de lo contrario ponen en peligro la vida de personas que se puedan ver involucrados en un accidente ocasionado por personas inexpertas para conducir, la sanción del ejemplo que se menciona no esta acorde al incumplimiento de la obligación. Se debe prever que puede darse el caso que la persona no se percató que su licencia de conducir no estaba vigente, que necesita utilizar el automóvil y lo hizo a pesar de no tener licencia

⁵ Gregorio Sánchez León al abordar el tema de las multas excesivas, refiere lo siguiente: El artículo 22 constitucional, en su primer párrafo, prohíbe también en materia fiscal la multa excesiva. El licenciado Ignacio Burgoa considera que la multa excesiva consiste en la sanción pecuniaria que está en desproporción con las posibilidades económicas del multado. La Sala Auxiliar de la Suprema Corte (informe de 1970, página 105) ha considerado que para determinar cuándo una multa impuesta por autoridades administrativas es excesiva, se debe tomar en cuenta la gravedad de la infracción que la motiva, los perjuicios ocasionados a la colectividad, la reincidencia en la comisión del hecho infractor y la capacidad económica de la persona multada. **Sánchez León, Gregorio**. Derecho Fiscal Mexicano. Editorial Cárdenas Editores y Distribuidores. página 288.

⁶ La Ley General Tributaria de España reconoce que las sanciones se deben imponer de acuerdo al grado de culpabilidad señalando al respecto **Luis María Cazorla Prieto** lo siguiente: Recordemos que las infracciones tributarias se clasifican en leves, graves y muy graves, según el artículo 183.2 de la Ley General Tributaria. Con relación a la decantación de cada una de estas infracciones con respecto a las restantes se lee en la Exposición de Motivos de la precitada ley lo siguiente: Las infracciones que generan perjuicio económico se clasifican en leves, graves o muy graves según el grado de culpabilidad que concurren en la conducta del presunto infractor, de modo que la infracción será grave si ha existido ocultación, se han utilizado facturas falsas o existiendo anomalías contables que no superen una determinada proporción, y muy grave si han utilizado medios fraudulentos. En ausencia de ambas circunstancias, la infracción será siempre leve, así como en los casos en que, por razón de las cuantías de la deuda descubierta, la propia ley esa clasificación. Derecho Financiero y Tributario, Parte General. *Ibid.* página 561.

⁷ En la legislación no se hace una clasificación de las infracciones por su gravedad, sin embargo algunos autores tocan el tema como Mayolo Sánchez que al hacer una clasificación de las infracciones señala: las leves, son la que no traen consigo la evasión de créditos fiscales. Ejemplo: la falta de aviso oportuno de cambio de domicilio. Las infracciones graves, son las que sí traen consigo la evasión de créditos fiscales a través de la conducta que se realiza u omite. Ejemplo: la alteración de libros de contabilidad.

Sánchez Hernández, Mayolo. Derecho Tributario. Cárdenas Editores y Distribuidores. Segunda Edición. página 504.

ya que estaba seguro de que no ocasionaría ningún accidente por estar capacitado para conducir, o simplemente imaginemos que en ese momento se le olvidó la licencia en su casa.

Si bien es cierto la vida es algo que se debe de proteger, la norma en este caso está castigando el incumplimiento de una obligación que si bien ayuda a prevenir la pérdida de vidas en accidentes, lo cierto es que el incumplimiento de la obligación no tiene una relación directa y necesaria con la pérdida de vidas en accidentes. Como podemos observar, para establecer la sanción o consecuencias del incumplimiento de un obligación no debe considerarse el fin último o lo que se busca proteger con el establecimiento de la obligación legal (*en este caso la pérdida de vidas humanas*), sino lo que se debe de considerar es la relación directa y necesaria que hay entre el incumplimiento de una obligación y el mal o conducta que se busca evitar.

El incumplimiento de contar con una licencia de conducir tiene una relación directa y necesaria con evitar que conduzcan personas inexpertas, mas nos tiene una relación directa con evitar la pérdida de vidas humanas en accidentes automovilísticos.

Si las acciones de una persona no están relacionadas de manera directa y necesaria a un mal grave que se quiere evitar, y no existe posibilidad de error o descuido en el incumplimiento de la obligación de que se trate, las normas deben establecer sanciones acordes a la obligación que se dejó de incumplir y no acordes a la gravedad del mal que se quiere evitar. Si trasladamos este ejemplo a la materia aduanera, podemos encontrar situaciones en los que quienes interviene en las operaciones de comercio exterior, se ven sancionados fuertemente por errores cometidos en las importaciones de mercancías al territorio mexicano.

Imaginemos el supuesto de la oficina de un Agente Aduanal en donde en las múltiples operaciones que realizan, se equivocan y mandan a territorio nacional una mercancía por la que aún no se ha tramitado el pedimento de importación, la mercancía recibida en México es tratada como contrabando, sin considerar el origen no intencional de la importación.⁸ Las sanciones aplicables en este caso serán la pérdida de la mercancía importada, la imposición de multas y el cobro de las contribuciones que se causaron por la importación.

A pesar de que las normas buscan evitar el contrabando, por ser dañino a la económica nacional y en algunos casos a la salud y seguridad pública, cuestiones que si lugar a dudas se deben proteger, en el caso planteado la pérdida de la mercancía puede ser una sanción desproporcionada, ya que el valor de la mercancía puede ser alto y en el caso concreto la importación no era dañina y no implicaba peligro a la economía nacional o a la seguridad o salud pública.

Al igual que en el ejemplo de la licencia de conducir, el falta cometida aunque grava que es, no tiene una relación directa con los valores que protegen las normas. Las sanciones de los actos del gobernado no deben ser castigados severamente por un acto que no tenga la intención de producir una grave afectación a los valores fundamentales que protegen las normas o que tenga relación directa y necesaria con dicha afectación. La imposición de sanciones deben considerar la culpabilidad y/o la intencionalidad de la conducta, así como las afectaciones reales que se cometieron o pudieron cometer con el acto que se castiga.

3. La Responsabilidad de las conductas y los afectados por las sanciones en el Sistema Jurídico Aduanero

Las sanciones que se aplican buscan castigar a quien incumplió con una obligación, sin embargo dichos castigos en ocasiones afectan a terceros que son ajenos a la conducta sancionable o por lo menos no son

⁸ Esto es algo que nunca debería suceder por los controles que se implementan en el control de las mercancías, pero que sin embargo ha sucedido.

responsables de la misma. La sanción es el castigo⁹ que se establece para la persona que incumplió con la obligación y las consecuencias legales del incumplimiento de una obligación son el producto de la falta que se cometió.

Las consecuencias legales de un incumplimiento pueden llegar a afectar a terceros que no son ni remotamente culpables de la falta que se está castigando y que sin embargo absurdamente pueden resultar más afectados que la persona que incumplió con la obligación.¹⁰ De nueva cuenta recurrimos al ejemplo que hemos venido utilizado para explicar de mejor forma lo que se expone.

Imaginemos que un conductor de un vehículo dedicado al autotransporte de carga no cuenta con licencia de conducir (*lo cual implica el incumplimiento de una obligación*) y la sanción para ello es la imposición de una multa a cargo de la persona que incumplió con la obligación. Cuando la autoridad correspondiente se percató del incumplimiento, procede a detener el vehículo y realizar el trámite administrativo para el establecimiento de la sanción y mientras esto sucede el vehículo queda a disposición de la autoridad y no es hasta 72 horas después de lo sucedido que la autoridad regresa el vehículo para que siga su destino.

En este caso existe una sanción (*la multa*) que afecta al que incumplió la obligación y consecuencias legales que afectan a terceros (*línea de transporte y propietario de la mercancía que transportaba*). Las normas en muchas ocasiones producen una gran afectación a terceras personas por el incumplimiento de una obligación y cuando esto sucede se produce una falta de seguridad jurídica, ya que las terceras personas pueden tener un grado de corresponsabilidad, (*como sucede con la línea de transporte en el ejemplo que se comentó*), pero en ocasiones el tercero no tiene responsabilidad alguna (*como sucede con el propietario de la mercancía*) y sin embargo no hay forma de evitar el perjuicio que se le ocasiona.

Deben evitarse las normas que establecen consecuencias legales ante el incumplimiento de obligaciones que afecte a terceros ajenos al incumplimiento, ya que genera la peor de las inseguridades e injusticias, ya que aun y cuando la persona haga lo posible por conocer sus obligaciones y las cumpla siempre y en todo momento, sigue en la posibilidad de verse afectado, es decir no importa que sepa y cumple a cabalidad sus obligaciones, ya que puede ser afectado por el incumplimiento de otros.

En materia aduanera, el ejemplo puesto en el punto anterior nos permite apreciar como la sanción afecta a una tercera persona que no tendría responsabilidad alguna en la conducta cometida. En el supuesto planteado, la mercancía importada sin haber hecho el pedimento, en términos del artículo 183-A de la Ley Aduanera pasa a ser propiedad del fisco federal, afectado al dueño de la misma que se limitó a solicitar al Agente Aduanal la importación de la mercancía y la puso a su disposición para tal efecto.¹¹

⁹ Antonio Morillo Méndez, define a la culpabilidad como elemento constitutivo de las infracciones de la siguiente forma: Es un elemento que relaciona al sujeto activo con la prohibición legal, de modo que aquél tenga capacidad cognoscitiva motivadora (imputabilidad), conocimiento general del injusto (elemento subjetivo de la antijuridicidad) y no exigibilidad de otra conducta, vinculada a la defensa de bienes jurídicos, que se reputan de igual o superior valor por el ordenamiento jurídico (supuestos de eximentes y atenuantes). **Morillo Méndez, Antonio**. Las Sanciones Tributarias. Editorial Tirant lo Blanch. Valencia. página 78.

¹⁰ **Luis María Cazorla Prieto**, aborda el tema de las infracciones y reconoce un principio que debiera ser respetado a plenitud por el régimen aduanero mexicano, al señalar: Las infracciones tributarias no son objetivas. En efecto, para que aparezcan es menester que concurren el elemento de culpabilidad, o sea, que las acciones u omisiones en cuestión sean dolosas o culposas con cualquier grado de negligencia. El artículo 183 LGT consagra así como los artículos 5 y 10 del Código Penal, el principio de culpabilidad y rechaza de modo claro las formas más groseras de su vulneración: la responsabilidad por hecho presunto, la responsabilidad por hecho de otro y la responsabilidad objetiva (profesor Ferrero Lapatza).

Derecho Financiero y Tributario, Parte General. *Ibid.* página 552.

¹¹ **ARTICULO 183-A**. Las mercancías pasarán a ser propiedad del Fisco Federal, sin perjuicio de las demás sanciones aplicables, en los siguientes casos: (cont. en la siguiente pagina)

La conducta castigable y sancionable la realizó el Agente Aduanal y sin embargo la afectación la tiene el dueño de la mercancía al perderse la misma a favor del fisco federal. En ese mismo supuesto, el tenedor de la mercancía que sería el conductor del vehículo, sería castigado con multas y se le determinarían en su contra las contribuciones omitidos y en su caso los aprovechamientos por la importación realizada.

Las normas no deben establecer castigo alguno o consecuencias legales que afecte a personas ajenas al la conducta realizada y conforme a lo señalado en el punto anterior deben ser proporcionales a la falta cometida.

El artículo 22 de la Constitución Política de los Estados Unidos Mexicanos establece en su primera parte lo siguiente:

Artículo 22. Quedan prohibidas las penas de muerte, de mutilación, de infamia, la marca, los azotes, los palos, el tormento de cualquier especie, **la multa excesiva**, la confiscación de bienes y cualesquiera otras **penas inusitadas y trascendentales**. Toda pena deberá ser proporcional al delito que sancione y al bien jurídico afectado.

Del texto de la disposición constitucional podemos concluir que las normas deben ser proporcionales y solo deben afectar a las personas que cometieron la falta, sin embargo existen diferentes antecedentes jurisprudenciales donde la Suprema Corte de Justicia de la Nación ha justificado la constitucionalidad de las normas aduaneras, en aras de proteger el bien jurídico tutelado por las normas aduaneras.

Un ejemplo de esto es la siguiente tesis.

Época: Novena Época

Registro: 173058

Instancia: SEGUNDA SALA

Tipo Tesis: Jurisprudencia

Fuente: Semanario Judicial de la Federación y su Gaceta

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- I. Cuando no sean retiradas de los almacenes generales de depósito, dentro del plazo establecido en el artículo 144-A de esta Ley.
 - II. En el supuesto previsto en el artículo 151, fracción VI de esta Ley, así como cuando se señale en el pedimento el nombre, domicilio fiscal o la clave del registro federal de contribuyentes de alguna persona que no hubiera solicitado la operación de comercio exterior.
 - III. En los casos previstos en el artículo 176, fracciones III, V, VI, VIII y X de esta Ley, salvo que en este último caso, se demuestre que el pago correspondiente se efectuó con anterioridad a la presentación de las mercancías, o cuando se trate de los excedentes o sobrantes detectados a maquiladoras de mercancía registrada en su programa, a que se refiere el artículo 153, último párrafo de esta Ley.
 - IV. En el supuesto previsto en el artículo 178, fracción IV de esta Ley, excepto cuando el infractor cumpla con las regulaciones y restricciones no arancelarias, dentro de los treinta días siguientes a la notificación del acta de inicio del procedimiento administrativo en materia aduanera.
 - V. Los vehículos, cuando no se haya obtenido el permiso de la autoridad competente.
 - VI. En los casos a que se refiere el artículo 182, fracciones I, incisos d) y e), III, excepto yates y veleros turísticos y IV de esta Ley.
 - VII. En el supuesto a que se refiere el artículo 183, fracción III de esta Ley.

Cuando existiere imposibilidad material para que las mercancías pasen a propiedad del Fisco Federal, el infractor deberá pagar el importe de su valor comercial en el territorio nacional al momento de la aplicación de las sanciones que correspondan.

Localización: Tomo XXV, Marzo de 2007
Materia(s): Constitucional, Administrativa
Tesis: 2a./J. 20/2007
Pag. 301

[J]; 9a. Época; 2a. Sala; S.J.F. y su Gaceta; Tomo XXV, Marzo de 2007; Pág. 301

DECOMISO. EL SISTEMA PREVISTO EN LA LEY ADUANERA PARA IMPONER TAL SANCIÓN A LA IMPORTACIÓN ILEGAL DE MERCANCÍAS, NO SE RIGE POR EL ARTÍCULO 22 DE LA CONSTITUCIÓN POLÍTICA DE LOS ESTADOS UNIDOS MEXICANOS QUE PROHÍBE LAS MULTAS EXCESIVAS.

El decomiso de mercancías extranjeras cuya legal estancia en el país no se acredita, constituye una sanción administrativa que recae sobre determinados bienes ya que éstos por sus características propias, **tienen una trascendencia negativa respecto del bien jurídico tutelado**, por lo que su finalidad consiste en retirar del tráfico jurídico un determinado bien; en cambio, la multa es una sanción pecuniaria que se fija en términos monetarios, sin afectar un bien específico y determinado, sino únicamente disuadir la conducta infractora. De lo anterior se concluye que la regulación en la Ley Aduanera del decomiso a la importación ilegal de mercancías no se rige por el artículo 22 de la Constitución Política de los Estados Unidos Mexicanos que establece la prohibición de multas excesivas, pues tal proscripción se refiere única y exclusivamente a las sanciones administrativas de carácter pecuniario.

Como se puede observar en la tesis, la justificación de la severidad está en la trascendencia negativa respecto del bien jurídico tutelado por la norma, por ello como hemos venido manifestando es importante para la imposición de las sanciones determinar la relación directa que tiene la conducta que se sanciona con el bien jurídico tutelado. Por otra parte es de destacarse los criterios que respecto a las multas fijas ha emitido nuestro más alto Tribunal, los cuales se pronuncian sobre lo excesivo de las multas, sin embargo en dichos criterios, se concluye que al establecer las multas con un rango de aplicación, se garantiza que se aplique en cada caso una multa en proporción a la conducta, sin pronunciarse hasta la fecha, sobre lo excesivo que pueda resultar la multa mínima establecida.

Un ejemplo de estos criterios es la siguiente tesis.

Época: Novena Época
Registro: 167454
Instancia: PRIMERA SALA
Tipo Tesis: Tesis Aislada
Fuente: Semanario Judicial de la Federación y su Gaceta
Localización: Tomo XXIX, Abril de 2009
Materia(s): Constitucional, Administrativa
Tesis: 1a. XLIX/2009
Pag. 583

[TA]; 9a. Época; 1a. Sala; S.J.F. y su Gaceta; Tomo XXIX, Abril de 2009; Pág. 583

LEY ADUANERA. SUS ARTÍCULOS 178, FRACCIONES I Y IV Y 185, FRACCIÓN II, AL ESTABLECER MULTAS QUE PUEDEN OSCILAR ENTRE UN MÍNIMO Y UN MÁXIMO, NO VIOLAN EL ARTÍCULO 22 CONSTITUCIONAL.

Los mencionados preceptos legales establecen multas relacionadas a infracciones fiscales y administrativas en materia aduanera, sobre la base de una técnica legislativa reconocida por esta Suprema Corte como constitucional: el establecimiento de un mínimo y un máximo, entre los cuales se debe individualizar. El

artículo 22 constitucional prohíbe las multas excesivas, siendo una posibilidad de éstas aquellas que son fijas, pues en la realidad producen el mismo resultado que el prohibido por la norma constitucional, esto es, un trato desproporcionado, al imponer una idéntica penalidad, de manera invariable e inflexible, a una serie de casos heterogéneos. Sin embargo, las multas que se deben individualizar entre un mínimo y un máximo no son de aquellas que se reputan como fijas ni constituyen una variante de una multa excesiva. Ello por dos razones: 1) en primer lugar, el solo hecho de que una norma establezca una multa que se fija entre un mínimo y un máximo exige de la autoridad administrativa la implícita obligación de individualizarla proporcionalmente, por derivarse esta obligación directamente de lo prescrito por los artículos 14 y 16 constitucionales, en el sentido de que todos los actos de autoridad deben estar fundados y motivados, teniendo como premisa que al objetivo de individualización casuística en busca de la proporcionalidad es al que se instrumentaliza esta técnica legislativa y 2) en segundo lugar, porque en el caso concreto, existe una norma aplicable que obliga a la autoridad a individualizar las multas en materia aduanera tomando en cuenta las circunstancias particulares de realización de las infracciones. Lo anterior, toda vez que el artículo 75 del Código Fiscal de la Federación, de aplicación supletoria a la Ley Aduanera, establece que dentro de los límites fijados por dicho código, las autoridades fiscales al imponer multas por la comisión de las infracciones señaladas en las leyes fiscales, incluyendo las relacionadas con las contribuciones al comercio exterior, deben fundar y motivar sus resoluciones, estableciendo a continuación un listado de seis fracciones que contienen criterios individualizadores concretos que deben tomarse en cuenta en la medida en que resulten aplicables.

Como se puede apreciar, no se hace un análisis del monto de la multa en relación a la falta cometida, sino que solo se afirma que si quien impondrá la multa no tienen la posibilidad de variar la multa de acuerdo al caso, se viola el texto constitucional al no permitir aplicar la multa en proporción a la gravedad de cada caso.

Por todo lo expuesto, debemos concluir que aún y cuando se ha llegado a la conclusión de que las normas no violan el artículo 22 de la Constitución Política de los Estados Unidos Mexicanos, pueden tener y tienen afectaciones a terceros que no deben de existir.

4. Conclusiones y Propuestas

Las normas que establecen sanciones severas o graves en el sistema jurídico aduanero mexicano, deben basarse en el dolo y no en la culpa, y deben contemplar un sistema que considere la afectación al Bien jurídico tutelado por la norma con la conducta sancionable. Las conductas culposas deben ser castigadas en la medida en que se generó el daño al bien jurídico tutelado. Si la afectación fue grave, grave será la sanción y si la afectación no fue grave o se evitó, la sanción no debe ser de las calificadas como severas o graves. Las conductas dolosas deben ser castigadas en la medida en que se generó o se pudo generar el daño al bien jurídico tutelado. En estos casos las sanciones deben aplicarse con severidad por lo que pudieron haber ocasionado aunque esto se haya evitado por la intervención de la autoridad. De esta forma la primera gran tarea es establecer un sistema para diferenciar las conductas dolosas de las conductas culposas. Por otra parte, las normas deben establecer un sistema donde se eviten las afectaciones de terceros que son ajenos o que no tuvieron intervención en las conductas castigables. Si la conducta es ajena a un tercero no le debe parar perjuicio de forma alguna, y si su responsabilidad radica en la falta de supervisión o atención sobre lo realizado por un tercero. La afectación debe ser en proporción a ello y no en relación a la afectación al bien jurídico tutelado por la norma. Por último, las normas del sistema aduanero mexicano, deben contemplar un sistema de responsabilidad civil especial, para que las afectaciones que sufren terceros por los actos castigables o por las consecuencias de dichos actos, sean reparadas por quienes resulten responsables, ya sea que la responsabilidad la tenga el que haya realizado la conducta o la autoridad que se haya excedido en la aplicación de la Ley.

El Equilibrio en el Desarrollo del Comercio Internacional y la Protección del Medioambiente.

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RESUMEN

El Crecimiento del comercio ha estado en aumento en los últimos años, debido a esto los acuerdos comerciales cada vez son más complejos y completos, abarcan todo tipo de disposiciones que pudieran involucrarse con la actividad comercial. Esto ha traído consigo grandes beneficios a nivel económico y social, sin embargo, existe un tema poco tratado y del cual es responsable, en cierta medida, el comercio tanto interno como externo, como lo es la cuestión ambiental. Debido a la naturaleza de las acciones ejecutadas para llevar a cabo el comercio de un país, es muy probable que se esté causando un daño, hasta cierto punto silencioso, al medio natural. Como resultado de esto, en algunos tratados comerciales se han establecidos disposiciones destinadas específicamente a proteger el medioambiente. Un ejemplo de esto es el Tratado de Libre Comercio de América del Norte, integrado por Estados Unidos, Canadá y México, el cual cuenta con un tratado paralelo referente a la protección ambiental llamado Acuerdo de Cooperación Ambiental de América del Norte, tal acuerdo permite el apoyo y la participación de la ciudadanía de sus países miembros con el objetivo de que todas las partes respeten y lleven a cabo de manera correcta su respectiva legislación ambiental, y de esta manera conservar el equilibrio ecológico en sus respectivos territorios. Los autores afirman algunas deficiencias en el texto del tratado y en la práctica, de las cuales emanan diversas propuestas que permitan una óptima aplicación del tratado y de acuerdo a estos lograr los objetivos planteados por estos países en el acuerdo mismo.

Palabras Clave: Comercio, Medioambiente, Acuerdo de Cooperación Ambiental de América del Norte.

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La Innovación Como Factor Determinante Para Incrementar la Competitividad de las Pequeñas y Medianas Empresas PYMES.

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RESUMEN

Con la finalidad de dar respuesta a las nuevas condiciones que impone la globalización, las empresas tienen la necesidad de formular estrategias que les permitan convertirse en entidades competitivas, ágiles y eficaces, para lo cual la innovación juega un papel estratégico, como un instrumento clave para incrementar su competitividad. Aun cuando sabemos que es un problema complejo, para enfrentarlo se requiere el convencimiento pleno de que para mejorar su posicionamiento, la innovación es la mejor vía para incrementar la productividad y competitividad o sea el camino para tener éxito.

Esta investigación está orientada a reflexionar sobre la importancia de implementar estrategias de innovación en las empresas, especialmente en las PYMES con la finalidad de enfrentar los nuevos retos en el ámbito local y global permitiéndoles incrementar su competitividad, crear nuevos puestos de trabajo y tener la capacidad de participar con éxito en los mercados nacionales e internacionales.

Palabras clave: Innovación, competitividad, tecnología.

ABSTRACT

In order to respond to the new conditions imposed by globalization, companies have the need to develop strategies to become competitive entities, agile and effective, for which innovation plays a strategic role as a key instrument for increase their competitiveness. Even though we know it's a complex problem to address it requires the full conviction that to improve their positioning, innovation is the best way to increase productivity and competitiveness that is the way to succeed.

This research is aimed to reflect on the importance of implementing innovation strategies in enterprises, especially SMEs in order to face new challenges in the local and global environment enabling them to increase their competitiveness, create new jobs and have the ability successfully participate in national and international markets.

Keywords: Innovation, Competitiveness, Technology.

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