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

In partnership with

Universidad Autónoma de Tamaulipas  
Facultad de Comercio, Administración y Ciencias Sociales

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24TH ANNUAL  
WESTERN HEMISPHERIC TRADE CONFERENCE  
APRIL 15-17, 2020 | LAREDO, TX, USA  
CONFERENCE PROCEEDINGS

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# CENTER FOR THE STUDY OF WESTERN HEMISPHERIC TRADE

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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

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Dear Conference Participant:

Texas A&M International University's (TAMIU) A. R. Sanchez, Jr. School of Business (ARSSB) takes pride in welcoming you to its 24th Annual Western Hemispheric Trade Conference. The Conference is co-sponsored by the Center for the Study of Western Hemispheric Trade (CSWHT) in partnership with México's Universidad Autónoma de Tamaulipas (UAT) Facultad de Comercio, Administración y Ciencias Sociales.

In light of the global COVID-19 Pandemic and with the health and safety of our attendees and community in mind, we decided to cancel the on-site activities of the conference. This was a difficult decision, but your health and safety is of utmost importance.

In addition to these electronic proceedings, we are moving forward with selecting the best articles from the conference to publish in a special issue of *The International Trade Journal*, selecting the Best Student Paper Award recipients, and distributing Certificates of Participation for qualifying submissions.

A total of 88 submissions are included in these proceedings, in either abstract or paper form. Also included are the submissions from this year's Partial Least Squares (PLS) Applications Symposium. The PLS Applications Symposium is chaired by Dr. Ned Kock, Regents Professor and Chair of the ARSSB's Division of International Business & Technology Studies.

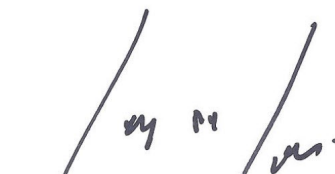
We thank our corporate sponsors for their support: BBVA, Commerce Bank, Daniel B. Hastings, Inc., Falcon Bank, International Bank of Commerce, and Texas Community Bank.

We would also like to thank you for your continued support. Although we will miss hosting you this year, we hope to welcome you to TAMIU next year for our 25th Annual Conference scheduled to be held on April 14-16, 2021.

Sincerely,



R. Stephen Sears, Ph.D.  
Dean and Radcliffe Killam  
Distinguished Professor of Finance  
A. R. Sanchez, Jr. School of Business  
Texas A&M International University



George R. G. Clarke, Ph.D.  
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The responsibility for views expressed, and accuracy of facts given are those of the authors. Such opinions do not necessarily reflect the position of Texas A&M International University, the A.R. Sanchez, Jr. School of Business, or the Center for the Study of Western Hemispheric Trade.

## **Colombia's Progress: Internal Peace and Foreign Trade**

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*This paper discusses the progress the nation of Colombia has made in securing internal peace through an agreement with the Revolutionary Armed Forces of Colombia (FARC) and policing of drug cartels. These important steps have contributed to increased international commerce based on strong trade agreements and a more global outlook than many other Latin American nations have embraced. Colombia stands poised for additional growth; however, the challenges of internal development and widespread corruption remain.*

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# **U.S.-Mexico Trade and Four Rural Counties of South Texas: Case Studies in Economic Development**

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*A growing number of researchers of local and regional economic development emphasize the need for case studies, and inclusion of open-ended interviews and other qualitative research techniques. Aggregate quantitative data so widely used in studies of economic development do not tell the entire stories of how activities and policies play out in unique ways in each locality. No two communities or regions possess the same mix of natural geographic settings, transportation infrastructure, or other amenities. Nor do they share the same histories. Furthermore, calls are on the rise for more studies of economic development in small cities and rural communities, because larger cities and metropolitan areas continue to dominate the literature.*

*Through qualitative research methods and the use of published data, this paper considers economic development of four small cities of South Texas and their corresponding counties in close proximity to the US-Mexico border but not located directly on it. The four are Beeville, Gonzales, Sonora and Uvalde. US-Mexico trade remains highly important to the border states of both countries, and is worthy of continued research, especially the way such economic connectivity frames local economic development. However, most locality studies in economic development in the borderland region emphasize either the border cities themselves, or large “interior” metropolitan areas such as San Antonio, Houston, and Monterrey. Lacking from the academic and applied literatures are studies of small interior cities and rural communities of South Texas, and the role of cross-border trade in their past, current, and future economic development. Most of the interviews carried out for this study include local elected officials, economic development professionals, agricultural extension agents, and owners of businesses that depend on the four localities’ transportation infrastructure.*

*Broadly, the study’s findings are three-fold. First, there is a sharp “distance-decay” of cross-border economic activities north of the border in the case of small cities of South Texas and their rural hinterlands. The most important economic activities involve an agriculture-livestock supply chain based on the southbound flow of feed crops and northbound flow of feeder cattle. Data of this binational activity are spatially broad, requiring local estimates garnered through qualitative techniques. The Eagle Ford Shale Play produces modest natural gas exports to Mexico. This has implications for pipeline infrastructure and field services of South Texas. Second, the paper identifies a “transportation riddle” in the region that tests the notion that favorable rail and*

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*highway infrastructure correlates with economic development. It discusses each of the four localities' transportation systems and the implications for cross-border trade. Third, the research reveals that there is no "one size fits all" explanation of the relationships between small cities of South Texas and their spatial economic linkages. The paper concludes by listing themes in need of additional research in South Texas, including the prospects for the region's small cities and corresponding counties to participate more strongly in US-Mexico trade.*

## What to Know, Before You Go

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*South American economies continue to demonstrate inconsistent growth, which fundamentally impacts their reaping the benefits of participating in the globalized economy. Although the region enjoys significant interest with both nation- and region-level analysis, there continues to be a disconnect with and execution of the descriptive and prescriptive findings. Well-established Bankruptcy Laws and Rule-of-Law policies are fundamental to firms when making Foreign Direct Investment (FDI) decisions, while consistent inbound FDI is essential to sustain growth. Within the lens of strategic management, this study will investigate the region both on the nation- and trade-group membership-level concerning inbound FDI and its relationship to nation-level sustainable growth and trade group participation based on the prevailing Bankruptcy Laws and Rule-of-Law policies. The goal of this study to provide both theoretical and practical knowledge to better understand the current environment and future trajectory for sustained growth.*

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# Gravity Model and Trade Efficiency of African Countries: A Stochastic Frontier Analysis

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*On May 2019, the African Continental Free Trade Area (AfCFTA) signed on March 2018 entered into effect. The objectives of the agreement include the fusion of all African markets into a single continental market, the development of the intra-trade across the different regional economic blocks and the enhancement of competitiveness in the continent. Africa trade around the world has remained marginal for several decades. In fact, the shares of exports (or imports) have repetitively fluctuated between 1% and 2%. This raises the question about the real trade potential and trade efficiency of African countries. In this paper, I use the stochastic frontier analysis to estimate the trade in (efficiency) of African countries over the period 1962 to 2015. The results indicate that on average African countries have operated between 22% and 44% of their trade potential. The top five most efficient countries include South Africa (43.93%), Malawi (40.76%), Ethiopia (40.46%), Egypt (39.88%) and Uganda (39.80%) while the bottom five least efficient countries are Chad (28.56%), Gabon (27.43%), Mauritania (26.54%), Namibia (25.12%) and Botswana (22.04%). These results highlight the existence of a great opportunity for African country to enhance intra –Africa trade integration and with the rest of the world.*

*KEYWORDS* Trade potential, gravity equation, stochastic frontier, trade agreement, trade efficiency

*JEL* F1, F4, F10, F13, F14, F15,

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# Market Share within China: A Gravity Model Investigation of the Caribbean

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*This study investigates the possibilities of improving export receipts by way of China and its expressed commitment to the region's development. Using the Structured Gravity approach, the study revealed an inability of the Caribbean to exploit available export opportunities with the Chinese; thereby warranting a more aggressive and sustained export strategy. Despite some growth in extensive margins, China remains largely-unexplored by Caribbean suppliers. By 2015, potential export share for individual products categories was estimated as high as 35-times above actual exports receipts. However, Caribbean countries should exercise caution when advancing international trade policies, if unable to take advantage of existing arrangements.*

*KEYWORDS* Structural Gravity, Caribbean, export potential, Chinese market

*JEL* F14, F15, F17

## INTRODUCTION

Removal of once-favoured trading allowance, growing protectionist trade rhetoric by the US economy and the growing competition with the global market, Caribbean countries (represented in this study by the CARICOM subset) are facing severe challenges for growth. Announcing their commitment to helping the region to return to a sustained growth path (Madden 2017); can the Chinese markets, under a mutually beneficial arrangement, provide the opportunities that would impactful expand the Caribbean product exports- is it possible to overcome the asymmetric economic exchange? Many have long regarded China as a heaven for Caribbean products.

For decades, researchers have shown the importance of trade to the development process, regardless of the economic conditions- sustained growth is unachievable without growth in trade (Panagariya 2004). A tenable argument is that the attainment of optimal exports (Freund and Weinhold 2004) permits developing countries to overcome the limitations of markets size, through the exploitation economies of scale and capacity utilization, thereby reducing the dilemma of

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operating sub-optimally (Balassa 1987). With a history of trade dominated by partners external to the Asian communities and a need to improve the region's export competitive levels, this study recognized a gap in the region's trade and thereby queries the viability of enhanced trade efforts with these markets. In an initial step, this research will investigate the export possibilities of the smaller Caribbean industries to the Chinese economy, noting that for years the two sides previously held major discussions (China-Caribbean Economic and Trade Cooperation Forum of 2005, 2007 and 2011) towards the development of economic and trade relationships.

The drive to increase reciprocal trade practices (European Commission 2012) has contributed to a number of Caribbean countries to shift away from merchandise towards higher valued service exports. Yet, the regions' governments, without exhausting (wider afield) all efforts to increase local product export destinations, continue to lack concrete evidence that the path to sustainable development can rest firmly on the services sectors. Lorde, Alleyne and Francis (2010) posit that the contribution of services lacked supportive evidence that it can be the sole source for the future development of CARICOM economies; adding that the region's performance in services is in need of strategic intervention to enhance the current state of competitiveness.

This research seeks not to contradict the vital role of services in improving the development levels in Caribbean countries. However, without a competitive support from the real sector, Lorde, Alleyne, and Francis (2010) posit that isolated efforts to improve competitiveness have the potential to reduce any competitive advantages held by the countries of the region. Without any economies of scale attributed to Caribbean nations, can closer international relations with China 'open the door' (Madden 2017) to the export opportunities and continuous innovations spillovers needed to broaden a shrinking export product; a priori to economic prosperity.

This paper continues as follows. Section 2 proceeds with a review of the literature assessing the trade possibilities through integrated partnerships. Section 3 provides a discussion of the methodological approach to the investigation. This is followed by a review of the CARICOM's trade profile and recent trade pattern with China. Section 5 presents and discusses the findings of the research. Finally, Section 6 offers some concluding remarks and recommendation derived from the results.

## **EMPIRICAL LITERATURE**

### *Trade Potential*

Evidenced throughout academic literature, the investigation of international trade and its vital integration to national development will continue to be at the forefront of economic leaders. Whether through intensive or extensive margins, the expansion of trade, both for the recipient and supplier countries enjoy various benefits. Vijayasri (2013) argues that all countries are economically dependent, where the richest countries rely on inputs from the poorest. According to the author, if all countries were to produce simply for local consumption, economic progress would be hampered and the standard of living of all persons would remain stagnant, i.e. there would be no development progress. It is unlikely that the author implies that countries of all size share the same bargaining strength in negotiation. Thus, not only is it desirable to be economically efficient

at the level of production but finding markets for which to optimally provide, is a crucial step for small countries with severe resource limitations necessary.

Several studies have made use statistical trade indices to make partial or general inferences regarding available trade possibilities between partners; see Hosein and Khadan (2011), De Castro (2012) and Colley (2015). However, following approaches of Baldwin (1994) and Nilsson (2000), this study utilizes the gravity approach to explore the gap between potential and actual export flow from the Caribbean into the larger Chinese economy.

Miankhel, Thangavelu and Kaliappa (2009) presented an article which examined the trade potential of Australia using the trade gravity stochastic frontier model and estimated the trade potential for a number of its trading partners. Applying a maximum likelihood technique, the authors corrected for the inherent biases associated with the standard gravity model, which were not previously addressed by others; *see* Batra (2004). Ultimately, the results indicate that Australia possesses significant export potential in mineral and manufactured products with East and South Asia. It was also determined that great attention should be paid to emerging countries which have sought to open their markets to promote economic growth.

The work of Miankhel, Thangavelu and Kaliappa (2009) follow a similar rationale to Proenca, Fontoura and Martínez-Galán (2008). While targeting manufactured exports from the EU25 in 2002, these authors argued that previous attempts of analyzing trade potential based on the estimation of a gravity model were invalid. Using a proposed Poisson Pseudo-Maximum Likelihood (PPML) estimator with the robust Eicker-White estimator and fixed effects, the authors compared the results to others calculated using an Ordinary Least Squares (OLS) technique. Their findings suggested the previous OLS estimators may provide biased results regarding the variables' individual coefficients and thus an inaccurate evaluation. It was later concluded that the collective country union had exhausted the possibilities for export expansion within the group; unless changes were made.

Despite the later findings, there continue to be constant discussions on the appropriate technique for analyzing trade potential using the gravity model. Salim, Kabir and Mawali (2011) provided an empirical response to the question of the trade potential remaining in the Arab States of the Gulf, using gravity model panel data approaches. Using three variations of the gravity model (standard, augment and stochastic frontier), followed by various diagnostic tests in attempts to correct for expected issues of heteroskedasticity and autocorrelation, a single conclusion was made, in each approach, that despite substantial trade improvements among the Gulf states, a significant trade gap remains (Salim, Kabir and Mawali 2011).

Regardless of the questions of the technique of estimation and suggested alterations (see Fally, 2015), the gravity continues to hold its place, theoretically and empirical applicability, with regards to its assessment of trade (imports or exports) in various aspects. Yet the present region under investigation remains void of such empirical analysis.

#### *Previous studies with reference to the Region's exports possibilities*

In an evaluation of the impacts, China and India's growth within the global environment with reference to broader Latin America and the Caribbean (LAC), Lederman, Olarreaga and Soloaga

(2007) concluded that these markets are guaranteed opportunities for all exporters, with larger and unexploited prospects seen for the LAC. Indicating the existence of challenges, though not empirical robust, with the growth in these economies, the authors emphasized that identification of potential benefits outweighed any threats. Therefore, the identification of viable export products is the next step is the region's efforts to reap the untapped benefits.

Bernal (2010) holds a supporting view. He argues CARICOM businesses have yet to exploit the larger Chinese market; highlighting a number of high-value and niches market product options. Bernal also noted the unutilized franchising option available to well-established brands, i.e the region's internationally recognized rums. These comments came on the backdrop that many of the member states were seeking new sources of aid, investment and trade, and the increased level of importance of China as a trade partner provides good prospects for CARICOM exporters (Bernal 2010). China's importance in world trade has subsequently improved.

In a more recent analysis of CARICOM's trade potential, Colley (2015) attempted and empirical analysis of the trade potential with the Chinese economy, in an effort to determine partner-based and sectoral-based advantages. Using a series of popular indices, the author posits that the region and China are complementary economies, i.e. natural trading partners. Yet, insisted that 'bilateral trade with China is rising on the basis of their importance in world trade compared with the bilateral trade of its traditional trading partners such as the European Union'. Colley (2015) concluded that with the highest calculated intra-industry trade, the potential for trade relations exist. Though providing intuitive reasoning on the results, no attempt was made to provide frontier estimates of trade between these partners.

From the available studies from a bilateral viewpoint, there exists little theoretical and less empirical discussion on the Caribbean-China trade potential. However, a plethora of extra-regional work exists with a significant focus on Asia (including China) and various trading partners. Recent authors include Kabir and Salim (2011), Malik and Afzal Mir (2014), Bano, Takahashi and Scrimgeour (2013), and Ravishankar and Stack (2014).

## **METHODOLOGY AND DATA SELECTION**

### *Gravity Model*

The gravity model continues to build and maintain a long history of evaluating bilateral trade patterns between geographical locations (Batra 2004). Tinbergen (1962) was the pioneer to publish a mathematical formula and empirical application of the gravity model.

Despite its frontier approach, this initial approach of the model lacked a convincing microeconomic foundation. It was work Anderson (1979) that by ignoring price discrimination filled the void regarding the microeconomic theory. The author provided quantitative support to gravity model by applying the Cobb-Douglas production function and Constant Elasticity Substitution; under the assumption that products are differentiated by region, known as the 'Armington Assumption' (Kristjánssdóttir 2005, Alleyne and Lorde 2014). See Anderson and van Wincoop (2003), which emphasizes the crucial importance it is critical to include both inward and outward multilateral resistances, for the popularized derivation of the gravity system widely in use.

Similar to preceding gravity studies, trade cost variables include those of a time-invariant nature and those that time varies (Hummels 1999). Including these differentiated variables, fixed effects (both importer-year and exporter-year) and an error term disaggregated at an industry level, the final augmented equation takes the following form:

$$\ln(T_{ijkt}) = \beta_0 + \beta_1 \ln(Y_{it}) + \beta_2 \ln(Y_{jt}) + \beta_3 \ln(d_{ijk}) + \delta * BC_{ijkt} + \varphi_1 FE_{ikt} + \varphi_2 FE_{jkt} + \varphi_3 FE_{ijk} + \varepsilon_{ijt} \quad (1)$$

Here  $\varphi_1 FE_{ikt}$  is the exporter-year-commodity fixed effects,  $\varphi_2 FE_{jkt}$  is the importer-year-commodity fixed effect, while  $\varphi_3 FE_{ijk}$  represents the cross-country pair effects. Note that the pair effects absorb all time-invariant pairs usually found to be correlated with other time-invariant trade cost and are excluded from the equation.

### *Data, Variables and descriptive statistics*

This paper analyses the value of bilateral exports for 46 countries for the years 2000-2015, from the UN COMTRADE online database. Sample countries include: Antigua & Barbuda, Argentina, Australia, Bahamas, Barbados, Belgium, Belize, Brazil, Canada, Chile, China, Colombia, Costa Rica, Dominica, Dominican Rep., France, Gabon, Germany, Grenada, Guyana, Haiti, Hong Kong SAR, India, Italy, Jamaica, Japan, Liberia, Mauritius, Mexico, Montserrat, Netherlands, Norway, Panama, Portugal, Rep. of Korea, St Kitts & Nevis, St Lucia, St. Vincent & the Grenadines, Spain, Suriname, Switzerland, Trinidad and Tobago, United Arab Emirates, United Kingdom, United States of America, Venezuela.

Using the SITC Revision three classification and disaggregated at the second level, into 66 categories (see table 1); data was assimilated according to the imports of each country for their corresponding partner, which are inclusive of the CIF tax accounting for some of the cost associated with international trade. The value is measured in units of US dollar. Currency inflation will be captured by the importer-year, exporter-year fixed effects specifications. Data used to capture cost associated with geography, which many authors refer to as traditional trade cost is taken from the CEPII database, while information on recent trade agreements was acquired from the WTO Regional Trade Agreement database. See table 2 for the list of variables used in this analysis, with additional descriptive statistics.

### *Handling of Zero Trade*

The level of disaggregation data used in this analysis expectedly captures a significant number of zero trade flows. Haveman and Hummels (2004) posit that the appearance of zero trade is often common in a trade matrix, noting only some countries trade all products with few partners, where others don't. Yet, the treatment of zero trade has long been and remains a contentious issue of debate, see Santos Silva & Tenreyro (2006) and Egger, Larch, Staub, and Winkelmann (2011). Within the proposed estimation technique unaltered trade data will be used.

**Table 1:** List of 66 categories used in the analysis

<b>Code</b>	<b>Product Details</b>	<b>Code</b>	<b>Product Details</b>
00	Live animals other than animals of division 03	56	Fertilizers (other than those of group 272)
01	Meat and meat preparations	57	Plastics in primary forms
02	Dairy products and birds' eggs	58	Plastics in non-primary forms
03	Fish (not marine mammals), crustaceans, molluscs and aquatic invertebrates, and preparations thereof	59	Chemical materials and products, n.e.s.
04	Cereals and cereal preparations	61	Leather, leather manufactures, & dressed furskins
05	Vegetables and fruit	62	Rubber manufactures, n.e.s.
06	Sugars, sugar preparations and honey	63	Cork and wood manufactures (excluding furniture)
07	Coffee, tea, cocoa, spices, and manufactures thereof	64	Paper, paperboard and articles of paper pulp, of paper or of paperboard
08	Feeding stuff for animals (not including unmilled cereals)	65	Textile yarn, fabrics, made-up articles, n.e.s., and related products
09	Miscellaneous edible products and preparations	66	Non-metallic mineral manufactures, n.e.s.
11	Beverages	67	Iron and steel
12	Tobacco and tobacco manufactures	68	Non-ferrous metals
21	Hides, skins and furskins, raw	69	Manufactures of metals, n.e.s.
22	Oil-seeds and oleaginous fruits	71	Power-generating machinery and equipment
23	Crude rubber (including synthetic and reclaimed)	72	Machinery specialized for particular industries
24	Cork and wood	73	Metalworking machinery
25	Pulp and waste paper	74	General industrial machinery and equipment, n.e.s., and machine parts, n.e.s.
26	Textile fibres (other than wool tops and other combed wool) and their wastes (not manufactured into yarn or fabric)	75	Office machines and automatic data-processing machines
27	Crude fertilizers, other than those of Division 56, and crude minerals (excluding coal, petroleum and precious stones)	76	Telecommunications and sound-recording and reproducing apparatus and equipment
28	Metalliferous ores and metal scrap	77	Electrical machinery, apparatus and appliances, n.e.s., and electrical parts thereof (including non-electrical counterparts, n.e.s., of electrical household-type equipment)
29	Crude animal and vegetable materials, n.e.s.	78	Road vehicles (including air-cushion vehicles)
32	Coal, coke and briquettes	79	Other transport equipment
33	Petroleum, petroleum products and related materials	81	Prefabricated buildings; sanitary, plumbing, heating and lighting fixtures and fittings, n.e.s.
34	Gas, natural and manufactured	82	Furniture and parts thereof; bedding, mattresses, mattress supports, cushions and similar stuffed furnishings
35	Electric current	83	Travel goods, handbags and similar containers
41	Animal oils and fats	84	Articles of apparel and clothing accessories
42	Fixed vegetable fats and oils, crude, refined or fractionated	85	Footwear
43	Animal or vegetable fats and oils, processed; waxes of animal or vegetable origin; inedible mixtures or preparations of animal or vegetable fats or oils, n.e.s.	87	Professional, scientific and controlling instruments and apparatus, n.e.s.
51	Organic chemicals	88	Photographic apparatus, equipment and supplies and optical goods, n.e.s.; watches and clocks
52	Inorganic chemicals	89	Miscellaneous manufactured articles, n.e.s.
53	Dyeing, tanning and colouring materials	93	Special transactions and commodities not classified according to kind
54	Medicinal and pharmaceutical products	96	Coin (other than gold coin), not being legal tender
55	Essential oils and resinoids and perfume materials; toilet, polishing and cleansing preparations	97	Gold, non-monetary (excluding gold ores and concentrates)

**Table 2:** Model variables

Variable	Observations	Mean	Std. Dev.	Min	Max
<i>trdValue</i> - Trade value (US\$ exports)	1768536	5.30e+07	6.84e+08	0	1.01e+11
<i>lnDistance</i> - Distance from capitals (km)	1768536	8.516392	1.040151	1.819526	9.875466
<i>dContig</i> – countries share a common border	1768536	.03299	.1786104	0	1
<i>dCLang</i> - Share a common (official) language	1768536	.2728019	.4454	0	1
<i>dComCol</i> - have ever shared a colonial link	1768536	.1181893	.3228322	0	1
<i>dCol45</i> – maintained colonial relationship after 1945	1768536	.0217197	.1457667	0	1
<i>dFTA*</i> – country i possess a Free Trade relationship with country j	1768536	.1409539	.3479741	0	1
<i>dPSA*</i> - country i possess a Preferential System of Trade relationship with country j	1768536	.0358636	.18595	0	1
<i>dCU*</i> – Both countries are part of a Currency Union	1768536	.1434542	.3505356	0	1
<i>dGFC_08</i> – Captures the expected effect of the global financial recession of 2008 on the flow of trade	1768536	.0659427	.2481819	0	1

\*- Variable also lagged for 5 periods

### Model Selections

The structured gravity model equation used in this paper is to examine factors that affect trade exports and estimate the export potential, is as follows:

$$\exp_{ijkt} = \alpha_0 + \beta_1 \ln \text{dist}_{ij} + \beta_2 d\text{Contig}_{ij} + \beta_3 d\text{ComLang}_{ij} + \beta_4 d\text{ComCol}_{ij} + \beta_6 d\text{Col45}_{ij} + \sum_{h=1}^3 \delta_h d\text{TA}_{ijt-h} + \varphi_1 \text{FE}_{ikt} + \varphi_2 \text{FE}_{jkt} + \varphi_3 \text{FE}_{ijk} + \mu_{ijt} \quad (2)$$

The existing body of theoretical work is replete with works on endogenous trade agreements. The authors suggest empirical models based on pseudo-maximum likelihood estimation with endogenous (binary) explanatory variables.

$$\widehat{\exp}_{ijkt} = \widehat{\alpha}_0 + \sum_{h=1}^3 \widehat{\delta}_h d\text{TA}_{ijt-h} + \widehat{\varphi}_1 \text{FE}_{ikt} + \widehat{\varphi}_2 \text{FE}_{jkt} + \widehat{\varphi}_3 \text{FE}_{ijk} + \mu_{ijt} \quad (3)$$

Acknowledging issues of zero trade and heteroscedasticity, if unaccounted could leading to biased results, and the significant rise in popularity in academic literature (Miankhel, Thangavelu and Kaliappa 2009), this research's chosen technique of estimation is PPML Structured Panel. However, to add a measure of comparable stability to the expected coefficients, the OLS operator adopted by Guimaraes and Portugal (2010) was included- uses the same underlying specification. Unlike linear estimators, PPML does not assume homoscedasticity and it remains valid under general forms of heteroscedasticity – dependent variable not logged.



## RECENT TRADE FLOWS

### *CARICOM's Trade Patterns*

The principle purpose behind the manifestation of the institutional structure and the governance of CARICOM is the acceleration of regional, economic and other developments through a free trade bloc. Though some may highlight various shortcomings of its current dispensation [see Byron (2004, 2014)], it remains that the integration of nations has set the stage for the region to better effectively penetrate the global marketplace. As a result, the Caribbean has collectively created a noticeable presence both on the intra-regional and extra-regional spectrum of trade.

With an estimated population of 17.65 million persons, in 2014, a total regional GDP of around US\$58.3 billion (growth of 1.42 %) and an average per capita of US\$3,317, the region remains unimportant to the flow of world exports. Out of all member countries, the largest possessing wealth for a participating member was Trinidad and Tobago (US\$19.3 billion), followed by Jamaica (US\$11.2 billion) and The Bahamas (US\$8.0 billion); which, in retrospect, is rendered as small when compared with many world economies.

**Table 3:** CARICOM's top 10 extra-regional partners by share of exports (2000-2015)

PARTNER	Merchandise Trade (total)	Food Items	Beverages & tobacco	Agriculture	Fuels	Manufactured Goods
United States	43.1	20.5	17.6	13.4	48.0	55.5
Canada	5.6	3.1	6.4	0.9	1.0	3.5
United Kingdom	3.8	19.4	8.8	3.5	2.2	1.4
Spain	3.5	1.3	3.7	0.6	6.4	1.6
France	2.6	3.9	2.3	1.1	2.5	2.0
Netherlands	2.3	3.5	4.9	4.7	1.8	1.2
Mexico	1.6	0.8	1.6	1.3	1.3	2.6
Belgium	1.4	1.0	0.0	0.8	0.3	0.5
United Arab Emirates	1.4	0.0	0.1	0.2	0.0	0.0
Brazil	1.0	0.2	0.5	0.1	0.7	2.4
<b>China</b>	<b>0.8</b>	<b>0.1</b>	<b>0.1</b>	<b>20.7</b>	<b>0.2</b>	<b>0.5</b>
Rest of the World	32.9	46.2	54.0	52.7	35.6	28.8

Source: UNCTAD database. All percentages representing in the Table were the author's own calculations

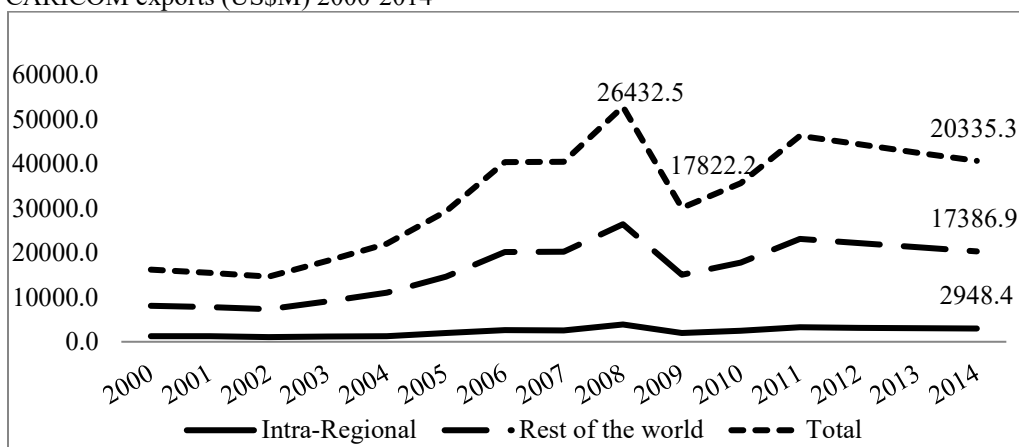
**Table 4:** CARICOM top 10 exported product category 2000 – 2015 (US\$ billion)

Code	2000	Code	2005	Code	2010	Code	2015
<b>33</b>	2.39	<b>33</b>	4.74	<b>33</b>	5.61	<b>28</b>	0.82
<b>28</b>	0.82	<b>34</b>	2.36	<b>34</b>	1.88	<b>33</b>	0.38
<b>34</b>	0.55	<b>28</b>	1.10	<b>93</b>	1.67	<b>97</b>	0.36
<b>93</b>	0.46	<b>52</b>	0.89	<b>52</b>	1.47	<b>04</b>	0.26
<b>52</b>	0.38	<b>93</b>	0.89	<b>28</b>	1.25	<b>06</b>	0.22
<b>51</b>	0.35	<b>51</b>	0.81	<b>51</b>	0.78	<b>03</b>	0.21
<b>06</b>	0.32	<b>67</b>	0.35	<b>67</b>	0.58	<b>11</b>	0.16
<b>67</b>	0.25	<b>06</b>	0.32	<b>97</b>	0.36	<b>78</b>	0.15
<b>05</b>	0.24	<b>11</b>	0.30	<b>79</b>	0.30	<b>05</b>	0.14
<b>84</b>	0.20	<b>05</b>	0.23	<b>04</b>	0.29	<b>93</b>	0.11

CARICOM members no longer possess preferential trade relations primarily with its larger develop partners- North America, European Union members (mainly the United Kingdom) and Canada (see table 3). Therefore, attention is drawn to the region’s export composition of products, which were predominantly, fuel and mining products (product category 33), bananas (5), sugar and spirits (11) is now driven by **33-petroleum** (Trinidad and Tobago), **petroleum products and related materials** and **28-metalliferous ores and metal scrap**. Noticeably, the industries for **5-vegetables and fruits** and **11-beverages**, which were once the main beneficiaries of favoured access rights, are no longer among the top 5 demanded products categories, internationally (see table 4).

UNCTAD figures indicated that during the period 2000 to 2014, nominal intra-regional trade value was relatively balanced, and at the end of this period, intra-regional transactions represented 14.5% of the region’s total exports (*see Figure 1*). However, following the 2008 global financial meltdown, the region has yet to rebound (to or above) previous export levels, both collectively and individually; where exports grew at an average rate of 9.2%. Table 1 represents the top ten (plus China) export destinations for region’s commodities by share of exports. China accounts for less than 1.0%, while the three largest consuming destinations account for an excess of 52.0% of exports. These figures indicate a clear concentration in product destination and an exposure to the contagion of economic shocks initiated within these countries.

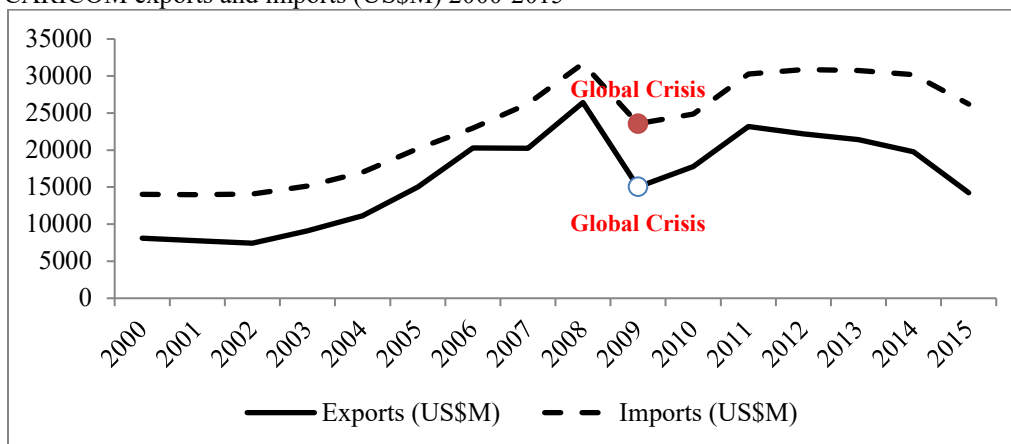
**Figure 1: CARICOM exports (US\$M) 2000-2014**



Source: UNCTAD online database.

As an additional concern, the region continues to run trade deficits for which they have sought to make up via exports in services; but without significant success (*see Figure 2*). Though external to this investigation; the region’s trade deficit remains unmanageable. From a global perspective, CARICOM exported US\$8.1 billion worth of merchandise in 2000 or 0.12% of total merchandise exported globally. Yet, in 2014 merchandise exports fell to 0.08% of global exports (US\$14.24 billion).

**Figure 2:** CARICOM exports and imports (US\$M) 2000-2015

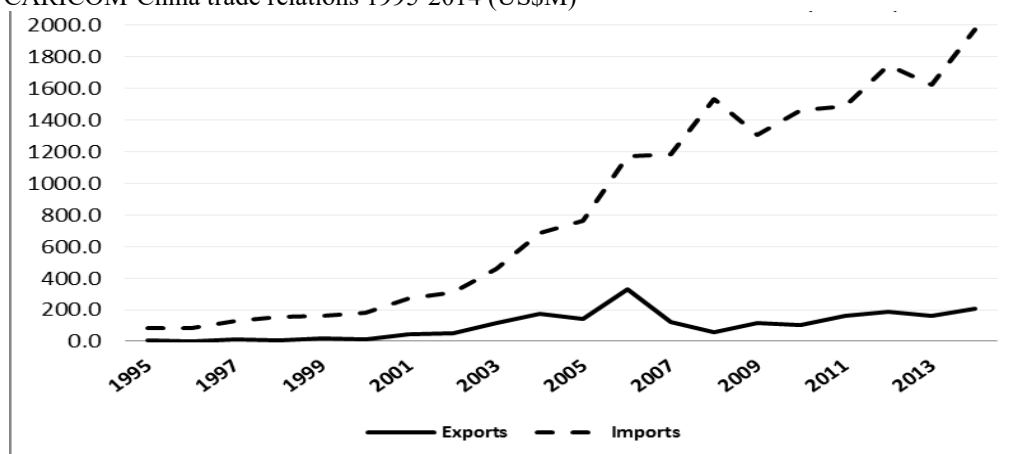


Source: UNCTAD online database.

### *CARICOM-CHINA trade relation*

Bernal's (2010) asserted that as a result of its colonial past, CARICOM members are blinded by a measure of ignorance and suspicion concerning China when compared with existing foreign relations focused on the traditional European and North American nations. Comments made despite centuries of contact and individual forms of trade, followed by more formal diplomatic relations with China, starting with Guyana and Jamaica in 1972. With evidence of the balance of economic power tilting, towards more Asia-China configurations, the CARICOM members must remain resilient in approaches to development.

**Figure 3:** CARICOM-China trade relations 1995-2014 (US\$M)

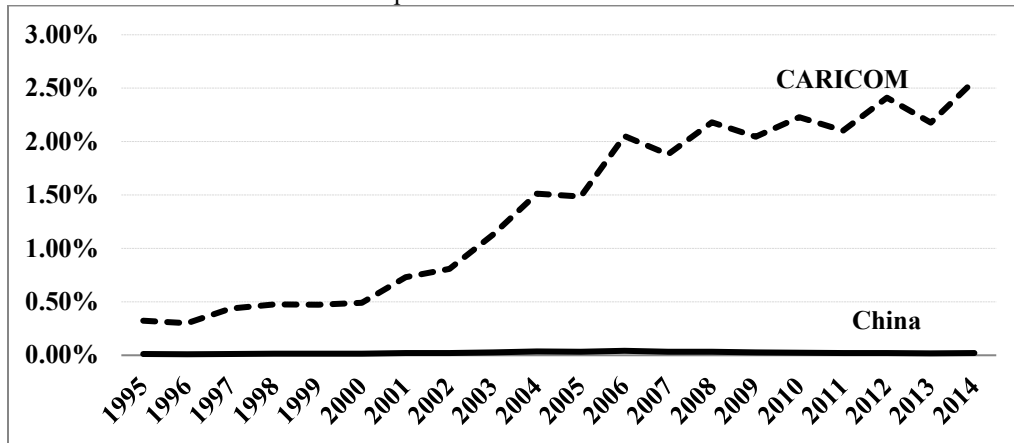


Source: UNCTAD online database.

China represents a large and rapidly expanding buyers' market accounting for 10% of the world's import expenditure, which provides enormous trade benefits for the region. Figure 3 presents the CARICOM-China trade relations between 1995 and 2014; where imports consistently lead its exports, as seen in the trading relationship between CARICOM and its international counterparts. It is clear that imported Chinese merchandise has been increasingly attractive to the

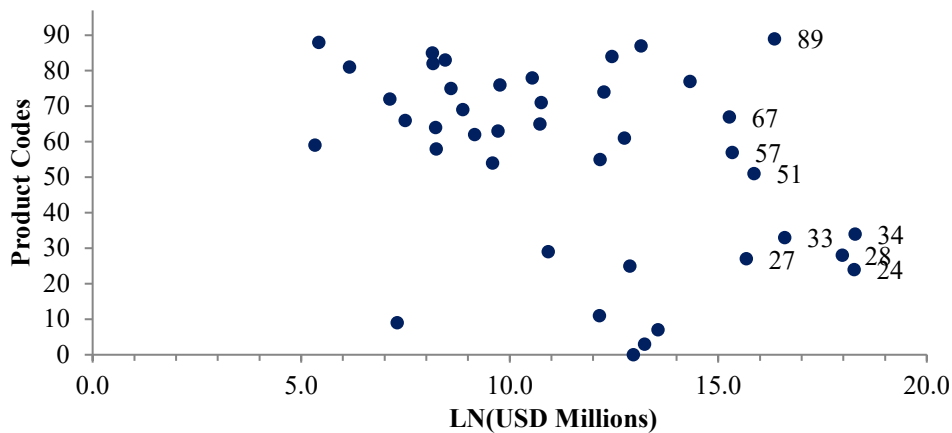
CARICOM consumer; the possible result of competitive pricing. Noticeably, the rate of increase in the demand for Chinese products significantly expanded from 2003. With little comparable growth in CARICOM's exports, this trend provides indictable evidence of China's speedily penetration into the region's much smaller market, which according to Bernal (2010) has now become a necessity for some product in day-to-day life.

Figure 4: CARICOM-China Bilateral Trade Openness 1995-2014



Source: Author's own calculation based on data from UNCTAD online database.

Figure 5: CARICOM export composition to China 2015 (natural log)



Source: UN COMTRADE online database.

Figure 4 presents the changing trade openness levels between the CARICOM member states and the Chinese economy each year; calculated as the percentage of total bilateral trade to each partner's GDP. Extrapolated from the data are the levels and growing dependence that CARICOM has on the CARICOM-China relations; a situation which requires isolated investigation on the benefits of such integration. The data also points to a situation where this bilateral exchange continues to grow in importance for the CARICOM region, while it remains negligible for the expansion of trade for the Chinese economy. By 2015, only 5 of 67 classifications of exported product captured more the US\$10 million in revenue from within the Chinese economy (see Figure 5). These included **34-Gas, natural and manufactured, 24-Cork and wood, 28-**

**Metalliferous ores and metal scrap, 33-Petroleum, petroleum products and related materials, and 89-Miscellaneous manufactured articles;** most of which can be identified as a natural resource.

The information presented in this section provides a supporting argument for the CARICOM member states to investigate the potential viability and current export efficiency of locally produced merchandise in the larger Chinese market while noting comparative benefits the region stand to offer. Here we assess the situation in a largely unpenetrated China, who has a clear and growing presence within this community of islands. It must, however, be highlighted that due to a lack of economies of scale, growth potential on identified product categories should be sought outside the realm of price competitiveness.

#### *China's market for imported commodities*

After joining the World Trade Organization (WTO) in 2001, China continued to build its list of **free** trade agreements with several nations across the world, while ascending to a position of dominance. In recent years, surpassing the United States as the largest trading nation, China has become a crucial element to the system of international trade; such that weaker global trade of 2015 was in part due to the economic slowdown of the Chinese economy (WTO 2016). In the same year, China accounts for 14% (US\$2.27 trillion) of global exports and 10% of all imports (US\$ 1.68 trillion), of merchandise trade (WTO 2016).

The data presented in Table 5 illustrates the phenomenal pace of growth in the demand for international commodities in the Chinese market between 2000 and 2015. At the end of the period, international imports were 7.5 times greater than that of the year 2000. The preference pattern of imports display significant fluctuations over time, yet **77-electrical machinery, apparatus and appliances, and electrical parts thereof (including non-electrical counterparts of electrical household-type equipment)** and **33-petroleum, petroleum products and related materials** remained the leading imports. By 2015, **28-metalliferous ores and metal scrap, 87-Professional, scientific and controlling instruments and apparatus, and 76-telecommunications and sound-recording and reproducing apparatus and equipment** rounded out the most top 5 recognizable imported categories. Attention is also given to the significant value of imports registered under the heading; **93-special transactions and commodities not classified according to kind** (2015 4<sup>th</sup> largest import category at US\$80.5 billion).

**Table 5:** China top 10 imported product category 2000 – 2015 (US\$ billion)

Code	2000	Code	2005	Code	2010	Code	2015
77	35.6	77	137.7	77	262.5	77	351.7
33	18.9	33	59.5	33	164.1	33	161.2
65	12.8	87	41.4	28	131.9	28	110.2
76	12.4	28	36.2	87	75.1	93	80.5
57	11.5	75	35.8	75	56.8	87	80.3
75	10.9	76	29.4	68	49.3	76	71.9
72	10.7	51	27.9	78	49.3	78	69.5
67	9.7	67	26.3	57	48.7	75	50.7
51	8.3	57	26.2	51	47.9	57	49.2
74	7.7	74	24.2	74	45.0	51	47.9
<b>Total</b>	<b>225.1</b>		<b>660.0</b>		<b>1,396.0</b>		<b>1,681.7</b>

## RESULTS

Results are presented in tables (6 and 7). Table 6 displays the time-variant fixed effects gravity model regression results for the SITC3 2-digit product classification. Captured via the OLS estimation technique, all included traditional variables are in-line with theoretical and empirical practices, with coefficients appropriateness (in sign) and significance. Comparably smaller coefficients resulted from the PPML estimator. The lower values are reflective of heteroscedasticity presence, normally associated with cross-border trade, which reduces the possibility of spurious (bias) results.

**Table 6:** Regression results

VARIABLES	(1) PPML SG	(2) OLS	(3) PPML SG	(4) OLS	(5) PPML SG	(6) OLS	(7) PPML SG	(8) OLS
lnDistance	-0.645*** (0.0049)	-1.342*** (0.003)	-0.646*** (0.0049)	-1.341*** (0.003)	-0.645*** (0.0050)	-1.335*** (0.003)		
dContig	0.862*** (0.0107)	1.518*** (0.0174)	0.862*** (0.0107)	1.512*** (0.0174)	0.862*** (0.0107)	1.488*** (0.0175)		
dCLang	0.0434*** (0.0109)	0.744*** (0.0077)	0.0431*** (0.0109)	0.743*** (0.0077)	0.0446*** (0.0109)	0.745*** (0.0077)		
dComcol	0.866*** (0.0614)	1.343*** (0.011)	0.867*** (0.0614)	1.335*** (0.011)	0.871*** (0.0603)	1.306*** (0.0111)		
dCol45	0.247*** (0.0460)	-0.0705*** (0.0197)	0.254*** (0.0457)	-0.0471** (0.0197)	0.252*** (0.0461)	0.0346* (0.0197)		
dGFC_08		-0.0308*** (0.0110)		0.0587*** (0.0113)		0.0472*** (0.0114)		
dFTA			0.104*** (0.0403)	-0.709*** (0.0249)	0.104** (0.0404)	-0.745*** (0.0249)	0.0227* (0.0120)	-0.0999*** (0.0139)
dFTA_lag1					0.0605 (0.0432)	-0.721*** (0.0243)	0.0459*** (0.0156)	-0.0615*** (0.0144)
dFTA_lag2					0.01 (0.0388)	-0.663*** (0.0249)	0.0138 (0.0169)	-0.0822*** (0.0148)
dFTA_lag3					-0.0028 (0.0375)	-0.564*** (0.0255)	0.0145 (0.0181)	-0.106*** (0.0153)
dFTA_lag4					-0.0674* (0.0382)	-0.523*** (0.0262)	0.00832 (0.0167)	-0.0550*** (0.0161)
dFTA_lag5					-0.0569 (0.0439)	-0.478*** (0.0279)	-0.0245* (0.0137)	-0.0778*** (0.0171)
dPSA			-0.144 (0.111)	1.414*** (0.123)	-0.142 (0.111)	1.380*** (0.123)	-0.121* (0.0721)	0.469*** (0.0802)
dPSA_lag1					-0.0314 (0.138)	1.382*** (0.121)	-0.0781 (0.0591)	0.563*** (0.0858)
dPSA_lag2					0.0082 (0.137)	1.412*** (0.117)	-0.0669 (0.0532)	0.606*** (0.0826)
dPSA_lag3					0.114 (0.157)	1.464*** (0.122)	-0.0412 (0.0521)	0.742*** (0.0863)
dPSA_lag4					0.161 (0.163)	1.395*** (0.121)	0.0183 (0.0522)	0.708*** (0.0845)
dPSA_lag5					0.141 (0.136)	1.492*** (0.126)	0.0160 (0.0405)	0.580*** (0.0879)
Constant		17.98*** (0.027)		17.97*** (0.027)		17.95*** (0.027)		6.906*** (0.002)
R-squared	0.901	0.744	0.901	0.744	0.902	0.745	0.993	0.908
Exporter-Industry-Year FE <sub>ikt</sub>	YES	YES	YES	YES	YES	YES	YES	YES
Importer-Industry-Year FE <sub>ikt</sub>	YES	YES	YES	YES	YES	YES	YES	YES
Exporter-Importer-Industry FE <sub>ijk</sub>	NO	NO	NO	NO	NO	NO	YES	YES
Observations	1,691,194	1,826,352	1,691,194	1,826,352	1,691,194	1,826,352	1,335,041	1,826,352

Standard errors in parentheses – ()

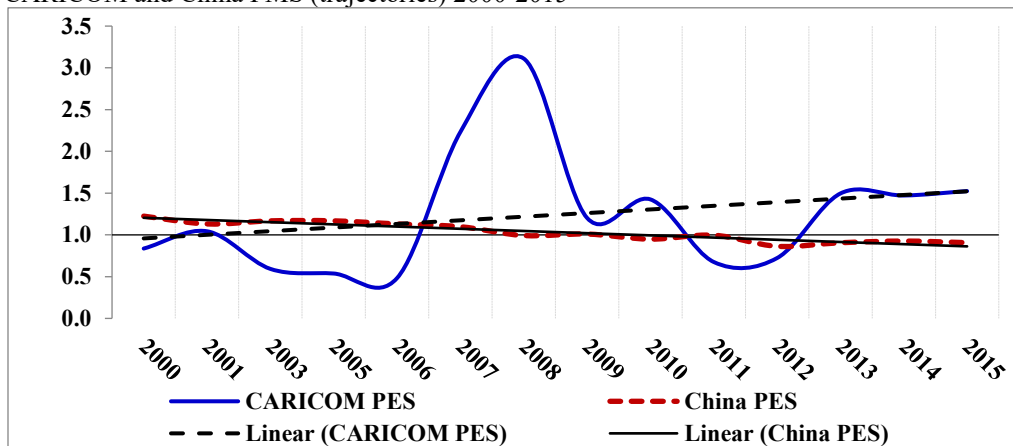
\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Note: All test were conducted under robust conditions

In table 6 columns one and two to columns five and six, displays increase variable specification accounting for the impact of various trade agreements (plus annual lagged effect). The inclusion of all three forms of multilateral resistance absorbed a larger number of variable results, as was expected. Columns 7 and 8 of this table indicate that the presence of an FTA between partner countries gives rise to an expected average decline in trade among the countries evaluated. These results confirm the uncertain impact of regional trade agreements on intra-regional and extra-regional trade. (World Bank 2005).

Our objective is to assess the remaining potential market share (PMS) to be gained from enhanced mutual trade cooperation between China and the Caribbean. For total bilateral trade between the parties, the estimated trade potential, though declining, is 68.1% above the level reached by 2015. Separately, the Caribbean holds a PMS value of 52.5%, while China’s PMS projects an export level of 9.3% higher. The years of bilateral relations have resulted in asymmetric outcomes towards the Chinese exporters. Despite reaching the potential benchmark, the demand for Chinese products continues to grow, while the reciprocal of this trade with China have declined over the same period. – i.e. the space between potential and actual exports from within the Caribbean indicates less consistency in trade improvements (*see Figure 6*). An aggressive and sustained approach by the Caribbean is needed.

**Figure 6:** CARICOM and China PMS (trajectories) 2000-2015



Source: Based on model estimates

Table 7 illustrates the Caribbean’s PMS values with China and three other export destinations (*USA, UK and Canada*) where a lengthier trade history with the comparing countries exists; for four selected years. Over the review period, as the region’s extensive margins continue to increase, greater variations in export potentials to China evolve. Across the full spectrum analyzed, a vast area of over-trading and under-trading exists with all destinations. A deeper analysis reveals that the largest variation in PMS is found within the Chinese market. Despite its growth extensively, the Chinese market remains a heavily-unexploited market for the Caribbean. Whether this suppressed trade is a result of supply-side or demand-side factors falls external to the scope of our analysis.

Table 7: PMS results – CARICOM PMS with China, USA, UK, Canada

2000						2005						2010						2015					
Order	CODE	China	USA	UK	CAN	Order	CODE	China	USA	UK	CAN	Order	CODE	China	USA	UK	CAN	Order	CODE	China	USA	UK	CAN
20	[74]	129.6	0.8	1.0	1.5	29	[67]	6,604.2	1.9	1.9	0.4	14	[76]	69.1	1.0	1.6	0.7	33	[59]	36.6	1.5	1.4	1.2
24	[59]	78.2	0.9	1.4	9.4	63	[89]	38.0	1.1	0.1	3.2	39	[65]	25.6	1.5	0.8	21.3	22	[75]	26.8	0.7	0.3	2.0
63	[89]	72.0	0.9	1.5	0.8	41	[74]	24.2	1.0	1.8	0.2	4	[28]	7.3	8.9	2.7	2,541.7	11	[88]	11.4	0.9	2.3	10.4
33	[64]	8.9	0.5	5.2	0.6	54	[84]	17.9	1.0	2.2	0.9	3	[78]	4.8	1.7	7.2	1.6	20	[09]	8.6	0.8	0.9	1.1
16	[07]	8.2	1.3	0.8	1.0	31	[65]	17.3	1.3	0.7	0.5	9	[73]	2.3	0.9	10.0	0.9	28	[72]	5.4	1.0	0.9	1.5
4	[03]	6.4	1.0	1.8	1.1	1	[78]	10.0	0.7	0.4	1.1	58	[61]	2.1	0.8	-	0.7	23	[85]	5.1	2.8	6.9	1.3
41	[77]	6.1	0.9	1.9	0.8	27	[77]	6.8	0.9	0.8	1.0	35	[62]	1.7	4.0	0.3	8.0	34	[84]	4.0	1.0	0.7	1.0
19	[55]	3.6	1.1	0.7	0.5	55	[87]	5.7	1.1	1.8	0.4	11	[03]	1.7	1.0	2.6	1.1	30	[54]	3.7	0.6	13.9	3.8
18	[27]	1.5	1.1	0.3	2.6	7	[03]	4.6	0.9	0.8	1.2	64	[89]	1.6	0.9	2.6	1.6	44	[68]	3.6	2.9	1.2	3.7
49	[61]	1.5	0.9	-	1.1	26	[71]	3.5	1.1	1.9	3.2	52	[34]	1.5	1.1	0.6	0.5	15	[76]	3.1	1.0	2.2	0.7
56	[25]	1.1	0.1	12.0	-	16	[27]	3.3	0.8	1.4	2.0	21	[72]	1.4	0.4	3.6	6.8	55	[58]	2.7	1.0	5.3	529.2
22	[24]	1.1	1.8	0.8	2.4	17	[07]	2.9	1.1	0.8	0.7	8	[05]	1.3	1.0	1.1	1.0	13	[51]	2.1	1.2	0.3	1.0
52	[84]	1.0	0.9	1.2	1.6	20	[55]	2.6	1.0	1.4	1.2	27	[07]	1.3	1.1	1.3	1.3	4	[33]	2.1	1.1	3.1	0.7
50	[58]	0.5	0.7	0.2	0.1	24	[59]	2.5	1.3	0.9	0.8	10	[11]	1.2	0.8	1.4	1.1	27	[34]	1.9	1.1	1.3	0.2
3	[11]	0.5	1.1	0.7	0.8	44	[68]	2.1	0.7	1.9	0.5	24	[24]	1.2	0.7	1.2	0.7	26	[73]	1.8	0.8	3.3	0.6
29	[73]	0.4	1.3	0.6	1.8	23	[69]	1.9	1.1	3.2	2.4	59	[25]	1.1	2.4	-	-	24	[69]	1.7	0.9	1.2	0.6
39	[68]	0.3	0.8	6.2	0.5	53	[61]	1.9	0.8	0.2	0.7	23	[55]	1.1	1.0	0.8	1.2	54	[87]	1.7	1.7	0.9	5.2
46	[87]	0.3	0.8	2.6	1.2	46	[58]	1.8	2.4	-	266.7	22	[67]	1.1	1.0	3.2	0.9	21	[67]	1.5	1.0	0.5	6.5
35	[65]	0.2	0.8	1.9	1.8	10	[57]	1.6	1.0	2.5	0.4	51	[87]	0.9	0.9	0.7	1.6	9	[11]	1.3	1.0	1.0	1.0
28	[69]	0.2	0.7	0.9	2.8	33	[85]	1.1	1.3	0.2	0.9	28	[27]	0.9	1.0	1.1	1.4	47	[25]	1.2	-	-	0.3
30	[85]	0.2	0.6	0.7	1.3	56	[25]	1.0	3.1	-	-	18	[57]	0.9	1.0	1.1	0.5	14	[24]	1.0	0.6	2.0	7.5
48	[00]	0.1	2.5	2.6	1.2	13	[76]	1.0	0.8	11.0	0.9	26	[66]	0.9	0.9	-	944.6	16	[07]	1.0	0.9	1.1	0.8
40	[72]	0.1	1.0	3.3	0.5	39	[29]	1.0	0.8	2.1	1.1	55	[00]	0.7	1.2	1.1	5.1	7	[03]	0.9	1.2	1.1	1.1
53	[79]	0.0	0.4	15.7	0.3	18	[24]	0.9	2.0	0.6	0.5	25	[71]	0.7	1.1	2.3	0.6	43	[65]	0.9	1.0	3.4	8.0
1	[28]	-	1.3	1.2	0.3	19	[54]	0.5	9.7	0.4	2.6	30	[58]	0.7	0.5	1.6	3.8	51	[00]	0.8	0.9	1.0	3.8
2	[83]	-	0.7	6.3	0.7	35	[53]	0.4	0.3	0.8	999.5	44	[26]	0.6	15.6	-	143.8	12	[57]	0.8	1.0	0.8	4.9
5	[05]	-	1.3	0.7	1.0	5	[11]	0.4	1.2	1.1	1.2	57	[84]	0.5	1.0	1.3	0.7	1	[78]	0.7	1.0	26.0	6.2
6	[06]	-	1.0	0.9	0.2	15	[66]	0.4	1.3	-	0.9	13	[04]	0.5	0.9	0.8	1.0	35	[62]	0.7	1.7	0.5	3.7
7	[33]	-	0.9	0.4	3.7	30	[73]	0.4	1.5	0.8	1.2	2	[77]	0.5	1.1	0.9	1.0	17	[27]	0.7	1.1	14.3	0.4
8	[66]	-	0.3	0.4	1.3	22	[75]	0.3	0.8	1.5	0.7	48	[29]	0.5	1.5	1.0	1.6	49	[74]	0.7	0.8	4.7	0.6
9	[78]	-	2.8	9.2	0.3	11	[88]	0.3	1.4	0.7	0.1	29	[59]	0.4	0.7	0.6	1.8	19	[55]	0.7	1.1	1.3	1.2
10	[54]	-	0.8	5.0	1.3	40	[62]	0.2	8.6	2.1	0.4	6	[96]	0.4	1.0	1.3	-	45	[29]	0.6	1.2	1.6	0.9
11	[51]	-	0.9	0.8	7.0	3	[33]	0.2	1.0	28.5	1.7	12	[06]	0.3	0.3	1.4	1.8	65	[89]	0.6	0.8	2.4	0.4
12	[96]	-	1.0	1.0	-	28	[64]	0.2	2.0	5.2	1.3	7	[69]	0.3	1.3	1.9	0.4	32	[64]	0.5	1.0	1.0	0.5
13	[88]	-	0.6	0.8	0.7	49	[79]	0.1	1.0	7.7	3.9	38	[74]	0.3	1.3	0.8	1.7	29	[77]	0.5	1.0	1.1	1.9
14	[04]	-	1.0	0.9	0.8	25	[63]	0.1	0.9	1.3	1.1	17	[51]	0.3	1.1	0.4	0.8	57	[61]	0.5	1.0	1.7	1.5
15	[76]	-	0.9	5.9	1.0	61	[21]	0.0	0.2	-	-	40	[68]	0.3	2.9	1.2	0.9	60	[82]	0.3	0.9	7.0	0.9
17	[57]	-	1.0	1.0	-	52	[26]	-	0.1	1.5	0.3	19	[09]	0.2	0.9	0.8	1.2	39	[63]	0.3	1.3	2.8	0.6
21	[09]	-	1.2	1.5	0.9	14	[04]	-	0.7	3.0	1.1	50	[42]	0.1	0.3	1.1	0.4	37	[71]	0.3	0.9	1.7	0.7
23	[63]	-	1.0	0.6	1.6	60	[82]	-	0.7	1.0	2.4	33	[85]	0.1	0.8	1.8	1.7	2	[83]	0.2	1.0	5.8	6.6
25	[53]	-	1.9	-	0.6	9	[51]	-	0.9	-	1.2	36	[02]	0.1	0.8	-	0.8	40	[81]	0.2	0.8	2.1	0.8
Total		0.8	1.0	0.8	1.1	Total		0.5	1.0	1.1	0.9	Total		1.5	1.0	0.9	0.9	Total		1.5	1.0	1.0	1.0



According to data used, the Caribbean has a limited number of exports which overlap with China's top imports. However, predominantly where a relationship does exist, our study reveals expansion space multiple times larger than present levels. In 2015, exports of **59-Chemical materials and products** to China were estimated to have potential share that exceeds 36 points (35 times greater than actuals). Larger exports by trade value (**33-petroleum, petroleum products and related materials** and **51-Organic chemicals**), reveals a lesser improvement possibility value of 2.1. Presented evidence also supports export expansion for the **11-Beverage** industry touted by Bernal (2010); a key industry for the region. Among the noted industries, a list of focus industries with potential market space is identified in table 7.

## CONCLUDING REMARKS

This paper investigates the potential export share available to the smaller Caribbean within China; utilizing the popular gravity model to evaluate recent export patterns to project sustainable potentials levels. This assessment is attributed to the limited effort given to export diversification away from traditional trading partners for Caribbean products despite bilateral discussions. The authors, in addition to empirically proving the possibility for increased trade within a non-traditional market, suggest that the Caribbean must first explore the availabilities of the product markets prior to solo-service approach agenda for the development of the region. Caribbean countries should be aggressive in its quest to capitalize on the opportunities presented by the China-Caribbean relations if it is to reach export potential levels.

Essentially, this study exposes an inability to grasp measured export opportunities provided by China's market demand and any further cross-border easing is likely only to benefit the more export efficient supplier. Significant levels of export potential exist for many Caribbean export industries, including those with highly recognizable brands. In 2015, as the number of exports increases, CARICOM exports to China were estimated to be in excess of 50% below estimated potentials. In efforts to enhance development through trade, further investigation on export efficiency in more non-traditional markets is suggested. The utilization of well-established industries (international brands) with comparative advantages is an essential starting point; beyond price competition.

Caution should also be given to overly-exported products, the limited room for resource inefficiencies emphasizes the need to correct all export imbalances to attain optimal gains. Therefore, proposed next step is the evaluation of supply-side and demand-side factors which impact exports to the Chinese markets. Caribbean countries are cautioned on its advancement of international trade, if they are unable to take advantage of existing arrangements- greater efforts are required by the region's export sectors. Similar investigations of service exports should also be a priori to the design of any development strategies.

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# Determinants of Foreign Direct Investment in the Mexican Food Industry

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*In this study, we analyze the determinants of the Foreign Direct Investment (FDI) in the Mexican food industry at the state level for the years 2005 to 2017. The literature addressed is according to the theoretical basis of the location of the multinational corporations because they are the main sources of FDI. Thus, by applying panel data models, the random effects are the ones that best explain the results, and we found that for the attraction of FDI, the agricultural activity concentration index and the criminal incidence are decisive in a negative way and in a positive way the infrastructure measured by the vehicle fleet.*

*KEYWORDS Foreign direct investment, agricultural activity concentration index, homicide index*

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# Foreign Investments of Japanese Life Insurance Companies

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*This paper investigates the relationship between the investment returns or volatilities of Japanese life insurance companies and their discretionary decisions on foreign portfolio investments. These decisions include the proportion of foreign investments in the entirety of the companies' proprietary investments as well as the currency risk hedge. We also consider the "carry trade" scenario, which occurs when the market favors investing in high yield currencies by borrowing the Japanese yen. We establish three important results. First, the currency hedge relates positively to the investment returns under the carry trade scenario but relates negatively otherwise. Second, the proportion of foreign investments relates positively to the investment returns. Third, the investment returns significantly decrease under the carry trade scenario.*

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# **Sub-national Institutions and Inward Foreign Direct Investment: Does Predominant Political Party Affiliation Matter?**

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*While the influence of national institutions is well-documented, we theorize and investigate how sub-national institutions affect localization of foreign direct investment into a sub-national geographic area. Specifically, we examine the effect of county-level predominant political party affiliation in the United States on inward foreign direct investment through foreign sourced Greenfield start-ups in that county. As predicted, in examination of 2978 counties (94.7% of all counties), the dichotomous predominant party affiliation (Republican versus Democrat) differentially influenced inward foreign direct investment sourced external to the country. Significantly decreased levels of foreign sourced Greenfield start-up investments were experienced during Republican predominance, relative to Democratic.*

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# **Disaggregated Exports and Economic Growth: A Sustainable Development of Bangladesh**

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*This paper aims to examine the productivity effects of disaggregated exports in the context of the Solow growth framework of Bangladesh over the period 1980-2017. In order to investigate the effects of manufacturing export, agricultural export, and service export on economic growth, we apply Johansen cointegration and vector error correction model (VECM) estimation techniques. The empirical findings reveal the strong cointegration of disaggregated exports on economic growth in the long-run. The study also indicates that there exist robust and significant productivity-increasing effects of manufacturing export, agricultural export, and service export on economic growth in the long-run as well as the short-run. However, capital stock and human capital also have a significant effect on the GDP growth of Bangladesh. This study would further help policymakers to formulate attractive export policies, which would not only stimulate economic growth but also generate more employment, and eventually develop human capital that can contribute to the sustainable economic growth of Bangladesh.*

**KEYWORDS** *Disaggregated Exports; Economic Growth; Cointegration; VECM; Sustainable Development; Bangladesh*

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## I. INTRODUCTION

The concept of "Sustainable development is a development that meets the needs of the present without compromising the ability of future generations to meet their own needs" (UN 1987). Sustainable development is one of the biggest challenges in the world. It is also a new era for Bangladesh, which has intensified by the 2030 agenda for Bangladesh. Currently, the country has been achieved the rank of the lower-middle-income country (World Bank 2018). Now it has already in progress towards an upper-middle-income country by 2030 and a developed country by 2041 (Jobaira 2018). The World Bank estimated that the projected population is increasing, and that would raise the current output level by five times in 2030. Bangladesh has initiated some priorities in the way of sustainable development. However, the most vulnerable part of Bangladesh can be incorporated into its development efforts. There are more challenges in several areas, including resource mobilization as well as international trade. For sustaining the economy, the policymakers have mapped out some goals, such as no poverty, zero hunger, gender equality, clean water and sanitation, affordable and clean energy, decent work and economic growth, industrialization, innovation, and infrastructure development, sustainable cities, and communities, climate change, peace, justice, and strong institutions, etc. (Jobaira 2018). Generally, international trade develops proper bilateral and multilateral collaborations, which leads to the industrialization process, resulting in export and import are having to play the officious role in foreign trade, productivity, and skilled labor, and so on.

Bangladesh is one of the most emerging economies in South Asia, which has evidenced a steady growth of more than 6.25 percent from 2011-2019 (<http://data.worldbank.org/>). In the last two decades, Bangladesh's exports have significantly increased along with other developing countries. That's why major developed and industrialized countries are significantly losing a large volume of the share of exports. Besides, world trade has dramatically experienced the structural changes by the composition of the product, with a significant increase in the percentage of high-tech goods and an unceasingly decrease in the percentage of low-tech goods. Being a distinctive developing country, Bangladesh has experienced tremendous growth by exporting goods and services from different sectors such as manufacturing, agriculture, and service sectors. However, the agricultural sector also continuously contributes an excellent role for this economy, where the manufacturing sector is a major goods exporter for Bangladesh. In fact, the potentiality of agricultural exports in economic growth has been a source of debate on divergent perspectives (T. O. Awokuse and Xie 2015; Todaro and Smith 2011). While some researches argue that agricultural growth is a prerequisite for industrialization, others strongly disagree and contend for a different path. Hwa (1989) states that the agricultural sector occupies a dominant position in the traditional economy.

Consequently, the countries have identified that the agricultural sector plays several crucial roles in the transition process. The agricultural sector can generate markets for industrial products (especially light industries) through the continuous accumulation of entrepreneurship and marketing capabilities, producing food and agricultural raw materials for industrial processing and stabilizing price, facilitating exports to earn foreign exchange, and sourcing the non-agricultural sector with capital and labor (Hwa 1989; Johnston and Kilby 1975). During the 1990s, Bangladesh had some potential reasons to go forward from the agrarian sector to the manufacturing sector for growth and development. Besides, greater openness to trade and rapid global technological

changes have led to a reduction in the economic potentiality of the agricultural sector. Hence, Bangladesh has shifted to the manufacturing sector; the textile and clothing industry (i.e., readymade garments) is one of them. That is why the healthy young peoples were migrated from rural areas (agricultural sector) to urban (industrialized) areas. After the 1990s, the export of readymade garments plays an important role in the rapid growth of Bangladesh. Currently, it is the second-largest readymade garments exporter in the world; the export of readymade garments plays an important role in the rapid growth of Bangladesh. Currently, it is the second-largest readymade garment exporter in the world, and it is one of the largest sectors for productivity, foreign exchange earnings, and new employment. The readymade garments sector has led an essential role in generating industrial employment for Bangladesh's workforce. However, there have been substantial challenges to transforming the industrial sector concerning higher value-added manufacturing because the country still highly depends on the low-cost textile exports for enhancing its export revenue and creating manufacturing sector jobs (Biswas 2018). Globally, the manufacturing sector generates a sustainable economic environment, boosts domestic and foreign investment, and increases the balance of payments of the country.

Conversely, its impacts spill over into several areas, such as financial services, information systems, infrastructure development and maintenance, customer support, education and training, logistics, healthcare, and real estate. A strong manufacturing sector can increase the intellectual capital, innovation level, assist the research and development, insist the technological development, and drive the growth in demand for highly skilled labor forces (Lakhera 2016). Bangladesh is also gradually focusing on the classified exports in trade and development as part of a policy for attaining sustainable economic growth. Other commodities such as fish and shrimp, leather, jute related goods, raw jute, tea, naphtha, etc. are also contributed to developing the economy of this country. However, after the 2000s, the country has newly experienced by other service exports, such as information and communication technology (ICT), which is also contributed significantly to the growth of Bangladesh.

Nevertheless, the industrial strategy is encompassing an effective execution of trade and development and generating favorable trade environment across the globe along with a free flow movement of human capital and goods and services. A new paradigm of trade is focusing on the emerging economy since industrial strategies are changing extensively. Trade gains give importance to the mechanisms that accentuate the international production networks to stimulate industrial development. Hereafter, trade (export) can lead to the sustainable economic growth of the country. This incorporation has the potentiality to promote growth, inequalities and reduce poverty through the rise of exports of goods and services. Some sectors, such as readymade garments (textile and clothing), pharmaceuticals, jute products, etc. are comprehensively contributing to the growth of Bangladesh.

A number of proofs have been verified that exports and disaggregated exports have played a vital role in the GDP growth of the economy. For this, the econometric analysis has been dynamically followed by economists for finding a strong positive relationship between exports, disaggregated exports, and economic growth (Dunusinghe 2009; Wagner 2012; Sunde 2017). In fact, this is one of the 'stylized facts' for the growth of the economy. Nevertheless, economic policies have lagged in the empirical study, and economists are also continuously debating with the theoretical frameworks that can clarify the apparent empirical regularity (Lewer and Van den

Berg 2003). The export growth theory implies that exports can directly lead to the economic growth of a country, and export promotion directly generates the production of goods for exports (Kónya 2006). Exports can generate foreign exchange earnings and stimulate government revenue, import capacity, and stakeholders' (producers) revenue, and resulting in boost economic growth. However, it has been recommended that 'traditional economic models are replete with assumptions about the nature and interaction of the economic sectors' and 'far from being derivative or parasitical since the service sector is a vital force in stimulating and facilitating economic growth' (Daniels 1999; Riddle 1986).

The literature above has given a framework of theoretical and empirical considerations for our research, where the overwhelming evidence of the positive contribution of exports cannot be overlooked for the growth of the economy. The international trade is highly focused on LDCs, where export is a matter for the developed countries. The most important objective of the developing countries is rapid economic growth, where exports are usually measured as the engine of growth (Reza et al. 2019). Similarly, the main purpose of our study is to check the causal relationship between disaggregated exports and GDP growth through the Solow growth framework of Bangladesh. However, our empirical work emphasizes the main factors of macro-economic variables such as manufacturing export, service export, agricultural export, and GDP growth as well as their effects on each other. In order to check the causal relationship between disaggregated exports and GDP growth, we have used the Johansen co-integration and vector error correction model (VECM), which are widely verified in recent researches (T. O. Awokuse and Xie 2015; Jordaan and Eita 2007; Reza et al. 2019; Sunde 2017; Toyin 2016). For avoiding spurious results, the study is very cautiously introduced the Johansen co-integration and VECM techniques following the pre-conditions of the method. However, in the error-correction model (ECM), when the lag structure is wrongly identified, and the error correction distribution is not normal, the Johansen cointegration method performs better than other cointegration tests (Gonzalo 1994). Therefore, the title of this paper is newly introduced in the context of Bangladesh and uses different variables, which are not commonly used in a similar study. Considering these, we have motivated to decompose the causality between disaggregated exports and the GDP growth of Bangladesh.

The remainder of the paper is structured as follows: Section II presents a brief review of the literature, section III discusses the data and methodology, section IV provides empirical results of the study, and finally, we conclude the summary and policy implications of this study in section V.

## **II. LITERATURE REVIEW**

Economic systems suggest that international trade plays a significant role to determine the growth of a country in the short and long-run perspectives. Hence, disaggregated exports positively contribute to the economic growth of the economy. Dunusinghe (2009) examines the effect of exports and export composition on the economic growth in Sri Lanka. The analysis thoroughly supports that both exports and export composition have positive growth effects on the economic growth of Sri Lanka. The exports attribute that there are higher levels of productivity in the exporting sector in comparison to the non-exporting sector. The findings also highlight that these productivity differences are higher in the manufacturing exports than in the agricultural exports,

suggesting diversification into manufacturing exports has improved the growth prospects of Sri Lanka. It also implies that the non-exporting sector has no spillover effects due to lack of innovations, skilled management practices, product upgrading, and the introduction of new technologies. Hence, the study advocates that the government should upgrade the technological capacity of exporters, train the labor force, and encourage technology transfer to stimulate the economic growth of Sri Lanka.

Hoque and Yusop (2012) investigate the effects of trade liberalization on export performance in Bangladesh by the autoregressive distributed lag (ARDL) bounds testing method with annual time series data from 1972–1973 to 2004–2005. The empirical findings specify that trade liberalization is a statistically significant but low effect on aggregate export. In addition, fixed capital formation and trade liberalization significantly affect the export growth of Bangladesh, where exports usually stimulate by GDP growth. Subsequently, the trade liberalization increases imports compared to exports hereafter the trade deficit. Consequently, the study suggests that a combined and consistent policy may sustain GDP growth, which may influence domestic price stability and technology transfers, including education, backward linkage industries, and infrastructure development, in order to achieve higher export performance in Bangladesh. Another study also uses the ARDL and VECM Granger causality approach for South Africa. The findings imply that there is a co-integration relationship between exports, foreign direct investment, and economic growth. However, both FDI and exports cause economic growth in South Africa. The VECM Granger causality approach reveals unidirectional causality running from FDI to economic growth and FDI to exports. The study also finds out that there is a bidirectional causal relationship between economic growth and exports. The author advises that policymakers could stimulate FDI friendly policy, which should be incentives to investors and formulate an excellent macro-economic environment to develop the economy for South Africa (Sunde 2017). Jordaan and Eita (2007) reveal the evidence of co-integration between exports, imports, and GDP or GDP per capita from 1970-2005 for Namibia. The results also suggest that there exists a long-term relationship between exports and GDP through export promotion by offering various incentives in trade, which positively influence the growth in GDP. Hence, the findings ‘confirm further the advantages of an export-led growth strategy for Namibia’. Wagner also surveyed the relationship between international trade (export and import) and productivity. The empirical survey reveals that international trade has positively affected the productivity of manufacturing industries (Wagner 2012).

Similarly, another empirical literature by Greenaway et al. (1999), have developed for the testing of the relationship between export composition and economic growth along with 69 countries using the generalized method of moments (GMM) with a new growth-type model from 1975-1993. The growth model leads to a strong and positive causality between real export growth and real output growth. The results also recommend that export composition such as fuel, food, metals, machinery, textiles, and other primary and manufactured exports do matter for the growth of the economy, especially for the developing economy. Lee and McKibbin (2018) explore the role of productivity growth with a focus on the service sector in the Asian economies over 1970-2005. The evidence indicates that the service sector plays a significantly positive contribution to aggregate labor productivity growth in several Asian economies, exceeding the net contribution of the manufacturing sector.

Furthermore, some “modern services” industries, such as transportation, storage, communications, financial intermediation, and business services have experienced higher productivity growth. However, empirical evidence also indicates that there exists a massive potentiality for service sector productivity growth in Asia if the policies can adopt the catch-up in services to be more attractive as like as the manufacturing sector. The study also reveals that faster productivity growth in the service sector can strongly benefit all sectors in Asia and generate a more balanced and sustainable growth over long-run of Asian economies. In order to sustain strong growth consecutively, the policymakers should foster environments to boost domestic and foreign direct investment in service-sectors, specifically in modern-service industries in individual Asian economies. Dawson (2005) estimates a panel data for 62 least developed countries (LDCs) using ordinary least square (OLS) model (both fixed and random effects models) for the series of 1974–1995. The results indicated that there are significant structural differences in economic growth between low, lower-middle, and upper-income LDCs. The study also implies that there is a statistically significant impact on economic growth in investment of agricultural export as the investment in non-agricultural export. Subsequently, the marginal productivities also show higher export subsectors due to non-optimal resource allocation and the presence of positive productivity externalities, which produced by export subsectors. The author suggests that agriculture and the use of agricultural exports should not overlook as an engine of economic growth of these economies, and export-promotion strategies should be balanced for LDCs. In contrast, Levin and Raut (1997) reveal that primary exports have a negligible impact on economic growth. It implies that export promotion policies should emphasis on manufactured goods export.

Awokuse and Xie (2015) re-examine the nature of the causality between agriculture and economic growth by using the Johansen co-integration test and VECM in a selection of nine developing countries from Sub-Saharan Africa, Asia, and Latin America. The findings strongly support the agriculture-led growth (ALG) hypothesis. In contrast, some countries advocate that having an effective aggregate economy is a precondition for agricultural development. The findings also should not be implemented in all developing countries. In addition, caution should take before massive investment in the agricultural sector of the economy. Likewise, they suggest that the agriculture sector can stimulate economic growth in need of more investment in the agricultural sector for these economies. Toyin (2016) investigates the export-led growth hypothesis via agricultural export by using Johansen co-integration, and the VEC Granger Causality over the period 1975-2012 in South Africa. The outcomes specify that there is a long-run relationship between economic growth, processed and unprocessed agricultural export, and manufacturing output. However, the empirical analysis indicates that in the short-run, there is no causality exist between the agricultural export components and economic growth. Therefore, the export-led growth hypothesis is not valid via agricultural exports in South Africa. However, the non-causality between agricultural export components and economic growth identifies that in the past, the level of agricultural export was not sufficient to generate GDP growth in South Africa, and the present economic growth does not exclusively depend on the level of processed and unprocessed agricultural export. The evidence shows that there is a need to increase export expansion policies in the agricultural sector that will increase agricultural exports, and it could contribute to the economic growth of South Africa. Atif, Haiyun, and Mahmood (2017) estimated a gravity model throughout 1995–2014 for agriculture exports of Pakistan, along with its 63 major trading partners. The findings articulate that agriculture exports have a massive effect on the exchange rate devaluation of Pakistan. Likewise, common border, colonial links, and regional

trade agreements have positive and significant impacts on agriculture exports, which positively contribute to the economic growth of Pakistan. The study suggests that Pakistan has great export potential with neighboring countries; consequently, it should boost agricultural exports by resolving political and economic problems with common border sharing countries.

Zahler, Iacovone, and Mattoo (2014) investigate services and manufacturing firms from both trade and innovation viewpoint in an emerging economy like Chile over the year 2005-06. The study reveals that the size premium for exporters of services is significantly lower than the size premium for exporters of manufacturers. Conversely, service firms contribute substantially less to exports. However, services firms are more innovative than manufacturing firms. The study also reveals that the exporters of tradable services are much larger than exporters of manufactures. They suggest that policymakers should design policies that encourage innovation and trade in services. The innovation and trade promotion policies should apply exclusively for not only large firms but also a wide range of sizes firms for Chile as well as the developing economy. Hoekman and Shepherd (2015) examined the Gravity model on trade services policies with the Services Trade Restrictiveness Index's (STRI) data for 103 developed and developing countries. They find that there is a strong association between services and manufacturing performance. In fact, "the effect is so small at the average rate of services input intensity, a 10 percent improvement in services productivity is associated with an increase in manufacturing productivity of 0.3 percent and a resulting increase in exports of 0.2 percent the result is statistically significant." The study also identifies that the STRIs are negatively associated with manufactured exports, which play an additional role in merchandising trade barriers. The findings also advocate that "the policies restricting access to services markets through FDI and that impact on transport and distribution services have the largest negative effects on manufactured export performance are consistent with both theory and evidence on the drivers of supply."

Sheridan (2014) argues that "why so many developing countries still rely on primary goods as their main source of export income when evidence suggests they could earn higher returns by exporting manufactured goods?" The author estimates ordinary least squares and fixed effects methods by using a panel of 117 countries over the period 1970–2009. Also, the study disaggregates total exports to primary and manufacturing exports. The findings show that manufacturing exports are negatively associated with growth in the low-education subsample and positively associated with GDP per capita growth in the high-education subsample. Also, primary exports are negatively correlated with GDP per capita growth; means that primary exports are less important to GDP growth. The study also states that increasing manufacturing exports is vital for sustainable economic growth. However, the results contain the answer to the question of sustainable long-run growth, a country necessary to achieve a minimum level of human capital before the beneficial effects of transitioning from dependence on primary exports to manufacturing exports. The study concludes that massive investment in the manufacturing sector is more highly associated with economic growth than primary exports, and manufactured goods are usually more capital-intensive than primary goods, which also specified by Hausmann, Hwang, and Rodrik (2007). Szirmai and Verspagen (2015) investigated the effect of the shares of manufacturing and services in GDP with 88 countries for a new panel data set from 1950 to 2005. In the total sample, the study reveals a moderate positive effect of manufacturing on GDP growth as manufacturing is the engine of growth, but services do not affect. However, after splitting the sub-periods 1950–1970, 1970–1990 and 1990–2005, the study finds that there is a direct and positive effect of

manufacturing and services on GDP growth for the period 1970–1990. They also reveal that there is a positive and significant effect between education and manufacturing on GDP growth in all periods. It also suggests that there is a positive effect of manufacturing with a highly educated workforce on economic growth in developing countries. Haraguchi, Cheng, and Smeets (2017) state that manufacturing has traditionally performed a vital role in the economic progress of developing economies. The study shows that the low levels of industrialization in these economies are attributable to long-term differences in opportunities existing to the sector around the world. The findings also explore that the manufacturing sector has been value-added and contributed to world GDP and employment as well. However, in the case of the last millennium, the industrialization has sustained to play a significant role in the growth of developing economies, which is the eyewitness for the rapid and long-term sustainable growth in developing economies. The study suggests that the industrialization process remains important for achieving economic development in low-income economies because they can take advantage of their backwardness compare to those economies, which have already practiced rapid industrialization along with an excessively large share of manufacturing activities.

The above empirical literature indicates the mixed effects of disaggregated exports on the economic growth of developed and least developed countries. Many researchers contend that exports and its sectors do not have a direct relationship with economic growth. However, this study tries to amplify the production function by disaggregated exports. The objectives of this study are as follows:

- To find the causality between disaggregated exports, and economic growth through the Solow growth framework.
- To find the long-run relationship between manufacturing export, agricultural export, service export, and economic growth
- To find the short-run relationship between manufacturing export, agricultural export, service export, and economic growth
- To detect how disaggregated exports generate employment in Bangladesh.

### **III. DATA, THEORETICAL ANALYSIS, AND MODEL**

Data has been obtained for Bangladesh using different databases, such as the World Bank, UNCTADSTAT, and World Trade Organization (WTO). The GDP growth rate (annual), gross fixed capital formation (current US\$) and foreign direct investment (FDI) inflows (current US\$) data are collected from (World Bank 2018), labor force (total labor force) data is obtained from UNCTADSTAT (<http://unctadstat.unctad.org/EN/>) and manufacturing export (current US\$), agricultural export (current US\$), and service export (current US\$) data from WTO (<http://data.wto.org/>) database. The data exists over the year from 1980-2017 in this study. However, GDP annual growth rate (%) uses as a proxy of economic growth, and gross fixed capital formation uses as a proxy of capital stock. The variables Y, MX, AGX, SX, K, and L, represent economic growth, manufacturing export, agriculture export, service export, capital stock, and labor force, respectively, in this study. GDP growth rate uses as a proxy of economic growth as Adeel-Farooq, Bakar, and Raji (2017) used. All the variables are in the natural logarithm form for econometric analysis in this study. The study uses Eviews-10 software packages.

The study develops the econometric model based on the neoclassical growth theory (Robert M. Solow 1956) and endogenous growth model, where disaggregated exports are considered as the contributing factors of economic growth. Hereafter, economic growth has stimulated by increasing the amounts of capital and labor as well as by growing sectorial exports. Based on theoretical and methodological assumptions, this study follows the neoclassical growth model as known as the Cobb-Douglas production function, which is developed by Solow (1956). Then, we can write a neoclassical growth model as follows:

$$Y_t = A_t K_t^{\alpha_4} L_t^{\alpha_5} \dots \dots \dots (1)$$

Where  $Y$  = aggregated output,  $K$  is the capital stock which is derived from gross fixed capital formation,  $L$  is the Labor force as human capital, and  $t$  denotes time, respectively. Also,  $\alpha_1$  &  $\alpha_2$  are the elasticities of total factor productivity, and  $A$  means the function of total factor productivity. However, we want to investigate how disaggregated exports affect GDP growth through increasing productivity; then we arrogate that the total factor productivity can be determined as the function of manufacturing export ( $MX_t$ ), agriculture export ( $AGX_t$ ), service export ( $SX_t$ ), and other exogenous factors,  $a_t$ :

$$A_t = f(MX_t, AGX_t, SX_t) = MX_t^{\alpha_1} AGX_t^{\alpha_2} SX_t^{\alpha_3} a_t \dots \dots \dots (2)$$

Where manufacturing export ( $MX_t$ ), agricultural export ( $AGX_t$ ), and service export ( $SX_t$ ) can also be considered as a potential productivity booster since they could contain technologically, sophisticated objects. Then, the study has combined equation (1) & (2) and has found as follows:

$$Y_t = a_t MX_t^{\alpha_1} AGX_t^{\alpha_2} SX_t^{\alpha_3} K_t^{\alpha_4} L_t^{\alpha_5} \dots \dots \dots (3)$$

Where  $\alpha_1, \alpha_2, \alpha_3, \alpha_4$  &  $\alpha_5$  are the elasticity of production in terms of  $MX, AGX, SX, K$  &  $L$ . Sims (1980) was introduced a Vector Autoregressive (VAR) model to the macroeconomists which could be categorized the collective dynamic behavior of a group of variables without necessitating substantial restrictions to identify the relationship with a set of variables. There are two types of VAR, one is unrestricted, and the other one is restricted, i.e., vector error correction model (VECM) is a restricted VAR. Now we need to transform in natural logarithm form both side of equation (3) and the VECM model can be turned in linear form as follows:

$$\ln Y_t = a + \alpha_1 \ln MX_t + \alpha_2 \ln AGX_t + \alpha_3 \ln SX_t + \alpha_4 \ln K_t + \alpha_5 \ln L + \varepsilon_t \dots \dots \dots (4)$$

Where  $\alpha$  is a constant parameter, and  $\varepsilon_t$  is the white noise of error correction term. The equation (4) can be defined as VECM long-run form where  $\ln Y$  is a dependent variable,  $\ln MX, \ln AGX, \ln SX$  are independent variables via increased productivity, and  $\ln K$  &  $\ln L$  are control variables via productivity growth. However, the study uses  $\ln FDI$  in the exogenous box in Eviews-10 software at Johansen cointegration and VECM tests for influencing output growth, which is not in any equations as used by Reza et al. (2019).

Before applying the econometric method, we have estimated the descriptive analysis for mean, median, minimum, maximum, standard deviation, Skewness, Kurtosis, Jarque-Bera, and probability statistics. Table 1 shows the descriptive analysis of  $Y, MX, AGX, SX, K$  &  $L$ . The study



also checks the multicollinearity of the series (see table 1). The results show that there is no multicollinearity in the series. However, the correlation of variables should be within 80%-90%, which is generally accepted to the multicollinearity framework as strategies of Kennedy (1998).

**Table 1:** Descriptive Analysis and Correlation Metrics

Statistics	lnY	lnMX	lnSX	lnAGX	LnL	LnK
Mean	0.670072	9.586725	8.902985	8.717450	7.748648	10.04898
Median	0.707505	9.684417	8.868493	8.634981	7.744088	10.05498
Maximum	0.862382	10.52455	9.586488	9.229938	7.924973	10.88191
Minimum	-0.086641	8.615950	8.316978	8.326336	7.559562	9.418139
Std.Dev.	0.179871	0.620444	0.420940	0.264921	0.107029	0.430888
Skwness	-2.200838	-0.062083	0.076707	0.501569	-0.016573	0.266298
Kurtosis	9.518577	1.697836	1.704057	1.890124	1.856276	1.912484
Jarque-Bera	97.95546	2.709158	2.696425	3.543673	2.072905	2.321719
Probability	0.000000	0.258056	0.259704	0.170020	0.354711	0.313217
Observations	38	38	38	38	38	38
lnY	1					
lnMX	0.045651	1				
lnSX	-0.060654	0.298537	1			
lnAGX	-0.025398	0.242283	0.345998	1		
lnL	-0.207161	-0.185882	-0.154402	0.016182	1	
lnK	0.420714	-0.010677	-0.025976	-0.12151	-0.158199	1

Source: Authors computations

### III.I Empirical Methodology

In order to check the stationarity of the variables, we use the augmented Dickey-Fuller (ADF) and Phillips-Perron (PP) tests (Dickey and Fuller 1979; Phillips and Perron 1988). The ADF test can be expressed mathematically for computation in the equation (5) as Adeel-Farooq, Bakar, and Raji (2017):

$$\Delta X_t = \beta + \gamma_t + \theta X_{t-1} + \sum_{j=1}^q \vartheta_j \Delta X_{t-j} + \mu_t \dots\dots\dots (5)$$

Where,  $\Delta$  is the first-difference operator,  $X$  is series at time  $t$ ,  $\beta$  is a constant term,  $\gamma$ ,  $\theta$ , and  $\vartheta$  are being estimator,  $q$  is the number of lags and  $\mu_t$  is white noise of error correction term. After computation, if the ADF probability value is less than a 5% significant level, then the series has a unit root, which implies the null hypothesis can be rejected. Moreover, if the data have unit root in at level,  $I(0)$ , then we take differencing, i.e.,  $I(1)$  to make it stationary. However, the PP test can be expressed mathematically for the unit root test as the following equation (Phillips and Perron 1988).

$$\Delta X_t = \beta + \gamma_t + \theta X_{t-1} + \mu_t \dots\dots\dots (6)$$

However, lag length criteria are also important for Johansen cointegration and VECM techniques for avoiding spurious regression (Lütkepohl 2006). Henceforth, we will check lag length criteria by applying a restricted vector autoregressive (VAR) model.

If all the variables are integrated into the stationarity order of one, i.e.,  $I(1)$ . Then the next step is Johansen's cointegration framework to find out whether all the variables are cointegrated

or not. However, lag length criteria are also important for Johansen cointegration and VECM techniques for avoiding spurious regression (Lütkepohl 2006). After that, we will check the lag length criteria by applying a restricted vector autoregressive (VAR) model. Then, we provide additional evidence regarding cointegration by estimating the multivariate cointegration technique (Johansen 1988). The Johansen method determines the cointegration associations between,  $I(1)$  series by a maximum likelihood procedure, which can identify the number of cointegration relationships. The multivariate cointegration technique is based on the restricted vector autoregression (VAR) model or vector error correction model (VECM) represented by the following equation:

$$Z_t = \mu + \sum_{k=1}^p \Pi_k Z_{t-k} + \varepsilon_t \dots\dots\dots (7)$$

Where  $Z_t$  is a  $g$ -column vector of  $I(1)$  variables,  $\Pi$  is a coefficient matrix,  $\mu$  is a  $g$ -column vector of constants,  $p$  represents the lag length, and  $\varepsilon_t$  is a disturbance term, which independently and identically distributed with zero mean and constant variance. In estimating the VECM, we will take the appropriate lag by lag length criterion with 38 observations in this study. The previous Equation (7) can be reconstructed in the first difference form by the following equation:

$$\Delta Z_t = \mu + \sum_{k=1}^{p-1} \Gamma_k \Delta Z_{t-k} + \Pi Z_{t-1} + \varepsilon_t \dots\dots\dots (8)$$

Where the coefficient matrices ( $\Gamma_k$  &  $\Pi$ ) are considered as the impact matrix, which can bring evidence about the long-run relationships between dependent and independent variables. Almulali and Che Sab (2013) specified that the rank ( $r$ ) of  $\Pi$  is equal to the number of cointegrating vectors. Another way, If  $\Pi$  has full rank, e.g.,  $r = g$ , there exists  $g$  cointegrating vectors. Therefore, If  $0 < r < g$ , there are  $r$  cointegrating vectors. Meaning that there exist  $r$  stationary linear combinations of  $Z_t$ . Its evidenced that the rank of  $\Pi = 1 =$  one cointegrating vector (variables are cointegrated) and  $\Pi =$  zero ( $0$ ) = no cointegrating vector (variables are not cointegrated) in the long-run. The Johansen estimation technique recommends that the residuals are used to calculate two likelihood ratio test statistics, such as trace and maximum eigenvalue that statistics can be used in the resolution of the usual cointegrating vectors of  $Z_t$  ( Awokuse 2003). The long-run causality between variables will direct the trace and maximum eigenvalue statistics.

The null hypothesis of the likelihood ratio (trace) test statistic is that there are at most  $r$  cointegrating vectors against the alternative of more than  $r$  cointegrating vectors are the trace test (Love and Chandra 2004), and the test statistic of trace test can be represented as the following equation:

$$\lambda_{trace} = -T \sum_{i=r+1}^g \ln(1 - \lambda_i) \dots\dots\dots (9)$$

Where  $\lambda_i$  is the largest eigenvalue ( $\Pi$  matrix),  $g$  is the number of variables,  $r$  is the cointegrating vectors, and  $T$  is the number of observations, and  $r$  is the cointegrating vectors. The test statistics of the maximum eigenvalue test is computed as the following equation:

$$\lambda_{max} = -T \ln(1 - \lambda_{r+1}) \dots\dots\dots(10)$$

Where  $\lambda$  is estimated eigenvalues, the null hypothesis of  $r$  cointegrating vectors against the alternative of  $r + 1$  cointegrating vectors is the maximum eigenvalue test (Love and Chandra 2004).

The Johansen (1988) cointegration technique has been advocated that the above tests are contingent upon the absence or presence of deterministic elements in the dynamic model. Johansen (1992) suggested the necessity to test the joint hypothesis of both the rank order and the deterministic factors based on as known Pantula (1989) principle. If a set of variables are indicated to be cointegrated, it implies that there presents a linear, stable, and long-run equilibrium relationship between the concerned variables (Engle and Granger 1987; Johansen 1988; Johansen and Juselius 1990). If there exist one or more cointegrating vectors, then a suitable estimation procedure is a restricted VAR model, which is the so-called VECM technique, which corrects to both short-run changes in variables and deviations from the equilibrium level.

### III.II VECM Short-run equation:

The VECM short-run equation can be written as follows:

$$\Delta \ln Y_t = \alpha_6 + \sum_{i=1}^n \alpha_{7i} \Delta \ln Y_{t-i} + \sum_{i=1}^n \alpha_{8i} \Delta \ln MX_{t-i} + \sum_{i=1}^n \alpha_{9i} \Delta \ln AGX_{t-i} + \sum_{i=1}^n \alpha_{10i} \Delta \ln SX_{t-i} + \sum_{i=1}^n \alpha_{11i} \Delta \ln K_{t-i} + \sum_{i=1}^n \alpha_{12i} \Delta \ln L_{t-i} + \theta_1 ECT_{t-1} + \epsilon_t \dots\dots\dots (11)$$

Where  $\Delta$  denotes the difference operator,  $\alpha_6$  is a constant term,  $\alpha_7$ ,  $\alpha_8$ ,  $\alpha_9$ ,  $\alpha_{10}$ ,  $\alpha_{11}$  and  $\alpha_{12}$  are being estimator,  $n$  is appropriate lag length,  $\theta_1$  is the speeds of adjustment coefficient,  $ECT_{t-1}$  is the error correction term, and  $\epsilon_t$  is the stochastic error term with mean zero and constant variance. To identify the existence of any long-run causal effects running from  $\ln MX$ ,  $\ln AGX$ ,  $\ln SX$ ,  $\ln K$ , and  $\ln L$  to  $\ln Y$  for Bangladesh, we should check the negative shock and significance of  $\theta_1$ . Therefore, the test can be interpreted; there has a long-run effect running from  $\ln MX$ ,  $\ln AGX$ ,  $\ln SX$ ,  $\ln K$ , and  $\ln L$  to  $\ln Y$ . It means that desegregated exports have an impact on the economic growth of Bangladesh.

After getting long-run results, then we check the short-run relationship between variables by the Wald test. Finally, we will check the goodness of fit of the model where the model is free from serial correlation, heteroscedasticity, instability, and abnormal distribution or not.

## IV. EMPIRICAL RESULTS

Before running the Johansen cointegration, all variables have tested for stationarity, and the results are reported in table 2. The stationary property of the data series is essential for cointegration and VECM analysis. The study estimates the standard ADF and PP tests to check the stationary property of the concerned data series. Table 3 shows the results of ADF and PP tests for  $\ln Y$ ,  $\ln MX$ ,  $\ln AGX$ ,  $\ln SX$ ,  $\ln K$ , and  $\ln L$  variables of this study. Both the unit root test (ADF and PP) results show that the null hypothesis of the unit root was not rejected at levels,  $I(0)$  for the concerned variables such as  $\ln Y$ ,  $\ln MX$ ,  $\ln AGX$ ,  $\ln SX$ ,  $\ln K$ , and  $\ln L$ . However Growth dummy,  $\ln FDI$  also is non-stationary in at level,  $I(0)$ . Granger and Newbold (1974) suggested that the regression results will be spurious if non-stationary variables are used in the VECM models of the Granger causality tests. To avoid the spurious regression results, we will run the VECM model with the stationary variables after the first difference. After taking the series in the first difference, all series are integrated at the order of one,  $I(1)$  and found to be stationary in table 2. It implies that

the series are integrated at the same order, e.g.,  $I(1)$ , the Johansen cointegration test can be performed to inspect the existence of the long-run relationship between GDP growth and disaggregates exports along with other control variables for Bangladesh.

**Table 2:** Unit Root Tests

ADF Test			DF-GLS Test		PP Test	
Variables	t-Statistic	P.-Value	t-Statistic	P.-Value	t-Statistic	P.-Value
lnY	-0.496357	0.8793	1.245400	0.2290	-6.847603	0.0000*
$\Delta$ lnY	-5.483180	0.0001*	-0.076715	0.9395	-39.68158	0.0001*
lnMX	-0.915181	0.7698	-0.572307	0.5714	0.027363	0.9552
$\Delta$ lnMX	-27.59318	0.0001*	-1.338064	0.1906	-7.545426	0.0000*
lnSX	-0.398742	0.9802	-0.252597	0.8023	0.430845	0.9817
$\Delta$ lnSX	-7.155714	0.0000*	-6.464564	0.0000*	-7.056856	0.0000*
lnAGX	-1.118738	0.6981	-0.633602	0.5303	-0.853910	0.7915
$\Delta$ lnAGX	-6.522109	0.0000*	-7.545916	0.0000*	-8.483123	0.0000*
lnL	-0.862079	0.7890	2.136326	0.0395	-.930289	0.7672
$\Delta$ lnL	-6.440974	0.0000*	-6.365228	0.0000*	-6.451859	0.0000*
lnK	1.692788	0.9995	2.167787	0.0373	3.000610	1.0000
$\Delta$ lnK	-5.502824	0.0001*	-3056404	0.0043*	-5.530791	0.0001*

Source: Authors computations

**Table 3:** Lag Length Criterion

Lag	LogL	LR	FPE	AIC	SC	HQ
0	147.7018	NA	9.66e-12	-8.335397	-8.066040	-8.243539
1	439.5568	463.5344	2.91e-18	-23.38569	-21.50019	-22.74268
2	474.4740	43.13306	3.83e-18	-23.32200	-19.82035	-22.12784
3	513.4874	34.42364	5.97e-18	-23.49926	-18.38146	-21.75395
4	644.8539	69.54697*	1.07e-19*	-29.10906*	-22.37511	-26.81259

Notes: \* indicates lag order selected by the criterion. LR: Sequential modified LR test statistic (each test at 5% level), FPE: Final prediction error, AIC: Akaike information criterion, SC: Schwarz criterion, and HQ: Hannan-Quinn information criterion.

Source: Authors computations

However, we have calculated the optimum lag length by using the unrestricted Vector Autoregressive (VAR) model, which is reported in the table (3). There are five criteria for lag order selection in the system: the general-to-specific sequential Likelihood Ratio test (LR), Final Prediction Error (FPE), the Akaike Information Criterion (AIC), the Schwarz Information Criterion (SIC), and the Hannan-Quinn Criterion (HQC). Table 4 shows that all criteria (LR, AIC, SIC, FPE, and HQ) are integrated at lag 3. For this study, we have selected lag 4 with the Schwarz information criterion (SIC) for appropriate lag to estimate Johansen cointegration and VECM estimation techniques.

Hereafter, Johansen's (1988) cointegration tests have been performed, and all variables are found to be cointegrated (see table 4). Hence, it implies that there exists a linear, stable, and long-run equilibrium association-ship among concerned variables (Engle and Granger 1987; Søren Johansen 1988; Søren Johansen and Juselius 1990). The results indicate that the trace and maximum eigenvalue statistics recommend the presence of four cointegrating equations at a 5% significance level among the variables ( $\ln Y$ ,  $\ln MX$ ,  $\ln AGX$ ,  $\ln SX$ ,  $\ln K$ , and  $\ln L$ ) in this study. As there exists a long-run relationship between these variables, there has an error-correction

representation by definition in at least one direction (Engle and Granger 1987). However, they have specified that if a set of variables have one or more cointegrating vectors, then VECM is a suitable estimation technique, which adjusts to both short-run variations in variables and deviations from equilibrium. The Johansen (1988) cointegration tests meet the criteria of VECM. Now, the VECM can apply for the direction of long-run causality.

**Table 4:** Johansen cointegration (trace and maximum eigenvalue) tests

Trace Statistic						Maximum Eigenvalue Statistic					
Null Hypothesis	Alternative Hypothesis	Eigenvalue	Trace Statistic	0.05Critical Value	Probability**	Null Hypothesis	Alternative Hypothesis	Eigenvalue	Max-Eigen Statistic	0.05Critical Value	Probability.**
r=0	r=1	0.9840	304.6622	95.753	0.000	r=0	r>1	0.9840	140.7555	40.077	0.000
		75	*	66	0			75	*	57	0
r=1	r=2	0.8699	163.9067	69.818	0.000	r≤1	r>2	0.8699	69.34684	33.876	0.000
		21	*	89	0			21	*	87	0
r=2	r=3	0.7671	94.55988	47.856	0.000	r≤2	r>3	0.7671	49.55577	27.876	0.000
		88	*	13	0			88	*	87	0
r=3	r=4	0.5828	45.00412	29.797	0.004	r≤3	r>4	0.5828	29.72950	21.131	0.002
		87	*	07	0			87	*	62	4
r=4	r=5	0.2794	15.27461	15.494	0.053	r≤4	r>5	0.2794	11.14102	14.264	0.147
		04		71	9			04		60	3
r=5	r=6	0.1144	4.133595	3.8414	0.042	r≤5	r>6	0.1144	4.133595	3.8414	0.042
		77	*	66	0			77	*	66	0

Trace and Max-Eigenvalue tests indicate 4 cointegrating equations at the 0.05 level

\* means rejection of the hypothesis at the 0.05 level

\*\*Mackinnon-Huag-Michelis (1999) p-values

Source: Authors computations

The VECM has estimated and has got an extraordinary result, which would be helped to explain how disaggregated exports reinforce the sustainable development of Bangladesh. The sustainability of growth hypothesis is examined through the disaggregated exports, capital, labor force, and economic growth long-run and short-run relationship. The results (see Table 5) suggest that ECT (-.86) is showing negative and probability value (0.001) is significant (1% level). It means there is a unidirectional long-run relationship running from manufacturing export, agricultural export, service export, capital, and labor force to GDP growth of Bangladesh.

**Table 5:** VECM long-run representations: GDP as a dependent variable

	Coefficient	Std. Error	t-Statistic	Probability Value
ECT	-.862026	0.157996	-5.456011	0.0001*

Significant at \* 1% level

Source: Authors computations

Hence, the outcome indicates that there is a strong long-run equilibrium relationship between variables. Therefore, it is also evidenced that the speed of adjustment of disequilibrium is very fast, e.g., 86 percent. It also suggests that 86 percent of disequilibrium from the shock of the previous year converges from short-run to the long-run equilibrium in the current year. In other words, there exists unidirectional long-run causality running from GDP to FDI. The existence of the long-run relationship supports to determine the sustainable development of Bangladesh. Conversely, for the short-run Granger causality, the Wald tests have performed to Granger cause in the short-run from independent variables to the dependent variable. The table 6 shows that the probability value of disaggregated exports (manufacturing export, agricultural export, and service export), capital, and labor force are statistically significant at the 1 percent level. It means that there is a short-run causal direction running from manufacturing export, agricultural export, service export, capital, and labor force to the economic growth of Bangladesh. The findings of this study are also evidenced by famous economists (Atif, Haiyun, and Mahmood 2017; T. O. Awokuse and Xie 2015; Dawson 2005; Dunusinghe 2009; Haraguchi, Cheng, and Smeets 2017; Hausmann, Hwang, and Rodrik 2007; Md Reza et al. 2018; Reza et al. 2019)

**Table 6:** VECM Short-run Representations: Wald Granger Causality Test

Variables	F-Statistic	Chi-square	Probability Value
lnMX	13.60196	27.20392	0.0000*
lnSX	4.463779	13.39134	0.0039*
lnAGX	6.244806	18.73442	0.0003*
lnK	4.660253	13.98076	0.0029*
lnL	8.295808	24.88742	0.0000*

Significant at \* 1% level

Source: Authors computations

The sensitivity tests show that the estimated model is well fit and stable (see table 7). The probability value of Breusch-Godfrey serial autocorrelation and several heteroskedasticity (Breusch-Pagan-Godfrey, Harvey, ARCH & Glejser) tests are insignificant. It suggests that the model is free from serial correlation and heteroskedasticity problems.

**Table 7:** Sensitivity Tests

Name of Sensitivity Tests	Obs*R-square	F-Statistic	Probability*
Serial correlation: Breusch-Godfrey Serial Correlation LM Test	1.716240	0.637933	0.1902
Heteroscedasticity: Breusch-Pagan-Godfrey	27.86936	1.454694	0.3139
Heteroscedasticity: Harvey	28.78168	1.764964	0.2731
Heteroscedasticity : ARCH	4.270338	1.437842	0.2337
Heteroscedasticity : Glejser	28.03919	1.505256	0.3061
<b>Fitness</b>		<b>Stability</b>	<b>Normality</b>
$R^2$	0.903610	CUSUM	Stable
Adjusted- $R^2$	0.755318	CUSUMSQ	Stable
Durbin-Watson	1.689589	Jarque-Bera	0.167794
		Probability*	0.919526

Source: Authors computations

The Jarque-Bera test (insignificant probability value) also specifies that the model is well fit. The parameter of CUSUM and CUSUMSQ (using the cumulative sum of recursive residuals) indicate that the lines of both statistics are within the 5% critical lines. However,  $R^2$ , adjusted- $R^2$ ,

and Durbin-Watson statistics have strongly followed the goodness of fit of the regression parameters. It confirms that the estimated models are well stable and robust from 1980-2017 of Bangladesh.

According to sensitivity analysis, the study has got robust results from our empirical analysis. Hereafter, we summarize that disaggregated exports actively cause the economic growth of Bangladesh. If the government emphasizes in this sector, it can generate more employment. The considerable labor force would help to stimulate more growth. And the capital of stock could be more influential in this economy. As a result, disaggregated exports could attain the sustainable development of Bangladesh

## V. CONCLUSIONS

This study following the production function examines the effect of exports and disaggregated exports on the economic growth of Bangladesh, which is the least developing country, from 1980 to 2017, using the Johansen co-integration test and vector error correction model (VECM). This study has designed a systematic analysis of Bangladesh's economic growth and has examined and explained by specific theoretical economic considerations through innovative economic variables, such as GDP growth, disaggregated exports (manufacturing export, agricultural export, service export), capital and labor force. The results of the production function technique suggest that disaggregated exports, capital, and labor force have a significant and robust effect on economic growth in the long-run and short-run in Bangladesh. It should be clear that the direction of impact is running from manufacturing export, agricultural export, service export, capital, and labor force to GDP growth, i.e., unidirectional causality between disaggregated exports and economic growth of Bangladesh. However, the speed of adjustment is very high (86%) in the Bangladesh economy, suggesting that converges from short-run to long-run of time is corrected by 86% over each year. However, all sectors are performing well in Bangladesh, but manufacturing sectors have a larger share in terms of total exports than any other sector, especially readymade garments exports. Agriculture sectors are decreasing day by day. In addition, service exports are a new era in Bangladesh, and it is increasing in the recent decade, especially ICT exports (Raihan 2018). From our viewpoint, in the future, manufacturing and service exports will be brought an enormous impact on sustainable development in Bangladesh. The study is limiting by variables and short duration of the analysis. Other researchers can prolong future research based on our research. The policymakers should emphasize on agricultural exports because Bangladesh is still a farmer-based country. The country needs technological development for the higher productivity from the agricultural sector. However, the government should reinforce more attractive incentives policies in export sectors and increase duty-free trade agreement with importing countries to enhance exports. Then, the trade deficit will be reduced automatically and helped an economy to sustain for the long-term.

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# Digital Trade Issues in WTO Jurisprudence and the USMCA

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## I. INTRODUCTION

Digital trade offers economy-wide benefits. The advancement of technology has aided international business. Millions of people worldwide use the Internet to do everything from research to purchasing products online. One of the many uses derived from the Internet is the development of digital trade. Digital trade lends itself to distinctive issues. World Trade Organization (WTO) members recognized the benefits digital trade offers and have developed a work program to facilitate the development of digital trade. However, WTO efforts to facilitate digital trade have stalled, leading to a slower than anticipated progress.

The question this article addresses is how the WTO supports and deals with digital trade. This article briefly discusses the historical advancement of the Internet, defines the concept of digital trade and its development in the international market. The article then analyzes how existing WTO agreements have dealt with digital trade. The article also addresses recent trade agreements particularly the USMCA. It was chosen because it involves the largest economy in the world and the U.S. could use USMCA provisions as template for future trade agreements.<sup>2</sup>

### A. Development of the Internet

The rise of digital trade is based on the revolution of the Internet. The development of the Internet has evolved from a tool of communication to one of economic utility. The Internet facilitates electronic business transactions both nationally and internationally by permitting businesses to have easy access to large consumer bases at lower costs.

The modern structure of the Internet developed from a United States Army experiment more than thirty years ago.<sup>3</sup> The term Internet derived from the terms “interconnection” and “network.” The term Internet meant the network formed by the cooperative interconnection of computing networks.<sup>4</sup> Today, the Internet exists in no physical realm. Instead, it is a giant network

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<sup>2</sup> Earlier free trade agreements have included e-commerce chapters since the 2001 US-Jordan FTA. However, the e-commerce provisions can be limited to goods sold online. See Brian Bieron and Usman Ahmed, Regulating E-commerce through International Policy: Understanding the International Trade Law Issues of E-commerce, 46.3 *Journal of World Trade* 545, 551 (2012). See also Maria Ptashkina, Facilitation 2.0: E-Commerce and Trade in the Digital Age 7-8 (2018), available at <[https://www.ictsd.org/sites/default/files/research/rta\\_exchange\\_-\\_ptashkina\\_facilitation\\_2.0\\_-\\_e-commerce\\_-\\_ptashkina\\_0.pdf](https://www.ictsd.org/sites/default/files/research/rta_exchange_-_ptashkina_facilitation_2.0_-_e-commerce_-_ptashkina_0.pdf)>.

<sup>3</sup> See 47 United States Code § 230(e)(1) (Supp. 1998).

<sup>4</sup> Glee Harrah Cady and Pat McGregor, *Mastering the Internet* 5 (Sybex Inc: California, 2ed edition, 1996).

which interconnects innumerable smaller groups of linked computer networks.<sup>5</sup> This network is referred to as the World Wide Web (www). The Internet has the ability to disseminate information to a large number of people quickly and with minimum costs.<sup>6</sup> Because of the inexpensive nature of the Internet, the start-up cost to a company desiring to have a place on the Internet is minimal.

In its early inception, the Internet was used mainly as a tool for people to communicate with one another through e-mail or in chat rooms. Early utilization of the Internet for business focused mainly on direct business to consumer transactions. Some businesses, realizing the risk of surviving in the Internet environments, have moved away from consumer based transactions to the business to business (B2B) model which means the use of the Internet by one business to market his product to another business.<sup>7</sup>

## **B. Importance of Digital Trade in the Global Market**

Digital trade can be defined as the use of the Internet to conduct business transactions nationally or internationally.<sup>8</sup> The Internet is profoundly affecting almost all businesses. The various uses of the Internet by business entities include the ability to advertise, generate, or otherwise perform regular business functions. Therefore, many firms are embracing the Internet for many of their activities.

Numbers can indicate the importance of the digital trade boom. In 2017, global digital trade was worth over \$2090 billion.<sup>9</sup> Around eighty percent of those transactions were between one business and another. The influence of digital trade stretches farther. It is used more as a trading system in which buyers and sellers could establish a genuine market price.

Traditional companies cannot ignore the importance of digital trade. Most companies must become e-firms if they are to survive. However, merely adding a website to an existing business is not enough. The whole business for companies needs to be redesigned around the cost-saving, communication-easing properties of the net. One impact for digital trade is thus to intensify competition and producing benefits to consumers in lower prices and more choices.

## **II. WTO AND DIGITAL TRADE**

Digital trade has developed after the creation of the WTO in 1994. Consequently, the WTO does not contain specific articles for digital trade. Nevertheless, there are several WTO agreements related to digital trade. These WTO agreements include the General Agreement on Trade in Services (GATS) and the Information Technology Agreement (ITA).

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<sup>5</sup> See *Reno v. ACLU*, 117 Supreme Court 2329, 2334 (1997).

<sup>6</sup> See David M. Cielusniak, *You Cannot Fight What you cannot See: Securities Regulation on the Internet*, (1998) *Fordham International Law Journal* Vol 22, pp 612-616.

<sup>7</sup> See Barrett Schaefer 'International Taxation of Electronic Commerce Income: A proposal to utilize software agents for source-based taxation' (1999) *Santa Clara Computer and High Technology Law Journal* Vol 16, pp 111-120.

<sup>8</sup> World Trade Organization, *Study from WTO Secretariat highlights potential trade gains from electronic commerce*, available at [http://www.wto.org/english/newse/pres98/e/pr96\\_e.htm](http://www.wto.org/english/newse/pres98/e/pr96_e.htm) (March 13, 1998).

<sup>9</sup> See *Global E-Commerce Trends and Statistics*, available at < <https://amasty.com/blog/global-e-commerce-trends-and-statistics-2017-2018/> >.

The GATS is of particular significance to digital trade for several reasons. First, the communication services which provide access to digital trade fall under the GATS.<sup>10</sup> Second, GATS covers many sectors and modes of delivery whether the mode is traditional or electronic. Indeed, it was determined that GATS was technologically neutral.<sup>11</sup> Third, the execution of an electronic transaction necessitates infrastructure services (distribution, payment, etc.) whose liberalization equally falls under the GATS. In view of the acknowledged importance of telecommunication services, the access to public telecommunication networks was incorporated in a separate telecommunication annex.<sup>12</sup>

Each WTO member agreed to liberalize specific service sectors. These commitments are included in schedules or lists of service commitments. These commitments range from liberalizing education, tourism, insurance, media, auditing, legal services, and other areas. In other words, what is covered and not covered a WTO member schedule of service depends on the particulars of that country.<sup>13</sup> Many service sectors can be delivered physically and more importantly electronically. Whenever unlimited market access commitments are undertaken, every means of delivery including remote supply should be allowed.<sup>14</sup>

Article VI GATS authorizes the Council for Trade in Services to develop the necessary disciplines to ensure that measures relating to qualification requirements and procedures, technical standards and licensing requirements do not constitute unnecessary barriers to trade in services. This language applies to digital trade. WTO members should not adopt policies or measures that are more burdensome than necessary to ensure quality of the service.

WTO members agreed to so-called Reference Paper. The Reference paper provides for rules that shall prevent anti-competitive behavior in the telecommunications sector.<sup>15</sup> The Reference Paper includes competition policy principles to ensure access to public telecommunication networks. WTO members considered that the Reference Paper might be applicable to digital services where Internet access providers qualify as major suppliers of basic telecommunications.<sup>16</sup> The EU was of the opinion that the principles of the Reference Paper are applicable to internet access and internet network services.<sup>17</sup>

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<sup>10</sup> See Taunya L. McLarty 'Liberalized Telecommunications Trade in the WTO: Implications for Universal Service Policy' (1998) *Federal Communications Law Journal* Vol 51, pp 1-7.

<sup>11</sup> See WTO Panel Report, US – Gambling, WT/DS285/R, para. 6.285.

<sup>12</sup> The Telecommunication Annex states that any service supplier of any other WTO member must be accorded access to and use of public telecommunication networks and services on reasonable and non-discriminatory terms and according to conditions for the supply of a service included in the country schedule (Annex 5 a).

<sup>13</sup> See Ruosi Zhang, Covered or Not Covered: That Is the Question - Services Classification and Its Implications for Specific Commitments under the GATS, (World Trade Organization 2015).

<sup>14</sup> See Appellate Body Report, *US – Gambling*, WT/DS285/AB/R, para. 239.

<sup>15</sup> The non-discriminatory, transparent access and interconnection with the public network or dominant supplier is obligatory. Even though each country has the right to maintain domestic regulations concerning universal service obligations, this right shall be used in a fair and non-discriminatory manner. The allocation of licenses but also the award of other scarce resources (numbers, frequencies, etc.) shall also be fair and non-discriminatory. The Reference Paper demands the establishment of an independent regulatory agency which must supervise the observance of the above principles and the telecom markets in general.

<sup>16</sup> See WTO Council for Trade in Services, Work Programme on Electronic Commerce – Progress report to the General Council, Adopted by the Council for Trade in Services on 19 July 1999, S/L/74, 27 July 1999, para. 13.

<sup>17</sup> See WTO Work Programme on Electronic Commerce, Communication from the European Communities and their Member States, S/C/W/183, 30 November 2000, para. 6.

The Information Technology Agreement (ITA) is of a particular significance to digital trade. WTO members agreed to a common position with regard to trade in information technology (IT) goods. WTO members committed themselves to reduce their tariffs on IT-goods in four steps of twenty-five percent to reach a tariff-free policy by the year 2000.<sup>18</sup> This obligation pertains to a common list of IT-products covering wide range of some 180 information technology products in five major categories: computers and peripheral devices, semiconductors, printed circuit boards, telecommunications equipment (except satellites), and software. By the year 2015, the ITA covers ninety-five percent of the existing world trade in IT-goods.<sup>19</sup> Thus, the ITA brings advantages to a wide range of production activities.

Largely at the insistence of the U.S. at the WTO Ministerial Conference in 1998, WTO members decided to develop a work program covering digital trade.<sup>20</sup> According to the WTO Work Program on Electronic Commerce, digital trade is understood to mean the production, distribution, marketing, sale or delivery of goods and services by electronic means. The WTO divides digital trade transactions into three distinctive stages: the advertising and searching stage, the ordering and payment stage, and the delivery stage. Any or all of these stages may be carried out electronically and may therefore be covered by the concept of digital trade. In other words, a buyer may purchase a book via the Internet and to be delivered physically later on or he can purchase and download the book via the Internet. In either case, the purchase of the book could be said that it is conducted through digital trade means.

Despite the fact that the WTO Work Program on Electronic Commerce has been set up in 1998, very little progress has been achieved. The most important issue blocking progress on digital trade in the WTO agenda is the question of categorization. WTO members differ whether products which were usually sold as goods due to their link to a physical carrier and which can now be delivered online over the net (e.g. music or movies) shall be treated as goods under the General Agreement on Tariffs and Trade (GATT) or as services under the GATS.<sup>21</sup> For example, if a book is ordered online, but is delivered physically, for the purposes of WTO trade rules, it is a good. That makes it subject to the GATT. However, if the book is delivered electronically - downloaded onto the computer – it is unclear whether this digital product should be treated as a good or a service. If goods delivered online were considered goods, they would be subject to few trade restrictions under the GATT such as tariffs.<sup>22</sup> On the other hand, if goods delivered online were considered services, they would be subject to more trade restrictions under the GATS such as

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<sup>18</sup> See Charles Owen Verrill, Jr., Peter S. Jordan, Timothy C. Brightbill 'International Trade' (1998) *International Lawyer* Vol 32, pp 319-324, 1998.

<sup>19</sup> See WTO, 20 Years of the Information Technology Agreement, available at <  
[https://www.wto.org/english/res\\_e/booksp\\_e/ita20years\\_2017\\_chap2\\_e.pdf](https://www.wto.org/english/res_e/booksp_e/ita20years_2017_chap2_e.pdf)>.

<sup>20</sup> Four WTO subsidiary bodies had been charged with examining e-commerce issues: the Goods Council, the Services Council, the TRIPS Council and the committee on Trade and Development. See WTO Secretariat, Development Implications of Electronic Commerce, WT/COMTD/w/51 (November 23, 1998).

<sup>21</sup> See Kristi L. Bergemann 'A Digital Free Trade Zone and Necessarily-Regulated Self-Governance for Electronic Commerce: The World Trade Organization, International Law, and Classical Liberalism in Cyberspace' (2002) *Marshall Journal of Computer and Information Law* Vol 20, pp 595-601.

<sup>22</sup> The U.S. has been the primary advocate of the position that products delivered online should be classified as goods. The European Union counters that all products delivered electronically should be considered services. See Stewart A. Baker et al. 'E-Products and the WTO' (2001) 35 *International Lawyer* Vol 35, pp 5-7.

market access barriers and discriminatory domestic regulations.<sup>23</sup> For example, if the delivery of films and broadcasts on the Internet is considered services, countries apply their restrictive rules on the distribution and broadcast of audiovisual works to films and television programs transmitted over the Internet. Until the classification debate is resolved, WTO members decided not to impose tariffs on imported electronic transmissions.

There were numerous WTO meetings and seminars producing views and proposals which are reflected in the country statements or the final reports.<sup>24</sup> These meetings would include informal exchange of view-points than the achievement of agreements. Therefore, the classification debate issue continues to be unresolved.<sup>25</sup> There have been no new digital trade relevant actions at the WTO until now.

### **A. WTO Case Law and Digital Trade**

The first time the WTO addressed digital trade was its ruling on U.S. restrictions on cross-border Internet gambling services. Antigua and Barbuda initiated a dispute case against the U.S. claiming that U.S. Internet gambling restrictions, restrictions by U.S. credit card companies on payments to offshore gambling outlets, at both the federal and state levels violated the U.S. commitments under the GATS. Antigua claimed to have lost some \$90 million over the period 2000-2004 as a result of the restrictions in the U.S., its principal market, and reducing the number of Internet gambling enterprises in Antigua from 119 to 30 in the same period.

A WTO panel ruled that online gambling restrictions imposed by the U.S. at the federal and state levels violated its market access commitments under sub-sector 10.D (other recreational services) of its GATS schedule.<sup>26</sup> In specific, the WTO panel agreed with Antigua that U.S. market access commitments under Section 10.D of its GATS schedule covering “other recreational services” do include gambling services. The panel rejected the U.S. claim that it never intended to allow the cross-border supply of such services. The panel also maintained that the U.S. commitment to allow unrestricted market access on recreational services applies to all means of delivery, including the Internet. While the WTO panel agreed with the U.S. that the U.S. ban on cross-border gambling services may be justified under WTO rules to protect “public morals,” it found that the ban was applied in a discriminatory manner since the U.S. permits remote gambling wagers through off-track betting under the 1978 Interstate Horseracing Act.

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<sup>23</sup> When an electronic transaction falls under the GATS one must also decide under what GATS mode the service is to be registered. The GATS describes several modes for service delivery. In the case of electronic transaction, it is a point at issue if it shall be under mode 1 (cross-border trade) where a service is exported from one member of the WTO to another member or mode 2 (consumption abroad) where the service is consumed in the country of origin of the service supplier but is consumed by a customer of a different nationality.

<sup>24</sup> See Committee on Trade and Development, Seminar on Electronic Commerce and Development, WT/COMTD/18 (March 23, 1999).

<sup>25</sup> See Daniel Pruzin, U.S. Holds E-commerce Talks with WTO Partners, Covering Nature of Digital Products, International Trade Daily (Bureau of National Affairs) (June 13, 2001).

<sup>26</sup> See Appellate Body Report, United States - Measures Affecting the Cross-Border Supply of Gambling and Betting Services, WT/DS285/AB/R (April 7, 2005).

In China — Publications and Audiovisual Products, the WTO panel found that the scope of China's commitment in its GATS Schedule on "Sound recording distribution services" extends to sound recordings distributed in non-physical form through technologies such as the Internet.<sup>27</sup> In achieving this outcome, WTO panel relied on the principle of progressive liberalization which contemplates that WTO Members undertake specific commitments through successive rounds of multilateral negotiations with a view to liberalizing their services markets incrementally.<sup>28</sup> Thus, distribution covers both tangible and intangible products.

Prior to the WTO panel's findings in those disputes, neither WTO panel nor the Appellate Body has ever decided a digital trade case. The WTO's ruling would have important implications, notably in the relationship between the WTO and digital trade. Now, under the WTO jurisprudence digital trade is covered under the GATS.

### III. THE DIGITAL TRADE PROVISIONS IN THE USMCA

The US-Mexico-Canada trade agreement (USMCA) FTA includes explicitly provisions concerning digital trade.<sup>29</sup> The digital trade provisions of the USMCA - which resemble the language in the Trans-Pacific Partnership (TPP) - apply to goods and services traded over the medium of the Internet.<sup>30</sup> The USMCA ensures that physical software and downloaded software are both treated the same.

The USMCA provides a definition for digital products. A digital product means a computer program, text, video, image, sound recording, or other product that is digitally encoded, produced for commercial sale or distribution, and that can be transmitted electronically. The USMCA provides illustrative examples of digitized products such as electronically traded software, books, and music.

The entire purpose of the FTA is to lower barriers to trade in all sectors, including digital trade; therefore, the U.S., Mexico, and Canada were in the position with digital trade to never even establish a tariff that would later need to be lowered and eliminated.<sup>31</sup> The FTA creates duty-free cyberspace. The USMCA requires parties not to impose customs duties on electronic

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<sup>27</sup> See China - Measures Affecting Trading Rights and Distribution Services for Certain Publications and Audiovisual Entertainment Products - Report of the Panel, para. 7.1209 (Aug. 12, 2009) (In examining the definitions in Article XXVIII(b) of the GATS, we note that 'the supply of a service' is defined as including the 'production, *distribution*, marketing, sale and delivery of a service' (emphasis added). This definition makes clear that the activity of 'distribution' is included within the notion of the supply of a service. Since a 'service' is intangible and not itself a good, this definition suggests that the supply of a service listed in a Member's Schedule, unless otherwise specified, can cover the distribution of non-physical products, such as sound recordings delivered over the Internet).

<sup>28</sup> See China - Measures Affecting Trading Rights and Distribution Services for Certain Publications and Audiovisual Entertainment Products - AB-2009-3 - Report of the Appellate Body, paras. 392-394 (Dec. 21, 2009).

<sup>29</sup> See Chapter 19 Digital Trade, The U.S.-Mexico-Canada Trade Agreement, available at <[https://ustr.gov/sites/default/files/files/agreements/FTA/USMCA/Text/19\\_Digital\\_Trade.pdf](https://ustr.gov/sites/default/files/files/agreements/FTA/USMCA/Text/19_Digital_Trade.pdf)>.

<sup>30</sup> *Id.* art. 19.4.2.

<sup>31</sup> *Id.* art. 19.3.



transmissions. This language is based on the U.S. Internet Tax Freedom Act of 1998.<sup>32</sup> The customs duties standstill in the USMCA is not indefinite or permanent. The parties to the agreement are merely obliged to continue the customs duties standstill until further notice.

The continuing of the no-duty policy under the USMCA may result in negative economic impact because Mexico for example would not collect from digital transactions as it does from other transactions that actually result in the payment of tariffs. The other economic implication for no-duty policy under the trade agreement is that it could lead to trade-diversion because of the preferential treatment of a particular mode of delivery over other modes. The USMCA language is limited to tariffs but not domestic taxes whether direct or indirect. Therefore, the U.S. could impose taxes on seller's income based on his economic activity. Mexico or Canada can impose value added taxes on some transactions, especially for tangible goods above a certain value. However, any domestic taxation of digital trade could be limited and done in a way which ensures neutral treatment between supply modes.

The USMCA also requires that the parties do not establish unnecessary barriers on electronic transmissions.<sup>33</sup> The term "unnecessary" is not clearly understandable. In addition, the standard "unnecessary barriers" is subjective since each party will determine what a necessary or unnecessary barrier is. An example of unnecessary barrier could be applying trade restrictive technology mandates and not using open and market-driven standards. Applying trade restrictive technology mandates could inhibit the growth of digital trade.

The USMCA is concerned with the delivery of services electronically. As such, the FTA not only covers trade in goods electronically but also trade in services. For instance, a supplier in the U.S. could deliver financial services, engineering plans, or legal services, to a client in Mexico through the Internet. However, in this instance it is unclear how the mode of the delivery could be classified, whether it is virtual cross-border supply or consumption abroad.

The USMCA does not require harmonization of digital trade laws and regulations of the U.S., Mexico, and Canada. The absence of such harmonization could pose problems for trading in products electronically when countries have different levels of laws and regulations. However, since the nature of the Internet and digital trade is global then an international approach is needed for regulating digital trade.

The USMCA contains several principles that deal with technological neutrality i.e., ensuring that basic trade concepts of non-discrimination, national treatment, and most-favored-nation status apply to digital trade, and regulatory forbearance - i.e., avoiding government action that would restrict trade. The USMCA also covers the validity of electronic signatures.<sup>34</sup>

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<sup>32</sup> The act, which has the purpose of promoting universal access and less burdensome Internet tax policy, imposes a moratorium on all taxation of Internet access and on "multiple" or "discriminatory" taxes on e-commerce. The act also includes a declaration that the Internet should be free of tariffs, trade barriers, and other restrictions. Moreover, the act asks the U.S. President to pursue "international agreements" to ban such tariffs and other trade barriers. See Internet Tax Freedom Act of 1998, 47 United States Code §151 (2000). The moratorium begins on Oct. 1, 1998 and ends on Nov. 1, 2003.

<sup>33</sup> See The U.S.-Mexico-Canada Trade Agreement, *supra* note 29, art. 19.2 & art. 19.5.

<sup>34</sup> *Id.* art. 19.6.

The USMCA has yet to determine if digital products should be treated as goods, services, or something new altogether. Determining whether an e-product is a good or service is a crucial assessment. If an e-product is a good, then it will be subject to the national treatment rules of the trade agreements. In contrast, if an e-product is a service, then each party may impose restrictions on market access and national treatment. Moreover, the digital trade provisions of the USMCA apply to digitized products traded only between the parties. However, considering the global nature of digital trade, it might be difficult to determine whether the product is of a U.S. or Mexican origin for purposes of the trade agreement.

The USMCA provides that no country is allowed to give less favorable treatment to digital products "created, produced, published, contracted for, commissioned or first made available on commercial terms in the territory of another party, or to digital products of which the author, performer, producer, developer or owner is a person of another party."<sup>35</sup> Also, the USMCA allows the parties to provide subsidies or grants to its own residents and businesses, including "government-supported loans, guarantees and insurance."<sup>36</sup> These USMCA provisions give the parties some policy space whereby they can favor their domestic cultural industries.

The USMCA has a requirement to maintain anti-spam rules and online consumer protection laws.<sup>37</sup> However, these rules do not contain any specificity. The same is true for personal information protection requirements,<sup>38</sup> which call for a legal framework to protect the personal information of users of digital trade, but buried in a footnote is an acknowledgment that merely enforcing voluntary undertakings of enterprises related to privacy is sufficient to meet the obligation. The USMCA information protection requirements do not establish a mandatory minimum of protection.

Paperless trade did not escape the attention of USMCA negotiators as it helps in facilitating trade.<sup>39</sup> Each party endeavors to accept a trade administration document submitted electronically as the legal equivalent of the paper version of that document. Although the language used is not strong as it refers to "endeavors", but it is still important to include it to ensure faster movements of goods and services across borders.

The USMCA include targeted sections on computer facilities.<sup>40</sup> The purpose of such a provision is to prevent maintaining control over information processing and storage in a country. Thus, the parties to the USMCA would not make it a condition for conducting business that a company from a trading partner must use or locate a computing facility in their country. The USMCA does not provide for public policy objectives which may lead party to require the physical presence of computing facilities in certain circumstances.

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<sup>35</sup> *Id.* art. 19.4.1.

<sup>36</sup> *Id.* art. 19.4.2.

<sup>37</sup> *Id.* art. 19.7. The consumer protection provisions apply online and do not help consumers enforce their rights across borders.

<sup>38</sup> *Id.* art. 19.8.

<sup>39</sup> *Id.* art. 19.9.

<sup>40</sup> *Id.* art. 19.12.

The USMCA recognizes that there are different legal approaches to protecting personal information, including comprehensive privacy, personal information, or personal data protection laws; sector-specific laws covering privacy; or laws that provide for the enforcement of voluntary private sector undertakings. The U.S., Canada, and Mexico agreed to promote compatibility and exchange information on their respective mechanisms. The USMCA specifically identifies the APEC Cross-Border Privacy Rules system as a valid mechanism to facilitate cross-border information transfers while protecting personal information.<sup>41</sup>

The USMCA includes provisions to break down data localization laws, which require that certain kinds of data remain within a country's borders. The USMCA bans restrictions on data transfers across borders.<sup>42</sup> In contrast, the EU demands limits on data transfers.<sup>43</sup> The European model of data protection uses data transfer restrictions as a way to ensure that the information enjoys adequate legal protections.

The USMCA prevents countries from requiring the disclosure of source code.<sup>44</sup> In addition, the USMCA goes further to bar governments from requiring the disclosure of "algorithms" expressed in that source code unless that disclosure was required by a regulatory body for a specific investigation, inspection, examination enforcement action or proceeding.

The USMCA provides protection for Internet service providers modeled on the Digital Millennium Copyright Act.<sup>45</sup> The USMCA protects Internet service providers for copyright liability for the actions of their users. Internet platforms are not held civilly –but not criminally- liable for the actions of their users. However, there is no language in the USMCA that requiring a balanced approach to copyright which might have further empowered user rights.

The USMCA protects open government data provided in machine readable format.<sup>46</sup> The language used regarding open government data is not mandatory but rather best endeavors.

#### IV. CONCLUSION

The Internet offers substantial opportunities to companies. The world has witnessed an explosion in digital trade in the past few years, with online shopping now doubling annually. Although the WTO did not contain explicit articles covering digital trade, it was seen that the WTO is well-fitted to advance digital trade because of the WTO principles of non-discrimination, transparency, and market openness. However, the WTO program on digital trade is stalled because WTO members could not agree on the so-called horizontal issues such as whether products delivered in digital form should be classified as goods or services under WTO rules.

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<sup>41</sup> *Id.* art. 19.4.

<sup>42</sup> *Id.* art. 19.11.

<sup>43</sup> See Shakila Bu-Pasha, Cross-Border Issues under EU Data Protection Law with regards to Personal Data Protection, 26 Information and Communication Technology Law 213, 216 (2017).

<sup>44</sup> The U.S.-Mexico-Canada Trade Agreement, *supra* note 29, art. 19.16.

<sup>45</sup> *Id.* art. 19.17. See also [Emily M. Asp](#), Section 512 of the Digital Millennium Copyright Act: User Experience and User Frustration, 103 Iowa Law Review 751, 762-765 (2018).

<sup>46</sup> *Id.* art. 19.18.

The USMCA was thought as a breakthrough to the WTO deadlock in the sense that the FTA included explicit chapter concerning digital trade. A closer examination of the USMCA on digital trade revealed that the parties invent some specific rules needed for digital trade. For most of the digital trade provisions in the USMCA, the approach of the parties was based on the simple premise that digital trade is trade, that it is only the form by which the commercial transaction is performed which may be new, and not its substance; thus the parties relied on existing treaties or domestic laws. Thus, the USMCA does not require many legal changes to domestic laws.

The digital trade provisions in the USMCA showed the need to push the debate over digital trade forward. Future trade agreements should expand existing trade rules or draw up new rules. There is a host of digital trade issues that need to be addressed in future trade agreements. Among them are including new technologies such as block chain, classification of the content of certain electronic transmissions, the issue of "likeness" of e-goods; development-related issues, including access to infrastructure and technology; fiscal and revenue implications of digital trade, the relationship and possible substitution effects between digital trade and traditional forms of commerce., and whether dispute settlement mechanism covers digital trade in a way similar to any other provision in the free trade agreement. By expanding and developing rules for digital trade, parties to the USMCA can take maximum advantage of the vast opportunities that the technological revolution offers.

# WTO Agriculture Measures & Geo-Politics in Major Regional Trading Blocs: Policy Advocacy

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*Adam Smith (1776) is revolutionary Economic Idea is that proposed Free Trade Theory against British Colony Monopoly. The WTO called the farming agreement “historic”. The present status of agricultural supports, measures are critical issues are key inputs for debate on trade policy. The study is quantitative frame work of effects of WTO measures and geopolitics on the most significant regional trading blocs and global agriculture. The study found that the ASEAN trading blocs were highly supported in agriculture followed by SAFTA in terms of Total Support Estimates whereas reverse trends have been noticed in terms of the Producer Support Estimates. Developing countries supports more to agriculture when compared to developed countries. The study found that the NAFTA trading bloc consisted of the highest number of non-tariff measures such as Sanitary and Phytosanitary, Technical Barriers to Trade, Anti-Dumping, Countervailing & Special Safeguards. Similarly, more number of Safeguards & Quantitative Restrictions were imposed by the ASEAN trading bloc. While more number of Tariff Rate Quotas & Export Subsidies were imposed by EFTA & MERCOSUR trading blocs, respectively. India gave more price advantage to domestic goods over similar imported goods. Whereas, the USA and the European Union imposed higher tariffs on both agriculture and non-agriculture sectors. The study of political economy found that, globally, most of the countries Agricultural Orientation Index has less than unity which indicated that government is not giving priority to agriculture in budget allocation except for South Korea and Switzerland. This study significant discovery is many countries targeted to protect agriculture by trade and domestic support polices in one or other way. This necessitates further reforms to be benefited all regions. These findings have significant impact on World trade negotiations, world trading rules, designing WTO agreements or policies or programs, multilateral agreements. Hence, the study advocate WTO has to club all measures in to one and deal to boost agricultural development.*

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## D) INTRODUCTION

World Trade Organization (WTO) rules on agriculture, the most contentious issues in the international political economy due to importance of agriculture in the production of tradable commodities as well as economic development and food security in developing countries. Tariffs remain a feature of trading under WTO rules, Matias E. Margulis (2018). The WTO Agreement on Agriculture clearly demarcates between subsidies that distort adversely the competitiveness of international agricultural traded commodities markets with less distorting clouts but issues are disputed and controversial. Every WTO member has a list of tariffs (taxes on imports of goods) and quotas (limits on the number of goods) that they apply to other countries. Increasing tariffs on products from polluting industries amounts to a violation of WTO rules.

Regional trade blocs are a detriment to the continued expansion of globalization (Gordon and Sivakumar, 2006). Trading blocs are usually groups of countries in specific regions that manage and endorse trade activities. Trading blocs lead to liberalization of trade (the freeing of trade from protectionist measures). WTO permits the existence of trading blocs, specified that they **result in lower protection** against outside countries than existed before the creation of the trading bloc. The most significant trading blocs currently are; **European Union (EU)** – a customs union, a single market and now with a single currency, **European Free Trade Area (EFTA)**, **North American Free Trade Agreement (NAFTA)** between the USA, Canada and Mexico, **Mercosur** - a customs union between Brazil, Argentina, Uruguay, Paraguay and Venezuela, **Association of Southeast Asian Nations (ASEAN)**, **Common Market of Eastern and Southern Africa (COMESA)**, **South Asian Free Trade Area (SAFTA)** created with countries such as India and Pakistan in 2006 and **Pacific Alliance**: a regional trade agreement between Chile, Colombia, Mexico and Peru, 2013.

UNCTAD, 2003 concluded that because of GATT special arrangements, agriculture had been customarily benefited from its beginning. Even today in the WTO, global agricultural policies are sheltered under its special agreement. The major agricultural agreements which effect on agriculture are: Import Licensing Agreement, Agreement on Safeguards, Sanitary and Phytosanitary Measures (SPS), Agreement on Trade Related Aspects of Intellectual Property Rights (TRIPs), Agreement on Technical Barriers to Trade (TBT). As per GATT 1994, Article 6 the other agreements also effect international agriculture are Countervailing measures/SCM Agreements, Agreements on subsidies and Antidumping Agreements (UNCTAD, 2003).

Anania et al. 2004 reported that the new area of research for global research is that sort out the effects or impact of international institutions and international trade agreements on global agricultural trade and markets. Since 1990, this issue has considerable global attention particularly on WTO, NAFTA, EU expansion and URAA effects. The hypothesis formulated by Bagwell and Staiger (2002) and Dutt and Mitra (2007) is that the countries joined in WTO with comparative advantage will reduce protection level in agriculture.

International politicians tend to neglect economic dimensions while dealing with international relationships and international economists tend to neglect political dimensions in dealing with international economy. Benefit-cost analysis is a tool devised by economists. Government may influence what a farmer grows, where a farm is located, how products are transported and processed, how a commodity is traded, and the price the farmer might receive (Iowa Public Television, 2017). Prendergast, 2007 conclude that many global agricultural

political econometric models are focusing on farmers, consumers and tax payers. Of late they are trying to capture political ideology variable but there is need to improve modelling. He also suggested to include the role of bureaucratic organizations like European Commission which is mostly not captured.

The main focus of the study is to analyse how WTO measures effects on the most significant regional trading blocs and global agriculture in general and to fulfil these measures, different countries ploy politics and policies to ensure stake holders in particular and suggest strategies for the growth and development of regional trading blocs and global agriculture during WTO regime.

### Objectives

1. To analyse the effect of WTO measures; supports (AMS), tariffs and non-tariffs on regional trading blocs & global agriculture.
2. To critically analyse global geo-political economy of regional trading blocs & global agriculture during WTO regime.
3. To suggest the strategies for the growth and development of regional trading blocs & global agriculture during WTO Regime.

## II) DATA AND METHODOLOGY

The study is basically quantitative frame work of the effects of WTO measures and geopolitical on regional trading blocs & global agriculture. The effects of global political economy, AMS, Tariffs and Non-tariffs on regional trading blocs wise in particular and global agriculture in general analyzed. As per WTO agreements, Measures of 8 most significant regional trading blocs such as European Union (EU), European Free Trade Area (EFTA), North American Free Trade Agreement (NAFTA), Mercosur, Association of Southeast Asian Nations (ASEAN), Common Market of Eastern and Southern Africa (COMESA), South Asian Free Trade Area (SAFTA) and Pacific Alliance (PA), were purposefully selected to analyse the effects of international political economy on regional trading blocs, global agriculture, trade, farmer and consumers, policy distortions, welfare and economic growth. The data and information on key economic indicators, share of sectors, GDP, World Bank lending sector wise, global agricultural domestic support during WTO regime, producer and consumer supports were collected from WEF, IMF, World Bank, FAO, OECD, CGIAR, UNDES data sources, websites were the secondary sources. The growth rates were estimated based on the secondary data related to Producer Support Estimates (PSE) and Total Support Estimates (TSE) were collected from OECD Agriculture statistics (database). The meta analysis of regional trade bloc-wise policies are critically appraised. The best policies are arrived to safeguard each country. By using Delphi survey method of Dalkey and Helmer, 1963 to validate the results. The study suggests for the best geopolitical and the global agricultural development measures. The Agricultural Orientation Index (AOI) and growth rates estimated and meta-analysis executed.

**Growth rate formulae:** (Damodar N. Gujarati and Sangeetha, 2007)

The compound growth rate (r) is calculated by fitting exponential function to the variables of interest namely, allocation of funds, producer support estimates and consumer support estimates for the period 1995 to 2018.

$$Y_t = Y_0 (1+r)^t \text{ -----1}$$

Assuming multiplicative error term in the equation 1, model may be linearized by logarithmic transformation

$$\ln Y_t = A + Bt + \epsilon \text{ -----2}$$

Where, A (=lnAo) and B (=ln (1+r)) are the parameters to be estimated by ordinary least square regression, t= time trend in year,  $r = \exp(B) - 1$

Agricultural orientation index formula:

$$AOI = \frac{\text{Agricultural Share of Total Outlays (Central Govt)}}{\text{Agricultural Share of GDP}}$$

### III) RESULTS

#### 1) EFFECTS OF WTO MEASURES IN REGIONAL TRADING BLOCS & GLOBAL AGRICULTURE

##### a) Growth Rate of Agriculture Domestic Support in Global Significant Regional Trading Blocs wise major countries (2000-01 to 2018-19)

OECD, 2017 defined agriculture support as from tax payer's money government gross transfer of monetary value to agriculture to support agriculture irrespective of objectives and economic impact.

Global regional trading blocs of major countries agricultural domestic support compound annual growth rates during (2000-01 to 2018-19) were presented in Table 1. The results showed that during this period, Total Support Estimates revealed that ASEAN trading bloc (Philippines 6.00%) was supporting the highest to agriculture followed by SAFTA (India 4.60%). The next sizable supports were given to EFTA, Pacific Alliance and MERCOSUR trading blocs. Contrastingly, some of the developed countries agricultural supports growth rate were declining and has gone to negative in some of the countries in NAFTA (Canada -1.18% & Mexico -3.62%) and Europe Union (-0.15%) The results showed that agricultural supports provided to trading blocs in developing countries (Philippines & India) was higher when compared to the developed countries (Canada & Europe). The agriculture supports in case of trading blocs in developed countries was observed to be declining.

The results showed that during the period of 2000-01 to 2018-19, The highest PSE growth rate was found in SAFTA trading bloc (India 29.87%) followed by ASEAN trading bloc (Philippines 7.08%).

The study found that the ASEAN trading blocs were more supported in agriculture followed by SAFTA from the Total Support Estimates whereas reverse trend has been noticed in Producer Support Estimates i.e., SAFTA trading blocs were more supported in agriculture followed by ASEAN. The agricultural supports provided to trading blocs in developing countries were higher than the developed countries. Agriculture domestic support has shown negative growth rate in some of the developed countries trading blocs.



**Table 1:** Global Most Significant Regional Trading Blocs Wise Agriculture Domestic Support CAGR (2000-01 to 2018-19)

Country	2000-01	2018-19	Growth rates (2000-01 to 2018-19) in terms of percentage	
			PSE	TSE
<b>European Free Trade Association (EFTA)</b>				
Iceland	174.65	223.05	3.17	1.37
Norway	2636.16	3288.24	2.91	1.24
<b>Europe Union</b>				
28 Countries	107353.63	104530.23	1.29	-0.15
<b>North American Free Trade Agreement (NAFTA)</b>				
Canada	6022.34	4867.74	-0.20	-1.18
USA	80908.54	84172.38	-0.77	0.22
Mexico	9628.63	4961.12	-2.52	-3.62
<b>Common Market of the South, South American regional economic organization (MERCOSUR)</b>				
Brazil	4472.61	4819.42	-0.96	0.42
<b>Association of Southeast Asian Nations (ASEAN)</b>				
Australia	994.56	1933.49	2.63	3.76
Philippines	2952.07	8424.09	7.08	6.00
<b>Common Market of the South, South American regional economic organization (MERCOSUR)</b>				
Egypt	0.00	0.00	0.00	0.00
<b>South Asian Free Trade Area (SAFTA)</b>				
India	6626.73	14878.66	29.87	4.60
<b>Pacific Alliance</b>				
Chile	686.09	715.30	-1.59	0.23
Colombia	2639.50	3573.06	2.53	1.70

Source: OECD Database Accessed on January 24<sup>th</sup>, 2020

Note: PSE – Producer Support Estimates, TSE – Total Support Estimates

## b) Regional Trading Blocs Wise Non-Tariff Measures During WTO regime

Continent wise non-tariff measures were presented in Table 2. It is evident from Table 2 that in the world the most bulging non-tariff measure imposed are Technical Barriers to Trade (17544). The next other major measure is Sanitary and Phytosanitary (14662) followed by Anti-dumping (2042), Tariff-Rate Quotas (1254) and Quantitative Restrictions (1030). Globally ASEAN, SAFTA trading blocs imposed highest number of Safeguards (52.27%) and Quantitative Restrictions (78.25%). While NAFTA, MERCOSUR and Pacific Alliance trading blocs which belongs to American continent imposed the highest number of Sanitary and Phytosanitary (55.72%), Technical Barriers to Trade (37.19%), Anti-Dumping (41.72%) and Countervailing (73.48%). Similarly, Europe imposed higher Tariff Rate Quotas (54.31%) and Export Subsidies (50.59%). The study concluded that all trading blocs except COMESA which belongs to African continent imposed more number of non-tariff measures to protect their agriculture.

**Table 2: Continent- Wise Regional Trading Blocs Non-Tariff Measures During WTO regime**

<b>Regional Trading Blocs</b>	<b>Sanitary &amp; Phytosanitary (SPS)</b>	<b>Technical Barriers to Trade (TBT)</b>	<b>Anti-dumping (ADP)</b>	<b>Countervailing (CV)</b>	<b>Safeguards (SG)</b>	<b>Special safeguards (SSG)</b>	<b>Quantitative Restrictions (QR)</b>	<b>Tariff-rate quotas (TRQ)</b>	<b>Export Subsidies (XS)</b>
<b>Asian continent</b>									
ASEAN	4813	5017	789	28	23	123	806	179	8
SAFTA	(32.82)	(28.59)	(38.63)	(12.17)	(52.27)	(19.43)	(78.25)	(14.27)	(1.89)
<b>American continent</b>									
NAFTA	8171	6525	852	169	6	241	126	312	139
MERCOSUR	(55.72)	(37.19)	(41.72)	(73.48)	(13.64)	(38.07)	(12.23)	(24.88)	(32.86)
Pacific Alliance									
<b>Europe continent</b>									
Europe Union	1330	4082	326	25	3	269	63	681	214
EFTA	(9.07)	(23.26)	(15.96)	(10.87)	(6.82)	(42.49)	(6.12)	(54.31)	(50.59)
<b>African continent</b>									
COMESA	348	1920	75	8	12	0	35	82	62
	(2.37)	(10.94)	(3.67)	(3.47)	(27.27)	(0.00)	(3.39)	(6.54)	(14.65)
<b>Grand Total</b>	14662	17544	2042	230	44	633	1030	1254	423
	(100.00)	(100.00)	(100.00)	(100.00)	(100.00)	(100.00)	(100.00)	(100.00)	(100.00)

Note: Figures in parenthesis indicate percentage share to grand total

Source: Accessed on 22nd, 2020, World Trade Organization. <https://www.wto.org/>

### **c) Top 10 WTO Countries Regional Trading Blocs Wise Imposed Non-Tariff Measures**

Top 10 WTO member countries regional trading bloc wise imposed Non-tariff measures were shown in Table 3. It is evident from Table 3 that globally, NAFTA imposed the highest number of Sanitary and Phytosanitary, Technical Barriers to Trade, Anti-Dumping and Countervailing. And Special Safeguards (which accounted to be 30.05, 20.11, 28.00, 69.56 & 95.56 per cent in USA) followed by MERCOSUR trading bloc (Brazil 15.31, 12.16 & 11.93% in SPS, TBT & ADP), respectively. Whereas, highest number of Safeguards & Quantitative Restrictions were imposed by the ASEAN trading bloc such as Indonesia (26.47%) followed by Philippines (20.58%) in Safeguards, and Australia in Quantitative Restrictions (30.74%). EFTA followed by NAFTA imposed the highest number of TRQ (Norway 37.02% & Mexico 19.03%). Finally, the highest number of export subsidies were imposed by the MERCOSUR trading bloc (Venezuela 46.75%).

The study found that the NAFTA trading bloc consisted of the highest number of non-tariff measures such as Sanitary & Phytosanitary, Technical Barriers to Trade, Anti-Dumping, Countervailing & Special Safeguards. Similarly, more number of Safeguards & Quantitative Restrictions were imposed by the ASEAN trading bloc. While more number of Tariff Rate Quotas & Export Subsidies were imposed by EFTA & MERCOSUR, respectively.

### **d) Major Countries Wise Tariffs Measures**

Tariffs are duties imposed by customs departments on merchandise imports. Tariffs are useful to protect domestic good by giving price advantage and also governments will get revenue.

Table 4. indicates the tariffs and import duties imposed by major countries on agriculture and non-agriculture product groups. The results indicate that India, Japan, the USA and the European Union have imposed higher import duties on agriculture than non-agriculture product groups. On total tariffs and imports duties, India has imposed higher than Japan. Whereas the USA and the European Union imposed higher tariffs on both agriculture and non-agriculture sectors.

The results show that India imposed higher compare to Japan, the USA and the European Union on bound duties and MFN applied duties for imports of major commodities. Hence, India gave more price advantage to domestic goods over similar imported goods.

Whereas the USA and the European Union imposed higher tariffs on both agriculture and non-agriculture sectors.

**Table 3: Major Countries Regional Trading Blocs Wise Non-Tariff Measures Were Imposed by WTO Member Countries**

<b>Significant Regional Trading blocs</b>	<b>Sanitary &amp; Phytosanitary (SPS)</b>	<b>Technical Barriers to Trade (TBT)</b>	<b>Anti-dumping (ADP)</b>	<b>Countervailing (CV)</b>	<b>Safeguards (SG)</b>	<b>Special safeguards (SSG)</b>	<b>Quantitative Restrictions (QR)</b>	<b>Tarrif-rate quotas (TRQ)</b>	<b>Export Subsidies (XS)</b>
<b>Europe Union</b>									
Germany	11 (0.10)	25 (0.28)	0 (0.00)	0 (0.00)	0 (0.00)	0 (0.00)	0 (0.00)	0 (0.00)	0 (0.00)
Italy	3 (0.03)	35 (0.40)	0 (0.00)	0 (0.00)	0 (0.00)	0 (0.00)	0 (0.00)	0 (0.00)	0 (0.00)
Netherlands	68 (0.65)	614 (7.03)	0 (0.00)	0 (0.00)	0 (0.00)	0 (0.00)	0 (0.00)	0 (0.00)	0 (0.00)
United Kingdom	4 (0.03)	52 (0.59)	0 (0.00)	0 (0.00)	0 (0.00)	0 (0.00)	0 (0.00)	0 (0.00)	0 (0.00)
<b>European Free Trade Association (EFTA)</b>									
Iceland	8 (0.07)	2 (0.02)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	86 (14.87)	2 (1.29)
Norway	38 (0.36)	81 (0.93)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	2 (0.38)	0.00 (0.00)	214 (37.02)	11 (7.14)
Switzerland	82 (0.78)	311 (3.56)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	10 (1.93)	39 (6.73)	28 (4.84)	5 (3.24)
<b>North American Free Trade Agreement (NAFTA)</b>									
Canada	1289 (12.34)	731 (8.37)	91 (6.27)	28 (13.52)	1 (2.94)	0 (0.00)	48 (8.29)	21 (3.63)	11 (7.14)
USA	3137 (30.05)	1756 (20.11)	406 (28.00)	144 (69.56)	2 (5.88)	496 (95.56)	59 (10.18)	52 (8.99)	13 (8.44)
Mexico	375 (3.59)	642 (7.35)	81 (5.58)	4 (1.93)	0 (0.00)	0 (0.00)	57 (9.84)	11 (19.03)	5 (3.24)
<b>Common Market of the South, South American regional economic organization (MERCOSUR)</b>									
Brazil	1598 (15.31)	1062 (12.16)	173 (11.93)	3 (1.45)	0 (0.00)	0 (0.00)	0 (0.00)	1 (0.17)	16 (10.39)
Argentina	233 (2.23)	434 (4.97)	127 (8.75)	1 (0.48)	0 (0.00)	0 (0.00)	0 (0.00)	0 (0.00)	0 (0.00)
Venezuela	13 (0.12)	35 (0.40)	0 (0.00)	0 (0.00)	0 (0.00)	0 (0.00)	0 (0.00)	62 (10.73)	72 (46.75)
<b>Association of Southeast Asian Nations (ASEAN)</b>									
Australia	492 (4.71)	215 (2.46)	80 (5.52)	11 (5.31)	0 (0.00)	0 (0.00)	178 (30.74)	0 (0.00)	0 (0.00)
Vietnam	108	156	12	0	4	0	0	2	0

	(1.03)	(1.78)	(0.83)	(0.00)	(11.76)	(0.00)	(0.00)	(0.34)	(0.00)
Indonesia	130 (1.24)	127 (1.45)	37 (2.55)	0 (0.00)	9 (26.47)	0 (0.00)	0 (0.00)	2 (0.34)	1 (0.65)
Thailand	283 (2.71)	669 (7.66)	43 (2.96)	0 (0.00)	3 (8.82)		112 (19.34)	23 (3.98)	0 (0.00)
Philippines	449 (4.30)	284 (3.25)	2 (0.14)	0 (0.00)	7 (20.58)	11 (2.11)	21 (3.63)	14 (2.42)	0 (0.00)
<b>Common Market for Eastern and Southern Africa (COMESA)</b>									
Egypt	95 (0.91)	243 (2.78)	15 (1.03)	0 (0.00)	1 (2.94)	0 (0.00)	0 (0.00)	0 (0.00)	0 (0.00)
<b>South Asian Free Trade Area (SAFTA)</b>									
India	243 (2.32)	162 (1.85)	293 (20.20)	11 (5.31)	5 (14.70)		59 (10.19)	3 (0.52)	
Pakistan	1 (9.58)	108 (1.23)	55 (3.79)	0 (0.00)	0 (0.00)	0 (0.00)	0 (0.00)	0 (0.00)	0 (0.00)
<b>Pacific Alliance</b>									
Chile	612 (5.86)	579 (6.63)	2 (0.14)	0 (0.00)	1 (2.94)	0 (0.00)	0 (0.00)	1 (0.17)	0 (0.00)
Colombia	314 (3.01)	285 (3.26)	25 (1.72)	1 (0.48)	1 (2.94)	0 (0.00)	0 (0.00)	58 (10.03)	18 (11.68)
Peru	852 (8.16)	122 (1.39)	8 (0.55)	4 (1.93)	0 (0.00)	0 (0.00)	6 (1.03)	0 (0.00)	0 (0.00)
<b>Grand Total of Major Countries</b>	10438 (100.00)	8730 (100.00)	1450 (100.00)	207 (100.00)	34 (100.00)	519 (100.00)	579 (100.00)	578 (100.00)	154 (100.00)

Note: Figures in parenthesis indicate percentage share to grand total *Source:* World Trade Organization, 2020 <https://www.wto.org/>

**Table 4:** Agriculture and Non-Agriculture Tariffs and Imports Duties of Major Countries

Particulars	SAFTA (India)			EAEC (Japan)			EU (28 Countries)			NAFTA (USA)		
	Total	Ag	Non- Ag	Total	Ag	Non- Ag	Total	Ag	Non- Ag	Total	Ag	Non- Ag
Simple average final bound	48.50	113.50	34.50	4.50	17.40	2.50	5.00	11.90	3.90	3.40	4.80	3.20
Simple average MFN applied (2016)	13.40	32.70	10.20	4.00	13.10	2.50	5.20	11.10	4.20	3.50	5.20	3.20
Trade weighted average (2015)	7.60	38.00	5.60	2.10	11.10	1.20	3.00	7.80	2.60	2.40	3.80	2.30
Imports in billion US\$ (2015)	370.60	23.10	347.50	637.10	53.70	583.40	1721.60	122.00	1599.60	2137.80	118.50	2019.30

Source: Tariffs profile, WTO (2020), Accessed on 24th January, 2020.

Note: Ag- Agriculture, Non Ag- Non Agricultural

## 2) GLOBAL POLITICS ON WTO AND AGRICULTURE

**Table 5:** Regional Trading Blocs-wise major countries different sectors contributing Nominal GDP 2017 (in percentage and in millions of dollars)

S. No.	Significant Regional Trading blocs	Nominal GDP (in Million \$)	Agri. Share in GDP (%)	Total outlays 2017 (Central Government) (in Million \$)	Agriculture orientation index
I	World	85909815.76	6.4%		
1	<b>Europe Union</b>				
	Germany	3947620.16	0.7%	463998.5	0.12
	France	2777535.23	1.7%	601312.3	0.22
	Italy	2083864.26	2.1%	560390.8	0.27
	Netherlands	913658.46	1.6	211466.2	0.23
	United Kingdom	2855296.73	0.70	984306.2	0.34
2	<b>European Free Trade Association (EFTA)</b>				
	Iceland	25878.47	5.80	7533.25	0.29
	Norway	434166.61	2.30	159737.7	0.37
	Switzerland	705140.35	0.70		
3	<b>North American Free Trade Agreement (NAFTA)</b>				
	Canada	1713341.70	1.60	239436.3	0.14
	USA	20544343.46	0.90	2580000	0.13
	Mexico	1220699.48	3.60	218346	0.18
4	<b>Common Market of the South, South American regional economic organization (MERCOSUR)</b>				
	Brazil	1868626.09	6.6	690316.6	0.37
	Argentina	519871.52	10.8	121835.7	0.23
5	<b>Association of Southeast Asian Nations (ASEAN)</b>				
	Australia	1433904.35	3.6	361701.5	0.25
	Vietnam	245213.68	15.3		0.00
	Indonesia	1042173.30	13.7	149970.6	0.14
	Thailand	504992.76	8.20	86123.05	0.20
	Philippines	330910.34	9.60	65775.4	
6	<b>Common Market for Eastern and Southern Africa (COMESA)</b>				
	Egypt	250894.76	11.7	67883.35	0.27
7	<b>South Asian Free Trade Area (SAFTA)</b>				
	India	2718732.23	15.4*	398756.2	0.15
	Pakistan	314588.21	24.4*	52277.42	0.17
8	<b>Pacific Alliance</b>				
	Chile	298231.13	4.20	65723.06	0.22
	Colombia	331047.04	7.20		

Sources: The World Bank \_ Agri. Share % GDP

Share of different sectors - "The World Fact book - Central Intelligence Agency". Central Intelligence Agency.

Total Outlays, Agriculture Orientation Index \_ FAO STAT

\* indicated 2016 estimates

### a) Political Economy and Budget Allocation based on: The nominal GDP and agriculture orientation index of the countries

Any country's budget allocation determines the political economy of sectors. The nominal GDP of the major 23 countries along 8 most significant trading bloc wise, the total outlays of the central

governments and the agriculture orientation index were given in Table 5. FAO defined government expenditure of Agriculture Orientation Index (AOI) as the ratio of Agriculture Share of government expenditures to agriculture share of GDP. The agriculture includes agriculture, forestry, fishing and hunting sector. Agriculture Orientation Index indicates political cost and political benefits. If AOI is  $>1$  denotes that particular government higher orientation towards the agriculture sector and in turn expecting higher share, If AOI is  $<1$  indicates less orientation to agriculture and AOI is  $=1$  indicates neutrality in a government's orientation to the agriculture sector.

The results have shown that the range of AOI in the most significant regional trading blocs is 0.12 to 0.37. The study of political economy of AOI found that, globally, most of the countries (AOI  $<1$ ) which indicated that government is not giving priority to agriculture in allocating budget to agriculture.

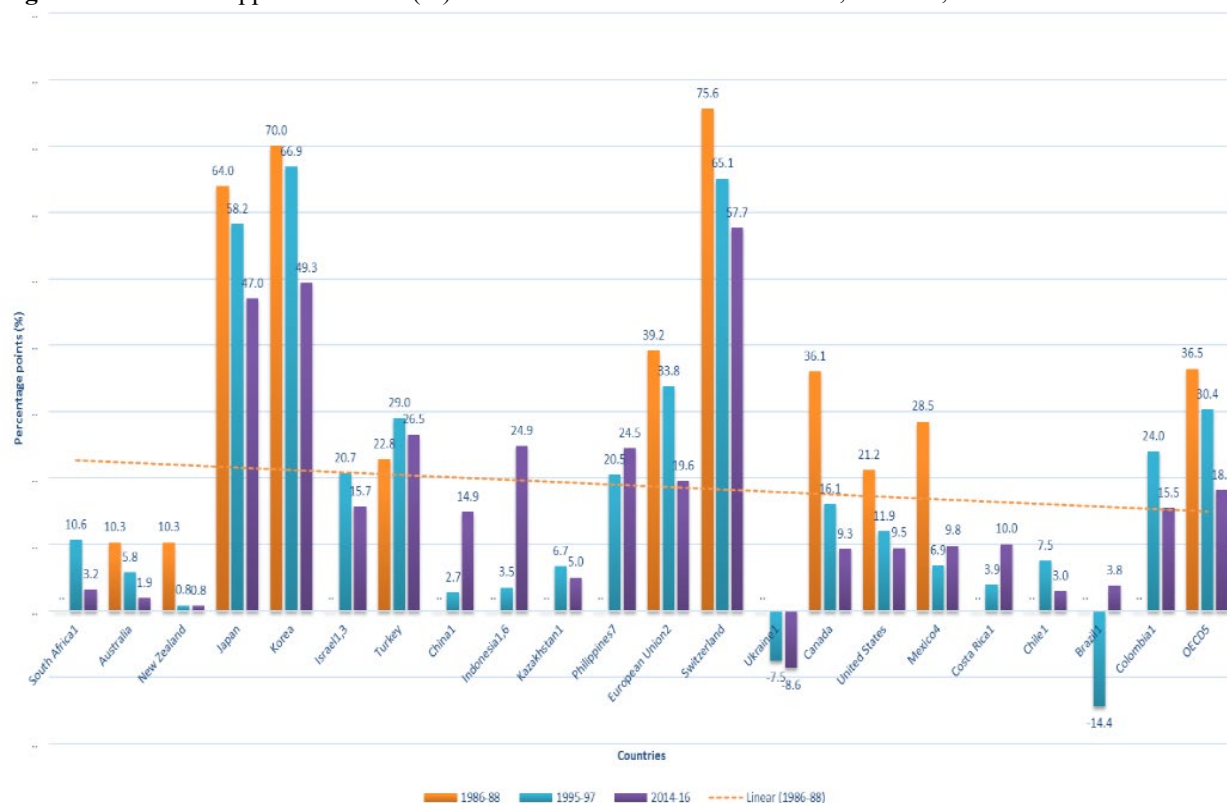
### **3) GOVERNMENT PROTECTION OF FARMERS AND CONSUMERS DURING WTO REGIME**

The producer and Consumer support estimates, their percentages, Nominal Protection Coefficients (NPC), Nominal Assistance Coefficients (NAC) of the various countries, continent-wise are estimated (given in Fig 1). The growth rates have been calculated from 1995-97 to 2014-16. South Africa being a capitalistic democracy protects neither the producer nor the consumer. However, the producer support estimates growth rate is higher than the consumer support estimates growth rate in South Africa. In case of capitalistic Australasian countries, the welfare state New Zealand under monarchy supports both the producers and the consumers with PSE growth rates of 4.34% and CSE growth rates of 6.53%. Australia being a constitutional monarchy supports the producers over the consumers with growth rates of -1.87% for PSE and -100% for CSE. Among the Asian countries Korea, China, Indonesia and Vietnam support the consumers over the producers. Whereas, Kazakhstan, Turkey, Israel and Japan supports the producers over the consumers. In the European nations, Iceland, Norway and Russia support the consumers over the producers in contrast to the Switzerland's and Ukraine's way of support. In North and South America only the large economies such as Canada, the USA and Brazil support the consumers over the producers. Basically the political economy of protecting producer and consumer depends upon their share of votes in elections and WTO favourable policies towards consumers. Capitalistic countries protect more producer compared to consumer, contrastingly, socialist or mixed economies protect more consumer because of political benefits in elections. (Consumers 100% votes).

For the period of 2014-2016, the countries such as South Africa, Australia, New Zealand, Japan, Korea, Israel, Turkey, China, Indonesia, Kazakhstan, Philippines, Vietnam, European Union, Iceland, Norway, Switzerland, Russia, Canada, the USA, Mexico, Costa Rica, Chile, Brazil, Colombia, and OECD show producer support estimates to be higher than the consumer support estimates.



**Figure 1: Producer support Estimates (%) of the World Countries for 1986-88, 1995-97,**



In general, when the governments support the producer, there is rise in inflation and the consumer is affected with price rise which in turn reflects as less economic growth at national level. On an international level, international prices of commodities fall down, trade is effected and world growth slows down. Reasons for supporting producer could be farmers lobby and votes in elections. Protection of producers beyond the specified limits is also against the WTO-AOA. When the governments support the consumer, the producer is adversely affected. However, the economic growth improves accompanied by more trade and easy market access resulting in more taxes. Also, the international trade improves and WTO AOA would be satisfied. This scenario could be observed only in the case of Ukraine for the years 1995-97 and 2014-16.

#### 4) SIGNIFICANT REGIONAL TRADING BLOCS WISE AGRICULTURAL TRADE POLICIES

The WTO Agriculture Agreement covers market access, domestic support and export competition which provides a framework for the agricultural trade reforms and domestic policies.

1. Market access: Uses the restrictions in trade such as tariffs on imports.
2. Domestic Support: The use of subsidies and other support programmes that directly stimulate production and distort trade.
3. Export competition: The use of export subsidies and other government support programmes that subsidize exports.

4. Regional and Preferential Agreements: The terms under which trade takes place within the regional trade agreements is important to the development of agriculture and the future of the food system. Regional integration may be a useful strategy for improving regional security, managing immigration flows or locking in domestic reforms.

**Table 6:** Significant Regional Trading Blocs Wise Agricultural Trade Policies:

S. No.	Significant Regional Trading blocs	Agricultural Trade Policies
1	NAFTA	NAFTA abolished all agricultural import tariffs and quotas. Residual tariffs on delicate products, such as U.S. imports of rice, wheat and horticultural crops were approved phase-out periods of 5 to 15 years.
2	EU	Cutting customs duties on goods and eliminating bureaucracy for making it easier to the European companies export.
3	ASEAN	ASEAN have removed almost all export and import duties on commodities traded between them.
4	MERCOSUR	MERCOSUR decided to eradicate customs duties and implement a common external tariff of 35% on specific imports from outside the bloc, and approve a common trade policy toward outside countries and blocs.
5	EFTA	EFTA states organized bilateral trading arrangements dealt with primarily agricultural goods and also with processed agricultural commodities such as sauces, soups, chocolate, jams bakers' wares jointly as a group. These regions do not have common agricultural policy like NAFTA& EU.
6	COMESA	COMESA plans to be a solitary in the area of trade and investment in which non-tariff barriers, tariffs and other barriers for the movement of capital, goods and services, people will be eliminated, while trade in goods and services from the region will have attained competition in global market by 2025.
7	Pacific Alliance	Pacific Alliance eliminated 92% of tariffs on goods traded between members.
8	SAFTA	SAFTA provides for a phased tariff liberalization programme under which Non Least Developed Countries would bring down tariffs to 20%, while Least Developed Countries will bring them down to 30% in the two years.

Source: Authors Estimate

Trade policy refers to the agreements and regulations which control exports and imports to foreign countries. Significant Regional Trading Blocs Wise Agricultural Trade Policies were presented in Table 6. NAFTA eliminated import tariffs and quotas in agricultural commodities. Residual tariffs on imports of cereals such as rice and wheat imports and also horticultural crops in United States were permitted phase out periods of 5 to 15 years. European Union cut their custom duties and bureaucracy to make exports easier in the European Companies. ASEAN abolished all trade duties on commodities traded between them. MERCOSUR eradicated custom duties and implemented a common external tariff 35% on certain imports from outside the bloc. EFTA organized bilateral trading arrangements to deal with agricultural and agriculturally processed products. COMESA designed to be alone in the area of trade and investment in which non-tariff barriers, tariffs and other barriers for the movement of capital, goods and services, people will be eliminated, while trade in goods and services from the region will have attained competition in global market by 2025. Pacific Alliance removed 92% of tariffs on goods traded between members. SAFTA provides for a phased tariff liberalization programme under which Non Least Developed Countries would bring down tariffs to 20%, while Least Developed Countries will bring them down to 30% in the two years.

## IV) CONCLUSIONS

The WTO called the farming agreement "historic". For Global researcher's topical issues in which they can much contribute is WTO and Its Agreements distortions on agricultural policies. The present status of agricultural supports, measures are critical issues are key inputs for debate on trade policy and they are very essential. The study is quantitative frame work of the geopolitical effects of WTO measures on global agriculture.

The study found that the ASEAN trading blocs were more supported in agriculture followed by SAFTA from the Total Support Estimates whereas reverse trend has been noticed in Producer Support Estimate i.e., SAFTA trading blocs were more supported in agriculture followed by ASEAN. The agricultural supports provided to trading blocs in developing countries were higher than the developed countries. Agriculture domestic support has shown negative growth rate in some of the developed countries regional trading blocs. The study found that the NAFTA trading bloc consisted of the highest number of non-tariff measures such as Sanitary & Phytosanitary, Technical Barriers to Trade, Anti- Dumping, Countervailing & Special Safeguards. Similarly, more number of Safeguards & Quantitative Restrictions were imposed by the ASEAN trading bloc. While more number of Tariff Rate Quotas & Export Subsidies were imposed by EFTA & MERCOSUR, respectively. The results showed that India imposed higher compare to Japan, the USA and the European Union on bound duties and MFN applied duties for imports of major commodities. Hence, India gave more price advantage to domestic goods over similar imported goods. Whereas the USA and the European Union imposed higher tariffs on both agriculture and non-agriculture sectors. The results have shown that the range of AOI is 0.12 to 0.37. The study of political economy of AOI found that, globally, most of the countries ( $AOI < 1$ ) which indicated that government is not giving priority to agriculture in allocating budget to agriculture except for South Korea and Switzerland. When the government supports the producer, there is rise in inflation and the consumer is affected with price rise which in turn reflects as less economic growth at national level. On an international level, international prices of commodities fall down, trade is effected and world growth slows down. When the governments support the consumer, the producer is adversely affected. However, the economic growth improves accompanied by more trade and easy market access resulting in more taxes.

### Suggestions

Developed countries are less supporting to agriculture sector when compared to developing countries. In future years, there may be a chance in reduction of production in turn less economic growth and development in developed countries because industrial sector depends upon the agricultural sector for raw materials. The COMESA trading bloc belongs to African continent has imposed less number of non-tariff measures. Hence, it is indispensable to increase the number of non-tariff measures in COMESA trading bloc to protect its agriculture by regulating international trade. There is a rise in inflation or deflation when government supports the producers or consumers respectively. Thus, producers and consumers should be protected in a balanced way. The political economy revealed that almost all countries are not at all giving priority in allocating budget to agriculture. Consequently, government should make the policies in such a way that agricultural orientation index must be more than unity by increasing the total outlays of individual countries in the world.

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# The Tradeoffs of Membership in Multilateral Regulatory Regimes: Open Access to a Common Market versus Regionalized Regulation

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*We show that multilateral environmental regulations may affect trade flows differently than unilaterally generated regulations. Using the gravity equation, we test the effect on bilateral trade flows of increases in environmental regulation stringency ratings, taken from survey data, with a panel of 56 countries, controlling for European Union membership and income levels. We find significant differences in the effects on EU members' exports and non-EU members' exports' as well as across income levels of countries. An increase in environmental regulation stringency leads to a dramatic decrease in exports from low income, EU-members; conversely, a similar change in environmental regulation does not appear to statistically affect the exports of high income, EU-member countries. The results are consistent with our model of the uneven competitiveness effect and the uneven burden of compliance.*

*KEYWORDS International trade; gravity equation; regional regulations; environmental regulations; European Union regulations; environment and trade*

*JEL F18, L51, Q56*

## 1. INTRODUCTION

When markets fail to address some problem perceived by the populace, a government may decide to intervene by imposing regulations within its jurisdiction. The textbook treatment of fiscal federalism prescribes that regulations should be promulgated by the lowest level of government with full jurisdiction over the problem (Hindriks and Myles 2013). Hence, when common problems spill over national borders, groups of countries may agree to impose regulations upon

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themselves. Multilateral regulations range from military policy (eg nuclear proliferation) to trade policy (eg GATT/WTO limitations on tariffs) to environmental policy (eg Paris Climate Agreement). The linkages between trade and the environment (eg the Environmental Kuznets Curve versus race-to-the-bottom hypotheses) yield interesting interactions between these policies worth further study. Regional environmental regulation has occurred inside common markets, such as the National Emissions Ceiling (NEC) directive that was designed to address regional air pollution concerns in the European Union (EU), and other economic integration agreements (EIAs), such as the North American Agreement on Environmental Cooperation treaty that was designed to accompany the North American Free Trade Agreement (NAFTA).<sup>2</sup> Despite the logic behind multilateral regulations and the reduced barriers to trade that typically accompany them, however, some prominent multilateral economic integration agreements (e.g., NAFTA and the EU) have recently encountered a strong member backlash.

A newly formed common market should theoretically result in production relocating to the jurisdictions with the cheapest labor costs, boosting the exports of poorer countries with lower wages and dampening exports of richer countries with higher wages. However, assuming that the richer countries already have higher environmental regulations—which would be consistent with the Environmental Kuznets Curves described in Grossman and Krueger (1995) and Yandle et al (2002)—those countries can raise production costs in the poorer countries by pushing for common environmental regulations that meet their higher standards. In addition to this consequence of multilateral environmental regulations stemming the tide of production flowing towards poorer countries, common environmental regulations also have the unintended consequences of incentivizing migration of cheap labor from poorer countries to richer countries (because the policy discourages the jobs from coming to them). At the confluence of intensified migration with lost sovereignty to multilateral institutions, we are now observing an uptick in fractious backlashes against globalization, as exemplified in the Brexit vote. Thus, these consequences are worthy of further study.

In this article, we explore how the consequences of increasing environmental regulation stringency differ for richer and poorer EU member states. Likewise, we also explore how changes in EU environmental regulations may also affect EU members' exports differently than non-EU members. We model the possibility that high income members of a trade bloc may benefit from environmental regulations imposed on the entire group as a protectionist measure (ie as a means of deterring industry from relocating to the lower income countries to take advantage of the lower production costs offered there and of simultaneously increasing sales of exports of domestic producers). We demonstrate empirically that the more stringent environmental regulations in the EU may indeed have benefited richer member states at the expense of poorer member states.

Our empirical analysis exploits survey data from the World Economic Forum in which business executives rate environmental regulation stringency in various countries. Using these data in a gravity equation context, we test the effect of an increase in environmental regulation

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<sup>2</sup> The EU has passed, beginning in 1980, a series of specific directives with stated limits on, for example, sulfur dioxide concentrations in ambient air. After a couple of decades of evolution, these regulations became the NEC. The North American Agreement on Environmental Cooperation does not create new environmental standards or limits on pollutions. Rather, it is designed to encourage enforcement of existing environmental standards within NAFTA member countries.

stringency on bilateral trade flows across countries and income categories. We control for whether an increase in environmental regulation stringency occurred within an EU member country as well as for membership in other EIAs, allowing estimation of the effects of environmental regulation inside and outside the EU.

Our empirical analysis approaches this question from two angles. In both cases, the hypothesis tested is that relatively rich members of the European Union will see somewhere between no effect and a mildly positive effect from increases in environmental regulation stringency while the relatively poor members of the European Union will see a negative effect from increases in environmental regulation stringency. In one specification, we treat a country's per-capita GDP as a continuous variable and estimate a level at which the effect of environmental regulation stringency switches from positive to negative. We find that this estimated level is within the lower range of the support of per-capita GDPs of EU member-states. For the other specification, we split the sample of countries between "rich" and "poor" members of the EU based on per-capita GDPs. We find, using this specification, that the effect of increased environmental regulation stringency for EU member-states is zero to mildly positive for rich member-states and negative for poor member-states. We find strong empirical support for our model.

There are important implications of our results for current policy debates surrounding global environmental policymaking. For example, the Paris Climate Agreement of 2016, in which signatories pledged to take substantial steps to reduce greenhouse-gas emissions, gave those signatories a considerable degree of flexibility in pursuing their targeted reductions.<sup>3</sup> Our analysis supports this general approach. An approach that imposes the same regulations on multiple countries at varying levels of economic development may have uneven effects on those countries – typically benefitting the richer countries at the expense of poorer countries. Thus, the acceptability of Paris Climate Agreement to poorer countries rests on the opportunity presented by Clean Development Mechanism to transfer resources from richer countries to poorer countries in order to cover their expenses of lowering global emissions at their relatively low marginal abatement cost.

## 2. BACKGROUND

Many economists have investigated the relation between international trade flows and environmental regulations. Some research on this subject has tested whether a country can increase its ability to export by reducing the stringency of environmental regulations and therefore lowering the costs of production for exporters (Ederington and Minier, 2003; Levinson and Taylor, 2004; Ederington et al., 2005). Also, the pollution haven hypothesis (PHH) states that "dirty" industries will relocate to those countries that lower their environmental standards, further increasing those countries' exports (Mani and Wheeler, 1999; Levinson and Taylor, 2004). The combination of lowered costs for domestic exporters and the relocation of dirty industries from countries with stringent environmental regulations to pollution havens theoretically leads to predictions of increased exports when a country lowers its environmental regulation stringency. Empirically, however, the effects of changes in environmental regulation stringency have not been clear. Those

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<sup>3</sup> See <https://unfccc.int/process-and-meetings/the-paris-agreement/the-paris-agreement> for details.



studies that have found support for the PHH have generally been limited to studies of the United States and some of its trade partners or studies of only European countries.

For over forty years, international trade economists have empirically tested the effects of changes in determinants of trade patterns by using the gravity equation, explained further in Section 5 of this paper. Until recently, most gravity equation estimates had not found empirical evidence to support that a decrease in environmental regulation stringency leads to an increase in exports (Harris et al., 2002). Furthermore, early gravity equation estimates of the effect of environmental regulations on trade flows rely on proxies for environmental regulation stringency that likely introduced an endogeneity problem (Jug and Mirza, 2005). In Appendix A, we explicitly show how environmental outcome variables introduce endogeneity into gravity equation and then generates a biases in the estimates of the effects of environmental regulation stringency on trade flows. In addition, we introduce a new proxy for environmental regulation stringency – survey data – and show that it might not introduce endogeneity in Appendix B.

More recent studies that appropriately accounted for unobservable country characteristics that could affect both the choice of environmental regulation stringency and the level of economic activity has found statistically significant, positive effect of lowering environmental regulation stringency on exports (Jug and Mirza, 2005). Ederington and Minier (2003) report (non-gravity-type) instrumental variables estimations of the effect of stringent environmental regulations on imports into the United States and obtain results indicating that stringent environmental regulations inside a domestic industry lead to statistically and economically significant increases in imports. Both studies' results point to a significantly greater effect of environmental regulation stringency on trade flows when environmental policy is modeled as endogenous.

We add to this growing literature in a few key ways. The first is by using a proxy for environmental regulation stringency – survey data from the World Economic Forum – that is less likely to introduce endogeneity. Using this proxy also allows us to include many more non-European and low income countries in our dataset than most previous studies. The second is by controlling for the possible interaction between European Union membership and environmental regulations. Regulations imposed by the EU on the entire group might have different effects than unilaterally generated regulations. Finally, we estimate the effects of changes in environmental regulation stringency on trade flows for countries of different income levels (using per-capita GDP as both a continuous and a discrete variable), because the effects may drastically differ for high income countries and low income countries.

## **2.1 Unilateral versus Regional Environmental Regulations**

When an increase in environmental regulation stringency occurs unilaterally due to changes within the country (e.g. pressure from constituents for a cleaner environment), the effect on exports from that country to other countries could be positive or negative. Technology spillovers, other countries' taste for "green" goods, establishment and protection of property rights, and signaling of governmental stability could all contribute to a positive effect on exports from a country due to a unilateral increase in environmental regulations in the low income country. Porter and Van der Linde (1995) argue that stringent environmental regulations can benefit a country not only through improved environmental quality but also through the development of comparative advantages in highly-regulated industries.

Conversely, the increased cost of production due to the increase in regulations could contribute to a negative effect on exports because of the resultant higher price of domestically produced goods relative to foreign goods. This could be exacerbated if some “dirty” industries choose to relocate because of the increased cost of production. The net effect of a unilateral increase in environmental regulation stringency therefore seems to be an empirical question.

When an increase in environmental regulation stringency occurs due to changes beyond an individual country’s control (e.g. the European Union imposes environmental standards on all members), it is possible that any possible positive effect on exports from that country due to the change would be diminished while the negative effect would be simultaneously magnified. Any positive effect resulting from establishment and protection of property rights and signaling of governmental stability might disappear because the regulations are not self-imposed; externally generated regulations do not necessarily signal stability or protection of property rights. The cost of production might increase even more than in the case of self-imposed regulations if generalized environmental standards applied across a group of countries ignore differences in individual country characteristics, such as variance in the sulfur content of coal and oil across countries; these characteristics are less likely to be ignored by policymakers in each individual country, and the lowest-cost type of regulation (that achieves the same outcome standard) could be chosen on a tailored basis in the case of a unilateral environmental regulation increase (Oates and Schwab, 1996).

One largely unexplored area in the empirical international trade literature is the interaction of economic integration agreements (EIAs), such as the European Union and NAFTA, and environmental regulations. We show, both in a model and empirically, the (possibly unintended) consequences of regional environmental regulations that could differ across income levels of countries. Low income countries in an EIA could be more adversely affected by an increase in production costs caused by environmental regulations than high income countries for two possible reasons. The first we term the uneven competitiveness effect, and it is a reframing of the Alchian-Allen hypothesis (Alchian and Allen, 1964). The second reason we term the uneven burden of compliance: because high income countries are more likely than low income countries to have relatively stringent environmental regulations in place prior to the creation of regional environmental regulations, the cost of compliance with a given regional environmental regulation might be lower for high income countries than for low income countries. The remainder of section 2 briefly explains these two effects.

## **2.2 Uneven Competitiveness Effect**

The Alchian-Allen hypothesis is that the presence of a per unit transport cost lowers the relative price of high quality goods compared to low quality goods. For example, transportation costs cause firms to export high quality apples while keeping low quality apples for domestic consumption, a phenomenon that Alchian and Allen refer to as “shipping the good apples out.” We reframe the Alchian-Allen hypothesis to examine an increase in production cost due to an increase in environmental regulation stringency. This is explained briefly here and shown more explicitly in a model in Section 3.

If production costs in all countries in a region increase by some constant  $k$  as a result of regional environmental regulations, the percent increase in price will be higher for countries that

produce low priced goods than countries that produce high priced goods. If there are other producers outside the region whose costs are not increased by  $k$ , then the impact on each country's competitiveness (relative to the rest of the world) caused by the increase in price falls more heavily on the low income countries inside the group than the high income countries.<sup>4</sup> In other words, there is an uneven effect on country competitiveness across income groups.

### 2.3 Uneven Burden of Compliance

The second reason that low income countries could be more adversely affected than high income countries due to an increase in regional environmental regulation stringency is that the costs of compliance with the regulation may not be equally distributed among all countries. High income countries typically have more stringent environmental regulations in place than low income countries prior to the passage of any regional environmental regulations.<sup>5</sup> Compliance with regional environmental regulations would be less costly in those high income countries than in low income countries, if all countries have to meet some constant standard of compliance. Thus, the increase in production costs would be higher in low income countries than in high income countries: the uneven burden of compliance. This effect may be even greater if "dirty" industries are already disproportionately concentrated in poorer countries. The uneven burden of compliance is modeled in Section 3.

## 3. MODEL

### 3.1 Consumption

Each of  $N$  different countries produces a single product, whose exogenous quality is differentiated from the products of other countries.<sup>6</sup> The representative consumer in country  $j$  maximizes his CES (Constant Elasticity of Substitution) utility function:

$$U_j(x) = \left[ \sum_{i=1}^N \mu_i x_{ij}^\rho \right]^{\frac{1}{\rho}} \quad (1)$$

subject to a budget constraint:

$$M_j \geq \sum_{i=1}^N p_{ij} x_{ij} \quad (2)$$

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<sup>4</sup> We employ the term, "competitiveness," to mean a country's ability to export goods – an increase in price of a country's goods, due to an increase in production costs, means that the country cannot export as many goods because of substitution and income effects on the parts of foreign consumers.

<sup>5</sup> As evidence that high income countries typically have more stringent environmental regulations than low income countries, note that the mean rating of the environmental regulation stringency of the high income countries in the World Economic Forum's Global Competitiveness Report for years 2000 – 2005 is 5.77 on a scale of 1 to 7 where 7 is "very stringent" and 1 is "very lax", while that of low income countries over the same period is 3.46.

<sup>6</sup> Instead of a single product, it could be that each country produces a variety of products. This variety could even be endogenized, following Dixit-Stiglitz, but that complication seems unnecessary here.

where  $M_j$  is country  $j$ 's income (real GDP),  $p_{ij}$  is the price of country  $i$ 's good when it is sold in country  $j$ ,  $x_{ij}$  is the quantity of good produced in country  $i$  that gets consumed in country  $j$ ,  $\mu_i$  is the quality of country  $i$ 's good, and  $\rho$  ( $0 < \rho < 1$ ) is a preference parameter capturing the substitutability between goods: as  $\rho$  approaches 1, the goods are nearly perfect substitutes, and as  $\rho$  approaches 0, the goods are more complimentary. The first order condition of this constrained optimization's Lagrangian is given by:

$$\left[ \sum_{i=1}^N \mu_i x_{ij}^\rho \right]^{\frac{1}{\rho}-1} \mu_i x_{ij}^{\rho-1} = \lambda p_{ij} \quad (3)$$

Without loss of generality, we can divide the FOC for good  $i$  by that of good 1:

$$\left( \frac{x_{ij}}{x_{1j}} \right)^{\rho-1} = \left( \frac{p_{ij} / \mu_i}{p_{1j} / \mu_1} \right) \quad (4)$$

Solving for  $x_{ij}$ :

$$x_{ij} = \left( \frac{p_{ij} / \mu_i}{p_{1j} / \mu_1} \right)^{\frac{1}{\rho-1}} x_{1j} \quad (5)$$

Let  $\sigma$  denote the elasticity of substitution, i.e.  $\sigma = 1 / (1 - \rho)$  and  $1 < \sigma < \infty$ :

$$x_{ij} = \left( \frac{p_{ij} / \mu_i}{p_{1j} / \mu_1} \right)^{-\sigma} x_{1j} \quad (6)$$

Multiplying both sides by  $p_{ij}$  and summing over  $i$  to produce country  $j$ 's income on the LHS, we find:

$$\sum_{i=1}^N p_{ij} x_{ij} = M_j = \left( \frac{p_{1j}}{\mu_1} \right)^\sigma x_{1j} \sum_{i=1}^N \mu_i^\sigma p_{ij}^{1-\sigma} \quad (7)$$

This equation can easily be solved for each  $x_{ij}$ , yielding:

$$x_{ij} = \frac{\mu_i^\sigma p_{ij}^{-\sigma}}{\sum_{i=1}^N \mu_i^\sigma p_{ij}^{1-\sigma}} M_j \quad (8)$$

The denominator of this demand is a quality-adjusted price index for country  $j$ , which we will refer to as  $I_j$ . This Marshallian Demand immediately implies the total expenditure of those in country  $j$  on the goods from country  $i$  is given by:

$$p_{ij}x_{ij} = \frac{\mu_i^\sigma p_{ij}^{1-\sigma}}{I_j} M_j \quad (9)$$

Because of transport costs and tariffs, the price of an imported good is more expensive than the same good in its home country. We model this accordingly:

$$p_{ij} = p_i D_{ij}^\delta e^{-\psi 1\{EIA\}} \quad (10)$$

where  $p_i$  is the price of the good in its home country,  $D_{ij}$  is the distance between country  $i$  and country  $j$ ,  $\psi$  is the effect of an EIA on the logged price of the good produced in country  $i$  but sold in country  $j$ , and  $1\{EIA\}$  equals 1 iff  $i$  and  $j$  are members of an EIA. We assume that a good's quality is increasing in the GDP of the country where it is produced:

$$\mu_i = \kappa M_i^\alpha \quad (11)$$

Substituting these two expressions into the expenditure shares produces the gravity equation, where  $\kappa$  and  $\alpha$  are simply parameters:<sup>7</sup>

$$p_{ij}x_{ij} = \frac{\kappa^\sigma}{I_j} \left[ \frac{M_i^{\alpha\sigma} M_j}{D_{ij}^{\delta(\sigma-1)}} \right] e^{(\sigma-1)\psi 1\{EIA\}} \quad (12)$$

### 3.2 Production

The representative producer in each country is a monopolistically competitive firm with a constant marginal cost that varies across countries,  $c_i$ . We assume  $c_i$  is increasing in  $\mu$ . The producer's objective is to maximize profits:

$$\pi_i = (p_i - c_i) \sum_{j=1}^N x_{ij} = (p_i - c_i) \sum_{j=1}^N \frac{\mu_i^\sigma p_{ij}^{-\sigma}}{I} M_j \quad (13)$$

We assume that the country is a price index taker. The FOC governs the country's optimal pricing policy:

$$\sum_{j=1}^N (1 - \sigma) x_{ij} - \sum_{j=1}^N (-\sigma) c_i \frac{x_{ij}}{p_i} = 0 \quad (14)$$

Making the optimal price a simple mark-up over marginal cost:

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<sup>7</sup> By allowing these parameters to vary depending on whether we are considering trade between rich and poor countries or rich to rich, this model becomes more flexible and implicitly makes these parameters a function of what determines rich and poor.

$$p_i = \left( \frac{\sigma}{\sigma - 1} \right) c_i \quad (15)$$

This yields a simple expression for the country's income:

$$M_i = \pi_i = \frac{c_i}{\sigma - 1} \sum_{j=1}^N x_{ij} \quad (16)$$

### 3.3 Effects of Environmental Regulatory Compliance

We investigate the possible effects of changes in environmental regulation stringency by examining comparative statics in a partial equilibrium – one without income effects – and then discuss the potential role of those income effects.

We model environmental regulation as an exogenous change that benefits the representative consumer's utility at the expense of higher marginal cost in production. The benefits are assumed to be accrued in a linearly separable portion of the utility function, which implies that only the costs (and not the benefits) alter the behavior of agents in our existing model.

Substituting (15) into (4), we reach a reduced form Marginal Rate of Substitution (MRS) for consumers in country  $j$  considering imports from country  $i$  and country  $k$ . To examine the substitution effect of environmental regulations, consider the reduced MRS both before and after an increase in environmental regulation stringency ( $t=0$  and  $t=1$ , respectively):

$$\left( \frac{x_{ij}^t}{x_{kj}^t} \right)^{\rho-1} = \frac{(c_i + tr_i) / \mu_i}{(c_k + tr_k) / \mu_k} \quad (17)$$

where  $r$  is the increase in marginal cost due to regulation,  $t$  is both a superscript and dummy variable indicating pre- and post-regulation periods, and two different countries selling goods in country  $j$  are indexed by  $i$  and  $k$ . We compare the pre- and post-regulation MRS to find the condition under which the MRS has decreased as a result of the environmental regulations:

$$\frac{c_i / \mu_i}{c_k / \mu_k} > \frac{(c_i + r_i) / \mu_i}{(c_k + r_k) / \mu_k} \quad (18)$$

Performing some basic algebra yields:

$$c_i r_k > c_k r_i \quad (19)$$

which holds when  $c_i > c_k$  and  $r_k \geq r_i$ . When the marginal cost of production is higher in country  $i$  than in country  $k$ , or when the cost of compliance is greater in country  $k$  than in country  $i$ , the effect of an increase in regional environmental regulation stringency is to decrease the MRS. The aforementioned Alchian-Allen hypothesis is a special case of this condition, where the costs of compliance are equal for both countries:  $r_k = r_i$ .

There is good reason to suspect that this condition holds for the EU. High income member nations typically produce more expensive (and higher quality) products than low income member nations and most nations seeking to join (e.g., financial services produced in London versus textiles in Turkey, a candidate state during much of the time period studied). Likewise, the high income member nations on average have stricter environmental regulations than low income member nations and most nations seeking to join. Consequentially, we would expect that regulatory cost of low income members or candidate members would be greater than high income member nations. If this condition does indeed hold, then:

$$\left(\frac{x_{kj}^0}{x_{ij}^0}\right)^{1-\rho} > \left(\frac{x_{kj}^1}{x_{ij}^1}\right)^{1-\rho} \quad (20)$$

Hence, *ex post* exports from country *k* to country *j* are smaller than *ex ante*, relative to the exports of country *i*. The partial equilibrium effect of the regulation is to cause consumers to substitute away from less costly goods to more expensive goods because the costs of the regulation somewhat equilibrates the marginal costs of those goods.

The partial equilibrium results indicate that richer countries grab a larger market share when environmental regulations are increased. However, this can be (somewhat) counteracted by a general equilibrium effect: the size of the overall market is decreased by the income effect of the environmental regulation. In contrast, expanding an EIA lowers tariffs, producing a wealth effect in the opposite direction. Hence, if an increase in environmental regulations is accompanied by a sufficient expansion in EIAs, then the market can grow and rich countries can increase their market share. Thus, the presumed exogeneity of environmental regulations is drawn into question because the unintended consequences of that regulation may disproportionately benefit particular agents.

#### 4. DATA

The main independent variable in our analysis is the “Stringency of Environmental Regulation” variable. This variable is collected by the World Economic Forum (WEF) and asks the question, “How stringent is your country’s environmental regulation? (1 = lax compared with most countries, 7 = among the world’s most stringent”. (See World Economic Forum 2009, Table 2.01, p. 400) The data come from the WEF’s Executive Opinion Survey of thousands of business leaders operating internationally. As argued above, we believe that this survey measure eliminates some of the endogeneity concerns that we may have with purely policy-based measures. We collected this measure for a broad panel of countries from 2001-2009. The list of countries and number of years for which we have data for each can be found in Table 1.

The main dependent variable in our analysis is the bilateral export flows between countries over the same time period. These data come from the International Monetary Fund (IMF) Direction of Trade Statistics Database.

**Table 1:** Rich and Poor Countries in Dataset

Rich Countries				Poor Countries			
Country	Years	Country	Years	Country	Years	Country	Years
ARG	2	NZL	9	AGO	5	MDA	5
AUS	9	OMN	3	ALB	5	MDG	7
<i>AUT</i>	<i>9</i>	<i>POL</i>	<i>8</i>	ARG	7	MEX	5
<i>BGR</i>	<i>2</i>	<i>PRT</i>	<i>9</i>	ARM	5	MKD	7
BHR	6	QAT	5	AZE	5	MLI	7
BRN	2	RUS	5	BDI	5	MNG	5
CAN	9	SAU	3	BEN	5	MOZ	7
CHE	9	SGP	9	BFA	4	MRT	4
CHL	4	<i>SVK</i>	<i>9</i>	BGD	9	MUS	6
<i>CYP</i>	<i>6</i>	<i>SVN</i>	<i>9</i>	<i>BGR</i>	<i>7</i>	MWI	6
<i>CZE</i>	<i>9</i>	<i>SWE</i>	<i>9</i>	BIH	5	MYS	3
<i>DEU</i>	<i>9</i>	TTO	7	BOL	9	NGA	9
<i>DNK</i>	<i>9</i>	TUR	3	BRA	9	NPL	5
<i>ESP</i>	<i>9</i>	USA	9	CHL	5	PAK	7
<i>EST</i>	<i>8</i>			CHN	9	PAN	9
<i>FIN</i>	<i>9</i>			CIV	2	PER	9
<i>FRA</i>	<i>9</i>			CMR	5	PHL	9
<i>GBR</i>	<i>9</i>			COL	9	<i>POL</i>	<i>1</i>
<i>GRC</i>	<i>7</i>			CRI	9	PRY	9
HKG	9			DOM	9	RUS	4
HRV	8			ECU	8	RWA	1
<i>HUN</i>	<i>9</i>			EGY	8	SEN	4
<i>IRL</i>	<i>9</i>			<i>EST</i>	<i>1</i>	SLV	9
IRN	1			ETH	7	SUR	3
ISL	9			GEO	6	SYR	3
ISR	9			GHA	2	TCD	6
<i>ITA</i>	<i>9</i>			GMB	7	THA	9
JPN	9			GTM	9	TJK	5
KAZ	3			HND	9	TTO	2
KOR	9			IDN	9	TUN	8
KWT	5			IND	9	TUR	6
LBN	1			JAM	9	TZA	7
<i>LTU</i>	<i>7</i>			JOR	9	UGA	7
<i>LUX</i>	<i>7</i>			KAZ	2	UKR	9
<i>LVA</i>	<i>5</i>			KEN	7	URY	9
MEX	4			KGZ	5	UZB	1
<i>MLT</i>	<i>7</i>			KHM	5	VEN	9
MUS	3			LKA	9	VNM	9
MYS	6			<i>LTU</i>	<i>2</i>	ZAF	9
<i>NLD</i>	<i>9</i>			<i>LVA</i>	<i>4</i>	ZMB	7
NOR	9			MAR	8	ZWE	9

EU Countries in *Bold Italics*

GDP data used in the regressions were extracted from the Penn World Table version 8.1 (Feenstra, Inklaar, and Timmer, 2013). Bilateral “gravity-type” variables used in some of the regressions, such as physical distance, common language, common border, and landlocked status, come from the World Bank’s “Trade, Production and Protection, 1976-2004” database (Nicita and Olarreaga, 2006). Economic integration agreements data come from Jeffrey Bergstrand’s webpage (Bergstrand, 2015).

Finally, we assembled EU membership data using widely available resources. We classify a country as an EU member throughout the entire time period of the sample (2001-2009) even if it joined midway through the sample period – as several East Central European nations did in 2004. We take this step because all prospective members were already charged with harmonizing their regulatory climate to EU standards by the beginning of the sample period as a condition of their membership candidacy.



Summary statistics for the variables above can be found in Table 2.

**Table 2:** Summary Statistics

Variable	Description	Obs	Mean	Std. Dev.	Min	Max
lrxp	Log of Real Exports	78,422	16.25	3.81	-14.15	26.59
lrgdp_exp	Log of Real GDP, Exporting Country	91,781	11.67	1.78	6.45	16.39
lrgdp_imp	Log of Real GDP, Importing Country	91,781	11.66	1.76	7.55	16.40
envregs_exp	Environmental Regulation Index, Exporting Country	91,781	4.11	1.15	1.60	6.80
envregs_imp	Environmental Regulation Index, Importing Country	91,781	4.11	1.15	1.60	6.80
EU_X_envregs_exp	Interaction Term, Exporting Country	91,781	1.24	2.24	0.00	6.80
EU_X_envregs_imp	Interaction Term, Importing Country	91,781	1.20	2.22	0.00	6.80
all other EIAs	Dummy Variable for All Other EIAs	91,781	0.28	0.45	0.00	1.00

## 5. Regression Specifications

### 5.1 Regression Models Used in Gravity-Type Regressions

All regression specifications found below use the “Gravity Model” first developed by Tinbergen (1962) and further elaborated by Anderson and Van Wincoop (2003) as a baseline. This equation found that the bilateral trade volume between two countries can be largely predicted by the product of the two countries’ GDPs divided by the distance between them. All three variables have good explanatory power, are plausibly exogenous, and can be nicely transformed into a log-linear specification.

In addition to being a traditional “workhorse” model for trade studies for decades, the gravity model and the econometrics of gravity-type trade equations, such as the one found above, is a topic that has received a lot of attention in recent years from international trade scholars. A good summary of these issues can be found in Head and Mayer (2014). When using annual bilateral country pair trade data, approximately 20%-25% of the observations will be zeros. When log-linearizing a gravity equation for an OLS estimation, these observations will have to be dropped from the sample in a way that is non-random. Head and Mayer (2014) discuss the different ways of solving this problem and conclude that none will necessarily work under all assumptions. Instead, they suggest using several different regression specifications and testing the robustness of the results across specifications.

To this end, we use three different regression specifications. The first is a simple OLS regression with bilateral country pair fixed-effects where all of the zero observations are dropped from the sample. While this approach is straightforward, the obvious drawback is that observations will be dropped from the sample in a non-random fashion, thereby adding a potential sample selection bias to the estimate.

Santos Silva and Tenreyo (2006) argue that a Poisson pseudo-maximum likelihood (PML) estimator can handle the zero observations issue, and apply it to the gravity equation setting. The Poisson PML estimator (with bilateral country pair fixed-effects)<sup>8</sup> thus forms the basis of our second set of regressions.

<sup>8</sup> More precisely, we used the *xtpoisson, fe* command in Stata, specifying the bilateral country pairs as the cross-sectional variable.

However, Head and Mayer (2014) noted that the Poisson PML estimator may “overweight” large observations and may not be robust to certain types of heteroscedasticity. As a result, they argue that a Gamma PML estimator, while preserving some of the good properties of the Poisson estimator, such as handling the zeroes problem, may perform better under certain assumptions about heteroscedasticity.

Therefore, the third specification that we use in our analysis is the Gamma PML estimator. A practical difficulty that we run into is that there is not a direct Stata command for handling the Gamma estimator in a panel data setting. Furthermore, using Stata’s index function to create several thousand bilateral dummy variables for a PML regression overtaxes our computer system.<sup>9</sup> Therefore, we are unable to include bilateral fixed effects in our Gamma PML regressions.

In order to address this problem, we use a two-step procedure. First, we run an OLS regression with bilateral fixed-effects on the variables used in the two specifications used above. We then take the predicted bilateral fixed-effects from the OLS regressions and, in turn, regress them on several bilateral “gravity type” variables: the log of physical distance between the countries, a common border dummy, a common language dummy, and the landlocked status of both countries. We take the residuals from this regression (that is, that part of the predicted bilateral fixed-effects from OLS that cannot be explained by the gravity variables) and include them as regressors along with the bilateral variables in our Gamma PML regressions. In doing so, we are able to simulate the impact of bilateral fixed-effects in the Gamma PML regressions as closely as possible given our computational constraints. However, we are not able to do so perfectly.

## 5.2 GDP Per-Capita Used as Continuous Interaction Term

In addition to the three estimators noted above, we use two regression specifications in our empirical analysis. The first specification treats the log of GDP per-capita in the exporting country as a continuous independent variable and looks at the interaction of GDP per-capita with an increase in environmental regulation stringency. The second specification (described in the next subsection) uses GDP per-capita as a means of splitting the sample between rich (per-capita GDP over \$10,000) and poor (below \$10,000) sub-samples in both the exporting and importing countries.

The regressions found in the first subsection are of the following form:

$$\begin{aligned}
X_{i,j,t} = & \beta_0 + \beta_1 \ln RGDP_{i,t} + \beta_2 \ln RGDP_{j,t} + \beta_3 EU_{i,j,t} + \beta_4 ENVREGS_{i,t} \\
& + \beta_5 ENVREGS_{j,t} + \beta_6 ENVREGS_{i,t} * EU_{i,t} + \beta_7 \ln GDPPC_{i,t} \\
& + \beta_8 ENVREGS_{i,t} * \ln GDPPC_{i,t} + \beta_9 ENVREGS_{i,t} * \ln GDPPC_{i,t} * EU_{i,t} \\
& + \beta_{10} ALLOTHEREIAS_{i,j,t} + \delta_{i,j} + \theta_t + \ln \varepsilon_{i,j,t}
\end{aligned} \tag{21}$$

where  $X_{i,j,t}$  is the value of exports<sup>10</sup> from country  $i$  to country  $j$  in year  $t$ ,  $RGDP_{i,t}$  is the real GDP<sup>11</sup> of country  $i$  in year  $t$ ,  $EU_{i,j,t}$  is a dummy variable indicating if both country  $i$  and  $j$  were both EU

<sup>9</sup> The Stata command used here is *glm, family(gamma)*.

<sup>10</sup> These values are converted to U.S. dollars using current exchange rates as reported by the IMF Direction of Trade Statistics database.

<sup>11</sup> For this variable, we use GDP converted to dollars using current exchange rates as reported by the World Development Indicators database.

members in year  $t$ ,  $GDPPC_{i,t}$  is the per-capita gross domestic product<sup>12</sup> of country  $i$  in year  $t$ ,  $ENVREGS_{i,t}$  is the stringency of environmental regulations variable in country  $i$  in year  $t$ , and  $ALLOTHEREIAS_{i,j,t}$  is a dummy variable indicating the existence of an economic integration agreement (other than EU membership) between countries  $i$  and  $j$  in year  $t$ .  $\delta_{i,j}$  is a bilateral country pair fixed-effect in some of the regression specifications below and a vector of bilateral “gravity” variables in others, and  $\theta_t$  is a year fixed-effect.<sup>13</sup>

The result that we are most interested in is the interaction effect between environmental regulation stringency and GDP per-capita. That is, we estimate:

$$\frac{\partial^2 X_{i,j,t}}{\partial ENVREGS_{i,t} \partial \ln GDPPC_{i,t}} = \beta_8 + \beta_9 * EU_{i,t} \quad (22)$$

Our main prediction is that  $\beta_9 > 0$  (that is, an increase in environmental regulation stringency has a lower impact on relatively rich countries that are EU members). Backing up the 2<sup>nd</sup> derivative in equation (22) by one step, we also derive that:

$$\frac{\partial X_{i,j,t}}{\partial ENVREGS_{i,t}} = \beta_4 + \beta_6 * EU_{i,t} + \beta_8 * \ln GDPPC_{i,t} + \beta_9 * EU_{i,t} * \ln GDPPC_{i,t} \quad (23)$$

For poorer EU members, our model predicts that the increase in environmental regulation stringency will have a negative effect on exports, while it will have a “less negative” to positive effect for richer EU members. That is, in addition to  $\beta_9 > 0$ , we also predict that  $\beta_4 + \beta_6 < 0$ . Furthermore, we can derive a level of GDP per-capita (call it  $GDPPC^{EU}$ ) where the effect of increased environmental regulation stringency switches from negative to positive by setting equation (23) equal to zero and solving for  $GDPPC$ :

$$GDPPC^{EU} = \exp\left(-\frac{\beta_4 + \beta_6}{\beta_8 + \beta_9}\right) \quad (24)$$

We expect that this estimated value will fall somewhere in the support of the distribution of per-capita GDPs for EU members. That way, poorer EU members will face a negative effect of increase environmental regulation stringency, while richer members will face a positive effect.

Strictly speaking, our model does not make any predictions about what will happen in non-EU member-states when environmental regulation stringency increases. As we note, the decision to adopt more stringent environmental regulations unilaterally is highly endogenous, which may significantly attenuate the mechanism described above. However, we believe that it will be consistent with the spirit of the model if we observe a similar effect of increases in environmental regulation stringency on trade flows in non-EU countries, but that the “threshold” value between

<sup>12</sup> For this variable, we use real GDP per-capita in constant 2011 dollars using a chained price index as reported by the Penn World Tables 9.0.

<sup>13</sup> The inclusion of bilateral fixed effects follows Baier and Bergstrand (2004), Baier and Bergstrand (2007), and Baier et al (2008), among others.

positive and negative effects would be lower than for EU countries. More formally, we predict that  $\beta_8 > 0$ , and that

$$GDPPC^{NONEU} = \exp\left(-\frac{\beta_4}{\beta_8}\right) < GDPPC^{EU} = \exp\left(-\frac{\beta_4 + \beta_6}{\beta_8 + \beta_9}\right) \quad (25)$$

It is also possible that that  $\beta_8 > 0$ , (that is, that the exports will be increasing in per-capita GDP interacted with environmental regulation stringency). However, our prediction here is not as strong for non-EU members as for EU members.

The results of these three regressions can be found in Tables 3 and 4. Our first hypothesis, that  $\beta_9 > 0$  (i.e. that an increase in environmental regulation stringency for EU members will be less harmful for relatively rich members of the EU) is supported by the data. In all three regression specifications, the coefficient is positive, significant at the 1% level, and has a range in value between 0.0681 and 0.104. Using the Log-Linear OLS result, this estimated coefficient means that for an EU member, the effect on exports a one-point increase in environmental regulation stringency will be 0.086% higher given a 1% increase in the country's per-capita GDP.

**Table 3:** Regressions Interacted with Per-Capita GDP

Specification	(1) Log-Linear OLS	(2) Poisson	(3) Gamma GLM
Log Real GDP Exporter	0.490*** (5.814)	0.955*** (9.219)	0.996*** (59.60)
Log Real GDP Importer	0.690*** (10.41)	1.050*** (12.83)	0.725*** (35.51)
Stringency of Env. Regs. Exporter	-0.576*** (-4.090)	-0.259 (-1.431)	0.154 (1.222)
Stringency of Env. Regs. Importer	-0.00200 (-0.118)	0.0795*** (3.572)	0.185*** (5.828)
EU Member X Env. Regs. Exporter	-0.864*** (-3.048)	-1.076*** (-3.486)	-0.803*** (-5.579)
EU Member X Env. Regs. Importer	0.0387 (1.191)	-0.120*** (-4.146)	0.0423** (2.475)
Per-Capita GDP X EU X Env. Regs Exporter	0.0860*** (3.026)	0.104*** (3.365)	0.0681*** (4.803)
Per-Capita GDP X Env. Regs Exporter	0.0659*** (4.226)	0.0301 (1.542)	0.00485 (0.462)
Bilateral EIA	0.100** (2.500)	-0.0493 (-1.052)	0.120 (1.535)
Constant	1.589 (1.277)		-2.798*** (-6.518)
Bilateral Controls	Fixed Effects	Fixed Effects	Bilateral Variables
Year Controls	X	X	X
Observations	78,422	84,365	91,781
Number of Country Pairs	13,314	12,522	

Robust t-statistics in parentheses

\*\*\*p<0.01, \*\*p<0.05, \*p<0.1

Furthermore, we can use the formula found in equation (24) above to derive an estimated threshold level of per-capita GDP where the effect of an increase in environmental regulation stringency switches from negative (for low per-capita GDP countries) to positive (for high per-capita GDP countries). The results of this calculation can be found in Table 4. In the Log-Linear OLS specification, the estimate threshold value for EU members is \$13,049. This falls near the bottom of the support of per-capita GDP in our sample but is still higher than 11.57% of the country-year per-capita GDP observations in our EU member sample. For the Poisson specification, the threshold rises significantly, to \$20,986, which is greater than 37.50% of the EU country-year observations. On the other hand, the threshold estimate falls to \$7,354 in the Gamma GLM specification, which is slightly below the support of our observations (the minimum EU member per-capita GDP being Bulgaria in 2001, which had a per-capita GDP of \$7,577). While the Gamma GLM estimate is a little on the low side, the other two estimates are well within the support of EU members' per-capita GDP during this time period. Taken together, the data support the idea that the “threshold” value at which increased environmental regulation stringency switches from a positive to negative effect on exports is in the lower half of the distribution of EU members' per-capita GDPs.

**Table 4:** Cutpoints for Switch in Env. Regs. Effect

Implied Threshold for:	Log-Linear OLS	Poisson	Gamma GLM
EU Members	\$13,049	\$20,986	\$7,354
Non-EU Members	\$6,221	\$5,423	\$0

As noted above, our theory does not make a straightforward prediction about the effect of environmental regulation stringency unilaterally adopted by non-EU members. However, it would be consistent with the spirit of our hypothesis if the same basic dynamics described above applied to non-EU members. At the same time, we predict that the threshold level at which the effect changes from negative to positive will be lower for non-EU members. That is, non-EU members will have a greater scope to adopt and/or enforce only those environmental measures that were compatible with their economic development. Therefore, it will be easier for lower-to-middle income countries that are not EU members to comply with greater environmental regulation stringency.

The first part of this hypothesis, that  $\beta_8 > 0$ , is partially borne out by the data. The coefficient is positive and statistically significant using the Log-Linear OLS specification, and is positive but insignificant when using the Poisson and Gamma GLM specification. Using equation (25), we can calculate the threshold value of per-capita GDP for when an increase in environmental regulation stringency switches from having a positive to a negative effect on exports for non-EU members. The Log-Linear OLS specification predicts that the threshold value is \$6,221 for non-EU members, while the Poisson specification predicts that it is \$5,423. The Gamma PML specification, on the other hand predicts that the threshold will be very close to zero. While the Gamma specification yields a prediction value much lower than the others, all three predicted values are positive and less than the predicted threshold for EU members. Furthermore, the Log-Linear OLS and Poisson specification predictions are a little bit shy of \$8,000 in 2011 PPP-adjusted dollars, which is consistent with the environmental Kuznets Curve estimates of Grossman

and Krueger (1995). Taken as a whole, we find these empirical results to be supportive of the theory outlined above.

### 5.3 GDP Per-Capita Used for Sample Splits

This section, rather than treating per-capita GDP as a continuous variable, divides our data sample into different subsamples using a threshold level of \$10,000 in per-capita GDP using 2011 PPP-adjusted dollars. The regression specification followed in all of the empirical analyses in this subsection is of the form:

$$\begin{aligned} \ln X_{i,j,t} = & \beta_0 + \beta_1 \ln RGDP_{i,t} + \beta_2 \ln RGDP_{j,t} + \beta_3 EU_{i,j,t} + \beta_4 ENVREGS_{i,t} \\ & + \beta_5 ENVREGS_{j,t} + \beta_6 ENVREGS_{i,t} * EU_{i,t} \\ & + \beta_7 ALLOTHEREIAS_{i,j,t} + \delta_{i,j} + \theta_t + \ln \varepsilon_{i,j,t} \end{aligned} \quad (26)$$

where  $X_{i,j,t}$  is the value of exports from country  $i$  to country  $j$  in year  $t$ ,  $RGDP_{i,t}$  is the real GDP of country  $i$  in year  $t$ ,  $EU_{i,j,t}$  is a dummy variable indicating if both country  $i$  and  $j$  were both EU members in year  $t$ ,  $ENVREGS_{i,t}$  is the stringency of environmental regulations variable in country  $i$  in year  $t$ , and  $ALLOTHEREIAS_{i,j,t}$  is a dummy variable indicating the existence of an economic integration agreement (other than EU membership) between countries  $i$  and  $j$  in year  $t$ .  $\delta_{i,j}$  is a bilateral country pair fixed-effect in some of the regression specifications below and a vector of bilateral “gravity” variables in others, and  $\theta_t$  is a year fixed-effect.<sup>14</sup>

For each specification, we run seven regressions on different sub-samples of the overall sample using the \$10,000 GDP per-capita threshold. The results of this sample split are shown in Table 1 above. We then run regressions for seven different combinations of these sub-samples: exports from all countries to all countries, from rich countries to rich countries, from rich countries to poor countries, from rich countries to all countries, from poor countries to rich countries, from poor countries to poor countries, and from poor countries to all countries.

We have two hypotheses that we are testing. The first is  $\beta_6 < 0$ , implying that environmental regulations associated with EU membership are not as helpful for a country’s exports as unilateral environmental regulations. We expect that this effect will be stronger in poorer countries than in richer countries. We also test to see if  $\beta_4 + \beta_6 < 0$ , which implies that EU environmental regulations are positively harmful for some countries’ exports. We do not expect this hypothesis to be generally true, but rather just for the poorer members of the EU.

#### 5.3.1 First Specification – Log-Linear OLS with Zeroes Dropped

Our first regression specification is log-linear OLS with the zero trade-flow observations dropped from the sample and bilateral country pair fixed-effects. As noted above, there may be a strong selection bias in this specification.

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<sup>14</sup> The inclusion of bilateral fixed effects follows Baier and Bergstrand (2004), Baier and Bergstrand (2007), and Baier et al (2008), among others.

**Table 5: OLS With Zeros Dropped**

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	All-All	Rich-Rich	Rich-Poor	Rich-All	Poor-Rich	Poor-Poor	Poor-All
lrgdp_exp	0.632*** (8.288)	0.850*** (5.421)	0.349* (1.941)	0.583*** (4.963)	0.502*** (3.928)	0.613*** (3.797)	0.557*** (5.385)
lrgdp_imp	0.692*** (10.41)	0.879*** (8.191)	0.619*** (6.750)	0.724*** (10.62)	0.570*** (2.877)	0.477*** (2.847)	0.645*** (5.364)
envregs_exp	-0.0141 (-0.712)	0.0189 (0.568)	-0.105** (-1.992)	-0.0573* (-1.795)	-0.00242 (-0.0734)	-0.0256 (-0.725)	-0.0147 (-0.611)
envregs_imp	-0.00110 (-0.0647)	0.0485 (1.545)	-0.0119 (-0.534)	-0.00843 (-0.449)	0.00226 (0.0390)	-0.0127 (-0.366)	0.0116 (0.397)
EU_X_envregs_exp	0.119*** (4.044)	0.0471 (1.177)	0.203*** (3.432)	0.153*** (4.172)	-0.304** (-2.406)	-0.660*** (-2.661)	-0.501*** (-3.381)
EU_X_envregs_imp	0.0400 (1.229)	0.00718 (0.187)	-0.197** (-2.410)	0.0698** (2.214)	0.0313 (0.429)	-0.390 (-1.228)	0.00760 (0.134)
all_other_EIAs	0.102** (2.537)	-0.127* (-1.744)	0.183*** (3.286)	0.0515 (1.204)	0.0627 (0.616)	0.283*** (2.906)	0.166** (2.219)
Constant	-0.0539 (-0.0461)	-3.378 (-1.426)	4.744* (1.960)	1.176 (0.715)	2.293 (0.824)	1.884 (0.726)	0.603 (0.338)
Observations	78,422	16,517	21,390	37,907	19,807	20,708	40,515
Number of Bilateral Pairs	13,314	2,989	4,153	6,560	3,960	4,675	8,001
R-squared	0.130	0.226	0.141	0.172	0.080	0.102	0.097

Robust t-statistics in parentheses

\*\*\*p<0.01, \*\*p<0.05, \*p<0.1

The results of our regressions can be found in Table 5. As expected, the GDPs of both the exporting and importing countries are positively and significantly associated with the volume of trade between the two across all sub-samples. The coefficient on the stringency of environmental regulations for exporting countries variable is negative across all sub-samples, but perhaps surprisingly, only significant when the exporting country is rich. However, the coefficient on environmental regulations interacted with EU membership is significant across all specifications. More importantly, it is positive when the exporting countries are rich and negative when the exporting countries are poor.<sup>15</sup> This result provides evidence that multilateral environmental regulations disproportionately hurt poorer countries when they are imposed upon them.

To test this idea more directly, we look at the sum of the coefficients on environmental regulations and environmental regulations interacted with EU membership ( $\beta_4 + \beta_6$  in the notation above) in Table 6. For all of the sub-samples that have rich exporters, this sum is positive. Furthermore, an F-test on the sum of these coefficients shows that sum is significantly different from zero. However, once we switch to the poor exporting countries sub-sample, the sign of the sum switches to negative. Once again, the F-test shows that these sums are also significantly different from zero.

**Table 6: Net Effect of EU Environmental Regulations; OLS Regressions**

	All-All	Rich-Rich	Rich-Poor	Rich-All	Poor-Rich	Poor-Poor	Poor-All
Net Effect	0.1048	0.0660	0.0982	0.0958	-0.3068	-0.6854	-0.5157
P-Value of F-Test of Joint Significance	0.0000***	0.0224**	0.0053***	0.0000***	0.0103**	0.0051***	0.0004***

<sup>15</sup> Because there are more rich countries than poor countries in the EU according to our classification scheme, we expect that the coefficient for the “All-All” sample will look more like the rich country subsample than the poor country subsample.

This last result is particularly important to our hypothesis. An increase in environmental stringency for rich EU members does not harm their exports. On the contrary, our data indicate that it may benefit exports. However, the same increase for a poor EU member harms the country's exports. Not only is the sum statistically significant, it is also rather large – a one point increase (on the seven-point scale) in environmental stringency results in a more than 51% decrease on average for poor EU members. While it may not be correct to attribute all the changes in environmental stringency for poor EU members to multilateral regulations imposed by the EU, the fact that we do not have nearly the same result for poor non-EU countries gives us good reason to believe that EU membership is responsible for at least part of the effect.

### 5.3.2 Second Specification – Poisson PML Estimation

As noted above, the log-linear OLS with zeroes dropped specification potentially suffers from a selection bias problem. Therefore, Santos Silva and Tenreyo (2006) argue that a Poisson PML estimator might better handle the econometric issues that arise in gravity-type equations – particularly the zeroes problem.

**Table 7:** Poisson Regressions

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	All-All	Rich-Rich	Rich-Poor	Rich-All	Poor-Rich	Poor-Poor	Poor-All
lrgdp_exp	1.019*** (10.48)	0.650*** (5.057)	0.676*** (5.703)	0.609*** (4.659)	1.207*** (5.337)	0.455** (2.462)	1.026*** (5.942)
lrgdp_imp	1.049*** (12.80)	0.835*** (7.179)	1.125*** (5.752)	1.103*** (12.60)	0.872*** (3.594)	0.758*** (3.270)	1.111*** (6.956)
envregs_exp	0.0367* (1.793)	0.0385 (1.096)	0.0132 (0.338)	0.0465 (1.460)	0.00452 (0.200)	0.0848*** (3.398)	0.0207 (0.973)
envregs_imp	0.0852*** (3.604)	0.154*** (4.379)	-0.0294 (-1.481)	0.0730*** (3.056)	0.0988 (1.455)	0.0132 (0.384)	0.0856* (1.913)
EU_X_envregs_exp	-0.0171 (-0.657)	-0.0212 (-0.642)	-0.00551 (-0.0973)	-0.0289 (-0.887)	-0.114* (-1.804)	-0.228** (-2.244)	-0.158** (-2.548)
EU_X_envregs_imp	-0.141*** (-4.641)	-0.187*** (-4.891)	-0.0737 (-1.266)	-0.127*** (-3.971)	-0.223*** (-2.934)	-0.0557 (-0.334)	-0.192*** (-2.897)
all_other_EIAs	-0.0579 (-1.256)	-0.161** (-2.456)	-0.120* (-1.761)	-0.108** (-2.333)	-0.0371 (-0.898)	0.0999 (1.368)	0.00313 (0.0705)
Observations	84,365	16,455	21,770	38,354	21,171	24,092	45,641
Number of Bilateral Pairs	12,522	2,778	3,787	6,086	3,662	4,299	7,463

Robust z-statistics in parentheses

\*\*\* p<0.01, \*\*p<0.05, \*p<0.1

The results of these regressions can be found in Table 7. The coefficients on environmental stringency in the exporting country are generally positive here, but only sporadically significant (though, most notably, for poor-poor country trade). However, the coefficients on environmental stringency interacted with EU membership are close to zero and insignificant for rich exporters, but negative and significant for poor exporters.

Table 8 shows us what occurs when the two coefficients are added together. Here our results look close to what our hypothesis predicted. The net effect on exports of environmental stringency and EU membership is close to zero and statistically insignificant when the exporting countries are rich. However, for poor countries, the coefficients are all negative and are



significantly different from zero in 2 out of the 3 subsamples. While the magnitudes of these coefficients are slightly diminished from the log-linear OLS specification, they are still economically meaningful. Therefore, we can conclude that our results from the previous specification are robust to using a Poisson PML estimator.

**Table 8:** Net Effect of EU Environmental Regulations; Poisson Regressions

	All-All	Rich-Rich	Rich-Poor	Rich-All	Poor-Rich	Poor-Poor	Poor-All
Net Effect	0.0196	0.0173	0.0077	0.0176	-0.1095	-0.1433	-0.1378
P-Value of Chi-Square Test of Joint Significance	0.3179	0.4377	0.8139	0.4150	0.0480**	0.1394	0.0090***

### 5.2.3 Third Specification – Gamma PML Estimator

The results of these regressions can be found in Table 9. The results in this specification are not as consistent with our hypotheses as the specifications above. In particular, while the coefficient on the interaction term between EU membership and environmental regulation stringency is negative and significant for rich exporting countries, both its sign and significance level is more erratic for poor exporting countries.

**Table 9:** Gamma Distribution Maximum Likelihood Regressions

	(1) All-All	(2) Rich-Rich	(3) Rich-Poor	(4) Rich-All	(5) Poor-Rich	(6) Poor-Poor	(7) Poor-All
lrgdp_exp	0.999*** (53.11)	1.093*** (67.59)	0.957*** (49.37)	1.025*** (61.74)	1.062*** (33.58)	0.914*** (26.94)	0.986*** (38.30)
lrgdp_imp	0.738*** (35.65)	0.729*** (38.90)	0.747*** (45.78)	0.740*** (43.85)	0.740*** (19.18)	0.678*** (18.53)	0.709*** (26.42)
envregs_exp	0.221*** (9.232)	0.130*** (2.819)	0.104** (2.509)	0.118*** (3.010)	0.234*** (3.442)	0.228*** (3.492)	0.243*** (4.513)
envregs_imp	0.201*** (6.397)	0.118*** (3.519)	0.135*** (3.185)	0.154*** (6.115)	0.154** (2.414)	0.138 (1.503)	0.186*** (4.265)
EU_X_envregs_exp	-0.0651*** (-6.833)	-0.0286*** (-2.628)	-0.0969*** (-7.838)	-0.0696*** (-6.900)	0.0849* (1.954)	-0.157*** (-4.025)	-0.0321 (-1.032)
EU_X_envregs_imp	0.112*** (7.200)	0.169*** (12.54)	0.245*** (5.554)	0.209*** (7.828)	0.0539*** (3.590)	-0.0464 (-1.134)	0.0431*** (2.588)
all_other_EIAs	-0.179** (-2.459)	-0.159 (-1.604)	0.308*** (3.965)	0.0541 (0.406)	-0.111 (-0.955)	0.391*** (4.692)	0.0523 (0.776)
lkm	-1.462*** (-42.46)	-1.492*** (-23.77)	-1.511*** (-24.93)	-1.544*** (-25.23)	-1.192*** (-18.69)	-1.172*** (-16.97)	-1.243*** (-26.46)
border	1.001*** (13.56)	0.694*** (9.831)	0.842*** (4.844)	0.789*** (8.666)	1.255*** (7.842)	1.121*** (10.46)	1.169*** (12.09)
com_lang	1.242*** (26.45)	1.486*** (18.99)	1.285*** (22.83)	1.346*** (27.85)	1.083*** (13.26)	1.205*** (14.99)	1.231*** (20.19)
ldlock1	-0.893*** (-6.922)	-0.621** (-2.499)	-1.445*** (-14.65)	-1.029*** (-6.079)	-0.743*** (-3.636)	-1.039*** (-5.921)	-0.892*** (-5.837)
ldlock2	-1.640*** (-23.88)	-1.436*** (-10.63)	-1.537*** (-15.33)	-1.565*** (-17.38)	-1.389*** (-8.708)	-1.910*** (-15.99)	-1.695*** (-18.22)
feresids	0.479*** (50.07)	0.504*** (16.47)	0.551*** (36.72)	0.521*** (31.75)	0.466*** (28.77)	0.503*** (36.62)	0.482*** (42.78)
Constant	-1.617*** (-4.158)	-2.312*** (-4.444)	-1.353** (-2.445)	-1.504*** (-3.440)	-4.498*** (-5.193)	-2.527*** (-3.030)	-3.110*** (-4.970)
Observations	91,781	16,889	22,935	39,824	23,095	28,862	51,957

Robust z-statistics in parentheses

\*\*\*p<0.01, \*\*p<0.05, \*p<0.1

Table 10 shows the sum of the two coefficients of interest. For all sub-samples, the effect of more stringent environmental regulations for EU members on their exports is positive and often statistically significant. Furthermore, the effect tends to be larger for poorer countries than for rich countries.

**Table 10:** Net Effect of EU Environmental Regulations; Gamma PML Regressions

	All-All	Rich-Rich	Rich-Poor	Rich-All	Poor-Rich	Poor-Poor	Poor-All
Net Effect	0.1559	0.1016	0.0074	0.0489	0.3194	0.0717	0.2107
P-Value of Chi-Square Test of Joint Significance	0.0000***	0.0149**	0.8370	0.1596	0.0001***	0.3381	0.0010***

The results from this specification are not consistent with the hypotheses above. We are inclined to discount them because, while we attempted to simulate bilateral fixed-effects in these regressions, we were not fully able to do so. Therefore, there may be a remaining omitted variables bias problem. Secondly, while Head and Mayer (2014) argued that the Gamma PML estimator might be appropriate for some error structures, it was not appropriate for all. It is because of their analysis and because we cannot directly observe our error terms that we look at a wide variety of specifications in this study.

#### 5.2.4 Summary of Results Across Specifications

The log-linear OLS and Poisson specifications provide strong evidence in support of our hypothesis that multilateral environmental regulations imposed by the EU are harmful to the exports of the EU's poorer members. On the other hand, the Gamma PML specification does not support the hypothesis.

As noted above, the econometric issues raised by gravity-type regressions are still being worked out, and no single specification clearly dominates the others in the literature. Thus, while we do not have a clearly preferred specification, we think the fact the results from the two specifications that allow us to include bilateral pair fixed-effects support our hypothesis constitutes good evidence that our theory has some empirical grounding.

## 6. CONCLUSIONS

Changes in the stringency of environmental regulations could have differing effects on bilateral trade flows depending on the respective incomes of the effected countries. Richer countries inside an economic integration agreement, such as the European Union, have an incentive to impose environmental regulations on the entire group of countries in the agreement so that poorer countries must raise their standards (raising production costs in poorer countries). The consequences of an increase in environmental regulation stringency differ dramatically for high income countries in the EU compared to low income countries.

We have shown the theoretical possibility that high income members of an EIA could increase exports by imposing more stringent environmental regulations on all members – and especially low income members – of the EIA. Similarly, our model indicates that such an increase

in environmental regulation stringency would decrease exports from low income members of the EIA.

We empirically tested our model by estimating the effects of changes in individual countries' environmental regulation stringency on bilateral trade flows. Our focus was on the European Union because it represents a large EIA with a fairly wide distribution of economic development that also has both a history of environmental activism and a strong multilateral rule-making authority. Furthermore, a growing backlash against the Union's perceived remoteness from the concerns of its citizens has recently led to political earthquakes such as the Brexit vote.

Our empirical analysis indicate that for members of the EU, an increase in environmental regulation stringency has a positive effect on exports for the organization's richer members, but a negative effect for the organization's poorer members. Our regression analyses find that this switching point is somewhere near the lower end of the support of the EU's per-capita income distribution.

Although we found that an increase in environmental regulation stringency in a high income country generally increases its exports to other high income countries, we detected little statistical difference between high income, EU members and high income, non-EU members. Conversely, an increase in environmental regulation stringency generally decreases exports from low income countries in the EU. A similar change in stringency has either no significant effect on low income, non-EU countries or possibly even a positive effect. We conclude that a European Union decree of increased environmental regulation stringency for all countries could have a negative impact on exporting industries in low income, EU countries while the impact on richer countries appears to be less harmful.

Regional trade blocs have grown rapidly in the last two decades. Furthermore, these trade blocs are increasingly no longer simple "free trade agreements" but now also include other economic integration objectives like harmonization of competition law policy and monetary policy. This research shows that the interaction effects of regional trade blocs and regulations should not be ignored. Indeed, recent backlashes against globalization, typified by the Brexit vote, have given voice to voters who are concerned about the loss of national sovereignty to multilateral institutions. At the same time, this backlash has largely not translated into an opposition to trade agreements per se. On the contrary, many pro-Brexit politicians in the UK have talked about having the freedom to make trade agreements best suited to the UK economy. Their arguments focus less on trade with the European Union and more on rules and regulations made by distant policymakers.

Additionally, this paper indicates a possible political economy story behind the proliferation of the regionalization of regulations in general and of environmental regulations specifically. The possible political economy of the regionalization of regulations offers many topics for future research, as does the investigation of its empirical effects on different groups in the region.<sup>16</sup>

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<sup>16</sup> For example, following Maloney and McCormick (1982), we could model firms in country *i* lobbying for environmental regulations because their profits vary with environmental regulation. If trade bloc regulations were determined by a vote of industry representatives, then the median-cost country could effectively choose its first-best

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alternative. The situation is more interesting when environmental regulations, once passed, are irreversible (i.e. environmental regulations can only be tightened, not slackened). In this case, existing EU members could extract (nearly) all of the gains from integration simply by increasing environmental regulations up to a participation constraint for countries seeking membership. This particular idea is left for future research.

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# **Deposit Rate Pass-Through in Latin American Economies over the Post-2008 World**

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*This investigation documented the following. First, banks in Colombia and Mexico overshot in their lending rate adjustments and practiced predatory pricing in the credit markets. Second, the institutions in Bolivia, Costa Rica, and Honduras were sluggish in their short-run lending rate adjustments and lowered their lending rate more in the long run. Third, Brazilian banks adjusted their lending rates down when their deposit rates increased in the short run, and drastically increase them in the long run. Thus, to promote economic growth and to improve living standard of the populace, these hindrances in Latin American economies must be rectified.*

*KEYWORDS* *Lending rate, deposit rate, intermediation premia, deposit rate pass-through, Latin American economies.*

*JEL* C22; E44; G21.

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# Does Cash Flow Ratio Provide Useful Measure of Financial Constraints?

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*Yes. As financial constraints are fundamental to empirical research in finance and economics, we are proposing a novel way to classify domestic manufacturing firms based on their level of financial constraints. Using operating cash flow ratio as our new measurement for financial constraints, we find that the behavior of constrained and unconstrained firms is largely consistent with the findings from past literatures where dividend payout ratio, firm size, KZ index were used as measurements. Our results indicate that greater cash holdings are associated with constrained firms more so than unconstrained firms. Our results also imply that constrained firms depend more on their larger cash holding to undertake value enhancing project through capital expenditures and acquisitions than their unconstrained counterparts. Overall our findings support the inclusion of operating cash flow ratio as a measure of financial constraints.*

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# Tick Size and Informed Trading: Evidence from the Taiwanese Stock Market

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*We adopt the Sandås model for order-book equilibrium to examine informed trading on the Taiwanese stock market, a purely order-driven call-auction market. We find that adverse-selection cost is low for well-known stocks with high liquidity and low volatility, but cost is high for monitoring the order books of those stocks. Our empirical results show that the impact of adverse selection is greatest at the beginning of each trading day and that informed traders engage in stealth trading, supporting the stealth trading hypothesis. Finally, with the special tick size rules on the market, both adverse-selection cost and monitoring cost decline as tick size decreases.*

*KEYWORDS* Adverse selection; informed trading; tick size; stealth trading hypothesis; panel data model

*JEL* C13, C33, G10

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# **Multinational Enterprises and Cross-border Acquisitions: Evolution of the Field**

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*The rise of the multinational enterprise to international prominence has been remarkable. This study takes an evolutionary approach in charting development of the field of multinational enterprise internationalization, to include supporting theory. The central context and lens whereby multinationals have been studied has experienced several significant shifts in focus over time. Likewise, the dominant multinational internationalization entry mode, cross-border acquisition, has concurrently evolved. As such, we contribute to the literature by providing a detailed mapping of this evolution and clarify its importance in bringing us current with contemporary MNE and internationalization theory, practice, and research.*

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# The Impact of Innovation Investment on Already Innovative Firms

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*Although innovation has been shown to improve a firm's financial metrics, what is less studied is whether already innovative firms benefit from continued innovation investments. To better understand this, this study investigates whether already innovative firms, as ranked on Forbes magazine "World's Most Innovative Companies" list, who increase (decrease) expenditures on innovation have a positive (negative) impact on firm's returns and bid-ask spread. Results show that already innovative firms continuous innovation investment, as measured by R&D expenditures, results in significant positive abnormal returns and a significant decrease in bid-ask spread.*

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# Exploring the Drivers of Innovation in Mexican Manufacturing SMEs

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*In the turbulent business environment, organizations compete in hypercompetitive and digital markets characterized by thousands of similar products and fierce price segmentation. Innovation becomes a basic element for organizations that helps to increase financial performance and process productivity through the development of new products, services and process. Small and medium enterprises (SMEs) are a key player for the economic development, they have great importance in the economy and employment at national and regional level. SMES need to explore the key barriers in order to develop innovation successfully. The main objective of this paper is to analyze and identify the drivers to develop innovation in Mexican SMEs*

## INTRODUCTION

In actual times innovation has become a key element for companies, because creates an advantage to penetrate in a quick way into developing and emerging markets which can generate opportunities to increase sales. Innovation has become a central part of the growth strategy in global and local companies.

The nature and environment of business is changing very fast. Undoubtedly, internet and the proliferation of e-commerce increases product availability offered by suppliers from all regions of the world, giving a wide range of options to customers and clients. The competition has become very aggressive.

Many authors consider that innovation is a tool that will allow companies to face the business environment. Innovative companies are creating new business models, looking for solutions that become new products and services. Today, innovation is a priority in companies.

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Innovation is seen as an option to survive in hypercompetitive markets (McGrath, Tsai, Venkatraman y MacMillan, 1996). Innovation is a trending topic and has become a key, organic and systematic process of the organization. (Arraut, 2007).

SMEs have a strong positive and significant impact on the development of the economy and society, through the creation of jobs and the innovation activities they carry out constantly. SMEs are an option for building more inclusive and sustainable growth, increasing economic resilience. In the global context, SMEs are an important part of the productive sector of the economy. In the United States, there are about 30 million SMEs, which employ almost 50% of the population and generate 50% of the value of GDP (Small Business Council, 2018). In the European Union, in 2015, 23 million SMEs generated 3.9 trillion euros employing 90 million people (European Commission, 2017). In Mexico, SMEs, constitute 98% of the total economic units and generate around 52% of GDP and 72% of jobs. (INEGI) 2014

**Table 1:** Mexico's Economic Units

<b>Types of economic units</b>	<b>Total companies</b>	<b>Labor Force</b>
Micro	3,952,422	8,675,103
Small	79,367	1,550,838
Medium	16,754	1,282,159
Total	4,048,543	11,508,100

*Source:* Economic Census 2014, INEGI

SMEs has risks that may disturb their permanence in the market and the employability of economically active people. The recent global economic recession, has caused low growth in several countries of the world and therefore in Mexico, affecting the performance and results.

According to González (2007) 80% of SMEs close their operations within a year of being established, Soriano (2008) points out that 80% of SMEs close before five years and 90% do not reach ten years. In general, it can be established that Mexican SMEs do not achieve stability or the expected growth. Some of the barriers that inhibits their performance are that they are less likely to have the skills for managing their practices, they are less likely to adopt digital-enhanced business practices, fails to develop innovation, and they have less funding sources.

Small and medium-sized companies in countries with low industrial development, such as Mexico, according to different academic research have serious limitations, such as:

- Low innovation,
- Inadequate infrastructure,
- Low public policies support,
- Lack of financial resources,
- Deficiencies in marketing,
- Leadership deficiencies,
- Failures in the design of the organizational structure,
- No specialization of human resources,
- Failures in the design and implementation of business strategy

At a glance, it can be concluded that entrepreneurs, global companies and SMEs have a common challenge: they need to innovate; they need to develop new products, services and business models that adapt to the digital world creating the right solution for the costumers needs. However, to assure the success of the innovation strategy, SMEs needs to establish a corporate profile. According to Amante y Rendón (2016) SMEs have an advantage over large companies, they have less complicated lines of communication and structures compared to large corporations; decision making is relatively informal, and they have more flexibility.

**Table 2:** Drivers and barriers existing in the SMEs innovation development.

<b>Drivers</b>	<b>Barriers</b>
Leadership	Financial bottlenecks
Organizational structure	Shortage of and low access to qualified personnel
Organizational culture	Limited know how to manage innovation process
Innovative capability	Bureaucratic hurdles
Strategy	Low management skills
	Lag of leadership

Due to the relevance of this topic in the business context, there is an increasing interest in the study of the key factors that facilitates innovation. According to Marín-Idárraga & Cuartas, (2016) researchers and academics have been interested in analyzing the drivers that promotes innovation within SMEs. This research focuses its efforts on the variables, transformational leadership, structure and organizational culture, strategy and innovative capability, all considered as drivers for the innovation in SMEs.

## **REVIEW OF LITERATURE**

This section provides a literature review of some studies. The literature consists of definitions and the linkage of transformational leadership, innovation capability, organizational structure, organizational culture and strategic planning to innovation. Hypothesis is also provided in this section.

## **TRANSFORMATIONAL LEADERSHIP**

Leadership is the influencing process used to achieve the objectives.

Transformational leadership was defined based on its effects, as transforming the values and priorities of followers and motivating them to perform beyond their expectations (Yukl, 1998).

This type of leadership is commonly assumed to facilitate employee innovation and has been acknowledged as an important influencing factor in innovation development and knowledge management across different industries. According to García- Morales, Matías-Reche and Hurtado-Torres (2008) leadership style has been recognized as an important factor influencing innovation. Leaders have the authority to set specific goals and encourage ideas from subordinates that could end as innovative initiatives.

Other authors confirm, the relationship between leadership and innovation development, Sarros et al (2008) mentioned that leadership style has been identified as a driver for innovation, because leaders can influence the introduction and flow of ideas, set specific objectives and create a culture of innovation.

## **STRUCTURE**

Today's rapidly changing markets require flexible organizational structures.

Organizational structures reflect the division of responsibilities, task and project assignments, which is the background for key decisions making that, could influence in the achievement of firm objectives and strategic goals. (Robbin & DeCenzo 2005)

Several researchers have found a positive relation between organizational structure and innovation. Past studies on organizational structure indicate that companies that want to innovate are characterized by motivating the participation of their members and their collaborators towards innovation (Cruz et al 2018). Therefore, organizations should clarify their employees the division of labor, the functions to be performed and the decision-making flow for the development of the innovation process. Van de Ven (1986) mentioned that the foundation for innovation is the people who work in the organization, that is, their employees, since it is they who introduce, modify and implement the ideas that will transform into new products, new services and new business models.

In this study, organizational structure is defined as the sum of work division into different tasks and then achieve coordination between them.

## **ORGANIZATIONAL CULTURE**

Today, academic research focuses on the factors related to employee's behavior, emphasizing the role of organizational culture, as a factor that can stimulate innovative behavior among employees since it can lead them to accept innovation as a basic value of the organization and can foster commitment to it. (Hartmann, 2006)

Many academics agreed that the relationship between organizational culture and employees is key to the success of organizations (Cameron & Quinn, 2011).

According to Felizzola, Milena, & Morales (2017) innovation requires creativity, risk-taking and willingness to change, these conditions are strengthened with an optimal organizational climate, which motivate people to raise the hands to share their ideas that can be developed through the organization to obtain tangible benefits.

Organizational culture is where assumptions and behaviors in the organizations match in elements such as norms, beliefs, values, stories, routines, symbols, control systems, rituals, power structures.

## **STRATEGY**

According to Yilmaz & Akman (2008) strategy determines the configuration of resources, products, processes and systems needed to adapt to business environment. To assure success of the innovation process management, it is necessary to develop a strategic vision. Without a strategy, innovative capability and the success of innovation are not possible (Lawson and Samson, 2001). The strategy promotes alignment between corporate areas within an organization, clarifies objectives, establishes priorities and focuses efforts around them.

## **INNOVATION CAPABILITY**

Developing innovation capability is important, as innovation plays a key role in the survival and growth of organizations (Francis and Bessant, 2005) Innovation capability is of great interest to academics studying innovation. Innovation capability refers to a potential or ability to produce (Laforet, 2011) In this research, innovation is recognized as a repeated process to create new products, processes, knowledge or services. In recent years, innovation capability has been identified as a key factor to innovation success in organizations.

## **HYPOTHESIS**

Transformational leadership, organizational structure, organizational culture, strategy and innovative capability are the key factors that contribute to successfully develop innovation in manufacturing SMEs in Nuevo Leon.

## **METHODOLOGY**

This section explains the research methodology used in this research. This section consists of the research design process, data collection method, population and sample research instrument development and statistical0.

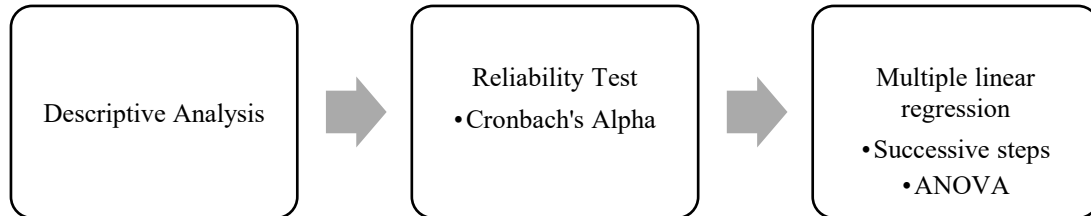
## **DATA COLLECTION METHOD, RESEARCH INSTRUMENT AND RELIABILITY TEST**

The type of data used in this research is quantitative data, obtained by a survey or questionnaire. According to Arribas (2004) the survey is the most used data collection technique in research. The survey was elaborated through review of the literature of each of the variables, generating a significant number of articles that study the linkage between transformational leadership, organizational culture and structure, strategy, innovation capability and innovation. Survey consist of 58 items (questions) divided into three sections, which measure both independent and dependent variables and collect demographic data and general information about the company and the people who responded. A five-point Likert Scale has been used to measure the items. Reliability tests have been used to ensure the validity of the survey using Cronbach's Alpha test.

## POPULATION AND SAMPLE

The population of this study includes manufacturing SMES with 51 to 100 employees. All SMEs have operations in the state of Nuevo León. Unit of analysis were owners, managers, engineers and other management staff. To determine the sample size in this study, we have used simple random sampling formula where the population is 418, by 5% of confidence level and the sample size is calculated as 76 SMEs.

**Figure 1:** Process of elaboration of the statistical analysis model



## RESULTS

**Table 3:** Results of the reliability test (Cronbach alpha)

Variables	Cronbach Alpha	Items
Transformational leadership	.953	7
Organizational Structure	.714	6
Organizational Culture	.933	8
Strategy	.884	3
Innovative capability	.910	8
Innovation	.923	3

Source: Own elaboration with data obtained from IBM SPSS® version 21

### Reliability and Validity Analysis of the Survey

The reliability of the instrument that measures the variables proposed through Cronbach's alpha was established, obtaining a result of .923 in the entire questionnaire which implies acceptable consistency. The study variables show acceptable values according to the scales accepted in this test.

### Descriptive statistics

Next, the results of the descriptive analysis of the field work performed are shared. Within the demographic section of the survey, information related to the profile of the company and the interviewee was requested. In addition to investigating the current state of the company with the innovation that 18% of the companies had income of less than five hundred thousand pesos. 14% had income of between five hundred and nine hundred ninety-nine thousand pesos, 64% had income of more than one million pesos and 3% did not answer it is observed that 19% of companies have between one and five years of operation. 12% have between six and ten years of operation and 45% have more than ten years of operation. It is shown that all companies are already established.



It shows that 32% of companies have less than 2 years carrying out innovation projects, 7% have two to three years, 11% between three and five years. 25% between five and seven years old, 1% are over seven years old and 25% do not carry out innovation projects. Most companies perform innovation.

### Regression analysis

Considering the complete sample of surveys, after having carried out the analysis of Cronbach's Alpha and having verified its assumptions, the Multiple Linear Regression analysis is performed. The independent variables are transformational leadership, organizational structure and culture, innovative capability and the innovation dependent variable.

On the other hand, in relation to the coefficients, the accepted correlation coefficient values ( $r$ ) .729 were obtained for the model of the present investigation, the coefficients of determination of ( $r^2$ ) correspond .531, with an adjusted ( $r^2$ ) .518.

**Table 4:** Model Summary

Model	R	R2	R 2 adjusted	Error tip. de la estimación	Estadísticos de cambio					Durbin-Watson
					change R2	Change F	g/1	g/2	Sig. change en F	
1	.690 <sup>a</sup>	.476	.469	,9054527289	.476	67.229	1	74	.000	2.018
2	.729 <sup>b</sup>	.531	.518	,8623967289	.055	8.573	1	73	.005	

a. Predictor variables: (Constant), INNOVATIVE CAPABILITY

b. Predictor variables: (Constant), INNOVATIVE CAPABILITY, STRATEGY

c. Dependent variable: INNOVATION

Source: Own elaboration with data obtained from IBM SPSS® version 21

Two models are generated in the summary results. In model 1, the innovation capability variable is related to the innovation dependent variable. In model 2 the variables innovation capability and strategy have a greater relationship with innovation. This model has more explanatory variables.

In model 2, it shows a multiple correlation (R) of .729. The squared multiple correlation coefficient (R2) has a value of .531, which explains 53% of the factors that influence innovation, that is, the variations of the model are explained from the independent variables. In this same sense, the adjusted multiple determination coefficient has a value of .518, in percentage terms it is equivalent to 51.8%. This coefficient shows the variation of the innovation variable considering the number of cases and variables included in the model.

According to the results of the ANOVA test, table 5 shows that the proposed model is valid, that the hypotheses are validated, since the level of significance is less than .05. In model 2 a level of significance of .000 is presented, so it can be affirmed that the regression equation offers a good fit of the model.

**Table 5:** ANOVA

Model		Sum of squares	gl	Quadratic mean	F	Gis.
1	Regression	55.118	1	55.118	67.229	.000 <sup>b</sup>
	Residual	60.669	74	.820		
	Total	115.786	75			
2	Regression	61.494	2	30.747	41.342	.000 <sup>c</sup>
	Residual	54.292	73	.744		
	Total	115.786	75			

a. Dependent variable: INNOVATION

b. Predictor variables: (Constant), INNOVATIVE CAPABILITY

c. Predictor variables: (Constant), INNOVATIVE CAPABILITY, STRATEGY

Source: Own elaboration with data obtained from IBM SPSS® version 21

**Table 6:** Coefficients of the regression model

Model	Non-standardized coefficients		Typified coefficients	t	Sig.	Correlations			
	B	Error tip.	Beta			Order zero	Parcial	Semiparcial	
1 (Constant)	.695	.383		1.815	.074				
	CAP001	.861	.105	.690	8.199	.000	.690	.690	.690
2 (Constat)	.483	.372		1.299	.198				
	CAP001	.558	.144	.448	3.888	.000	.690	.414	.312
	STR001	.367	.125	.337	2.928	.005	.659	.324	.235

a. Dependent variable: INNOVATION

Source: Own elaboration with data obtained from IBM SPSS® version 21

The impacts of non-standardized coefficients innovative capability .558 and strategy .367. These values are part of the regression equation.

The resulting regression equation is:

$$H_0 = \text{Innovation} = a + \beta_1 \text{transformational leadership} + \beta_2 \text{structure} + \beta_3 \text{culture} + \beta_4 \text{strategy} + \beta_5 \text{innovation capability} + e$$

$$H_a = \text{Innovation} = a + \beta_1 \text{transformational leadership} + \beta_2 \text{structure} + \beta_3 \text{culture} + \beta_4 \text{strategy} + \beta_5 \text{innovation capability} + E$$

The p-value criterion was used to reject or not reject the null hypothesis, if the significance is less than the reliability the null hypothesis is not accepted, therefore, the variable in question is significant. Table 6 Coefficients of the regression model proceed with the tests of significance of the independent variables using the significance as a decision criterion:

$$\beta_1 = .000 < .05 \text{ significant variable}$$

$$\beta_2 = .005 < .05 \text{ significant variable}$$

## CONCLUSIONS

In this research the statistical processing of the data collected in the survey was carried out, which allowed generating the multiple linear regression model and thus checking the assumptions of the regression. It has also been possible to define the key factors for the successful development of innovation in SMEs of Nuevo Leon.

This study has provided an empirical investigation to determine the effects leadership, organizational structure and culture, strategy and innovation capability toward success for the innovation development in Mexican SMEs.

For the studied variables, strategy and innovation capability are significant positive related for the innovation development in SMEs.

The results of this study and other future studies are likely to help SMEs and their executives to take better managerial decisions. With this research future scientists who will investigate this topic, have a guide to understand how strategy and innovation capability positive impact innovation success.

This research offer theory and practical implications. In terms of theoretical implications the findings of this study were to visualize the contribution of innovation in companies, as well as the drivers and barriers for the development of innovation in SMEs. Theoretical value of this study implies that the hypotheses and the variables proposed are key drivers of the innovation process.

This study provides knowledge that can serve a management guide to the development of good practices, helping for SMEs success, that will be created in the future, or for those already in operations, maximizing their potential, contributing to the economic development of Mexico and the regions where they have operations.

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# Employee Engagement in Small and Medium Enterprises in Saudi Arabia and Nigeria

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*Small and Medium Enterprises (SMEs) are critical economic drivers in emerging economies, contributing significantly to employment rates and national income (OECD 2019). As the influence of globalization on economies of the world continues to increase, it is important to understand the impact employee engagement has on SMEs in emerging economies, and what that means in relation to organizational productivity and ultimately profitability. This paper examines the level of employee engagement, perceived performance, and perceived productivity in SMEs based in the emerging economies of Saudi Arabia and Nigeria. In Saudi Arabia, greater employee engagement was related to perceived performance, which was related to perceived profitability. However, in Nigeria employee engagement was not related to perceived performance, while perceived performance was related to perceived profitability. These findings and implications are further discussed.*

*KEYWORDS Employee engagement; Small and Medium-sized Enterprises (SMEs); Emerging economies; Organizational productivity; Organizational profitability*

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# Exploring Heterogeneity among the Self-Employed in Paraguay: A Profile of Survivalists, Latent Gazelles, and Top Performers

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*Utilizing the 2017 nationally representative Paraguayan Encuesta Permanente de Hogares (household census), we segment self-employed enterprises, a priori, based upon business income earned. This segmentation results in three broad groupings of enterprises: survivalist enterprises, latent gazelles, and top performers. We further segment the lowest performing survivalist enterprises into three sub-groups, also based upon earned business income. We profile and classify along a continuum of performance of self-employed firms that are failing, ailing, sustaining as survivalists, healthy firms as latent gazelles, and strong firms as top performers. Failing enterprises generate incomes at or below extreme poverty. Extreme poverty describes income insufficient to meet basic caloric or food needs. Ailing enterprises generate enough income for basic food needs but not basic needs more generally. Sustaining enterprises produce income that meets basic human needs of food and non-food goods and services. Healthy enterprises (latent gazelles) earn income beyond what is needed to meet basic needs and may produce surplus or economic profits for reinvestment, savings, leisure, and other non-survival goods and services. Strong enterprises (top performers) produce comfortable incomes devoid of precarious economic conditions. We situate our self-employed profiles within the contemporary economic context of Paraguay.*

**KEYWORDS** *Entrepreneurship, Paraguay, Survivalists, Latent Gazelles, Top Performers*

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# Is Mexico's Democracy under Threat? Effects of Fear and Corruption in Mexico: Updated to 2019

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*Mexico suffers a well-publicized outbreak of violence, kidnappings, and murder associated with drug trafficking. Since 2006, the death toll is over 154,000 and likely even more than this. 61,000 Mexicans have been reported "missing." For fear of crime Mexicans have modified daily activities and consider their quality of life negatively affected. Problematically for the survival of democracy, once crime becomes so big a problem that it undermines government's ability to govern, then the issue is a question of national security. Democracy fails when it fails to deliver security. In 2019 over 48% of Mexicans identified crime, drug trafficking, and a lack of security as the most important problem facing the country, and 73 percent of Mexicans are dissatisfied with the way democracy works in Mexico. Using the latest (2019) Latin American Public Opinion Project (LAPOP) survey data this article examines Mexican support for Mexico's democracy, finding that crime and fear of crime, perceptions that politicians are corrupt, idiographic economic evaluations, and education contribute to dissatisfaction with the way democracy works in Mexico. However, support for the Mexican military remains strong and this supports satisfaction with Mexican democracy. The new presidency of Andrés Manuel López Obrador (MORENO) has produced hope among Mexicans that there might be a solution to Mexico's crime, corruption, and security problems associated with drug trafficking organizations.*

In the past thirteen years, the consolidation or habituation<sup>2</sup> of Mexico's new democracy has stalled in the face of severe and persistent corruption scandals and an overwhelming security and justice crisis, aggravated by an explosion of violence associated with narcotics trafficking organized crime in the North, Pacific Coast, and Gulf Coast regions over the same period. The situation is serious enough to question the survival of democracy in Mexico. One signal that democracy may not thrive in Mexico is Freedom House downgrading Mexico in 2011 from "free" to "partly free."<sup>3</sup> In addition, Freedom House's press freedom index from 2016 through 2019 reports that Mexico's press freedom status was "not free."<sup>4</sup> Nearly every day U.S. and Mexican newspapers report another tragedy and another atrocity. Recently, the Mexican government has estimated 24,500

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<sup>2</sup> Dankwart A. Rustow, "Transitions to Democracy: Toward a Dynamic Model," 2(3) (197) 337 – 363, the section on habituation 358 – 361.

<sup>3</sup> Arch Puddington, "The Authoritarian Challenge to Democracy." (Washington, DC: Freedom House, 2011). <http://www.freedomhouse.org/report/freedom-world-2011/essay-authoritarian-challenge-democracy>.

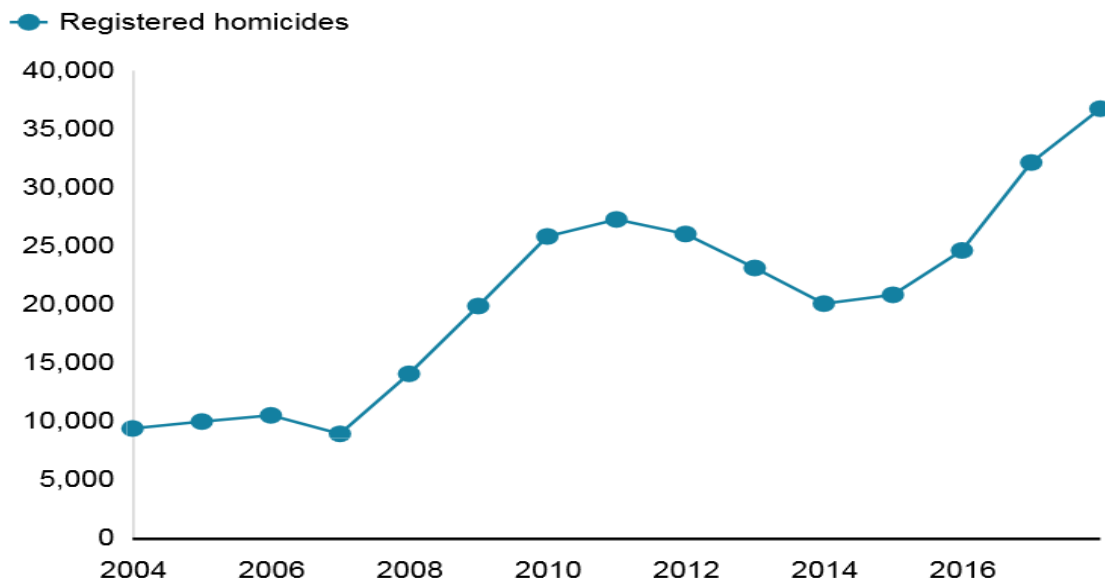
<sup>4</sup> Freedom House 2019.

intentional homicides in 2019<sup>5</sup> and 154,557 between 2010 and 2016.<sup>6</sup> Furthermore, in early January 2020 the Mexican government reported that since 2006 over 61,000 Mexicans have gone missing.<sup>7</sup> In Nuevo Laredo as recently as December 2019 - January 2020 shootouts between suspected drug cartel members and the military were still breaking out.<sup>8</sup> The violence and apparent inability of the authorities to fully exercise control begs the question: can Mexican democracy survive? This paper examines Mexican public opinion using LAPOP data sets of 2004 through 2019 [the survey was conducted every two years] concerning crime, fear of crime, and perceived corruption to determine if the crime wave and obvious insecurity have to seriously damaged democracy's chances for survival in Mexico.

**Figure 1:** Homicides in Mexico 2004 - 2018

## Homicides in Mexico

Yearly breakdown



Source: National Institute of Statistics and Geography (Inegi)

<sup>5</sup> Anthony Esposito, "Murders in Mexico hit record as Lopez Obrador seeks justice system Reform," (Washington, DC: Reuters) January 20, 2020. <https://www.reuters.com/article/us-mexico-violence-murders/murders-in-mexico-hit-record-as-lopez-obrador-seeks-justice-system-reform-idUSKBN1ZK07C>

<sup>6</sup> Arturo Angel, Paris Martínez, and Daniela Rea, "Solving Mexico Homicide Backlog Could Take 124 Years," *InSight Crime*, January 2, 2019, <https://www.insightcrime.org/news/analysis/solving-mexico-homicide-backlog-could-take-124-years/>.

<sup>7</sup> "New data reveals that 61,000 people disappeared, 50% more than reported," (Mexico City: Mexico News Daily) January 7, 2020, <https://mexiconewsdialy.com/news/new-information-reveals-that-61,000-people-have-dissappeared/>.

<sup>8</sup> César G. Rodríguez, "Civilian among six dead in Nuevo Laredo gun battles reported on New Year's," *Terror in Nuevo Laredo*. *Laredo Morning Times*. January 3, 2020.



## **BBC News Web Page 18 February 2020, How Dangerous is México?**

[www.bbc.com/news/worldlatinamerica50315470?intlink\\_from\\_url=https%3A%2F%2Fwww.bbc.com%2Fnews%2Fworld%2Flatin\\_america&link\\_location=live-reporting-story&fbclid=IwAR0sucKQ5VwcZ7eJ2LApmMEyfuVExB7xA6ZaDGYxjXYW27keIpa88B0pFf4](http://www.bbc.com/news/worldlatinamerica50315470?intlink_from_url=https%3A%2F%2Fwww.bbc.com%2Fnews%2Fworld%2Flatin_america&link_location=live-reporting-story&fbclid=IwAR0sucKQ5VwcZ7eJ2LApmMEyfuVExB7xA6ZaDGYxjXYW27keIpa88B0pFf4)

Democratic transitions have been reversed in the past, raising concerns for the future of Mexican democracy. Samuel Huntington notes that democratic reversal can be the result of the decline of the legitimacy of democracy through a sustained inability to provide prosperity, equity, justice, and domestic order.<sup>9</sup> Most would point out that to provide prosperity, justice, and order is exactly what legitimate government is about, but the failure to provide these is exactly what has been going on in Mexico. Moreover, the literature indicates that new democracies are especially vulnerable to democratic reversal.<sup>10</sup> Milan Svoblik explains:

When a new democracy falls into the trap of pessimistic expectations, a critical mass of the public loses such “high enough esteem” for democracy and in turn fails to restrain a leader or group with authoritarian aspirations. The public’s willingness to check transgressions against democracy erodes as mass disillusionment with government performance under democracy turns into indifference to alternative forms of government.<sup>11</sup>

Hence, democracies that are unable to operate effectively may relapse into authoritarian rule. For Mexico, these concerns are currently especially salient since Mexico has little experience with democracy having been under Institutional Revolutionary Party (PRI) hegemony for 70 years. Mexico’s democracy is still young and based upon Svoblik and Rustow within the window of vulnerability.<sup>12</sup> Moreover, Mexico’s contemporary democratic experiment has been met with disappointment. Initially, the Vicente Fox presidency (2000-2006) was well celebrated as the embodiment of the new Mexican democracy. Nevertheless, by the end of President Fox’s *sexenio*,<sup>13</sup> the performance of President Fox, the performance of the president’s party, the National Action Party [PAN], were all disappointing compared to what the people had hoped for and expected.<sup>14</sup> By 2006 fifty-four percent of Mexicans who voted for Fox in 2000 were dissatisfied with not just the PAN, but with democracy itself.<sup>15</sup> The Fox administration promised, “to stamp out corruption, foster economic growth and aid impoverished Mexicans, while at the same time promoting representative democracy,”<sup>16</sup> but its efforts were incomplete. Instead, after some initial

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<sup>9</sup> Samuel P. Huntington, *The Third Wave*. (Norman: University of Oklahoma Press. 1991), 292.

<sup>10</sup> Juan J. Linz, *The Breakdown of Democratic Regimes: Crisis, Breakdown, and Reequilibration*. (Baltimore: Johns Hopkins University Press, 1978). Rustow, 359.

<sup>11</sup> Milan Svoblik, “Learning to Love Democracy: Electoral Accountability and the Success of Democracy.” *American Journal of Political Science*. 57 no. 3 (2013): 688.

<sup>12</sup> Milan Svoblik, Op. cit., Dankwart A. Rustow, op. cit.

<sup>13</sup> Six-year term of office.

<sup>14</sup> Roderic Ai Camp, “Democracy Redux? Mexico’s Voters and the 2006 Presidential Race.” in *Consolidating Mexico’s Democracy; the 2006 Presidential Campaign in Comparative Perspective*. Eds. Jorge I. Domínguez, Chappell Lawson, and Alejandro Moreno. (Baltimore: The Johns Hopkins University Press, 2009). 29-49. Roderic Ai Camp, “Mexico’s Democratic Revolution, Where Is It Leading?” *Mexican Studies*. 25 no. 2 (2009): 367–376.

<sup>15</sup> Camp, “Democracy Redux? Mexico’s Voters and the 2006 Presidential Race,” 31.

<sup>16</sup> Emily Edmonds-Poli, “Decentralization under the Fox Administration: Progress or Stagnation?” *Mexican Studies*.

success, President Fox seemed overwhelmed in office; he became the reluctant president, avoiding tough choices and appearing hesitant.<sup>17</sup> Moreover, the next PAN president, President Calderón, was so unpopular by the end of 2012 he was disinvited from making his end-of-term State of the Union speech.<sup>18</sup> In the 2013 Latinobarómetro Mexico scores the lowest of all Latin American states on the question “Democracy is preferable to any other type of government,” with only 37 percent responding positively.<sup>19</sup> More recently, the presidency of Enrique Peña Nieto also proved a great disappointment to Mexicans.<sup>20</sup> This is well demonstrated by the results of the 2016 election where the PRI candidate ended up in a distant third place. In the 2019-2020 LAPOP AmericasBarometer 53.6 percent of Mexicans said they were dissatisfied with the way democracy works in Mexico.

## CRIME AND DEMOCRACY

Crime has Mexicans living under conditions of uncertainty and fear, especially in the harder hit northern and Pacific states. Out of fear for crime and criminals, more than half of Mexicans have modified their daily activities and consider that their quality of life has been negatively affected.<sup>21</sup> In a 2012 survey nationally just over 35 percent report out of fear they have changed where they shop, and 15 percent have moved house. In the North, 46 percent have changed where they shop, and just over 26 percent have moved. The World Values Survey 2012 data show that for fear of crime, 73 percent carry very little cash on their person, 67.1 percent avoid going out at night, and 41.4 percent claimed they felt unsafe from crime even in their own homes. Fear of crime is as politically salient as actual crime because ultimately fear drives political attitudes and behaviors.<sup>22</sup> Political preferences are products of subjective perceptions such as the fear of crime.<sup>23</sup> Most crime in Mexico goes unreported because Mexicans believe reporting crime does no good or it will cause them unending frustration with red tape.<sup>24</sup> In other cases, reporting a crime can have implications that are even more dangerous if the police are part of or have been infiltrated by criminal elements. In addition, there is a growing sense that the police are incompetent to stop crime.<sup>25</sup> Indeed, it appears that just over 95 percent of crime in Mexico goes unsolved.<sup>26</sup> In Chihuahua, for example,

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22 no. 2(2006): 388.

<sup>17</sup> Soledad Loaeza, “Vicente Fox’s Presidential Style and the New Mexican Presidency.” *Mexican Studies*. 22 no. 1 (2006): 29.

<sup>18</sup> Ernesto Núñez Albarrán, *Crónica de un Sexenio Fallido: La Tragedia de Calderonismo*. (D.F., México. Grijalbo, 2012).

<sup>19</sup> Latinobarómetro 2013. <http://www.latinobarometro.org/latOnline.jsp>

<sup>20</sup> Carlos Bravo Regidor and Patrick Iber. “A New Hope for Mexico?” *Dissent*. (New York, NY, 2018).

<https://www.dissentmagazine.org/article/mexico-elections-andres-manuel-lopez-obrador-amlo>

<sup>21</sup> Catalina Pérez Correa, “Distrust and Disobedience: Discourse and Practice of Law in México.” A paper presented at the 2007 Seminar in Latin America on Constitutional and Political Theory (SELA) in San Juan, Puerto Rico, June 12-15, 2007. Gustavo Robles, Beatriz Magaloni, and Gabriela Calderón, “The economic consequences of drug trafficking violence in Mexico,” *Poverty and Governance*, Stanford University, (2013), 5 -6. <https://cddrl.fsi.stanford.edu/crimelab/publication/economic-consequences-drug-trafficking-violence-mexico>

<sup>22</sup> See also John Kilburn, Claudia San Miguel, and Dae Hoon Kwak, “Is fear of crime splitting the sister cities? The Case of Los Dos Laredos,” *Cities*, 34 (2013), 30 -31, 32 - 33.

<sup>23</sup> Lucia Dammert and Mary Fran T. Malone, 2006. "Does It Take a Village? Policing Strategies and Fear of Crime in Latin America." *Latin American Politics and Society*. 48 no. 4 (2006): 27-51.

<sup>24</sup> Catalina Pérez Correa, “Distrust and Disobedience: Discourse and Practice of Law in México.”

<sup>25</sup> Steven Barracca, “Is Mexican democracy consolidated?” *Third World Quarterly*. 25 no. 8 (2004): 1482.

<sup>26</sup> Catalina Pérez Correa, “Distrust and Disobedience: Discourse and Practice of Law in México,” 15.

for 2010 only 1.1 percent of murders were successfully prosecuted; nationally it was 6.3 percent.<sup>27</sup> Animal Político points out that that police training is “practically nonexistent,” and “almost 95 percent of municipalities lack a police force sufficiently trained to even secure a crime scene.”<sup>28</sup>

Police incompetence or inadequacy is not the only barrier to solving Mexico’s crime issue. There is growing evidence and public realization that part of the problem is police corruption and police involvement in crime. “Police criminal activity runs the range from taking small bribes to burglary, to involvement in drug trafficking, and the operation of protection rackets and kidnapping rings.”<sup>29</sup> Pérez Correa adds that based on the 2004 Latinobarómetro survey, 65% of Mexicans reported “a lot” or “quite a lot” of probabilities for police to be bribed, and similarly, 58% replied that there were “a lot” or “quite a lot” of probabilities of bribing a judge.<sup>30</sup> Police corruption was thought to be so pervasive in Nuevo Laredo, Tamaulipas that all 700 police officers were fired in 2005.<sup>31</sup> Casteñeda asserts that the local (municipal) police cannot fight the drug cartels because they are often part of the drug cartels.<sup>32</sup> Moreover, the Mexican Senate reports that 195 municipalities (8 percent) were under the control of organized crime and another 63 percent somewhat under the influence of organized crime in 2010.<sup>33</sup> As Ruiz Harrell points out: “The trouble is this is not a minor problem: without the trust of the people they claim to serve, police and prosecutors are doomed to ineffectiveness.”<sup>34</sup>

## CORRUPTION AND DEMOCRACY IN MEXICO

Corruption is illegal or legal, but unethical, behavior by public officials manipulating the government for their own gain.<sup>35</sup> Corruption nearly always involves behaviors harmful to the public interest. “[C]orruption constitutes a violation of the unwritten contract between citizen and public official.”<sup>36</sup> Corruption is rampant in Mexico, and Mexico is also both a newly democratic country and a rapidly developing country. Bailey and Paras indicate that one-third of Mexicans identified corruption as Mexico's most important problem.<sup>37</sup> Paradoxically, in 2002 after the widely perceived as corrupt PRI (in office 1929-2000) was booted out of office, 47 percent thought

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<sup>27</sup> México Evalúa, Centro de Análisis Políticas Públicas, *Indicadores de Víctimas Visibles e Invisibles de Homicidio*. (Mexico City, 2012). [http://www.mexicoevalua.org/wp-content/uploads/2013/02/MEX-EVA\\_INDX\\_IVVI-HLOW.pdf](http://www.mexicoevalua.org/wp-content/uploads/2013/02/MEX-EVA_INDX_IVVI-HLOW.pdf)

<sup>28</sup> Arturo Angel, Paris Martínez, and Daniela Rea, “Solving Mexico Homicide Backlog Could Take 124 Years.”

<sup>29</sup> Steven Barracca, “Is Mexican democracy consolidated?” 1482.

<sup>30</sup> Catalina Pérez Correa, “Distrust and Disobedience: Discourse and Practice of Law in México,” 15.

<sup>31</sup> Marc Lacy, “In Mexican City, Drug War Ills Slip Into Shadows.” *New York Times*. June 12, 2009. <http://www.nytimes.com/2009/06/13/world/americas/13laredo.html>

<sup>32</sup> Jorge Casteñeda, Jorge. 2010. “Mexico’s Failed Drug War.” Economic Development Bulletin No. 13. (Cato Institute, 2010). < <http://www.cato.org/publications/economic-development-bulletin/mexicos-failed-drug-war>>

<sup>33</sup> June S. Beittel, *Mexico: Organized Crime and Drug Trafficking Organizations the Violence*. (Washington, DC: Congressional Research Service, 2018), 45. [www.crs.gov](http://www.crs.gov).

<sup>34</sup> Rafael Ruiz Harrell, “Estadísticas oficiales vs. percepción ciudadana de la inseguridad: el subregistro delictivo”. *Salud Pública de México*. 49(mar/abr2007 suplemento): E143.

<sup>35</sup> James A. Norris, “Democracy Stillborn? Effects of Fear and Corruption in Mexico.” *The Americas and the New World Order*, ed. Joshua Hyles, (Newcastle, UK, 2019), 112.

<sup>36</sup> Damarys Canache and Michael E. Allison, 2005. “Perceptions of Corruption in Latin American Democracies.” *Latin American Politics and Society*. 47 no. 3 (2005), 92.

<sup>37</sup> John Bailey and Pablo Paras, “Perceptions and Attitudes about Corruption and Democracy In Mexico.” *Mexican Studies*, 25 no.1 (2006): 57-81.

corruption was getting worse, while 58 percent thought the new Fox administration (PAN) was less corrupt than the previous administrations. The average *mordida* (small bribe, literal translation: “little bite”) was ten dollars; the total annual cost was over 1 billion dollars for 2001,<sup>38</sup> and the average Mexican spent \$394 paying *mordidas*.<sup>39</sup> The 2010 AmericasBarometer survey of Mexico reports that 24.8 percent of Mexican claim they have been solicited by police to pay a *mordida*; this is the highest rate in all of Latin America. Corruption in government, but especially in the police creates an unhealthy cycle that undermines confidence in justice and in the legitimacy of the state. Punch describes the especially devastating effect of police corruption, “Police officers are the state made flesh. . . . If they are corrupt, and if citizens lose confidence in them, then this undermines the legitimacy of the state.”<sup>40</sup>

Unfortunately, being a new democracy may mean that corruption has increased or, at least, appears to be a more serious problem above and beyond that experienced under PRI control. There are several possible explanations for amplified perceptions of corruption among the public. First, prior to Mexico’s democratic opening, when PRI fortunes were in the decline, keeping the problem hidden was a high priority because exposing the breadth and depth of corruption would further destabilize the party’s overall legitimacy and electability.<sup>41</sup> Secondly, rent-seeking government officials may be taking advantage of both the uncertainty and chaos of transition taking their last opportunities to extract payments before democracy demands transparency and honesty. Third, perceptions that corruption, criminality, and violence may be on the rise, from the more competitive, independent, and active media, themselves a product of democratization.<sup>42</sup> Norris has shown that the negative tone of news coverage affects satisfaction with the government.<sup>43</sup> Additionally, during the PRI era all the major media outlets served the PRI, but now the major media are free to expose scandal and corruption, and they are doing just this.<sup>44</sup> In addition, new civil society groups against corruption have emerged. A fourth explanation is that a temporary increase in corruption is a natural consequence of political modernization.<sup>45</sup> Lastly, in a newly emerging democracy corruption scandals may be positive signs that citizen concerns over corruption are aware of and recognize that norms of fair dealing and competent administration exist and that can be violated.<sup>46</sup>

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<sup>38</sup> Ibid., 65.

<sup>39</sup> Ibid., 75.

<sup>40</sup> Maurice Punch, “Police Corruption and Its Prevention.” *European Journal of Criminal Policy and Research* 8 no. 3 (2000): 322.

<sup>41</sup> Diane E. Davis, “Undermining the Rule of Law: Democratization and the Dark Side of Police Reform in Mexico.” *Latin American Politics and Society*. 48 no. 1 (2006): 64.

<sup>42</sup> Chappell Lawson. *Building the Fourth Estate: Democratization and the Rise of a Free Press in Mexico*. (Berkeley: University of California Press, 2002).

<sup>43</sup> Pippa Norris, *Democratic Deficit: Critical Citizens Revisited*. (Cambridge, UK: Cambridge University Press, 2011).

<sup>44</sup> Shannon O’Neill, “Corruption in Mexico.” *Latin America’s Moment*. (Council on Foreign Relations, 2013). <http://blogs.cfr.org/oneil/2013/07/18/corruption-in-mexico/#more-3535>

<sup>45</sup> Samuel P. Huntington, *Political Order in Changing Societies*, (New Haven, CT: Yale University Press, 1968).

<sup>46</sup> Susan Rose-Ackerman, “Corruption and Good Governance: Discussion Paper 3.” (New York: United Nations Development Programme, 1997 (UNDP)).

## DEMOCRACY AND ECONOMIC STRESS

Evaluations of the economy are very important to appraisals of the effectiveness and subsequent breakdown of democratic governance.<sup>47</sup> In addition, a huge body of work supports the claim that economics has a strong and systematic impact on elections and individual-level political evaluations.<sup>48</sup> Economic evaluations in Mexico seem likely to affect democratic legitimacy through attitudes toward the institutions of democracy. Furthermore, the old PRI regime claimed “revolutionary” legitimacy from promises to eliminate economic inequality and injustice.<sup>49</sup> Therefore, new economic injustices such as unemployment and economic inequality may have serious consequences for the legitimacy of new democracies and even for democracy itself. Moreover, during the *sexenio* of President Enrique Peña Nieto per capita wealth in Mexico declined by \$5,000 to \$20,620 per adult.<sup>50</sup> Haggard and Kaufman argue that economic crises are a main force that undermines agreements between the regime and leaders of key groups in society.<sup>51</sup> If the government fails to respond or is unable to respond to economic crisis competing social and economic interests scramble for a new bargain in their favor, undermining the stability of democracy.

There is ample evidence that the negative influences of the narco trafficker violence on local economies in the affected regions. It has been estimated that some 230,000 people fled Ciudad Juárez, one of the most violent border cities, from 2006 to 2009 and 430,000 fled the Northern states from 2005 to 2010.<sup>52</sup> It is estimated in the northern border cities of Nuevo Laredo in 2006 alone 700 businesses closed and in Ciudad Juárez 2007 – 2010 about 10,000 businesses closed down.<sup>53</sup> In Nuevo Laredo, the violence led to a substantial drop in tourism, the heart of that city’s economy.<sup>54</sup> This has meant “economic losses of about \$4.3 billion annually” for the Mexican

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<sup>47</sup> Mark J. Gasiorowski, Mark J. 1995. “Economic Crisis and Political Regime Change: An Event History Analysis.” *American Political Science Review*. 89 no. 4 (1995): 882-897. Guillermo O’Donnell, “Modernization and Bureaucratic Authoritarianism.” *Studies in South American Politics*. (Berkeley Institute of International Studies. Berkeley, CA: University of California Press, 1973). Adam Przeworski, *Democracy and Market: Political and Economic Reforms in Eastern Europe and Latin America*. (Cambridge: Cambridge University Press, 1991). Milan Svoblik, “Learning to Love Democracy: Electoral Accountability and the Success of Democracy.” Gabor Tóka, “Political Support in East-Central Europe.” In *Citizens and the State*. Eds. Hans-Dieter Klingemann and Dieter Fuchs. (New York: Oxford University Press, 1995). Michael Wallerstein, “The Collapse of Democracy in Brazil: Its Economic Determinants.” *Latin American Research Review*. 15 no. 3 (1980): 3-40.

<sup>48</sup> Donald R. Kinder and D. Roderick Kiewiet. “Sociotropic Politics: The American Case.” *British Journal of Political Science*. 11 no. 20 (1981): 129-161. Michael S. Lewis-Beck *Economics and Elections: The Major Western Democracies*. (Ann Arbor, MI: University of Michigan Press, 1988). Helmut Norpoth, “Presidents and the Prospective Voter.” *Journal of Politics*. 59 no. 3 (1996): 776-792. Alexander F. Wagner, Friedrich Schneider, and Martin Hallad. “The Quality of Institutions and Satisfaction with Democracy in Western Europe-A Panel Analysis.” *European Journal of Political Economy*. 25 no. 1 (2009): 30-41.

<sup>49</sup> Joseph L. Klesner “Electoral Competition and the New Party System in Mexico.” *Latin American Politics and Society*. 47 no. 2 (2005): 103-142.

<sup>50</sup> Mathieu Tourliere, “El México actual: 39 mexicanos acumulan más de 10 mmdp, frente a 96 millones de pobres: Credit Suisse.” *Proceso*. (23 October 2018).

<sup>51</sup> Stephan Haggard and Robert R. Kaufmann, *The Political Economy of Democratic Transitions*. (Princeton: Princeton University Press, 1995).

<sup>52</sup> Laura H. Atuesta and Dusan Paredes, “Do Mexicans flee from violence? The effects of drug-related violence on migration decisions in Mexico,” *Journal of Ethnic and Migration Studies*, 43,3 (2016): 482.

<sup>53</sup> Viridiana Rios, “The role of drug-related violence and extortion on promoting Mexican Migration: Unexpected consequences of a drug war,” *Latin American Research Review*, 49, 3 (2014), 209.

<sup>54</sup> John Kilburn, et. al., op. cit., 33.

economy.<sup>55</sup> One estimate made even before the drug trafficker violence erupted supposes that the full cost of violence in Mexico may be as high as 12 percent of GDP.<sup>56</sup> A similar work concludes that drug trafficker violence causes negative growth rates of between 14 and 11 percent annually in the states most affected by the violence.<sup>57</sup>

## DEMOCRATIC CONSOLIDATION

Democratic consolidation is said to be achieved once "democracy becomes the only game in town when all actors are habituated to the fact that political conflict will be resolved according to accepted norms and violations of these norms are likely to be both ineffective and costly."<sup>58</sup> Gunther, Puhle, and Diamandouros add: "We consider a democratic regime to be consolidated when all politically significant groups regard its key political institutions as the only legitimate framework for political contestation, and adhere to democratic rules of the game."<sup>59</sup> Przeworski agrees, asserting that democracy is consolidated when it becomes self-enforcing.<sup>60</sup>

Larry Diamond and other behaviorists emphasize behavioral and attitudinal criteria.<sup>61</sup> The idea is that attitudes direct behavior. Adherence to the rule of law is one of several behaviors that is observed in consolidated democracies. Hence, a critical dimension is attitudinal. Ordinary citizens must also be "habituated" to democratic procedures and expectations before democracy can be considered consolidated.<sup>62</sup> It follows that if the law is not enforced, if corrupt practices thwart justice, and/or if forces such as organized crime exercise overwhelming coercive force, citizens cannot habituate to democratic norms. Once organized crime grows into so big a problem that it undermines government monopoly on coercive force then the issue is no longer just a question of law and order but of national security.<sup>63</sup> "Democracy fails once it fails to deliver security. And it fails when the second key public good, justice, is denied, which is the case in a corrupt justice system."<sup>64</sup>

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<sup>55</sup> Viridiana Rios, "Evaluating the economic impact of Mexico's drug trafficking industry," Paper presented at the Graduate Students Political Economy Workshop, Harvard University, (Spring 2008), 1.

<sup>56</sup> Gustavo Robles, et. al., op. cit., 8.

<sup>57</sup> Mingning Pan, Benjamin Widner, and Carl E. Enomoto, "Growth and crime in contiguous states of Mexico", *Review of Urban and Regional Development Studies*, No. 24, ½ (2012) 55 – 56.

<sup>58</sup> Juan J. Linz and Alfred Stepan, *Problems of Democratic Transition and Consolidation: Southern Europe, South America, and Post-Communist Europe*, (Baltimore, MD: Johns Hopkins University Press, 1996) 5

<sup>59</sup> Richard Gunther, Hans-Jürgen Puhle, and P. Nikiforos Diamandouros, "Introduction," in *The Politics of Democratic Consolidation: Southern Europe in Comparative Perspective*, eds. Richard Gunther, P. Nikiforos Diamandouros, Hans-Jürgen Puhle (Baltimore, MD: Johns Hopkins University Press 1995) 7.

<sup>60</sup> Adam Przeworski, *Democracy and Market: Political and Economic Reforms in Eastern Europe and Latin America*, 26.

<sup>61</sup> Larry Diamond, "Is the Third Wave Over?" *Journal of Democracy*. 7 no. 3 (1996): 20-37.

<sup>62</sup> Dankwart A. Rustow, "Transitions to Democracy."

<sup>63</sup> Felicia Allum and Renate Siebert. 2003. "Organized Crime: a Threat to Democracy?" in *Organized Crime and the Challenge to Democracy*. eds. Felicia Allum and Renate Siebert. (New York: Routledge, 2003) 4.

<sup>64</sup> James A. Norris, op. cit., 116.

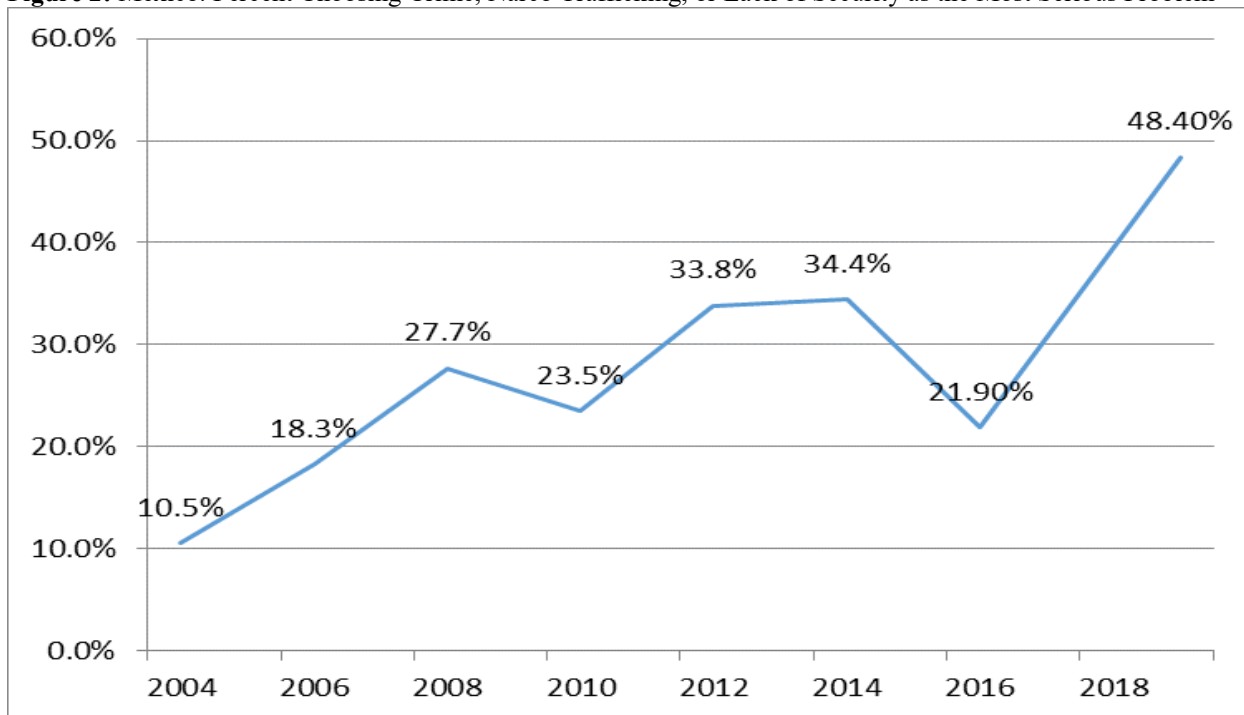
## DATA AND METHOD

This paper uses data from the AmericasBarometers of 2006 - 2019 that covers the main period of extreme insecurity in Mexico. These were nationwide surveys conducted every two years with approximately 1500 respondents each time. Variable construction and coding are discussed in Appendix A.

## EVIDENCE: CRIME AND FEAR OF CRIME

The purpose of this paper is not to document the increase in crime and the increased salience of corruption, these next two sections offer evidence that both these institutional defects are very important in the thoughts of Mexicans. Therefore, I present some of the survey evidence of the scope of the predicaments facing Mexico. The data shown in Figure 2 indicate that crime has become increasingly the most salient problem in Mexico. Whereas in 2004 about 10.5 percent cited crime, drug trafficking, or lack of security as the number one problem facing Mexico, by the 2008 survey these were the major concerns of 27.7 percent. Six years later, the 2014 survey 34.4 percent identified crime, drug trafficking, or lack of security as the number one problem facing Mexico. This decreased in the 2016 survey, but by 2018 – 2019, a whopping 48.4 percent said these were the most important problems facing the country. Normally, respondents in countries across the world identify economic problems or unemployment as the most serious problem facing their country as Mexicans did in 2004. About 25 percent cited unemployment, about 16 percent economic problems, and about 16 percent poverty as the most important problems facing Mexico in 2004.

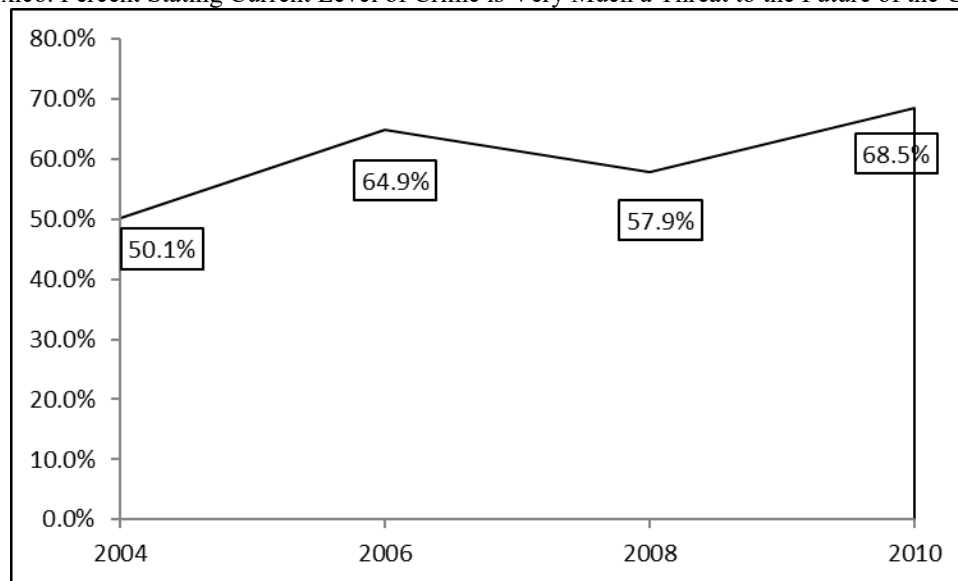
**Figure 2:** Mexico. Percent Choosing Crime, Narco Trafficking, or Lack of Security as the Most Serious Problem



Source: Author calculations LAPOP AmericasBarometer Mexico data. The AmericasBarometer by the Latin American Public Opinion Project (LAPOP), [www.LapopSurveys.org](http://www.LapopSurveys.org).

Furthermore, respondents have become increasingly concerned that crime and security in Mexico have become so advanced that by often overwhelming majorities Mexicans believe that the situation is very much a threat to the future of the country. Figure 3 tracks responses for the whole country. In 2004 a bare majority of Mexicans believed the threat so important that it was a threat to Mexico’s future, and by the 2010 survey this has increased to 68.5 percent. Surprisingly and unfortunately, the surveys after 2010 do not ask the same question. However, fortunately, the 2018 - 2019 survey asks a question that captures in some ways a similar signal of the deterioration of the conditions of security and safety in the thoughts of Mexicans. The 2018 -2019 survey asked respondents to rate the perceived safety/ security of their own neighborhood. This is shown in Table 1. Of the almost 1553 respondents, a majority of 864 or 55.6 percent answered that they felt their own neighborhoods were unsafe. Only 44.4 percent thought conditions very safe or somewhat safe.

**Figure 3: Mexico. Percent Stating Current Level of Crime is Very Much a Threat to the Future of the Country**



Source: Author calculations LAPOP AmericasBarometer Mexico data 2004 - 2010. The AmericasBarometer by the Latin American Public Opinion Project (LAPOP), [www.LapopSurveys.org](http://www.LapopSurveys.org).

**Table 1: 2018 -2019 Perception of How Safe is Your Neighborhood**

	Frequency	Percent	Valid Percent	Cumulative Percent
Very Safe	202	12.8	13.0	13.0
Somewhat Safe	487	30.8	31.4	44.4
Somewhat Unsafe	505	32.0	32.5	76.9
Very Unsafe	369	22.7	23.1	100
Missing	27	1.7		
Total	1580	100		

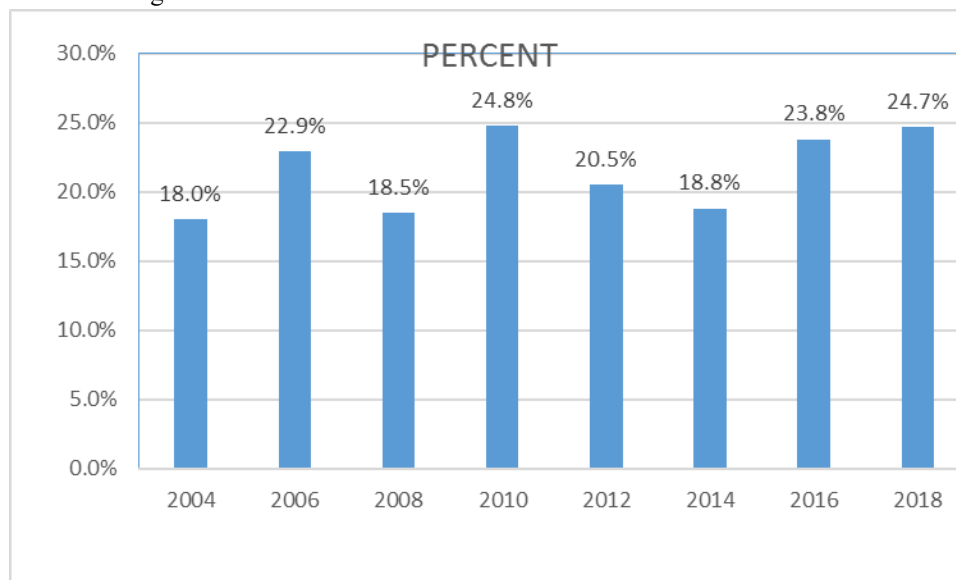
Source: Author calculations LAPOP 2018 - 2019 AmericasBarometer Mexico data. The AmericasBarometer by the Latin American Public Opinion Project (LAPOP), [www.LapopSurveys.org](http://www.LapopSurveys.org).



## EVIDENCE: CORRUPTION

In the 2018 – 2019 AmericasBarometer 72.5 percent of Mexicans perceived that corruption among public officials is either very common or common. Among Latin American countries Mexico has the highest rates of reported bribe solicitation. Seventy-three percent of those surveyed in 2018 reported having been solicited for a bribe by police (see Figure 4 for the same responses for the other survey years). Similarly, 16.9 percent admitted that bribe paying can be justified as necessary. This is down from the few previous surveys. In addition, based upon the 2012 survey [this question was not included in the later surveys] 57 percent believe that the government does not do very much to fight corruption, but at the same time about 26 percent think the government does make significant efforts to thwart corruption; the remaining 18 percent are right in the middle. Nevertheless, the literature points out that negative evaluations concerning corruption are not likely to be shared by political supporters of the current government.<sup>65</sup> In the 2018-19 survey about 80 percent asserted that half or more than half of all politicians are corrupt. Moreover, Mexican authorities and politicians have long used the façade of official loathing of corruption by sponsoring anti-corruption campaigns that attack a symbolic few scapegoats. Because governments can claim to have taken positive measures against corruption, a significant enough proportion of the public are misled into believing officials and government are indeed successful and doing their best to fight corruption. Which is ironic, because they are often the cause and instigators of corruption.

**Figure 4:** Percent Claiming Police Solicited a Bribe



Source: Author calculations LAPOP data AmericasBarometer Mexico data. The AmericasBarometer by the Latin American Public Opinion Project (LAPOP), [www.LapopSurveys.org](http://www.LapopSurveys.org).

<sup>65</sup> Christopher J. Anderson and Yuliya V. Tverdova, (2003). "Corruption, Political Allegiances, and Attitudes Toward Government in Contemporary Democracies." *American Journal of Political Science*. 47 no. 1 (2003) 91–109. Luigi Manzetti and Carole J. Wilson, "Why Do Corrupt Governments Maintain Support?" in *Corruption and Democracy in Latin America*. eds. Charles H. Blake and Stephen D. Morris. (Pittsburgh, PA: University of Pittsburgh Press 2009).

## VARIABLES

The dependent variable is Satisfaction with Democracy, which is the most widely used indicator of support for democracy.<sup>66</sup> As a measure, it indicates support for or lack of support for the way democracy operates in practice in a country according to its citizens, without needing an exact definition of democracy. This is useful because different societies and cultures have different ideas about the purpose of democracy. In much of Latin America and Mexico democracy is thought to embrace the idea of equality more the concepts of freedom or liberty. Respondents supply their own understanding of the complex concept, “democracy.” In the 2018-19 survey, shown in Table 2 below, most Mexicans are not satisfied with the way democracy works in Mexico.

**Table 2:** Frequency Table of Satisfaction With the Way Democracy Works in Mexico

	Frequency	Percent	Cumulative Percent
Very Dissatisfied	190	12.7	12.7
Dissatisfied	613	40.9	53.6
Satisfied	617	41.2	94.9
Very Satisfied	77	5.1	100.0
	1497	100.0	
Missing	61		

*Source:* Author calculations LAPOP data AmericasBarometer Mexico 2018-2019 data. The AmericasBarometer by the Latin American Public Opinion Project (LAPOP), [www.LapopSurveys.org](http://www.LapopSurveys.org).

The independent variables are divided into several broad categories that reflect and capture aspects of the major issues of crime, corruption, and economic evaluations. In addition, still tapping the above ideas, but in a different way, an additional independent variable explores the concession that corruption is an accepted part of life in Mexico. This variable explores the dimension of the perception of corruption caused by attitude changes brought by democratization towards realizations that corruption is becoming less acceptable than in the past.<sup>67</sup> Another measures the possible effects of a less constrained mass media more free to report corruption scandals and crime, where the rising consumption of mass media may be a possible explanation either for knowledge of higher levels of crime and violence, and or awareness of corruption and scandals. Lastly, support for military intervention into the drug war is the last essential independent variable. Demographic control variables are also included: education, gender, age, and family income.

<sup>66</sup> Jonas Linde and Jaoquin Ekman, “Satisfaction with Democracy: A Note on a Frequently Used Indicator in Comparative Politics.” *European Journal of Political Research* 42 (2003): 391–408.

<sup>67</sup> Susan Rose-Ackerman, “Corruption and Good Governance: Discussion Paper 3.

## FINDINGS

**Table 3:** OLS Regression on Satisfaction With the Way Democracy Works In Mexico, 2018

	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	3.445***	.207		16.666	.000
Police Bribe Solicited (I)	-.040	.050		-.813	.417
Politicians Corrupt (S)	-.126***	.031	-.108	-4.100	.000
Crime Victim in Last Year (I)	-.130**	.045	-.079	-2.912	.004
Neighborhood Safety (S)	-.090***	.022	.113	-4.172	.000
Economy Idiographic	.104**	.035	.092	-3.005	.003
Economy Sociotropic	.039	.032		-1.207	.405
Sometimes Pay a Bribe is Just?	-.034	.054		-.622	.534
News Consumption	-.027	.020		-1.349	.178
Trust Armed Forces	.066***	.012	.156	5.771	.000
Education	-.012*	.006	-.071	-2.308	.021
Gender	.041	.043		.334	.738
Age	.001	.001		.879	.380
Income	-.003	.005		-.646	.519
R = .334					
Adj R <sup>2</sup> = .103					
N = 1334					

\* p < 0.05

\*\* p < 0.01

\*\*\* p < 0.001

*Source:* Author calculations 2018-19 LAPOP data AmericasBarometer Mexico data. The AmericasBarometer by the Latin American Public Opinion Project (LAPOP), [www.LapopSurveys.org](http://www.LapopSurveys.org).

The regression, shown in Table 3, tests the hypotheses that corruption, crime, and deteriorating security due to the drug war damages the reputation of Mexico's new democracy; each of these appears to contribute to dissatisfaction with the way democracy works (henceforth, satisfaction with democracy) in Mexico. Furthermore, it is noteworthy that among the above concerns the perception that their own neighborhood is unsafe is the strongest contributor to dissatisfaction with democracy [ $\beta = -.113$ ]. However, nearly of equal power [ $\beta = -.108$ ] is the perception that most politicians are corrupt. As predicted perceptions that most politicians are corrupt is significant and does sour Mexican satisfaction with democracy. In addition, safety and security also play a negative role in assessments of democracy in Mexico. The independent variables associated with crime and insecurity are both significant. Having been a crime victim in the last year is significant and correctly predicts dissatisfaction with the way democracy works in Mexico. It asserts the smallest relative effect on the dependent variable [ $\beta = -.079$ ], but crime victims are 13 percent less satisfied with how democracy in Mexico functions. Assessments of neighborhood safety also affect satisfaction with democracy as expected. Perceptions that their neighborhood is unsafe led to declining satisfaction with democracy. Moreover, this effect is robust, with a nine percent decline in satisfaction with Mexican democracy for each of the four values on the independent variable. Surprisingly, sociotropic [national] economic evaluations of the economy are not

significant,<sup>68</sup> but idiographic [individual] evaluations of one's own economic success are significant and in the correct direction. The more favorably respondents perceive their own economic situation, the more favorably they evaluate Mexico's democracy, and the opposite. For each positive step on the three-value individual economic evaluation respondents are about 10 percent more likely to be satisfied with the way democracy works in Mexico. Additionally, trust in the armed forces, which the government has been using to fight the drug cartels, means greater satisfaction with democracy. Moreover, this effect is the strongest of all [ $\beta = .156$ ]. Perhaps, surprisingly, more education means dissatisfaction with the way democracy works in Mexico. The effect is small, minus 1.2 percent support for each additional year of education, but this translates to minus 19 percent support for Mexican democracy for university graduates and minus 12 percent for secondary school [equivalent] graduates. News consumption was not significant. The data set also includes possible variables that superficially examine internet, Facebook, twitter, and WhatsApp usage, as well; these may be more useful in gauging exposure to the "news," for similar future projects. Moreover, two of these, Facebook and WhatsApp, produce weak, but significant correlations with the dependent variable.

## CONCLUSIONS

Mexicans are disappointed with the way democracy works in Mexico. Seventy-three percent are dissatisfied with Mexico's democracy. Their dissatisfaction is driven by several factors: perceptions of political corruption, by concerns for the country's safety and security, and by their economic situation. The dependent variable is based upon perceptions of regime performance and not on abstract ideas and conceptualizations of the meaning of democracy.<sup>69</sup> Moreover, the public's most salient concerns have to do with corrupt politicians and security concerns. Thus far, regime performance has been found wanting. Furthermore, Mexicans do strongly trust the military, which the government has been using to help fight the drug cartel war, only 35.3 percent score neutral or negative on this variable, and this lends strong support to satisfaction with the way democracy is working in Mexico. Therefore, if the military effort is perceived as successful or, at least, as having some success in curtailing the violence, Mexican appraisals of the success of their new democracy will rise. However, Casteñeda warns that the military solution will fail in the long term,<sup>70</sup> and military confrontations continue thirteen years after the beginning of the military crackdown.<sup>71</sup> It seems the more the government confronts the cartels, the more brutal the retaliations.<sup>72</sup>

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<sup>68</sup> Surprising regarding the findings of James A. Norris, "Democracy Stillborn? Effects of Fear and Corruption in Mexico." *The Americas and the New World Order*, ed. Joshua Hyles. Newcastle, UK (2019), 108 -129, which used the LAPOP data from 2016- 2017 in its analysis. In this earlier analysis, the sociotropic economic variable was significant and the idiographic economic variable was not significant.

<sup>69</sup> Jonas Linde and Jaquin Ekman, "Satisfaction with Democracy: A Note on a Frequently Used Indicator in Comparative Politics."

<sup>70</sup> Jorge Casteñeda, "Mexico's Failed Drug War." Economic Development Bulletin No. 13. (Cato Institute, 2010). <http://www.cato.org/publications/economic-development-bulletin/mexicos-failed-drug-war>

<sup>71</sup> César G. Rodriguez, "Civilian among six dead in Nuevo Laredo gun battles reported on New Year's."

<sup>72</sup> Alfredo Corchado, 2013. *Midnight in Mexico: A Reporters Journey Through a County's Descent into Darkness*. (NewYork: Penguin Press, 2013).

Moreover, Mexico's democracy still stands on an unstable foundation. In 2014, 58 percent of Mexicans could conceive of the possibility of a military coup d'état if crime is too high or if there is too much corruption. In the 2018-19 survey, this has declined to between 44 and 42 percent respectively. Likely, this is a sign of hope for the success of the new administration. Elections occurred a few months prior to the survey with a resounding majority victory for Andrés Manuel López Obrador (AMLO) and his political party, the National Regeneration Movement, MORENA. Still, it does appear that a substantial proportion of the Mexican public is still at least considering trading democracy for security. Further study should examine if there exists support for extra-legal suppression of crime,<sup>73</sup> if support has increased perhaps out of frustration, and the complex relationship Mexicans have with their widespread perception that both the political system and the justice system is irrevocably corrupt. Mexico seemed poised to slip into mass disillusionment with democracy, and possibly indifference to democracy's survival in favor of increased security based upon an earlier article.<sup>74</sup> Mexico has suffered policy failure after policy failure since 1994 through 2019. Svobik's "cycle of negative reinforcement" invites pessimism towards democracy and at some point, the public's pessimism becomes the self-reinforcing "trap of pessimistic expectations."<sup>75</sup> Democracy is then vulnerable to subversion. Mexico has reached this point. Moreover, the 2018 election results point to a profound dissatisfaction with corrupt politics in Mexico, but with a glimmer of hope. The public hopes and expects that President Andrés Manuel López Obrador and MORENA, will turn things around and lift Mexico out of this seeming "trap of pessimistic expectations." "AMLO has worked hard to maintain an image of pure, moral opposition to this kind of dishonest government—in spite of the corruption scandals roiling some of his associates."<sup>76</sup> However, thus far we have not seen a significant improvement in the security situation and in some cases a marked deterioration, such as the October 2019 debacle in Culiacán,<sup>77</sup> and the November 2019 ambush in Sonora that killed nine U.S. citizens, six of them children.<sup>78</sup>

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<sup>73</sup> James A. Norris, "Correlates of Vigilantism in Mexico, 2014." Paper prepared for presentation at the Annual Meeting of the Southwestern Political Science Association, 24 – 26 March 2016, in Las Vegas Nevada.

<sup>74</sup> James A. Norris, "Democracy Stillborn?" op. cit.

<sup>75</sup> Milan Svobik, "Learning to Love Democracy: Electoral Accountability and the Success of Democracy." *American Journal of Political Science*. 57 no 3 (2013): 699.

<sup>76</sup> Carlos Bravo Regidor and Patrick Iber. 2018 "A New Hope for Mexico?" *Dissent*. (New York, NY, 2018). <https://www.dissentmagazine.org/article/mexico-elections-andres-manuel-lopez-obrador-amlo>.

<sup>77</sup> Philip Luke Johnson, "Revisiting the Battle of Culiacán," *NACLA*, (November 19, 2019), <https://nacla.org/news/2019/11/22/culiacan-chapo-mexico-drug-violence>.

<sup>78</sup> Jasmine Aguilera and Madeleine Carlisle, "9 U.S. citizens, including 6 children, were killed in an ambush in Mexico. Here's what we know so far," *Time*, (November 5, 2019). <https://time.com/5718325/nine-united-states-citizens-killed-mexico/>

## APPENDIX A

Variable	Survey Question	Values
<b>Dependent Variable:</b> Satisfaction with Democracy	Would you say that you are very satisfied, satisfied, dissatisfied or very dissatisfied with the way democracy works in the country	1- Very dissatisfied, 2 – dissatisfied, 3 - satisfied, and 4 – very satisfied.
<b>Independent Variables:</b>		
Police Bribe Solicited	Has a police officer asked you for a bribe in the last twelve months?	0 – no, 1 - yes
Politicians Corrupt	Amount of Corruption among Politicians	1 – none, 2 – less than 1/2, 3 – half of them, 4 – more than half of them, 5 - all
Crime Victim in Last Year		0 – no, 1 - yes
Neighborhood Safety	Speaking of the neighborhood where you live and thinking of the possibility of being assaulted or robbed, do you feel very safe, somewhat safe, somewhat unsafe or very unsafe?	1 – very safe, 2 – somewhat safe, 3 – somewhat unsafe, 4 – very unsafe
Economic Ideographic [Individual]	Do you think that your economic situation is better than, the same as, or worse than it was 12 months ago?	1 – worse, 2 – same, 3 - better
Economic Sociotropic [whole nation]	Do you think that the country's economic situation is better than, the same as, or worse than it was 12 months ago?	1 – worse, 2 – same, 3 - better
Sometimes Pay a Bribe is Justifiable?	Do you think given the way things are, sometimes paying a bribe is justified?	0 – No; 1 – Yes.
Military	Trust in the armed forces	Scale of 1 to 7 where 1 means not at all and 7 means a lot
News Consumption	Frequency of consumption of the news.	1 – never, 2 – rarely, 3 – a few times a month, 4 – a few times a week, 5 - daily
Education		Education in years
Gender		0 – male, 1 - female
Age		Age in years
Income	Into which of the following income ranges does the total monthly income of this household fit, including remittances from abroad and the income of all the working adults and children?	Income in 17 categories.

# Corruption, Regulation, and Special Economic Zones

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*For many years, governments in developing countries have tried to attract investment and create jobs in manufacturing and high-tech industries. Although some, such as China, have managed to do this, many others have failed. In part, this is because developing countries often have challenging investment climates. Regulation is burdensome, corruption is common, infrastructure is unreliable, and the macroeconomy can be unstable. Moreover, political opposition and fiscal constraints mean that governments often struggle to fix these problems. Rather than trying to fix the investment climate across the entire country, many governments have tried to fix the problems in only limited areas. These areas are called special economic zones (SEZs) and often have more favorable tax regimes, less burdensome regulations, and better infrastructure than the rest of the country. In this paper, we look at these zones in Africa and South Asia to see whether corruption is lower and regulation less burdensome in the zones. We find, on average, that the zones are successful along these dimensions. Firms in the zones are less likely to say they need to pay bribes than firms outside the zones and report their management spend less time dealing with government regulations. The zones, however, have not succeeded everywhere; firms in African SEZs do not report less corruption or regulation than firms outside the zones.*

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# Bribery and Corruption in Mexico

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*Mexico is one of the most important partners of the United States for different types of businesses. Year after year, American companies expand their operations into international markets and the proximity, along with other plausible circumstances, make the Republic of Mexico a special destination for new investments and ventures. There are, however, some challenges associated with such benefits. It is the responsibility of the entrepreneur to acknowledge these issues and be prepared to manage all the potential risks that arise for a new venture in foreign lands, such as Mexico in this case. Besides getting construction permits, protecting intellectual rights, and competing with local businesses, companies entering the Mexican market, or operating in Mexican territory face another major problem; corruption. Corruption is known to be cancer for the economic and social growth of modern societies. It is, however, a concept especially difficult to define, since many factors affect the context under which an act can be classified as corrupt. In this paper, the definition of corruption crimes such as bribery is reviewed for instructional purposes. Moreover, these concepts are illustrated with real-life cases of unlawful acts labeled as corrupt in the eyes of the Foreign Corrupt Practices Act (FCPA), such as the incident of Walmart Mexico in 2012. Furthermore, a review of the recent efforts started by the Mexican Government to eradicate the corruption problems within this country, such as The National Anticorruption System is also presented. These efforts, combined with the efforts of International Organizations oriented towards the elimination of corruption are presented as important toolkits for entrepreneurs to acknowledge countermeasures and be prepared to face such undesirable scenarios. It is concluded that the best weapon for the protection of American entrepreneurs is the expertise of the FCPA and programs related to the management of regulatory compliance, such as the COSO ERM Framework.*

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# **Brazil and the United States: Scandals, Briberies, Corruption and Other Crimes**

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## **I. INTRODUCTION**

*The world is a small place, but the internet is vast land.*

No truer are those words than when considering the ways in which businesses grow and evolve on an international stage. Many dynamics come into play along with the many repercussions of bad choices or irresponsible business dealings. These are not always obvious, especially when doing business with companies or a government that has a less than stellar reputation from ethical, moral and fair perspectives. To be sure, corruption, bribery, money laundering and extortion are nothing new – and that is true regardless of the country in which one does business. Trautman (2017) credits, “The phenomenal growth of the Internet during recent years” for the massive opportunities for business owners and would-be entrepreneurs.

With an ever-shrinking world (but, an ever-growing cyber population), these crimes of bribery and corruption show a spectacular degree of the worst in human nature. From an American perspective, Brazil presents more than a few unique dynamics that are worth considering, including several simultaneous large corruption cases that are far beyond worrisome.

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# **Bribery and Corruption in Venezuela: An American Business Perspective**

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## **CHAPTER 1: INTRODUCTION TO CORRUPTION IN VENEZUELA CORRUPTION IN VENEZUELA**

Venezuela possesses the largest crude oil reserves in the world and once had one of the fastest-growing economies in Latin America. Between 1974 and 1979, Venezuela was able to spend more money than in its entire independent history.<sup>2</sup> Currently, Venezuela is perceived as the most corrupt country in the Latin America region.<sup>3</sup> This Article discusses Venezuela's transformation from one of the wealthiest Latin American countries to a country where poverty, social exclusion, and corruption is on the rise. The research presents corruption law in Venezuela and analyzes cases on how the law is enforced compared to the United States and other countries. This article also

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<sup>2</sup> Polga-Hecimovich, J. (2017, June 9). The Roots of Venezuela's Failing State. Retrieved December 6, 2019, from <https://origins.osu.edu/article/roots-venezuelas-failing-state>

<sup>3</sup> Transparency International e.V. (n.d.-a). Transparency International - Venezuela. Retrieved December 6, 2019, from <https://www.transparency.org/country/VEN>

discusses challenges that businesses and entrepreneurs may encounter if investing in Venezuela and lastly, the article seeks to give recommendations for this entrepreneur.

Bribery and corruption occur worldwide in both developed and underdeveloped countries. Government officials typically address such crimes with laws to establish a legal framework that defines the types of corruption offenses and the consequences of violating them. The United Kingdom instituted the UK Bribery Act in 2010, and the U.S. has instituted the Foreign Corrupt Practices Act (FCPA) to enforce the violation of bribery laws domestically and internationally. Venezuela has had anti-bribery and anti-corruption legislation since the early 1980s; however, the enforcement of these crimes is weak.<sup>4</sup>

## **History of Corruption in Venezuela**

### **Economic Impact**

Venezuela is an oil-rich country with approximately 25% of OPEC's (Organization of the Petroleum Exporting Countries) crude oil reserves.<sup>5</sup> Although crude oil reserves offer an advantage for developing countries, often corruption is accompanied by the abundance of this natural resource.<sup>6</sup> Since oil-rich countries depend more on export income and less on taxes, there are often weak ties between the government and its citizens.<sup>7</sup> In essence, Venezuela's history of oil abundance has created a society that doesn't benefit the citizens, but rather causes discontent and ultimately, rebellion. Venezuelan diplomat Juan Pablo Perez Alfonzo was a co-founder of OPEC who predicted that Venezuela's dependency on oil would also be its demise.

During the time of the oil boom in the 1970s, when oil brought Venezuela an unprecedented amount of income, Perez Alfonzo prophesied that, "Ten years from now, 20 years from now, you will see; oil will bring us ruin...it is the devil's excrement."<sup>8</sup>

The history of corruption has created a major hurdle for businesses operating or planning to invest in Venezuela since there is rampant corruption within the judicial system and inefficiencies in reducing corruption. Ironically, while Hugo Chávez championed for the less fortunate, his government's economic mismanagement wasted billions that potentially could have improved the lives of Venezuelans.

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<sup>4</sup> Dávila, J. A., & Gonçalves, A. (2019, November). Venezuela - The Anti-Bribery and Anti-Corruption Review - Edition 8 - TLR - The Law Reviews. Retrieved December 6, 2019, from <https://thelawreviews.co.uk/edition/the-anti-bribery-and-anti-corruption-review-edition-8/1210844/venezuela>

<sup>5</sup> Organization of the Petroleum Exporting Countries. (n.d.). OPEC: OPEC Share of World Crude Oil Reserves. Retrieved December 6, 2019, from [https://www.opec.org/opec\\_web/en/data\\_graphs/330.htm](https://www.opec.org/opec_web/en/data_graphs/330.htm)

<sup>6</sup> Williams, A., Kolstad, I., & Wiig, A. (2008). Tackling Corruption in Oil Rich Countries: The Role of Transparency (3). Retrieved from <https://www.u4.no/publications/tackling-corruption-in-oil-rich-countries-the-role-of-transparency>

<sup>7</sup> Cara Labrador, R. (2019, January 24). Venezuela: The Rise and Fall of a Petrostate. Retrieved December 6, 2019, from <https://www.cfr.org/background/venezuela-crisis>

<sup>8</sup> Useem, J. (2003, February 3). "The Devil's Excrement." Retrieved December 6, 2019, from [https://archive.fortune.com/magazines/fortune/fortune\\_archive/2003/02/03/336434/index.htm](https://archive.fortune.com/magazines/fortune/fortune_archive/2003/02/03/336434/index.htm)

## Social Impact

Venezuela needs social reform and programs that will serve the citizens and improve the lives of those living in poverty, lacking healthcare, education, and housing. Corruption destroys confidence in all government systems by risking the citizens and by eroding trust in the system that should protect the citizens. In *Lawyers, Guns, and Money: The Bribery Problem and the U.K. Bribery Act*, Trautman and Altenbaumer-Price states various forms, bribery, corruption, or extortion takes an unacceptable toll on all citizens of the world.<sup>9</sup> Corruption steals from social programs that benefit the citizens while “corrupt politicians invest scarce public resources in projects that will line their pockets rather than benefit communities.”<sup>10</sup>

In 2005, the Supreme Court purchased land for 78 million bolivars (approximately \$12 million) to build 300 courthouses in Caracas; however, nothing was built, and no one has been prosecuted.<sup>11</sup> Another example of misuse of funds occurred from 2007 to 2008 when a program to issue state-bought food to citizens in need failed. Transparency International reports that various irregularities occurred in the purchase of food, where over one million tons of food was bought for \$2.24 billion, but only 25% of the food was received.<sup>12</sup> In addition, thousands of tons of food rotted away on the docks because insufficient bribes were offered.<sup>13</sup> Corruption increased since 2016 when the military began managing the food distribution. As the people suffer from poverty, the military has set up a system to collect bribes on imported food into the country and marks up imported food prices over \$100 million.<sup>14</sup> Poorly designed social programs where spending is not checked leaves an opportunity for corruption and the misappropriation of public funds. The examples also highlight how corruption has been self-serving for government officials and violating human rights obligations.

Mercedes De Freitas, the Executive Director of Transparencia Venezuela, declares that “people need to take responsibility, denounce corruption and demand accountability. Otherwise, the corrupt will continue to get away with it.”<sup>15</sup> However, that is difficult to put into action when the people fear harm from retaliation if they speak up about corruption. In 2015, Transparencia Venezuela used anonymity to create a voice against corruption by producing an app that allowed victims and witnesses to safely report acts of corruption. The organization received over 200 reports in the first month, mostly about corrupt practices by the police.<sup>16</sup>

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<sup>9</sup> Trautman, Lawrence J. and Altenbaumer-Price, Kara, *Lawyers, Guns and Money – The Bribery Problem and U.K. Bribery Act*. (June 12, 2013). 47 *The International Lawyer* 481 (2013). Available at SSRN: <https://ssrn.com/abstract=2276738> or <http://dx.doi.org/10.2139/ssrn.2276738>

<sup>10</sup> Transparency International e.V. (n.d.). *Transparency International - What is Corruption?* Retrieved December 6, 2019, from <https://www.transparency.org/what-is-corruption#define>

<sup>11</sup> Transparency International e.V. (2015, June 2). *Corruption and human rights violations in Venezuela*. Retrieved December 6, 2019, from [https://www.transparency.org/news/feature/corruption\\_and\\_human\\_rights\\_violations\\_in\\_venezuela](https://www.transparency.org/news/feature/corruption_and_human_rights_violations_in_venezuela)

<sup>12</sup> *Id.*

<sup>13</sup> Roht-Arriaza, Naomi and Martinez, Santiago, *Venezuela, Grand Corruption, and the International Criminal Court* (May 2, 2019). UC Hastings Research Paper No. 340. Available at SSRN: <https://ssrn.com/abstract=3381986> or <http://dx.doi.org/10.2139/ssrn.3381986>

<sup>14</sup> See Roht-Arriaza *supra* at 16.

<sup>15</sup> See Transparency International. *Corruption and Human Rights Violations in Venezuela* *supra* note 10.

<sup>16</sup> *Id.*

The corruption in Venezuela continues to this day and impacts citizens. In *Lawyers, Guns, and Money: The Bribery Problem and the U.K. Bribery Act*, Trautman and Altenbaumer-Price states that global and domestic culture of bribery, extortion, and corruption is an amorphous cancer eating away at our societies with the very real potential to destroy commerce between nations and produce destructive global civil unrest.<sup>17</sup> According to the United Nations report in June 2019, over four million people have fled Venezuela due to political, economic, and human rights crisis in Venezuela.<sup>18</sup>

## Political Impact

Transparency International defines political corruption as “a manipulation of policies, institutions, and rules of procedure in the allocation of resources and financing by political decision makers, who abuse their position to sustain their power, status and wealth.”<sup>19</sup> Venezuela has a history of corruption that begins at the top of the political chain, with the President. In 1998, Hugo Chávez was elected president of Venezuela, but he made changes that were counter to a democratic government and promoted corruption. For example, government term limits were abolished before elections in 2009.<sup>20</sup> Also, the Venezuelan government jailed political opponents and disqualified them from running for office.<sup>21</sup> Unfortunately, Chávez was unable to fulfill the promises from his campaign. Instead, his presidency was saddled with three major areas of corruption: grand corruption, bureaucratic corruption, and systemic corruption.<sup>22</sup>

Grand corruption is when there is an abuse of high-ranking power officials that benefit the few at the expense of the many.<sup>23</sup> An example of grand corruption was in 1998 and 1999 when Chávez accepted foreign contributions from Spanish BBVA for his presidential campaign and after his campaign. The former bank president admitted to authorizing two payments up to \$1 million to Chávez’s campaign.<sup>24</sup> Another example occurred in 2006 when 17 military officials were arrested and charged with corruption for siphoning off \$1.3 million from a sugar mill in the state of Barinas.<sup>25</sup> The sugar mill is owned by the Minister of Land and Agriculture, Antonio Albarrán, who admitted to knowing about the corruption two years before the arrests, but his reason for not reporting it was because “we were in an election campaign and it would have blown things up.”<sup>26</sup>

Bureaucratic corruption is a category of corruption that includes extortion, bribery, the stealing of public funds or assets by government employees for private gain. In Venezuela, the law states that all government contracts must go through the bidding process to ensure the funds are

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<sup>17</sup> See Trautman, Lawrence J. and Altenbaumer-Price, Kara *supra* at 3.

<sup>18</sup> Corrales, J. (2019, July 11). Responses to the Venezuelan Migration Crisis: A Scorecard. Retrieved December 6, 2019, from <https://www.americasquarterly.org/content/responses-venezuelan-migration-crisis-scorecard>

<sup>19</sup> Transparency International e.V. (n.d.). Transparency International - What is Corruption? Retrieved December 6, 2019, from <https://www.transparency.org/what-is-corruption#define>

<sup>20</sup> Venezuela. (2014, September 30). Retrieved December 6, 2019, from <https://freedomhouse.org/report/freedom-world/2013/venezuela>

<sup>21</sup> Kenneth Roth World Report 2019: Rights Trends in Venezuela Available at <https://www.hrw.org/world-report/2019/country-chapters/venezuela>

<sup>22</sup> *Id.*

<sup>23</sup> Transparency International e.V. (n.d.). Transparency International - What is Corruption?

<sup>24</sup> Coronel, G. (2006). *Corruption, Mismanagement, and Abuse of Power in Hugo Chávez’s Venezuela* (2). Retrieved from <http://latlibre.org/wp-content/uploads/2019/02/62Coronel01.pdf>

<sup>25</sup> Holland, A. (2006, February 17). Venezuelan Military Officers Charged with Corruption. Retrieved December 6, 2019, from <https://venezuelanalysis.com/news/1619>

<sup>26</sup> Coronel, G. (2006). *Corruption, Mismanagement, and Abuse of Power in Hugo Chávez’s Venezuela* *supra* at 11.

used wisely. Transparency International estimates that over 95% of Venezuela's government contracts have not been subject to the bidding process but rather awarded to companies who provide kickbacks to government officials.<sup>27</sup> Also, Petróleos de Venezuela, a state-owned petroleum company, replaced most of the board members and named the Minister of Energy and Petroleum president of the company. Without checks and balances for the Minister Energy and Petroleum, the state awarded a \$75 million contract to a phantom drilling company with only three employees and no drilling equipment.<sup>28</sup>

Systemic corruption exists where corruption is prevalent and ingrained in society, which is the case for Venezuela. Under Chávez's rule, systemic corruption flourished. Chávez contributed to political corruption by creating a "non-transparent administration of state resources... several large development funds are controlled by the executive branch without any oversight, and discrepancies in their figures remain unexplained."<sup>29</sup> The ongoing corruption in Venezuela has created a new class of wealthy that *El Nuevo Herald* and the *New York Times* have coined as the "revolutionaries."<sup>30</sup> The revolutionaries are people associated with the government and who have gained wealth and social status in Venezuela. They buy luxury properties and fly in private jets. Gustavo Coronel states that Wilmer Ruperti was a well-known individual who receives an excessive number of contracts from the state-owned petroleum company. Ruperti has been investigated, both in Venezuela and in the United States, because of some of the transactions made with the oil company and Citgo.<sup>31</sup>

In 2012, Chávez announced his support for Vice President Nicolás Maduro to take over as President after Chávez became ill. Under Maduro's presidency, 2013 to 2019, Venezuela has continued to deteriorate, and his Presidency has also been plagued with corruption and a declining economy. On July 25, 2019, Maduro's stepsons and thirteen companies were sanctioned by the U.S. for elaborate bribery and money laundering network involving a food distribution program (CLAP).<sup>32</sup> In addition, Maduro and his associates have been linked to drug smuggling and the illicit removal of gold from the Venezuelan Central bank.<sup>33</sup> Drug trafficking in Venezuela continues to thrive due to the absence of border controls. *El Universal*, a major Venezuelan newspaper, quotes the 2006 International Narcotics Control Strategy Report as saying: "Rampant corruption and a weak judicial system are the main reasons for the prominent role Venezuela is now playing as a key transit point for drugs leaving Colombia for the U.S. The Colombian guerrillas, FARC, ELN, and the Autodefensas de Colombia, move freely through Venezuela, unchallenged by the authorities."<sup>34</sup> The ongoing pattern of abuse of power from the last Presidents creates systemic corruption in Venezuela.

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<sup>27</sup> *Id. supra* at 10.

<sup>28</sup> Coronel, G. (2013, September 18). Venezuela's Oil Curse & Corruption. Retrieved December 6, 2019, from [http://www.latinvex.com/app/windows\\_various/print\\_news/print\\_display.aspx?article=940&printPhotos=False](http://www.latinvex.com/app/windows_various/print_news/print_display.aspx?article=940&printPhotos=False)

<sup>29</sup> Venezuela. (2014, September 30) see note 19.

<sup>30</sup> Coronel, G. (2006). *Corruption, Mismanagement, and Abuse of Power in Hugo Chávez's Venezuela* supra at 14.

<sup>31</sup> *Id. supra* at 15.

<sup>32</sup> U.S. Department of State. Nicolás Maduro: Corruption and Chaos in Venezuela. (August 6, 2019). Available at <https://www.state.gov/nicolas-maduro-corruption-and-chaos-in-venezuela-2/>

<sup>33</sup> *Id.*

<sup>34</sup> Coronel, G. (2006). *Corruption, Mismanagement, and Abuse of Power in Hugo Chávez's Venezuela* supra at 16.



Since Chávez and now Maduro's presidency term, Venezuela's Corruption Perception Index from 2000–2014 has continued to rise in part due to weak governance and oil over-dependence practices. Transparency has been viewed as an important factor in reducing corruption and other resource-curse related dysfunctions.<sup>35</sup> Transparency will have a direct impact on improving the perception and actual corruption within Venezuela's government.

### **Impact of U.S. Relations**

Over the years, U.S. officials have been concerned about the human rights issues in Venezuela, Venezuela's military arms purchases, and the relationship with Iran. Maduro's re-election in 2018 was disputed by many Venezuelans who argue the legitimacy of Maduro's position. Also, more than 50 countries, including the U.S., recognize the opponent, Juan Guaidó, as the legitimate president of Venezuela.<sup>36</sup> The relationship between Venezuela and the U.S. has always been a delicate balance since Venezuela is the fourth-largest foreign oil to the United States.<sup>37</sup> In 2011, The U.S. imposed sanctions on multiple Venezuelan military and government officials for working with Columbian rebels to smuggle cocaine and weapons.<sup>38</sup>

The following chapters of this article will outline the impact of corruption on businesses, investors, and the global enforcement of corruption law.

## **CHAPTER 2: GLOBAL BRIBERY AND CORRUPTION, LAWS AND RECENT CASES IN VENEZUELA**

### **The Definitions of Bribery and Corruption**

The concepts of bribery and extortion are related. Black's Law Dictionary defines bribery as "the corrupt payment, receipt, or solicitation of a private favor for official action; commercial bribery as "1) the knowing solicitation of acceptance of a benefit in exchange for violating an oath of fidelity, such as that owed by an employee, partner, trustee, or attorney; 3) corrupt dealing with the agents or employees of prospective buyers to secure an advantage over business competitors."<sup>39</sup> Others define bribery as "instances where public officials misuse their authority," and government corruption refers to circumstances where officials demand money for their own benefit rather than the state's purposes." In contrast, extortion is "1) the offense committed by a public official who illegally obtains property under the color of office; especially an official's collection of an unlawful fee and 2) the act or practice of obtaining something or compelling some action by illegal means, as by force or coercion."<sup>40</sup>

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<sup>35</sup> See Williams note 3.

<sup>36</sup> BBC News. (2019, August 8). What's behind Venezuela's political crisis? Retrieved December 6, 2019, from <https://www.bbc.com/news/world-latin-america-36319877>

<sup>37</sup> Sullivan, M. P. (2013). *Hugo Chávez's Death: Implications for Venezuela and U.S. Relations*. Retrieved from <https://fas.org/sgp/crs/row/R42989.pdf>

<sup>38</sup> See Sullivan *supra* at 5.

<sup>39</sup> Trautman, Lawrence J. and Kimbell, Joanna, Bribery and Corruption: The COSO Framework, FCPA, and U.K. Bribery Act (September 14, 2018). Florida Journal of International Law, Vol. 30, No. 3, 2018. Available at SSRN: <https://ssrn.com/abstract=3239193> or <http://dx.doi.org/10.2139/ssrn.3239193>

<sup>40</sup> Trautman, Lawrence J. and Altenbaumer-Price, Kara, Lawyers, Guns and Money – The Bribery Problem and U.K. Bribery Act (June 12, 2013). 47 The International Lawyer 481 (2013). Available at SSRN:

Relative to business, the definition of commercial bribery is the knowing solicitation or acceptance of a benefit in exchange for violating an oath of fidelity, such as that owed by an employee, partner, trustee, or attorney; or, corrupt dealings with the agents or employees of prospective buyers to secure an advantage over business competitors. Research suggests that the factors that influence bribery include “national culture, a country’s institutional features, and top management characteristics.”<sup>41</sup> There are many forms of prevalent corruption, including “being solicited for bribes from customs officials in exchange for moving goods in or out of the country, or falling victim to extortion, where paying a ransom to a foreign official becomes the only way to avoid harm to one’s person, property or existing economic interests.”<sup>42</sup> Furthermore, firms that retain local agents can become exposed to liability for the wrongs committed by their agents.

### **The Negative Consequences of Bribery and Corruption**

Bribery, corruption, and extortion have the potential to destroy commerce between nations. Philip Nichols observes that “the payment of bribes increases the costs borne by a firm and increases the amount of time that firm will spend interacting with bureaucracies. The firm is likely to experience lower rates of growth and lower productivity than firms that do not pay bribes.”<sup>43</sup> Others find that bribery and corruption have negative consequences for all citizens around the globe. Timothy Fort and Cindy Sinpani report finding through their research “a nearly perfect correlation between corruption and violence in countries around the world. The more corrupt a regime, the more likely it was to resolve disputes through violence.”<sup>44</sup>

Moreover, Weiss and Rosenblatt show that early empirical literature estimates the effect of corruption on economic growth: Mauro’s emphasis “that corruption may constitute a main obstacle to investment thereby reducing economic growth; Davoodi and Tanzi find that corruption is associated with lower government revenues, higher public investment, but lower expenditures on operations and maintenance and finally lower quality of public infrastructure.”<sup>45</sup> Also, Maduro provides evidence that corrupt countries are spending less on education and health. Because social spending is assumed to promote growth, it must be concluded that this might be another channel through which corruption may affect growth negatively.”<sup>46</sup> Finally, Minxin Pei observes that “The experiences of developing countries show that runaway corruption undermines critical governing institutions, fuels public resentment, exacerbates socioeconomic inequality, creates massive economic distortions, and magnifies the risks of full-blown crises.”<sup>47</sup>

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<https://ssrn.com/abstract=2276738> or <http://dx.doi.org/10.2139/ssrn.2276738>

<sup>41</sup> Trautman, Lawrence J. and Altenbaumer-Price, Kara, Lawyers, Guns and Money – The Bribery Problem and U.K. Bribery Act (June 12, 2013). 47 *The International Lawyer* 481 (2013). Available at SSRN:

<https://ssrn.com/abstract=2276738> or <http://dx.doi.org/10.2139/ssrn.2276738>

<sup>42</sup> *Id.*

<sup>43</sup> Trautman, Lawrence J., U.S. Entrepreneurial Risk in International Markets: Focus on Bribery and Corruption (February 6, 2017). Available at SSRN: <https://ssrn.com/abstract=2912072> or

<http://dx.doi.org/10.2139/ssrn.2912072>

<sup>44</sup> *Id.*

<sup>45</sup> Trautman, Lawrence J., U.S. Entrepreneurial Risk in International Markets: Focus on Bribery and Corruption (February 6, 2017). Available at SSRN: <https://ssrn.com/abstract=2912072> or

<http://dx.doi.org/10.2139/ssrn.2912072>

<sup>46</sup> *Id.*

<sup>47</sup> *Id.*



## **Global Laws for Bribery and Corruption**

### **Foreign Corrupt Practices Act**

The Foreign Corrupt Practices Act (FCPA) is a United States federal law enacted in 1977 that primarily addresses two activities: bribery and record-keeping. The Act prohibits paying bribes to foreign officials to obtain or retain business. The specific anti-bribery provisions prohibit the willful use of mail or any means of interstate commerce corruptly to further any offer, payment, promise to pay, or authorization to pay money or anything of value to any person, knowing that it will be offered to a foreign official to influence the official to do an act in violation of his or her lawful duty.<sup>48</sup> The statute applies to virtually every public or private company and every person that touches the United States.

The Act applies to four specific categories of actors: 1) issuers; (public companies); 2) any business with its principal place of business in the United States or that is organized under the laws of any state, territory, possession, or commonwealth of the United States; (private companies); 3) United States citizens, nationals, and residents; and 4) other persons who take any act in furtherance of the corrupt payment while within the territory of the United States.<sup>49</sup> Since 1998, certain amendments now apply to foreign firms and persons who cause an act of a corrupt payment within the United States.<sup>50</sup> The U.S. Department of Justice prosecutes violations of the anti-bribery provisions, and violations are punishable by up to five years in prison. The Securities and Exchange Commission enforces the accounting provisions of the FCPA, which require U.S. public companies to have adequate internal controls to prevent and detect bribery and fraud and to keep accurate and complete books and records.

### **The OECD Convention on Combating Bribery of Foreign Public Officials in International Business Transactions**

Following the enactment of the FCPA, there was criticism that complying with the FCPA would hinder the ability of U.S. businesses to compete globally. Therefore, Congress directed the President to encourage the U.S.'s trading partners to enact their own anti-bribery laws. The result was the creation of the OECD Convention on Combating Bribery of Foreign Public Officials in International Business Transactions (OECD Convention) in 1997, which has been ratified by 40 nations. The OECD Convention issues guidance for countries that have international business transactions, including anti-bribery guidelines and policies that have anti-corruption enforcement programs. The OECD suggests three essential elements necessary for compliance and ethics programs:<sup>51</sup>

1. Properly documented risk-based due diligence that pertains to the hiring, as well as the

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<sup>48</sup> Foreign Corrupt Practices Act. (2017, February 3). Retrieved from <https://www.justice.gov/criminalfraud/foreign-corrupt-practices-act>

<sup>49</sup> Trautman, Lawrence J., U.S. Entrepreneurial Risk in International Markets: Focus on Bribery and Corruption (February 6, 2017). Available at SSRN: <https://ssrn.com/abstract=2912072> or <http://dx.doi.org/10.2139/ssrn.2912072>

<sup>50</sup> Foreign Corrupt Practices Act. (2017, February 3). Retrieved from <https://www.justice.gov/criminalfraud/foreign-corrupt-practices-act>

<sup>51</sup> Trautman, Lawrence J. and Altenbaumer-Price, Kara, Lawyers, Guns and Money – The Bribery Problem and U.K. Bribery Act (June 12, 2013). 47 *The International Lawyer* 481 (2013). Available at SSRN: <https://ssrn.com/abstract=2276738> or <http://dx.doi.org/10.2139/ssrn.2276738>.

- appropriate and regular oversight of business partners;
2. Informing business partners of the company's commitment to abiding by laws on the prohibitions against foreign bribery, and of the company's ethics and compliance program or measures for preventing and detecting such bribery; and
  3. Seeking a reciprocal commitment from business partners.

### **The U.K. Bribery Act 2010**

The U.K. Bribery Act of 2010 became effective in July 2011. The Act affects all companies with business in the U.K., even if they are not incorporated there. Under the Bribery Act, the enforcement agencies have more powers than under previous U.K. law, and the penalties are harsher. The Act makes it a crime for companies to fail to prevent a bribe. Also, the Act expands the concept of what constitutes a bribe, has unparalleled jurisdictional reach, and states that any associated person of the company, not just officers or employees, may hold liability for failing to prevent bribery. The U.K. Bribery Act creates four categories of offenses: 1) bribing another person; 2) taking bribes; 3) bribing foreign public officials; and 4) failure of a commercial organization to prevent bribery.<sup>52</sup>

The U.K. Bribery Act goes farther than the FCPA. While the FCPA criminalizes only the payment, offer or promise of a bribe, the U.K. law also criminalizes the request, acceptance, or agreement to accept a bribe. The U.K. law also includes a corporate offense of failing to prevent bribery but does not contain a facilitating payment exception, as is found in the FCPA. The Bribery Act also expands coverage to include those bribes paid in the private sector. Additionally, the Bribery Act extends to corporations that have any U.K. presence or contact with a citizen of the United Kingdom.

The U.K. Serious Fraud Office (SFO) is the lead agency in the U.K. for investigating and prosecuting cases of overseas corruption. In 2012, the SFO announced revised policies regarding facilitation payments, business expenditure, and corporate self-reporting to 1) restate the SFO's primary role as an investigator and prosecutor of serious complex fraud, including corruption; 2) ensure there is consistency with other prosecuting bodies, and 3) meet certain OECD recommendations.<sup>53</sup>

There are significant differences between the SFO and the DOJ. The DOJ can enter into deferred prosecution agreements, while the SFO cannot. Historically, penalties imposed by the DOJ for bribery and corruption have been higher than in the U.K. Also, in the U.S., it is not necessary to prove that directors of the corporation were involved in criminal activity; however, it is necessary in the U.K.<sup>54</sup>

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<sup>52</sup> Trautman, Lawrence J. and Altenbaumer-Price, Kara, Lawyers, Guns and Money – The Bribery Problem and U.K. Bribery Act (June 12, 2013). 47 *The International Lawyer* 481 (2013). Available at SSRN: <https://ssrn.com/abstract=2276738> or <http://dx.doi.org/10.2139/ssrn.2276738>.

<sup>53</sup> *Id.*

<sup>54</sup> Trautman, Lawrence J. and Altenbaumer-Price, Kara, Lawyers, Guns and Money – The Bribery Problem and U.K. Bribery Act (June 12, 2013). 47 *The International Lawyer* 481 (2013). Available at SSRN: <https://ssrn.com/abstract=2276738> or <http://dx.doi.org/10.2139/ssrn.2276738>

## **Bribery and Corruption Laws in Venezuela**

According to the U.S. Department of State, under President Nicolás Maduro, the Venezuelan government's policy response to Venezuela's economic crisis has centered on increasing state control over the economy.<sup>55</sup> President Maduro has used decree powers to pass laws that erode foreign investors' rights, deepen the state's role as the primary buyer and marketer of imports, tighten the currency control regime, and empower the Venezuelan government to cap business profits and regulate prices throughout the economy. In early 2016, the Venezuelan government opened a new alternative foreign exchange mechanism for the private sector to buy and sell dollars. The president announced slight adjustments to the foreign exchange system in March 2017 and again in February 2018, but analysts doubt it will result in improved access to U.S. dollar since the system lacks transparency and has attracted limited hard currency.<sup>56</sup>

The U.S. State Department reports that the Venezuelan government has implemented new laws and regulations to varying degrees, and their staying power remains unproven, which increases the uncertainty in the investment climate. In 2017, Venezuela passed a new Foreign Direct Investment Law that repealed and replaced the 2014 Foreign Investment Law.<sup>57</sup> The new law adds some details and definitions that the previous version did not include, but also places additional government control over investment. Furthermore, it is unclear how the government is implementing the new law and how its operational mechanisms work.

According to the U.S. State Department, Venezuela has comprehensive anti-corruption laws, but enforcement is weak and inconsistent, as indicated by Venezuela's ranking by Transparency International of 169 out of 180 countries in its 2017 corruption perceptions index. Corruption is pervasive in Venezuela, including in government procurement, the awarding of authorizations, particularly in the foreign exchange regime, dispute settlement, the regulatory system, and customs and taxation. The Venezuelan government does not provide protection to non-government organizations that investigate corruption and often subjects them to harassment. Many government watch groups warn that the Venezuelan government selectively investigates corruption allegations for political reasons. Several government employees, including both low and high-ranking officials at state-owned oil company *Petróleos de Venezuela, S.A (PDVSA)*, have been arrested in recent years on corruption charges.

## **UN Anticorruption Convention, OECD Convention on Combating Bribery**

Venezuela has not adopted the OECD Convention on Combating Bribery of Foreign Public Officials in International Business Transactions. However, Venezuela signed the UN Convention against Corruption on December 10, 2003.<sup>58</sup> The Bolivarian Republic of Venezuela signed the Convention on 10 December 2003, ratified it on 23 May 2005. The Convention is an integral part of Venezuela's national legal system, has the status of law, and can be applied directly. The criminal procedure starts with an accusation and consists of an investigation and trial, culminating in prosecution.

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<sup>55</sup> Venezuela - United States Department of State. (n.d.). Retrieved December 3, 2019, from <https://www.state.gov/reports/2018-investment-climate-statements/venezuela/>.

<sup>56</sup> *Id.*

<sup>57</sup> *Id.*

<sup>58</sup> Natasha.kamberska. (n.d.). United Nations Office on Drugs and Crime. Retrieved from <https://www.unodc.org/unodc/treaties/CAC/country-profile/CountryProfile.html?code=VEN>.

## **Recent Bribery and Corruption Cases in Venezuela**

### **Bribery Scheme for Venezuelan Bonds**

According to Reuter's, in November 2018, court records showed that Venezuela's former national treasurer, who received over \$1 billion in bribes as part of illicit foreign currency operations, was sentenced by a U.S. judge to 10 years in prison. Alejandro Andrade, who ran the treasury for four years under late socialist leader Hugo Chávez, was ordered to surrender to prison by Feb. 25, 2019, according to an order by U.S. District Judge Robin Rosenberg in West Palm Beach, Florida. The 120-month sentence was the maximum prison term he faced.<sup>59</sup>

### **Venezuela Bribery Scheme Involving Two Former Venezuelan Officials and Two Businessmen**

On October 29, 2019, Jesus Ramon Veroes was sentenced in the Southern District of Florida to four years in prison following his June 2019 guilty plea to a charge of conspiracy to violate the FCPA. According to his plea agreement, Veroes and his co-conspirators agreed to make corrupt payments to officials at Venezuelan national power company Corporación Eléctrica Nacional, S.A. (Corpoelec) in exchange for the award of procurement contracts to Florida-based companies. As part of his plea agreement, Veroes agreed to forfeit \$5.5 million and a Miami-area home that represent gains allegedly derived from the conspiracy. Two Corpoelec officials also were charged, and one of Veroes's co-conspirators pleaded guilty in connection with the scheme in June 2019.<sup>60</sup>

### **Petróleos de Venezuela, S.A., the Venezuelan state-owned oil and natural gas company**

According to Reuters, in July 2018, a former official at a Venezuelan state-run electric company pleaded guilty to U.S. charges that he participated in a scheme to solicit bribes in exchange for helping vendors win favorable treatment from state oil company Petróleos de Venezuela, S.A. (PDVSA). The U.S. Justice Department reported that Luis Carlos De Leon Perez, 42, pleaded guilty in federal court in Houston to conspiring to violate the Foreign Corrupt Practices Act and to conspiring to commit money laundering.<sup>61</sup>

In May 2019, the Wall Street Journal reported that an executive admitted to bribing Petróleos de Venezuela SA officials to secure and keep lucrative contracts, according to the U.S. Department of Justice. The case against José Manuel González Testino, a Miami resident and dual citizen of the U.S. and Venezuela, is the latest conviction in a wide-reaching federal probe into Venezuela's state-owned oil giant and its subsidiaries, including Houston-based refiner Citgo Petroleum Corp.<sup>62</sup>

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<sup>59</sup> Rubinfeld, S. (2018, November 28). Venezuelan Ex-Treasurer Receives 10 Years in Prison. Retrieved from <https://www.wsj.com/articles/venezuelan-ex-treasurer-receives-10-years-in-prison-1543347993>

<sup>60</sup> Two Former Venezuelan Officials Charged and Two Businessmen Plead Guilty in Connection with Venezuela Bribery Scheme. (2019, June 27). Retrieved from <https://www.justice.gov/opa/pr/two-former-venezuelan-officialscharged-and-two-businessmen-plead-guilty-connection-venezuela>.

<sup>61</sup> Raymond, N. (2018, July 16). Venezuela pleads guilty in U.S. to role in PDVSA bribe scheme. Retrieved from <https://www.reuters.com/article/us-usa-venezuela-pdvsa/venezuela-pleads-guilty-in-us-to-role-in-pdvsa-bribescheme-idUSKBN1K62OD>

<sup>62</sup> Armental, M. (2019, May 29). Miami Executive Pleads Guilty in Venezuela Bribery Case. Retrieved from <https://www.wsj.com/articles/miami-executive-pleads-guilty-in-venezuela-bribery-case-11559173318>

## CHAPTER 3: BRIBERY AND CORRUPTION IN VENEZUELA

### Management Impact on Bribery in Venezuela

Bribery scandals within corporations occurs worldwide. Per Trautman in *American Entrepreneur in China: Potholes a Roadblocks on the Silk Road to Prosperity*, China also experienced corporate scandals similar to Enron and WorldCom.<sup>63</sup> The impact on bribery in Venezuela influenced many investigations that expose the harsh reality of corruption in the global economy. When it comes to ethics of governance the Panama Papers exposed the rogue offshore investigation that involved banks, lawyers, and many other professionals in the financial industry. According to page 842 in the Penn State Law review “The World Bank states that today's corruption arguably has become the most challenging obstacle to economic development.” The Panama Papers is considered the world's largest whistleblower case to date consisting of 11.5 million documents regarding crime and corruption. According to lessons from Panama Papers (page 810) reveals more than 214,000 offshore entities appear in the leak associated with access to individuals in over 200 countries and territories.

The impact on bribery implicated security risk and exposed offshore political instability of highly influential former world leaders. The initial disclosures and accusations influenced consequences that demanded the resignation of leaders due to a conflict of interest. As per page 838 in the following the money article, the international response was immediate yet highlights that Venezuela journalist who investigated the Panama Papers were targeted by the media and were blamed for being selective in their reporting due to trying to exposé Hugo Chavez.

“Laws designed to prohibit bribery and corruption have existed for many years. Notable among these are the Foreign Corrupt Practices Act (FCPA)<sup>149</sup> in the United States, the U.K. Bribery Act,<sup>150</sup> and the OECD Convention on Combating Bribery.<sup>151</sup> International bribery and corruption schemes have also employed cyber tools to assist in the payment of funds conveyed<sup>64</sup> for nefarious purposes. The anonymity of cryptocurrencies provides obvious benefits to those seeking to mask payments for such things as armaments, ransom, or bribes to officials of foreign governments”. (Trautman, Lawrence J. and Ormerod, Peter, 2018)

The corruption in Venezuela makes it difficult for businesses to want to invest in the Venezuelan economy. A company must consider the exploitation risk especially after being classified as one of the most unethical countries. The impact was majorly influenced when President Chavez was their leader and ruled by retaliation. According to the politics of corruption in Venezuela, during the early part of Venezuela’s democracy, corruption was recognized at worst as a nuisance and a steadfast focus resolved around reallocating wealth in society. Even though it was deemed to be prevalent, it wasn’t initially viewed as a major problem for society. The corruption did not appeal to widespread broadcasting appeal. Moreover, the electoral leaders rallied campaigns around the problem. Various sources debate that corruption helped calm Venezuelan politics during both democratic and authoritarian time periods. Just as corruption

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<sup>63</sup> Trautman, Lawrence J., *American Entrepreneur in China: Potholes and Roadblocks on the Silk Road to Prosperity* (January 28, 2012). Wake Forest Journal of Business and Intellectual Property Law, Vol. 12, 2012. Available at SSRN: <https://ssrn.com/abstract=1995076>

<sup>64</sup> Trautman, Lawrence J. and Ormerod, Peter, Wannacry, Ransomware, and the Emerging Threat to Corporations (August 24, 2018). 86 Tennessee Law Review 503 (2019).



helped secure loyalty to the dictator Vicente Gómez during the first 30 years of the twentieth century in Venezuela.

According to the article *Politics of Corruption in Venezuela*, Experts and the public disagree on the extent of corruption currently plaguing Venezuela. Polls gauging direct experience with corruption show Venezuelans currently have less direct experience than most Latin Americans. In the first two years of Transparency International's Global Corruption Barometer, Venezuela was one of the few Latin American countries in which under 10% of the population reported having paid a bribe for service in the past 12 months (Transparency International 2004; Transparency International 2005). In 2007 this had increased slightly to 12%. However, this was still below the average for Latin America of 13% and only one Latin American country, Argentina, had a lower proportion of respondents who said they had paid a bribe for service in the past 12 months (Transparency International 2007). To put this in a global perspective, the rate of direct experience with extra-legal payments for public service in Venezuela is in the 3rd or the middle quintile of the world's distribution.

Per *Ethical Culture and Legal Liability*, the best way to combat corporate crime is to bring criminal charges against corporations and culpable individuals within those companies – and to insist that defendants plead guilty or go to trial. Charging and convicting corporations addresses the flawed corporate cultures and misplaced priorities that encourage criminal behavior; holding individuals accountable is the best way to deter future wrongdoing and promote law-abiding behavior (Jennings, Marianne M., and Trautman, Lawrence J 2015).<sup>65</sup>

<sup>66</sup>Even though bribery and corruption in Venezuela are not a corporate crime the suggested way to handle the matter is not appealing. However, when dealing with a government it would be difficult to bring charges amongst the same individuals that create the laws and have a political impact to help influence bias decisions. In the political sphere, acquiring knowledge about wrongdoings and acts that are unprecedented can cause a political catastrophe. It's up to the individuals regardless of title to be ethical in their actions and point out unethical behavior that involves inappropriate use of political power. Individuals with power can create the desire within themselves to misuse their control and don't honor the rights of citizens. However, the consequences of their decision making will help diminish the economy as the abuse of power continues.

An effortless attempt that would help eliminate bribery and corruption would need to start with the governing party in Venezuela, with a code of honor system and a value system by the politicians. If there is no compliance with those values the system will fail. Morality is important and there must be controls to substantiate equality for all citizens. It appears that many individuals cannot balance power and wealth which causes unethical behavior. The greater the influence an individual has can compound the negative curiosity and bias deeds. It becomes even more difficult

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<sup>65</sup> Gates, L. (2009). The politics of corruption in Venezuela. *Latin American Studies Association*, 21.

<sup>66</sup> Transparency International. 2004. "Transparency International Global Corruption Barometer 2004." Transparency International, Berlin, Germany (accessed —. 2005. "Transparency International Global Corruption Barometer Jennings, Marianne M. and Trautman, Lawrence J., *Ethical Culture and Legal Liability: The GM Switch Crisis and Lessons in Governance* (December 14, 2015). 22 Boston University Journal of Science and Technology Law (2016). Available at SSRN: <https://ssrn.com/abstract=2691536> or <http://dx.doi.org/10.2139/ssrn.2691536>

when the person in power is compensated for making decisions for what's believed to be in the public's interest.

“Leaders should encourage and reward the identification of problems that need to be fixed. Organizations need honest and open communication from their employees to innovate and compete. Establishing and nurturing a culture of truth-telling improves morale and increases the effectiveness of the organization. When top management authentically models truth-telling, it gives all within the organization permission to tell the truth. Such an environment is a vibrant, successful, and enjoyable place to work” (Sanney, Kenneth J. and Trautman, Lawrence J. 2019)<sup>67</sup>

No different from a corporate organization, a country can run the same with the correct leader in charge. When the governing leader is in the best interest of the country there should always be fairness with decision making without the influence of interest groups. To maintain efficiency there should be no change in policy by those that have political influence outside of the actual government themselves. In doing so, this allows elected officials to establish political equilibrium without the benefits and consequences of individuals behind the scenes. When there is a disproportionate influence, corruption is created to further the specific interests of those trying to benefit from a corrupt system. Moreover, such influence can be exerted by political debates which makes it difficult to regulate unethical discrepancies. To some degree, these concerns are mitigated by global laws that are supported by treaties that require influenced measures to prevent corruption.<sup>68</sup>

The same economic governance and regulations can cause practical conflicts that were meant to regulate corruption. These negative economic effects are influenced by moral imperialism due to the culture in general. The economic consequences can influence sanctions against developing markets which can be a crucial driver in foreign investments. “The lack of communication from the bottom up may be the result of the communication flowing down from the top. Communications and miscommunications issues run both ways. Those at the top of the organization often fail to recognize the messages they send by indirect communication. Indirect communication can result from emphasis. If your focus, discussions, and interactions with employees emphasize schedules, results, and performance, then you will find employees focused on those issues and not on the code of ethics or even the wisdom of their cost-saving decisions. Employees aim to please their leadership.” (Sanney, Kenneth J. and Trautman, Lawrence J. 2019)

A specific problem that may influence corruption is the rules of communication are often ignored by those that are in leadership positions. It's crucial for leaders to provide transparency and ensure their directives are clearly stated. The rules of communication are supposed to avoid misinterpretation of one's intent. Hence, a leader that is anti-corrupt will make sure unethical acts are not allowed and ineffective with their political transparency. The idea is to lead by example and prevent economic stagnation.

Successful leaders encourage the development of ethical practices that will prevent

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<sup>67</sup> Sanney, Kenneth J. and Trautman, Lawrence J. and Yordy, Eric D. and Cowart, Tammy and Sewell, Destynie, The Importance of Truth Telling and Trust, 37(1) Journal of Legal Studies Education 7 (August 2, 2019).

<sup>68</sup> *Id.*

manipulation and acts of bribery. In doing so, corruption will be the exception and not the rule. Yet, when you have those in power that are corrupt on their own, they will try to mention corruption as an anomaly and not justify much attention. Historically, many of the political Venezuelan leaders followed the broader path of neglect amongst the corruption issue. However, leaders that are inspired to stand with dignity and integrity will demonstrate justice for an honest government, including will confront corrupt leaders and elites. Ultimately, the goal is to denounce demonstrations of illegitimate actions and proves ethical leadership.

Even though President Chavez imposed a zero-tolerance policy toward corruption the enforcement was weak and made bribery prevalent due it's deficiency. With government contracts remaining susceptible the zero-tolerance policy lacked its reliability for transparency. With the country struggling with corruption and bribery issues it trickled into social welfare issues that lead to low life expectancy, undernourished, and low levels of income within its own culture. When you have a country that expects their politicians to steal it causes chaos.

“Bribery, extortion, or corruption in any of its various forms, much like a cancer, extracts an unacceptable toll on all citizens of the world. Transparency International observes that “From children denied an education, to elections decided by money not votes, public sector corruption comes in many forms. Bribes and backroom deals don't just steal resources from the most vulnerable they undermine justice and economic development and destroy public trust in leaders.” Corruption presents the basic economic problem that “no net value is created in a bribe, and great costs are imposed”. (Trautman, Lawrence J 2017)<sup>69</sup>

Once it's determined how corruption and bribery are established, the most important factor is how to prevent these matters from happening on a forward flow. The range of sentences enforced should also have severe consequences for those that work within the government as they should be held at a higher standard than a normal citizen. Although it may be difficult to apply significant sentences to those that work for the government and found guilty of corruption, it will set the tone that tarnishing the reputation of the government and country will have severe consequences. Lighter sentences should be applied based on justifiable factors such as lacking dishonesty and corrupt intent with no action taken. The best practice is to have severe penalties and imprisonment imposed at a court's discretion. When determining the suitable fine there should be a detailed consequence for each corruption action committed.

Despite the government's attempts and appearance to commit to anti-corruption laws, a corruption committee should be established as an overseer for enforcement of the laws. This committee should be built on a commitment to anti-corruption with the intent to condemn bribery and enforcing rules against it. With the increased application to elevated sentences for corruption activity and an increased willingness from an anti-corruption committee, the corruption will slowly deteriorate and prevent some of the economic consequences Venezuela is experiencing today. Leadership and ethical politics will help to overcome obstacles when making an effort to tackle corruption. However, without a position of zero-tolerance reducing corruption will be difficult. Accountability by those responsible for positive governance will take precedence over any legal actions applied. If the government doesn't establish a collaboration amongst those, they can trust

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<sup>69</sup> Trautman, Lawrence J., U.S. Entrepreneurial Risk in International Markets: Focus on Bribery and Corruption (February 6, 2017). Available at SSRN: <https://ssrn.com/abstract=2912072> or <http://dx.doi.org/10.2139/ssrn.2912072>



to uphold the law with a whistleblower type procedure, government integrity will always be questioned.

“The meaning of integrity that comes easiest to mind is Polonius's advice to Laertes: "This above all, to thine own self be true." Authenticity-being what one is, without deceit or dissembling-is surely at the core of integrity. Adopting that meaning, John Rawls identified the virtues of integrity as "truthfulness and sincerity, lucidity and commitment.” They are, he said, "virtues of form" and consistent with great wickedness. For that reason, he called them "secondary" virtues. With respect to government, at any rate, that diminishes them too much. Integrity in government is not a large matter for a despot. He may be benign or malevolent, but because what he does is not dependent on his subjects' wishes, so far as matters of governance are concerned, integrity has for him only instrumental value. It is quite otherwise for a democratic government. For it, integrity enables, and a lack of integrity undermines, its democratic nature. Integrity, as Rawls insists, does not guarantee right conduct. Nevertheless, for all the same reasons that recommend democracy, integrity ranks among a democratic government's primary virtues”. (Lloyd Weinreb 2003)<sup>70</sup>

## **CHAPTER 4: RISK ANALYSIS AND SWOT FOR INVESTING IN VENEZUELA**

### **Risk Analysis – Venezuela**

As of Q4 2019, Venezuela's economic and political crisis has stretched into a sixth year in 2019. Declining oil production, hyperinflation and a poor business environment will keep the economy in a deep depression. Hyperinflation and a general loss of confidence will keep severe depreciatory pressures on the bolívar, ensuring that the parallel market value of the currency remains weak, despite a recent devaluation and re-denomination of the currency.

The implementation of contractionary monetary policy will continue to slow inflation in the short term, though this policy does not address the core drivers of price growth and has a highly negative impact on the broader economy<sup>71</sup>. Political risk remains extremely elevated due to severe shortages of essential goods, failing public services and the emergence of opposition leader Juan Guaidó, who has been recognized as legitimate president of Venezuela by much of the international community. Guaidó has called for regime change, organized widespread public protests and attempted to organize a military uprising in late April 2019. We expect political tensions will remain extremely high as long as President Nicolás Maduro and the Partido Socialista Unido de Venezuela (PSUV) remain in power.

The country defaulted in November 2017 and has since accumulated more than \$10 billion in arrears. Creditor action is a real possibility in the coming months, namely the acceleration of principal payments and attempts to seize Venezuela's external assets, including oil shipments.

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<sup>70</sup> Lloyd Weinreb, Integrity in Government, 72 Fordham L. Rev. 421 (2003). Available at: <https://ir.lawnet.fordham.edu/flr/vol72/iss2/13>

<sup>71</sup> Trautman, Lawrence J., U.S. Entrepreneurial Risk in International Markets: Focus on Bribery and Corruption (February 6, 2017). Available at SSRN: <https://ssrn.com/abstract=2912072> or <http://dx.doi.org/10.2139/ssrn.2912072>

## **Key Risks**

The chances of a military uprising against the regime remain substantial, given the collapse in living conditions in the country and Guaidó's emergence as a viable alternative to Maduro. A thwarted coup in May 2018, an assassination attempt against Maduro in August 2018 and a failed uprising in April 2019 underline this threat.

The PSUV government may remain in power over the long term, relying on a combination of purges, patronage, internal surveillance and mass emigration. This would have a decidedly negative impact on the country's economy, given the PSUV's track record of economic mismanagement. While unlikely, the threat of a foreign intervention by the US remains on the table. According to Best's Country Risk Report<sup>72</sup>, Venezuela is rated as a CRT-5 country. The Country Risk Tier (CRT) system reflects the assessment of risk in Economic, Political and Financial systems. Venezuela has very high levels of economic, political and financial system risks. The country has experienced a severe and prolonged economic contraction and GDP is projected to decline further in 2019. Inflation has spiraled out of control and estimated are expecting it to reach above 10,000,000% in 2019. The economic crisis has destabilized the political system and provoked pervasive civil unrest.

### **Economic Risk - Very High**

The economy has been in a recession since 2014 and the current outlook remains bleak. GDP has declined due to limited oil production even though the country has one of the world's largest oil reserves. Sanctions against the government have been in place since 2017. The most recent round of sanctions was announced in August 2019 and froze the country's assets in the United States and barred transactions. The Venezuelan President's political stance is likely to prevent much needed reform, potentially causing further deterioration in the country's economic conditions. Inflation and widespread shortages of consumer goods have led to a plunge in spending. Also, there are frequent electrical outages.

### **Political Risk - Very High**

Venezuela's political situation continues to deteriorate. President Nicolás Maduro was re-elected, and his term runs through 2024. He has ongoing fraud allegations. His Presidency is not recognized globally by more than 50 countries including the US, EU and Latin American countries who continue to support the head of the National Assembly, Juan Guaido. Despite Maduro losing popular support, he is still being backed by the top military officials and continues to control most of the state-run institutions. Contract enforcement is very poor and government expropriation of private property is common. The risk of expropriation is escalated by the intervention of the National Assembly. Business confidence is depressed, and foreign investments have declined sharply in 2019. The courts are subjected to heavy political influence and are often used to penalize political opponents. Venezuela's judiciary is ranked the least independent of the 137 countries by the World Economic Forum. Political instability is worsened by rising crime. Violent and widespread anti-government protests are likely to continue, raising property damage risks.

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<sup>72</sup> Venezuela Report (2019). Retrieved from <http://www3.ambest.com/ratings>

## Financial System Risk - Very High

The Superintendency of Insurance Activity is responsible for the supervision of the insurance sector in Venezuela and not very efficient. The tax system in Venezuela even though well-developed is subject to very high tax evasion. Because of severe economic crisis, the foreign exchange reserves of Venezuela has diminished sharply, and the external liquidity gap is widened. The IMF has recommended stronger efforts to improve transparency in economic data, which otherwise will intensify speculation and mistrust in the current government.

### Exhibit 1



### Exhibit 2

**Venezuela**  
**CRT-5**  
 August 22, 2019



### Exhibit 3

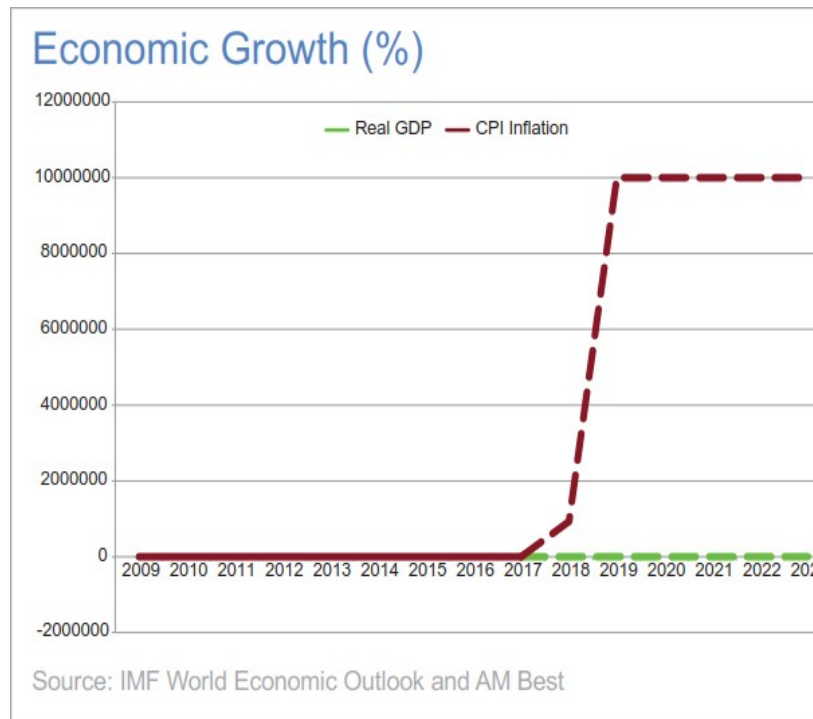


Exhibit 4

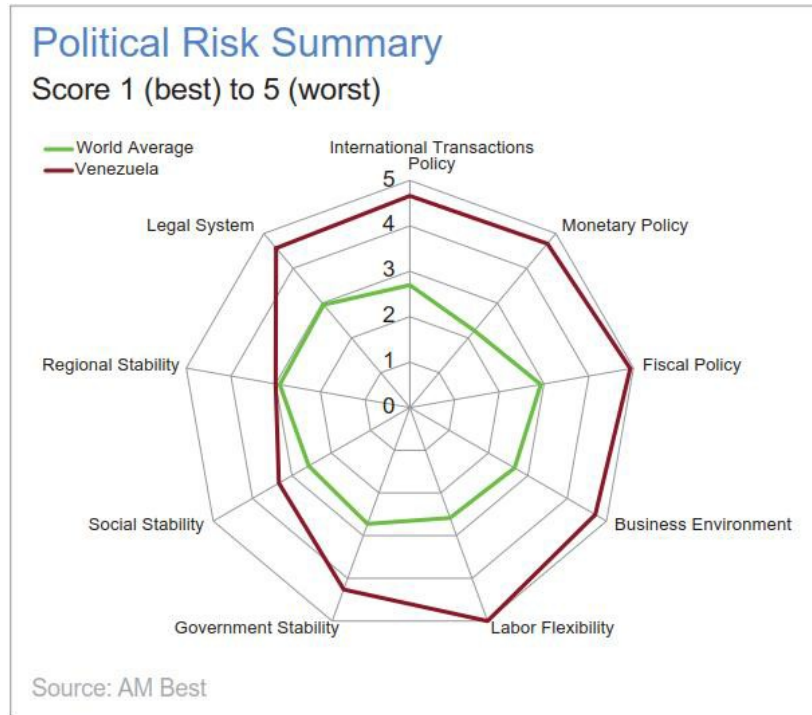
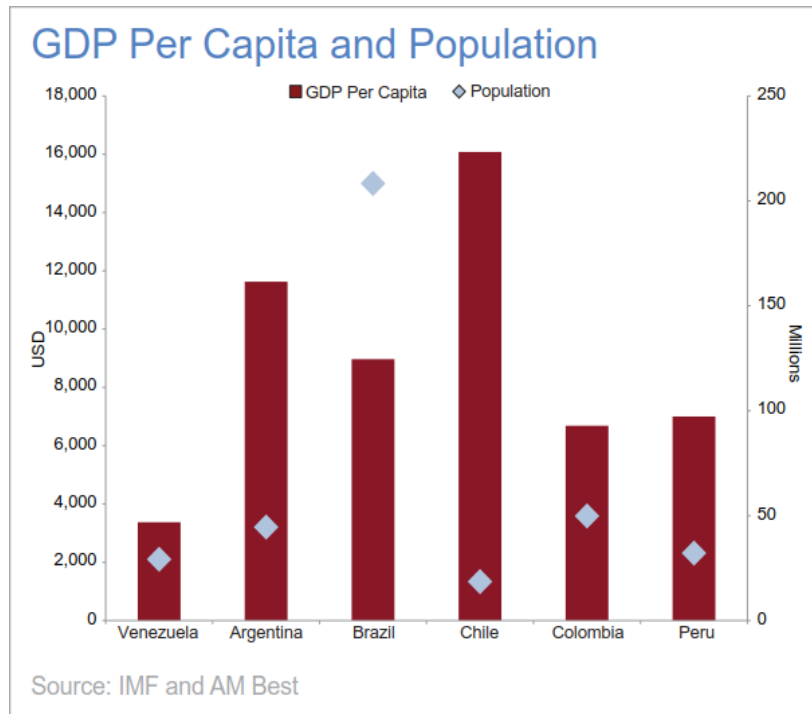


Exhibit 5



## **SWOT Analysis - Venezuela:**

**(S)trengths:** A natural endowment of the world's most demanded resources, namely oil. Huge reserves of crude oil in the country. A boom in oil prices in the international market causes a flourishing of the Venezuelan economy; a rise in the employment rate and the GDP of the country. The non-oil sector has also been growing at a steady and fast pace. Finance and insurance, construction, trade and repair services and communications have seen annual growth. Manufacturing also shows potential to grow. Hydrocarbon wealth provides economic strength to Venezuela and despite its political differences with the U.S., the U.S. is the main market for Venezuelan oil.

**(W)eaknesses:** An overdependence on the oil industry often leads the economy to come crashing down in the case of drop in oil prices. The constant political instability in the region leads to rapid policy changes and an overarching control of the military forces in private and public spheres. Heavy state intervention in businesses. Growing crime rate is a major concern. There is a very low English-speaking population which hinders business growth with the developed countries. There is a very opaque and discretionary management of oil-based revenues. The production capacity of the public oil company PDVSA is extremely limited due to insufficient investments.

**(O)pportunities:** There are tremendous opportunities in the sectors of Oil and Natural gas, Retail and Consumer goods, Information Technology and Agriculture. The government has undertaken social reforms at the national level for the upliftment of the poor section of the society and bridge the economic gap between the rich and the poor. Tourism is another great area where the country can take advantage of its natural landscape to boost travel and travel related businesses.

**Challenges:** The main challenge for Venezuela is to quickly implement an effective stimulus package that can keep the economy on a steady growth path. Venezuela could make infrastructure and other public investments that will increase productivity in the years that follow.

**(T)hreats:** Current concerns are a weakening of democratic institutions, political polarization, a politicized military, drug-related violence along the Colombian border, increasing internal drug consumption, overdependence on the petroleum industry with its price fluctuations, and irresponsible mining operations that are endangering the rainforest and indigenous people. The weakened currency value and imposing of sanctions do not contribute well to the economy.

## **Other Inferences**

Venezuela has an important issue which poses a huge problem for its economy is that of social security threatened by Crime, and the widespread corruption. In 2013, after the death of President Chávez, President Maduro took over, the Venezuelan economy has been experiencing acute shortages due to turmoil. Marginal propensity to consume is very high currently in Venezuela due to high inflation and shortages.

In Venezuela, growth in the money supply leads to inflation. This growth in money supply is caused by an almost near full employment level in the economy. There is high consumption in basic commodities such as milk, butter, coffee, cornmeal and toilet paper. This shortage has been

caused due to the State-controlled prices – prices that are set below market-clearing price. Many factories operate at half capacity because the currency controls make it hard for them to pay for imported parts and materials. Business leaders say some companies verge on bankruptcy because they cannot extend lines of credit with foreign suppliers. In April 2013, Venezuela's scarcity index reached its highest level since 2009, while the 12-month inflation rate has risen to nearly 30%. Shoppers often spend several days looking for basic items, and stock up when they find them. Therefore, their Marginal propensity to save is extremely low.

The protests have hit the streets but are controlled in a very gruesome matter by the government and military loyalists of the government. There is a lot of crime even among the police force. The basic freedom of speech is curtailed as the media is controlled by the President. 'Colectivos' is the name given to gangs of thugs sponsored by the state to silence the opposition. Venezuela is declared to be the second most corrupt country and is also the most crime-ridden country in Latin America.

Food shortages and inflation on food are also of international concern. In order to protect the citizens from malnutrition and starvation, the government must continue to provide access to low-cost essential agricultural products. In order to protect the citizens from dropping below the poverty line, the government must increase domestic production of agricultural goods.

The first step toward decreasing the income distribution gap is to increase transparency of public funds. When there is high corruption at the federal and state level, government revenues and expenditures may be miscalculated or misguided in order to swindle funds. Making sure that funds are appropriately allocated, and that federal assets and liabilities are properly recorded will ensure soundness of the economy.

There should be a constant check on poverty, as that can drag the economy down. In Venezuela, continuing to make sure that the Misiones are effective at increasing living standards will increase is important. The Misiones cannot be a publicity stunt; for there to be a decrease in poverty, there must be an increase in the standard of living. Access to low-cost food, high-quality education, and healthcare should not be a privilege of the wealthy, but rather a standard for all.

Since crime and corruption appears to be a common problem it is important that a stricter, rigid penal code be in place with its appropriate execution. When the law is strong, the rates of crimes drop.

### **Lessons learned from Venezuela<sup>73</sup>:**

- Venezuelan government revenue and oil revenue into the country are indivisible as it constitutes a major chunk of its GDP.
- A more balanced version of the Big Push model could facilitate other sectors to move forward like agriculture and industries, and this would lead to product diversification.
- Equitable distribution and efficiency are positive functions of a balance between private and public undertakings. Only public ownership and maintenance fuels corruption and

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<sup>73</sup> Venezuela Country Risk Report (n.d). Retrieved from <https://www.marketresearch.com/Business-Monitor-International-v304>

inefficiencies.

## CHAPTER 5: RECOMMENDATIONS FOR DOING BUSINESS IN VENEZUELA

Under the current regime of President Nicolas Maduro, we must consider many factors before deciding to do business in Venezuela. According to the Trump administration, his regime is corrupt and illegitimate. The country's residents face food and water shortages which speaks to the overall collapse of the economy in Venezuela. In April 2019 the United States escalated its campaign by imposing an economic embargo against the government of Venezuela. According to the World Bank's 2016 Doing Business Report, Venezuela is the fourth worst country in the world in which to run a company. There are far more reasons to not do business in Venezuela than there are to do business in Venezuela. If one chooses to do business in this highly corrupt country, you must understand the risks and compliance issues to ensure your business can survive in this unstable and uncertain environment.<sup>74</sup>

As a US citizen and business owner you must be aware of the implications of the Foreign Corrupt Practices Act (FCPA) when considering doing business in Venezuela. Lawrence J. Trautman and Kara Altenbaumer-Price observed in 2011, "Every director needs to be aware of the risk posed by the provisions of the FCPA to both the companies they service and to themselves. A dramatic rise in enforcement of the FCPA by both the Securities Exchange Commission (SEC) and Department of Justice (DOJ), a focus on individuals, and shareholder actions seeking reimbursement from directors for penalties paid in FCPA settlements with the SEC and DOJ all demonstrate the pressing need for directors to be fully versed in the particulars of the statute and how to operate a company within its framework. The sheer economic costs of a failure under this statute represents a major trap for the unwary, if not the potential for corporate catastrophe."<sup>75</sup>

Bribery and improper record-keeping are the primary activities addressed by the FCPA. According to the statute, it prohibits "the payments of anything of value to foreign officials in order to assist the payor in obtaining or retaining business for or with, or directing business to, any person"; and "secondly failing to keep records and books which in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of the issuer". "When the FCPA is read as a whole, its core of criminality is seen to be bribery of a foreign official to induce him to perform an official duty in a corrupt manner". This statute's prohibitions apply to almost every company whether it is public or private, or any person who touches the United States. When looking at the corruption problems in Venezuela you have to be concerned about the risk of being compliant with the FCPA.<sup>76</sup>

Unfortunately, due to the corruption in the Venezuela government you have to ask yourself what the cost will be to do business with Venezuela. Venezuela is known for an uphill battle of

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<sup>74</sup> Broughton, K. (2019, August 16). Humanitarian Groups Face Banking Challenges as Venezuelan Sanctions Escalate. Retrieved from <https://www.wsj.com/articles/humanitarian-groups-face-banking-challenges-as-venezuelan-sanctions-escalate-11565990980>.

<sup>75</sup> Trautman, Lawrence J. and Altenbaumer-Price, Kara, Foreign Corrupt Practices Act: An Update on Enforcement and SEC and DOJ Guidance (July 13, 2013). 41 Securities Regulation Law Journal 241 (Fall 2013). Available at SSRN: <https://ssrn.com/abstract=2293382>

<sup>76</sup> *Id*



red tape when trying to do business there. For example, manufacturers have to go through roughly 40 different steps to get clearance for one container of goods. This makes importing and exporting goods super difficult. There are a lot of difficulties with banking there as well. The country is trying to keep money in the country by making it super hard for citizens there to invest their money in companies in other countries. For example, just to take money out of an account in Venezuela it requires two signatures, fingerprints and sometimes in a photograph. This could cause a 2-hour delay just for one simple bank transaction there. Any business wishing to buy US currency with their Venezuelan bolivares fuertes must apply at the offices of CADIVI, the central currency authority. With the tight currency controls the government attempts to control every business and citizen. The Venezuelan market can be challenging for any entrepreneur or business to say the least. Bureaucracy, price and exchange controls and lack of transparency are some of the most common complaints in the business community.<sup>77</sup>

Some of the most common ways to approach the Venezuelan market are a) appointment of an agent/representative; b) establishment of a branch office; c) forming a joint venture with a local company; d) importing distributor/retailer; e) direct sales to customers (end users). No matter how you choose to face the market you must seek legal advice to ensure you are compliant with all local regulation requirements. Venezuelans place a high value on face to face meetings and in person interaction so you must be prepared to spend a considerable amount of time in the country to establish your business. You also have to consider the fact that a lot of the government officials speak Spanish so you will need to be prepared with either a translator or you need to be fluid in Spanish both verbally and also in your writing of your business proposal or brochures.<sup>78</sup>

Venezuela is a member of the World Trade Organization and joined MERCOSUR in 2013. The country applies the international Harmonized Tariff Code on Nomenclature of Merchandise and has been incorporated into the customs tariff list. The Venezuelan Tariff contains all specific legal data which is applied to all imported items, this includes non-tariff barriers, as well as some regulations used by neighboring Andean countries. The Venezuelan Ministry of Finance is responsible for all customs related activities. This is done through an agency called SENIAT. SENIAT's main activity is controlling all tax related matters including customs, their offices are located in international ports and airports across Venezuela. With the amount of corruption reported within the Venezuelan government you can't help but be concerned about their regulation requirements and if they will impose additional requirements after the fact, something to consider when deciding if you want to do business in Venezuela.<sup>79</sup>

There are several more concerns with doing business in Venezuela: (1) is their departure from the World Bank's International Centre for Settlement of Disputes (ICSID) back in 2012, which could leave a firm with less recourse in international arbitration; (2) Venezuela also has inadequate intellectual property protection rights (IPR) protection; (3) strict labor laws make it difficult to fire employees or to hire contract workers to replace full time employees; (4) businesses are regularly impacted by the rationing of electricity and water shortages; and (5) high crime rates

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<sup>77</sup> Zuniga, M. (2016, May 26). The perils of doing business in Venezuela. Retrieved from <https://www.bbc.com/news/business-36359120>.

<sup>78</sup> Advisor, I. M. (n.d.). Doing Business in Venezuela. Retrieved from <http://www.venezuela.doingbusinessguide.co.uk/the-guide/how-to-do-business-in-venezuela/>.

<sup>79</sup> Advisor, I. M. (n.d.). Doing Business in Venezuela. Retrieved from <http://www.venezuela.doingbusinessguide.co.uk/the-guide/how-to-do-business-in-venezuela/>



increase security costs for businesses.<sup>80</sup>

The United States applied a series of financial sanctions against the Venezuelan government and its subsidiaries as a consequence of the government's anti-democratic conducts starting in August 2017. Some but not all commercial transactions with the government are prohibited. The Financial Crimes Enforcement Network (FinCEN), a Department of Treasury bureau, issued an Advisory on Widespread Public Corruption in Venezuela on September 20, 2017. The advisory warned U.S. businesses of methods Venezuelan senior political figures, their associates, and front persons may use to move and hide corruption proceeds. If these are red flags to business owners than I don't know what is!<sup>81</sup>

There are a couple benefits of doing business in Venezuela so let's take some time to discuss them. First and foremost, more than two-thirds of consumer products and intermediate goods consumed in Venezuela are imported. There is a strong demand for US technologies and products in the country. Venezuela geographically is in close proximity to the United States, this keeps shipping costs low and allows for quicker deliveries which increases sales. Leading sectors for U.S. exporters include; oil and gas services and machinery, electrical power generation systems and electrical equipment, auto parts and service equipment, safety and security equipment, and agricultural commodities. The short term may appear bad for investors or business owners but there may be opportunities with long term efforts and those who can absorb and tolerate risk.<sup>82</sup>

Companies seeking to do business in Venezuela must be able to navigate its foreign currency (FX) regime. Venezuelan law currently only authorizes one official FX mechanism to sell dollars to private sectors for all products and services. This mechanism is called the Complimentary Exchange Rate or DICOM. Obtaining foreign exchange on the parallel market is illegal under Venezuelan law. Keep in mind, Venezuela is experiencing the worst economic depression in the country's history, so their "dollars" aren't worth much in comparison to the American dollar.<sup>83</sup>

Despite the 373,000% inflation rate, some people are optimistic about business opportunities in Venezuela. Some people believe that things will change once the government structure and leaders change. Some investors actually do want to invest now because the cost of entry is low, and they have a high tolerance for risk. Most people though, meaning the majority, still want to see the changes occur first before they make any major investments in Venezuela. All investors should consult with an attorney that can explain in detail all the risks before engaging in any business venture in Venezuela.<sup>84</sup>

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<sup>80</sup> Venezuela - Market Challenges (n.d.). Retrieved from <https://www.export.gov/article?id=Venezuela-Market-Challenges>.

<sup>81</sup> Article - Foreign Corrupt Practices Act: An Update on Enforcement and SEC and DOJ Guidance, (with Kara Altenbaumer-Price), 41 Securities Regulation Law Journal 241 (2013), available at <http://ssrn.com/abstract=2293382>

<sup>82</sup> Venezuela - Market Opportunities. (n.d.). Retrieved from <https://www.export.gov/article?id=Venezuela-MarketOpportunities>

<sup>83</sup> Doing Business in Venezuela. (2018, February). Retrieved from <https://www.uhy.com/category/publications/doingbusiness-guides/>

<sup>84</sup> Ray of Hope: Jose Sirven Interview. (2019, May). Retrieved from <https://www.hklaw.com/>

Let's discuss some of the requirements to establish a business in Venezuela. A company that is incorporated in Venezuela is subject to the Venezuelan law. The incorporation, administration and operation of the business must follow Venezuela rules and laws and cannot be subject to foreign business laws. Trusts are regulated under the provisions known as the Antitrust act, this is applicable to public or private companies. All economic activities are subject to environmental regulation, so there may be added costs for companies developing certain activities. There are several permits, licenses and authorizations required depending on your business activity. There are several fees associated with each of these requirements and many aren't very transparent or known until you actually enter the Venezuelan market.

A few other things to consider if you want to open a business in Venezuela are the benefit and employer obligations. Employers are required to share or distribute with all of their employees at least 15% of their annual net profits. The mandatory profit sharing is tax deductible and has some specific guidelines that must be followed. All employees are entitled by law to 15 days of vacation as long as they have been employed for 1 year of uninterrupted work. At least 90% of employees in a company operating in Venezuela must be Venezuelan nationals.<sup>85</sup>

It is safe to say that the risks far outweigh the benefits of doing business in Venezuela. Any time someone considers a business venture they must look at every aspect of the market to determine if it makes sense and if it would be profitable, it is clear that under the current government regime there are too many risks compared to the benefits. I would caution any investor or entrepreneur that is interested in doing business in Venezuela to seek legal counsel before engaging with a country that has so much uncertainty!

## **CHAPTER 6: VENEZUELA PUBLIC CORRUPTION AND FRAUD**

### **Venezuela Public Corruption and Fraud: Whistleblowers Needed**

Hugo Chávez, a powerful Venezuelan strongman, changed the way that business operated in Venezuela. Chávez actions resulted in a widespread of public corruption and fraud in Venezuela. Venezuela is rated as the 15<sup>th</sup> most corrupt country in the world.<sup>86</sup> Chávez successor, President Nicolás Maduro passed an anti-corruption reform after Chávez's death, but the government corruption and fraud was already in a crisis.

### **Overview of Public Corruption in Venezuela**

Oil, electricity, communication, and the food industry were some of the sectors nationalized under Chávez. Within these sectors, the amount of government officials grew rapidly, signaling a sign of public bribery. The Venezuelan oil giant, PDVSA, is probably the most scandal rocked public company in the country, and does business with thousands of contractors, vendors, and licensees.<sup>87</sup>

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<sup>85</sup> Doing Business in Venezuela. (2018, February). Retrieved from <https://www.uhy.com/category/publications/doing-business-guides/>

<sup>86</sup> Mahany, B. (2019, April 11). Venezuela Public Corruption and Fraud: More Whistleblowers Needed. Retrieved from <https://www.mahanyertl.com/2017/venezuela-public-corruption-fraud-whistleblowers-needed/>

<sup>87</sup> *Id.*

## **U.S. Anti-Retaliation Protection For Foreign FCPA Whistleblowers in Venezuela**

The FCPA is jointly enforced by the American Securities and Exchange Commission (SEC) and the Department of Justice. For whistleblowers in the U.S., the SEC offers potent anti-retaliation tools and will frequently enter a case on its own to protect a whistleblower.<sup>88</sup> The SEC has done a great job at protecting whistleblowers identity. Whistleblowers are also paid for stepping up to the wrongdoing of a company. The SEC Whistleblower Program allows the government to pay an award of between 10% and 30% of what the government collects from wrongdoers. If the government collects \$10 million from the wrongdoer, the whistleblower can receive between \$1 million and \$3 million.<sup>89</sup> Whistleblowers usually blow the whistle on a company because they know it is the right thing to do.

### **SEC Whistleblower Program**

To qualify for an award from The SEC Whistleblower Program, information about a bribery of a foreign official must be known. A foreign official is a worker of the government. Typical government jobs are doctors and employees of a hospital. Information must be an original source of information and cannot be told to you from a friend. The awards from the SEC are given to individuals who are not residents of the United States as well.

### **Venezuelans and the Business Community Impact from Corruption**

Companies that do not choose to pay illegal bribes and kickbacks suffer to companies who does because those companies gain competitive advantages. Corruption and fraud does not just affect the business community, but the entire community is affected by the doings of the wrongdoers. Fraud increases the cost of goods and services to the community. In the case of Venezuela, things are so bad that grocery store shelves are often bare. A Congressional commission say that \$70 billion is missing from public companies including PDVSA. The Wall Street Journal says that many public hospitals are going without medicine.<sup>90</sup>

### **Venezuela Corruption Report**

Most sectors of the Venezuelan economy suffer from endemic corruption.<sup>91</sup> Endemic corruption has been formed in Venezuela due to the weaknesses present in the country's organization. The weakness is based on extortion, passive, active bribery, and abuse of office, but does not include foreign official bribery within Venezuela. Gifts can be given for illegal reasons in Venezuela.

### **Judicial System**

The judicial system in Venezuela has a high risk of corruption. The courts in Venezuela lacks independence and has deteriorated under the power of Chávez. Chávez placed many government officials within the courts. In 2013, the Supreme Court ruled in favor of the government in 94% of

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<sup>88</sup> Mahany, B. (2019, April 11). Venezuela Public Corruption and Fraud: More Whistleblowers Needed. Retrieved from <https://www.mahanyertl.com/2017/venezuela-public-corruption-fraud-whistleblowers-needed/>

<sup>89</sup> *Id.*

<sup>90</sup> Mahany, B. (2019, April 11). Venezuela Public Corruption and Fraud: More Whistleblowers Needed. Retrieved from <https://www.mahanyertl.com/2017/venezuela-public-corruption-fraud-whistleblowers-needed/>

<sup>91</sup> *Id.*

cases involving the state, due to fear of retaliation.<sup>92</sup> Challenging regulations within the courts is very hard and expensive.

### **Police**

The security apparatus has a high corruption risk, and the police are ranked as the country's most corrupt institution.<sup>93</sup> Due to a high crime rate and damages made to the community due to fraud and corruption, most companies invest in police officers to protect their business. However, these police officers are poorly trained but highly funded.

### **Public Services**

High corruption risk is present in the public services. Public institutions are rather opaque, and the unpredictable regulatory system suffers from corruption and a lack of transparency.<sup>94</sup> During health inspections on businesses, businesses offers bribes for favorable treatment or expedited processing. This bribing is typical for building permits needed for construction of infrastructure in Venezuela.

### **Land Administration**

Venezuela's land administration carries a high corruption risk. Corruption and overregulation negatively affect property rights. Property rights are guaranteed under the Constitution but are not respected in practice.<sup>95</sup>

### **Tax Administration**

The tax administration carries a moderate risk of corruption for business. Tax laws are not enforced uniformly and without discrimination, and tax evasion is common. Nonetheless, only a small percentage of companies have reports giving gifts when interacting with tax officials. The costs and procedural burden of paying taxes in Venezuela are far greater the regional averages.

### **Petróleos de Venezuela (PDVSA)**

In 2018, a lawsuit filed by the PDVSA US Litigation Trust (the "Trust") in federal court in Miami, Florida on behalf of Venezuela's state-owned oil company, Petróleos de Venezuela, S.A. ("PDVSA"). The lawsuit alleges that the defendants, a group of 44 oil trading companies, banks and individuals, participated in a 14-year scheme to rig bids, underpay on purchases and overcharge on sales, allegedly resulting in billions of dollars of losses to PDVSA.<sup>96</sup> The case is presented in Exhibit 6 below.

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<sup>92</sup> *Id.*

<sup>93</sup> Venezuela Corruption Report. (n.d.). Retrieved from <https://www.ganintegrity.com/portal/countryprofiles/venezuela/>.

<sup>94</sup> *Id.*

<sup>95</sup> *Id.*

<sup>96</sup> Cooper, R., & Morag, B. S. (2018). Update on PDVSA US Litigation Trust v. Lukoil Pan Americas, et al. *SSRN Electronic Journal*. doi: 10.2139/ssrn.3160338

Exhibit 6

PETROLEUM LTD.; COLONIAL OIL INDUSTRIES, INC.; COLONIAL GROUP, INC.; GLENCORE LTD.; GLENCORE INTERNATIONAL, A.G.; GLENCORE ENERGY UK LTD.; MASEFIELD A.G.; TRAFIGURA A.G.; TRAFIGURA TRADING LLC; TRAFIGURA BEHEER B.V.; VITOL ENERGY (BERMUDA) LTD.; VITOL S.A.; VITOL, INC.; FRANCISCO MORILLO; LEONARDO BAQUERO; DANIEL LUTZ; LUIS LIENDO; JOHN RYAN; MARIA FERNANDA RODRIGUEZ; HELSINGE HOLDINGS, LLC; HELSINGE, INC.; HELSINGE LTD., SAINT-HÉLIER; WALTROP CONSULTANTS, C.A.; GODELHEIM, INC.; HORNBERG INC.; SOCIETE DOBERAN, S.A.; SOCIETE HEDISSON, S.A.; SOCIETE HELLIN, S.A.; GLENCORE DE VENEZUELA, C.A.; JEHU HOLDING INC.; ANDREW SUMMERS; MAXIMILIANO POVEDA; JOSE LAROCCA; LUIS ALVAREZ; GUSTAVO GABALDON; SERGIO DE LA VEGA; ANTONIO MAARRAOUI; CAMPO ELIAS PAEZ; PAUL ROSADO; BAC FLORIDA BANK; EFG INTERNATIONAL A.G.; BLUE BANK INTERNATIONAL N.V.	<b>JURY TRIAL</b>  Case No. _____
Defendants.	

In conclusion of the still ongoing case, the Trust will face continued opposition to its motion for preliminary injunction and defendants have announced that they intend to file a motion to dismiss the various actions.<sup>97</sup> Within the case, Venezuelan government may require PDVSA to pay any future debt required for restructuring.

## CONCLUSION

Many forms of bribery and corruption exist around the globe. All forms of bribery and corruption negatively impact societies, national economies, and transnational commerce. Firms that seek to operate in multiple countries should be informed about the global laws addressing bribery and corruption, including the Foreign Corrupt Practices Act, The OECD Convention, and the U.K. Bribery Act. In addition to being informed, firms should put measures in place that follow the guidelines for complying with applicable laws and regulations. Failure to comply can result in costly litigation, criminal prosecution, incarceration, and significant monetary fines.

Venezuela, a so-called leading Latin-American nation, still has a long way to go in order to transform completely into a ‘developed’ nation. It needs a more deeply entrenched structural and government change, most preferably a democracy. The current autocratic government is creating an aura of fear for the people to live in, and the extreme socialism is destroying industry and trade. People’s basic and fundamental rights are being compromised upon. Hence as of November 2019, it does not provide a conducive atmosphere for American businesses to consider

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<sup>97</sup> Cooper, R., & Morag, B. S. (2018). Update on PDVSA US Litigation Trust v. Lukoil Pan Americas, et al. *SSRN Electronic Journal*. doi: 10.2139/ssrn.3160338

it an attractive place to invest and do ongoing business with.

Risks far outweigh the benefits of doing business in Venezuela. Any time someone considers a business venture it is important to look at every aspect of the market to determine if it makes sense and if it would be profitable, it is clear that under the current government regime there are too many risks compared to the benefits. Any investor or entrepreneur that is interested in doing business in Venezuela should take caution and seek legal counsel before engaging with a country that has so much uncertainty.

Venezuela needs to become an expert in Foreign Corrupt Practice Act. Failure to become experts in FCPA, Venezuela community will continue to have fraud and corruption that will impact Venezuela in the community. Crime will continue to increase, and the poor will continue to be poor due to the effects this corruption is having on the country's currency. Venezuela should understand the importance of whistleblowing and benefits just to understand that the SEC is there to help and protect the individual. Business should hold ethics as a high value within their companies to eliminate the impacts similar to the country of Venezuela.

## APPENDIX

Foot-note	Reference Document
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3	Dávila, J. A., & Gonçalves, A. (2019, November). Venezuela - The Anti-Bribery and Anti-Corruption Review - Edition 8 - TLR - The Law Reviews. Retrieved December 6, 2019, from <a href="https://thelawreviews.co.uk/edition/the-anti-bribery-andanticorruptionreviewedition8/1210844/Venezuela">https://thelawreviews.co.uk/edition/the-anti-bribery-andanticorruptionreviewedition8/1210844/Venezuela</a>
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# Methodology for Normative Analysis through the Implementation of Artificial Intelligence Mechanisms

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*There is not yet an artificial intelligence method that analyzes the regulations, since it has been generically thought that this is not possible, hence, based on the epistemologies of artificial intelligence based on expansion ( $\theta + \varphi$ ), revision ( $\theta * \varphi$ ) and contraction ( $\theta - \varphi$ ) (ALISEA, 1998) it can be observed if these are compatible with the functions established by the Guaranteeism, this is what is intended to address the possibility of generating a new paradigm of how the normative analysis can be performed .*

*In such a way that the main results were the existence of compatibility between the methodologies of artificial intelligence and the Guaranteeism which can be used for the normative analysis, moreover the gaps that need to be satisfied are made clear in order to avoid problems in the conceptualization and analysis of syntax.*

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# **FinTech, Crowdfunding and Crowdlending: A Bibliometric Based Review**

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*Fin Tech holds a great potential to improve people's lives as it supports business models in personalized services and focus on increasing creativity through fresh and flexible practices. In 2017, this sector represented 25% of investments in risk capital in information technologies in Latin America.*

*Modern technology supported by scientific development exerts an extraordinary influence on social life in all its fields: economic, political, military and cultural. In this context, the objective of this document is to conduct an analysis of scientific research related to FinTech, crowdfunding and crowdlending concepts with the methodological support of bibliometric analysis. Additionally, research will show the impact of these variables in society. The main hypothesis is that the greater the scientific research in a specific area, the greater the importance of the variable or variables in the environment.*

*The scientific production stored in the Web of Science repository in the period from 1980 to 2019 is examined; the analysis considers articles, leading journals, citations, h-index, authors, countries, organizations, language, financing entities and research areas with higher impact on the topics analyzed. Correspondingly, VOSviewer software is used to develop bibliometric maps that show the behavior of the main trends in this area.*

*The results show that approximately 93.5% of the scientific research on FinTech, crowdfunding and crowdlending has been carried out from 2015 and up to date, and that the growth of this type of ventures from 2017 to 2018 was 66%.*

**KEYWORDS** *FinTech, crowdfunding, crowdlending, bibliometric analysis, VOSviewer*

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# Sequencing Optimization Model for Automotive Components Production in Nuevo León

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*The sequencing of production issue is one of the most complex problems that arise in the automotive industry when producing various assembly line products. The objective of this article is to propose a production-sequencing model for automotive components. The aim is to define the process variables that affect the number of units produced, the time of unit completion (from entering the first station until exiting the assembly lines), and the utilization rate of the workstations. Currently, computer simulation is one of the most used tools to analyze, design, and evaluate complex production processes. It is able to make decisions about the real system without affecting it. The experimental design in this research was central when generating the combinations of the inputs and how they affect the response variables. For this study, multivariable predictive regression models were used in order to verify the hypotheses described below and to identify which variables' main effects and interactions positively or negatively impact the assembly process.*

*KEYWORDS* Sequencing, simulation, automotive industry, Promodel

## INTRODUCTION

At the international level, the automotive industry is made up of two sectors: terminal and auto parts. The terminal industry is divided into two segments: light vehicles and heavy vehicles according to the definitions presented by the International Organization of Motor Vehicle Manufacturers (OICA, 2017). The light vehicles are used to transport passengers containing less than eight seats (including the conductor), whereas the heavy vehicles are those used for the transport of merchandise. The latter's weight is greater than 7 tons. For this investigation, this last definition will be used for heavy vehicles.

In recent years, the Mexican automotive industry has been characterized as one of the most productive sectors of the Mexican economy with 3% of Gross Domestic Product (GDP) and 18% manufacturing GDP. According to the National Institute of Statistics and Geography (INEGI,

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2018). For this reason, it has been the biggest attraction for foreign investors. Investments in this industry generate approximately 870,000 direct jobs per year, as stated by INEGI (2018). Mexico has positioned itself as the 7th producer of vehicles in the world and the 1st in Latin America, surpassing countries such as Spain, Brazil, and Canada. The Mexican automotive industry must comply with quality standards as the country has also contributed 3.8% to the world production of automobiles (OICA, 2017). This compliance is due to the demands of international markets, where the variety of products are presented.

## CONCEPTUAL FRAMEWORK

When producing in line, one of the most common problems of the automotive industry is the sequencing of production orders to workstations. This is due to the variety of vehicles and their components. It is complicated to define the processing order at the stations and, in turn, comply with the established process times (Drexl, 2001). This led many international specialists to try to solve the problem with different methodologies and approaches. With the emergence of computers, the sophistication of mathematical algorithms has been made possible, so that optimal calculation of the sequence occurs with the shortest processing time between stations (Gadinaik, 2014).

Graham (1966) first described the overall problem of sequencing production, which was defined as an optimization problem of computer science and operations research. Where  $n$  jobs  $J_1, J_2, J_n$  with different processing times must be programmed in " $m$ " machines minimizing the total of all workstations. Parello first outlined the production sequencing of the automotive industry (1986). The objective was to program vehicles along an assembly line where the number of infractions towards workstation restrictions could be minimized, i.e., capacity limitations and sequence changes according to the original production plan.

The literature discusses two types of approaches to solve the problem of sequencing in the automotive industry (Solnon & Dat Cung Van, 2005). The first is by means of exact approximations (restriction programming, whole programming, Ad-Hoc, and Simulation). The second is by means of heuristic approaches (local search, genetic algorithm, and optimization of the ant colony). The simulation technique is used in this study. In fact, today, this technique is one of the most used tools for quantitative analysis. Immediate results can be seen without manipulating the real system (Eppen et al, 2000). Computer simulation is a numerical technique for conducting experiments. It requires certain types of logical and mathematical models, describing the performance of a business or a system over extended periods of real time. (Wirabhuna, 2008).

In this study, three variables will be used to verify how they affect the sequencing of production in the automotive industry, defined as follows: 1. Inventory in process: Includes all articles or elements that are used in a production process. It is characterized by an increase of value along each transformation process until reaching the finished product (Krajewski et al, 2011). 2. Product mix: Refers to the total number of product lines that a company can offer its customers. (Valero et al, 2011) 3. Batch size: Amount of raw material that comes together with a productive process. (Aguirre et al, 2008).

## METHODOLOGY

The research design will be experimental, analyzing through intentional manipulation if one or more independent variables affect the dependent variable. According to the classification by Campbell et al. (1966), experimental designs are divided into three categories: pre-experiments, "pure" experiments, and quasi-experiments. This research will be a "pure" experiment based on the presented definition. The following requirements are met to achieve control and internal validity: comparison groups (manipulation of the independent variable) and equivalence of the groups. Due to the nature of this research, and in order not to affect the real system through experimentation, a productive process of heavy truck assembly will be simulated in order to explain how the independent variables affect the dependent one. The statistical hypotheses that we want to check are comparisons of betas ( $\beta$ 's), where the degree of association with which an independent variable impacts the dependent variable is indicated. The hypotheses to verify include:

- H1 (Y1):  $\beta_1 > \beta_2$
- H2 (Y1):  $\beta_2 > \beta_1$
- H3 (Y1):  $\beta_3 > \beta_1$
- H4 (Y1):  $\beta_4 > \beta_1$
- H5 (Y2):  $\beta_1 > \beta_2$
- H6 (Y2):  $\beta_2 > \beta_1$
- H7 (Y2):  $\beta_3 > \beta_2$
- H8 (Y2):  $\beta_4 > \beta_5$
- H9 (Y2):  $\beta_6 > \beta_5$
- H10 (Y3):  $\beta_3 > \beta_1$
- H11 (Y3):  $\beta_6 > \beta_5$

The scope of this investigation involves the assembly process of heavy coaches for a manufacturing company located in Garcia N.L. This company covers 56% of the national market, segmenting its products into urban, suburban, and extra-urban coaches. A computer simulation model was first developed for the assembly process of urban and extra-urban coaches where 18 workstations and their eight sub-assembly stations were simulated. The computer simulation model was developed by using the software PROMODEL (Production Modeler). This allows for model manufacturing systems and services prior to implementation, also offering an animation and optimization tool (PROMODEL, 2010).

Once the model was developed in the simulator, an experimental analysis was carried out with the basic  $2^k$  design that establishes two levels for each set of factors  $k$ , leaving the design  $2^6$ , e.g. 2 levels with 6 factors. Three study variables and three most problematic stations in terms of operation timing revealed during the simulation were selected as factors (Independent variables) Table 1. For the operation times, probability distributions were generated. In this case, uniform distribution represented as  $U(A \pm B)$  was used, where  $A$  represents the upper limit of the uniform distribution and  $B$  the lower limit. Of note is that these data were generated from the historical data of the company and with a daily production.

**Table 1:** Input factors and their levels

Independent Variables	Factor Description	High Level	Low Level
X1	Inventory in Process	1500 pcs.	1200 pcs.
X2	Batch Size	3000 pcs.	2400 pcs.
X3	Product Mix	20 pcs.	14 pcs.
X4	Processing Time Station 1	U(154.45, 90.60) min	U(46.20, 24.10) min
X5	Processing Time Station 2	U(90.20, 57.35) min	U(80.90, 48.20) min
X6	Processing Time Station 3	U(238, 124) min	U(100.10, 70.83) min

## ANALYSIS AND DISCUSSION

**Table 2:** Summary of the SPSS Mean Test results

Variable	Value	Y <sub>1</sub>			Y <sub>2</sub>			Y <sub>3</sub>		
		Mean	StDev	P-Value	Mean	StDev	P-Value	Mean	StDev	P-Value
X <sub>1</sub>	Low	11.50	2.51	0.000	5906	1150	0.040	78.72	4.02	0.023
	High	13.26	3.81		5541	1913		77.51	5.33	
X <sub>2</sub>	Low	13.09	3.51	0.002	5473	1871	0.005	77.17	5.43	0.000
	High	11.94	3.24		5975	1192		79.06	3.73	
X <sub>3</sub>	Low	10.59	3.74	0.000	4835	1482	0.000	76.44	3.60	0.000
	High	14.44	1.42		6617	1118		79.79	5.16	
X <sub>4</sub>	Low	12.75	3.35	0.221	5508	1712	0.015	77.80	5.00	0.234
	High	12.28	3.49		5939	1423		78.43	4.48	
X <sub>5</sub>	Low	12.50	3.32	0.492	5600	1718	0.163	78.23	4.17	0.669
	High	12.25	3.18		5848	1437		78.00	5.27	
X <sub>6</sub>	Low	12.59	3.40	0.683	4952	1315	0.000	77.46	3.90	0.013
	High	12.44	3.45		6495	1457		78.78	5.40	

Significance level  $\alpha = 0.05$

Considering this was an experimental study, it was necessary to define the number of replicas (experimental samples) based on the factorial design  $2^6$ , i.e., 2 levels with 6 factors and 5 replicas. By multiplying these elements, it gives us a total of 320 replicas used in the simulation to study the behavior of the dependent variables defined as: units completed (Y<sub>1</sub>), time of completion (the time it takes to enter the chassis: from the first assembly station to the last) (Y<sub>2</sub>), and utilization rate of stations (Y<sub>3</sub>). Having established the above, a mean hypothesis test was carried out to find

that the independent variables had a significant mean through SPSS software Tables 2 and 3. Given the hypothesis to verify the following:

$$H_0: \mu_1 - \mu_2 = 0$$

$$H_1: \mu_1 - \mu_2 \neq 0$$

Where:

$\mu_1$  = the mean of the independent variable  $X_n$  low values

$\mu_2$  = the mean of the independent variable  $X_n$  high values

**Table 3:** Summary of the accepted hypothesis test and its P-value

Variable	Y <sub>1</sub>	Y <sub>2</sub>	Y <sub>3</sub>
Inventory in Process (X <sub>1</sub> )	0.000	0.040	0.023
Batch Size (X <sub>2</sub> )	0.002	0.005	0.000
Product Mix (X <sub>3</sub> )	0.000	0.000	0.000
Station 1 (X <sub>4</sub> )		0.015	
Station 3 (X <sub>6</sub> )		0.000	0.013

Significance level  $\alpha = 0.05$ .

Since the mean difference hypothesis tests were carried out, multivariate regression models were constructed through SPSS software using the stepwise method. Independent variables and their interactions are considered using dichotomous values (0, 1). For each dependent variable, the following model was defined as:

$$Y = \beta_i + \beta_i X_i + \dots + \beta_n X_n + \beta_{ij} X_i * X_j + \varepsilon \quad (1)$$

Where:

Y = Dependent variable

$\beta_i$  = Regression coefficient

$X_i$  = Independent variables

$X_i * X_j$  = Interaction effects

$\varepsilon$  = Error

Once the models were generated, the multicollinearity of the data was validated (statistical test to verify that the variables were uncorrelated to each other). Since more than one model was generated for each dependent variable, the best model based on the highest  $R^2$  has a condition index of less than 15. Table 4.

**Table 4:** Coefficients for determining the SPSS result model

Dependent Variables	F	Sig.	R <sup>2</sup>	Number of models	Condition Index
Y <sub>1</sub>	78.28	0.00%	71.70%	10	12.9
Y <sub>2</sub>	56.00	0.00%	72.00%	18	15.3
Y <sub>3</sub>	16.88	0.00%	30.30%	8	6.4

Subsequently, the Beta coefficients ( $\beta$ ) were generated for each of the models presented in Table 5, 6, and 7 for Y<sub>1</sub>, Y<sub>2</sub>, Y<sub>3</sub>, respectively. The standardized coefficients in these tables, ordered from highest to lowest, show that if a value of beta is positive in the independent variable, then there is an increase in the dependent variable. If beta is negative in the independent variable, then there is a decrease over the dependent variable.

**Table 5:** Coefficients of  $\beta$  SPSS for the dependent variable Y<sub>1</sub>

Variables	Non-standardized coefficients		Classified coefficients	t	Sig.	Collinearity statistics	
	B	Error type	Beta			Tolerance	FIV
(Constant)	11.497	0.334		34.393	0.000		
X <sub>1</sub>	4.262	0.403	0.640	10.573	0.000	0.250	4.000
X <sub>2</sub> *X <sub>3</sub>	3.513	0.403	0.457	8.713	0.000	0.333	3.000
X <sub>3</sub> *X <sub>4</sub>	3.238	0.403	0.421	8.030	0.000	0.333	3.000
X <sub>2</sub> *X <sub>4</sub>	3.238	0.403	0.421	8.030	0.000	0.333	3.000
X <sub>3</sub>	1.625	0.403	0.244	4.031	0.000	0.250	4.000
X <sub>1</sub> *X <sub>4</sub>	-1.487	0.403	-0.193	-3.690	0.000	0.333	3.000
X <sub>1</sub> *X <sub>2</sub>	-1.762	0.403	-0.229	-4.372	0.000	0.333	3.000
X <sub>1</sub> *X <sub>3</sub>	-1.762	0.403	-0.229	-4.372	0.000	0.333	3.000
X <sub>4</sub>	-3.238	0.403	-0.486	-8.030	0.000	0.250	4.000
X <sub>2</sub>	-3.375	0.403	-0.507	-8.371	0.000	0.250	4.000

For the model of the dependent variable finished pieces (Y<sub>1</sub>), it is observed that the variables with greater explanatory weight (taking into account absolute values, highest to lowest) are: Inventory in process (X<sub>1</sub>), Product mix (X<sub>2</sub>), Station 1 (X<sub>4</sub>), and Batch size and Product mix (X<sub>2</sub>\*X<sub>3</sub>). Those that had the least impact were Inventory in Process and Station 1 (X<sub>1</sub>\*X<sub>4</sub>) and Inventory in process and Product mix (X<sub>1</sub>\*X<sub>3</sub>). All these variables had a P-value of less than 5%, indicating that they are sufficiently explanatory for the model.

**Table 6:** Coefficients of  $\beta$  SPSS for the dependent variable  $Y_2$ 

Variables	Non-standardized coefficients		Classified coefficients	t	Sig.	Collinearity statistics	
	B	Error type	Beta			Tolerance	FIV
(Constant)	3556.108	185.898		19.129	0.000		
X <sub>6</sub>	1545.833	166.272	0.488	9.297	0.000	0.333	3.000
X <sub>3</sub>	1446.219	214.657	0.457	6.737	0.000	0.200	5.000
X <sub>4</sub>	1056.081	166.272	0.333	6.352	0.000	0.333	3.000
X <sub>2</sub>	1012.352	214.657	0.320	4.716	0.000	0.200	5.000
X <sub>1</sub> *X <sub>3</sub>	1145.394	191.995	0.313	5.966	0.000	0.333	3.000
X <sub>5</sub>	824.032	166.272	0.260	4.956	0.000	0.333	3.000
X <sub>1</sub> *X <sub>2</sub>	826.306	191.995	0.226	4.304	0.000	0.333	3.000
X <sub>3</sub> *X <sub>6</sub>	631.210	191.995	0.173	3.288	0.001	0.333	3.000
X <sub>3</sub> *X <sub>5</sub>	-524.462	191.995	-0.143	-2.732	0.007	0.333	3.000
X <sub>2</sub> *X <sub>3</sub>	-588.576	191.995	-0.161	-3.066	0.002	0.333	3.000
X <sub>2</sub> *X <sub>4</sub>	-621.360	191.995	-0.170	-3.236	0.001	0.333	3.000
X <sub>4</sub> *X <sub>5</sub>	-628.714	191.995	-0.172	-3.275	0.001	0.333	3.000
X <sub>2</sub> *X <sub>6</sub>	-636.630	191.995	-0.174	-3.316	0.001	0.333	3.000
X <sub>1</sub>	-1350.614	166.272	-0.426	-8.123	0.000	0.333	3.000

**Table 7:** Coefficients of  $\beta$  SPSS for the dependent variable  $Y_3$ 

Variables	Non-standardized coefficients		Classified coefficients	t	Sig.	Collinearity statistics	
	B	Error type	Beta			Tolerance	FIV
(Constant)	75.167	0.447		168.227	0.000		
X <sub>6</sub>	3.379	0.714	0.356	4.730	0.000	0.395	2.532
X <sub>1</sub> *X <sub>4</sub>	2.971	0.655	0.271	4.538	0.000	0.627	1.595
X <sub>3</sub>	2.484	0.571	0.262	4.347	0.000	0.617	1.620
X <sub>2</sub> *X <sub>5</sub>	2.442	0.623	0.223	3.921	0.000	0.693	1.443
X <sub>2</sub> *X <sub>3</sub>	1.735	0.707	0.158	2.454	0.015	0.537	1.861
X <sub>1</sub> *X <sub>6</sub>	-1.905	0.749	-0.174	-2.543	0.011	0.479	2.089
X <sub>4</sub> *X <sub>6</sub>	-2.207	0.714	-0.202	-3.090	0.002	0.527	1.899
X <sub>1</sub> *X <sub>5</sub>	-2.957	0.639	-0.270	-4.629	0.000	0.658	1.519



For the model of the dependent variable termination time ( $Y_2$ ), it is observed that the variables that have a greater explanatory weight for the model (taking into account absolute values, highest to lowest) are: Station 3 ( $X_6$ ), Product mix ( $X_3$ ), and Inventory in process ( $X_1$ ). Those that had less impact were: Product mix and Station 2 ( $X_3 * X_5$ ) and Batch size and Product mix ( $X_2 * X_3$ ). All of these variables had a lower P-value of 5%, indicating that they are sufficiently explanatory for the model.

For the model of the dependent variable percentage of use ( $Y_3$ ), it is observed that the variables with a greater explanatory weight (taking into account absolute values, highest to lowest) are: Station 3 ( $X_6$ ), Inventory in process and Station 1 ( $X_1 * X_4$ ), and Inventory in process and Station 2 ( $X_1 * X_5$ ). Those that had the least impact were: Inventory in process and station 3 ( $X_1 * X_6$ ) and Batch size and Product mix ( $X_2 * X_3$ ). All these variables had a P-value of less than 5%, indicating that they are sufficiently explanatory for the model.

### MODEL FOR FINISHED PARTS ( $Y_1$ )

$$11.5 + 1.6X_3 + 4.3X_1 - 1.8X_1X_2 + 3.5X_2X_3 - 1.5X_1X_4 + 3.2X_3X_4 - 3.4X_2 - 3.2X_4 + 3.2X_2X_4 - 1.8X_1X_3 \quad (2)$$

### Model for Completion Time ( $Y_2$ )

$$3556.1 + 631.2X_3X_6 + 1446.2X_3 + 1545.8X_6 + 1012.4X_2 + 1056.1X_4 - 1350.6X_1 + 1145.4X_1X_3 + 826.3X_1X_2 - 636.6X_2X_6 - 621.3X_2X_4 - 588.6X_2X_3 - 628.7X_4X_5 + 824.0X_5 - 524.5X_3X_5 \quad (3)$$

### Model for the utilization rate of stations ( $Y_3$ )

$$75.2 + 1.7X_2X_3 - 2.9X_1X_5 + 2.5X_3 + 2.4X_2X_5 + 2.9X_1X_4 + 3.4X_6 - 2.2X_4X_6 - 1.96X_1X_6 \quad (4)$$

**Table 8:** Variable significance (Difference of means vs. Regression)

Variables	$Y_1 (R^2 = 72\%)$		$Y_2 (R^2 = 72\%)$		$Y_3 (R^2 = 30\%)$	
	Mean Test	Regression	Mean Test	Regression	Mean Test	Regression
$X_1$	✓	$X_1, X_2, X_3, X_4$	✓	$X_1, X_2, X_3$	✓	$X_4, X_5, X_6$
$X_2$	✓	$X_2, X_3, X_4$	✓	$X_2, X_3, X_4$	✓	$X_3, X_5$
$X_3$	✓	$X_3, X_4$	✓	$X_3, X_5, X_6$	✓	$X_3$
$X_4$	✗	$X_4$	✓	$X_4, X_5$	✗	$X_6$
$X_5$	✗	✗	✗	$X_5$	✗	✗
$X_6$	✗	✗	✓	$X_6$	✓	$X_6$

Table 8 shows the variables with their main effects (bold) and interactions. It is possible to observe how the independent variables in the process inventory ( $X_1$ ), lot size ( $X_2$ ), and their interactions were the variables that had greater significance, both in the mean tests and in the regression models for the dependent variables ( $Y_1, Y_2, Y_3$ ). On the other hand, the independent variable station 2 ( $X_5$ ) was one variable that had the least impact on the mean test. Therefore, it did not affect the dependent variables.

## **IMPLEMENTATION AND BENEFITS**

According to the 5-year operations and sales plan (i.e. S&OP), the company's operations team is evaluating the need to increase the plant's capacity through an additional production line. The company's Supply Management team is thus requesting confirmation from the Operations team about whether or not to confirm the purchase order with the supplier in Germany for the purchase of the additional line at a cost of \$ 50 million USD within a 16 month delivery time. Before making this decision, the Operations Director has planned to contract a local engineering consultant to find a different configuration that would marginally increase the production capacity of the current line, thereby deferring the investment to 1 to 2 years in the future. This study would be carried out with four engineers physically carrying out different configuration changes and the respective operation tests.

The dilemma of the above is that the results of that work would be validated after four full months of consulting at a cost of \$ 150,000 USD. In addition to the cost of consulting, the risk of this alternative is very high since there is nothing to ensure we would validate the required increase in capacity at the end of the four months. If this is the case, a situation could occur where the required increase is not achieved and we may also be passed the deadline to confirm the purchase, manufacture and installation of the new line with the supplier in Germany.

Considering all the above, the Operations Director sought to take advantage of the same simulation model developed through our project to virtually validate the different configurations and physical adjustments but adding to the above the optimized sequencing strategy that was originally the foundation of our model. Through that, it was possible to verify a 12% increase in the production capacity of the current line. It was necessary to make some physical changes to the current line but without the investment of time and money that had been contemplated before.

The model developed for the company was delivered for implementation to the executive Operations Management team. Prior to implementation, training sessions for the company's team of experts were carried out with an analytical approach. The focus of the workshops for the simulation models was multidisciplinary and involved various departments such as operations, finance and sales. The team broadly participated with application and improvement ideas for strategic decision making on the future and optimized operation of the assembly line, creating scenarios to improve material flows through the assembly line. The final result of these workshops was the detailed development of the "Business Case" of the project and that would be presented to the company's management team for final approval, and thereby confirm the decision to defer the investment of the new production line.

The presentation of the project's "Business Case" was an expected event and with a successful result. Basically, there were three items of savings and economic benefit for the company which are explained below. First of all, we have the benefit related to labor costs. With the sequencing model, the base template of the pilot production line was reduced from 132 to 91 workers. The above represents a reduction of 45% with respect to the current situation. Each operator represents an operating cost of \$18,000 Mexican pesos per month, which includes social security costs as well as indirect costs. Considering the pilot assembly line only, the optimization of 41 workers was achieved. The above represents a savings of US \$ 456,000 per year.

The second benefit is the capital investment cost. The company currently does not have high automation on the assembly line, however the investment cost of a prototype line is close to the order of \$ 50 million USD. As a result of the optimization in the sequencing of the assembly line, we managed to improve the throughput by 12%. This estimate is conservative taking into account the results obtained in the variable End Time ( $Y_2$ ) of which we reported the results of in the previous section. In the implementation workshop, the Finance team validated and agreed with the sales team that this throughput benefit in the operation will succeed in deferring the investment in the new line in at least 2 years in the future. The amortization criterion of the investment plan in the company is defined at 10 years. The above is equivalent to a release of financial resources in the order of \$ 5 Million USD per year. Applying an improvement rate of 5% of capital, this translates to an economic benefit of \$ 250,000 USD per year.

Finally, the third benefit point corresponds to the reduction of the work-in process. In this aspect, we managed to reduce the work-in process by 25% taking into consideration the results of the  $Y_1$  variable shown in the previous section. Having a current average inventory cost of \$ 4 Million USD and considering the same capital cost rate as 5%, a potential benefit of \$ 50,000 USD is obtained annually. With all of the above we reached a resulting gain for the company of around \$ 760,000 USD annually which will help the company directly improve its capitalization metrics in the following years.

## CONCLUSIONS

Our experimental design were completed using 3 relevant response variables ( $Y_1, Y_2, Y_3$ ) we find very frequent around heavy manufacturing sector. As for the set of independent variables ( $X_1...X_6$ ) we modeled in our experiment applying some pre-analytics on the historical data provided by the business. Specific custom distributions were constructed using 2 years of data; some were based on normal and uniform distributions. As a result, different combinations of factors tested have been found significant for each response variable. Even we found that some interactions effects among independent variables are significant which is important when main effects are missing. Experiment was a factorial design using a simple dichotomy approach (i.e. low and high) to measure factors ( $X_1...X_6$ ). For each combination of factors we applied 5 replicas ending up with a sample of 320 measures.

Two kind of tests were applied, one for difference of group means and the other based on multivariate regression models. As expected we find that results of both approaches are largely consistent and complementary. An interesting and comparative synthesis of cross-results was

developed on table 8. Using difference of group test, more interesting than the p-value significance results, we then can measure how large is the impact of each factor individually using the difference of the means for low and high groups. Further analysis can be done here to estimate how large is the ratio of change (i.e. derivate) on response variable versus each independent variable. On the other hand regression analysis was useful to identify how these variables are interacting each other.

A very large number of models were constructed using well know “step-wise” approach. Significance and collinearity validation was done for each model looking to increase variance explained ( $R^2$ ). We have already discussed regression coefficients results in terms on magnitude and sign. This is true for main principal effects and as for interactions effects as well. Here below on table 9 is included a summary about our initial hypothesis. Further analysis for utilization % variable ( $Y_3$ ) is suggested as we end up with a high significant model but with a low explanation variance when compared with ( $Y_1$  &  $Y_2$ ); surely other factors are impacting ( $Y_3$ ) requiring to be included on a new experiment.

**Table 9:** Summary of hypothesis results (expected on green & unexpected on red)

Variables	End-Product Units Volume	Finishing Time	Utilization %
	$Y_1$ ( $R^2 = 72\%$ )	$Y_2$ ( $R^2 = 72\%$ )	$Y_3$ ( $R^2 = 30\%$ )
Inventory Work in Process ( $X_1$ )	4.26	-1,350.61	
Lot Size ( $X_2$ )	-3.38	1,012.35	
Product Mix ( $X_3$ )	1.62	1,446.22	2.48
Process Time for Work Center 1 ( $X_4$ )	-3.24	1,056.08	
Process Time for Work Center 2 ( $X_5$ )			
Process Time for Work Center 3 ( $X_6$ )		1,545.83	3.38
( $X_1 * X_2$ )	-1.76	826.31	
( $X_1 * X_3$ )	-1.76	1,145.39	
( $X_2 * X_3$ )	3.51	-588.58	1.74

We reported some unexpected and contra-intuitive results. For example, “lot size” ( $X_2$ ) is impacting negatively to “end-product unit’s volume” ( $Y_1$ ). Now we were able to identify on the simulation tool that this is because a larger “lot size” on the manufacturing workflow requires more time to be fulfilled affecting the number of final units at the end of the production line. Something similar were identified as for “inventory work in process” ( $X_1$ ) is impacting negatively to response variable “finish time” ( $Y_2$ ). Therefore we have tested that both “inventory policy” related variables ( $X_1$ ,  $X_2$ ) have a negative impact on both ( $Y_1$ ,  $Y_2$ ) “productivity-related” response variables. Nevertheless, “product mix” ( $X_3$ ) has not an adverse impact on ( $Y_1$ ) nor on ( $Y_2$ ); therefore and surprisingly we found that bottleneck on the stream of our simulation model is not related to complexities on “product mix”. However, when “product mix” is interacting with “lot size” ( $X_1 * X_3$ ) then the result is different and negative as expected. Finally we find that in general, “process time for WC 2” ( $X_5$ ) has not a significant impact in the system (i.e.  $Y_1$ ,  $Y_2$ ,  $Y_3$ ). This is largely explained because on the simulation model it turns out this work center was the one that has the most of the “idle time” on the entire process.

Most of the standardized regression coefficients results are sorted out and validated from our initial hypothesis in terms of importance and impact. On “results” section we have included an interesting discussion particularly when coefficients magnitude and signs are getting out of the

range of what would be expected in terms of direct or inverse impacts over the response variables. We have already discussed that not all factors are relevant for each response variable; furthermore any given factor may have the most of the impact in one response variable and have no significance at all when compared with other response variable. This is interesting and explained as we find out a low correlation among response variables ( $Y_1$ ,  $Y_2$ ,  $Y_3$ ). Further analysis can be done here to develop sophisticated surface response techniques.

Moving forward, unstandardized coefficients could be used to predict results on the real world operation pursuing different settings as for scheduling strategy on manufacturing. Moreover, if unstandardized coefficients are useful and accurate for prediction then we can ingest these as valid inequalities on more advanced optimization frameworks. This is a relevant endeavor in order to deal and optimize complex interrelated independent factors impacting a set of response variables; more importantly when these response variables (i.e.  $Y_1$ ,  $Y_2$ ,  $Y_3$ ) are related too and/or are in a “trade-off” decision making structure. A multi-objective optimization model framework would be expected. We particularly suggest this approach as for the next steps on our research work.

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# Inventory Record Inaccuracy Causes: Case of Study Electronic Industry

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*Inventories are a strategic part of the value chain of organizations; Without the inventories, the organizations would not be able to manufacture their product to be sold, however, the poor planning or administration of them could cause damages due to the non-fulfilment of the deliveries of the final product or the increase of the rent for the physical spaces that it occupies. The objective of the investigation was to determine and analyze the causes of bad inventory accuracy in the manufacturing industry of electrical parts using cycle counts.*

*KEYWORDS* Inventory, Inventory Record Accuracy, Cycle Counts

## INTRODUCTION

The inventories are one of the most important parts within a company, they comprise the raw material, product in process, consumables and/or finished products, basically there is an inventory for every process performed in the company, that's why it is of high importance to keep necessary controls and policies for inventory management. The bad handling of the very same can generate extra costs to the companies, an inventory with negative difference can generate expedite fees, production stoppages, overtimes to cover the demand, while a positive inventory can generate unnecessary warehousing costs, obsolescence costs, etc. The latter generates an unforeseen cost to the company which elevates operating costs, which translates to an increase in the price of the products produced at the company, which makes the product less competitive in the company shrinking the earning margins. To measure the mentioned differences in the previous paragraph exists the veracity indicator which measures de difference between what's registered in the warehouse against the physical inventory multiplying times a 100. Rinehart (1960) have been

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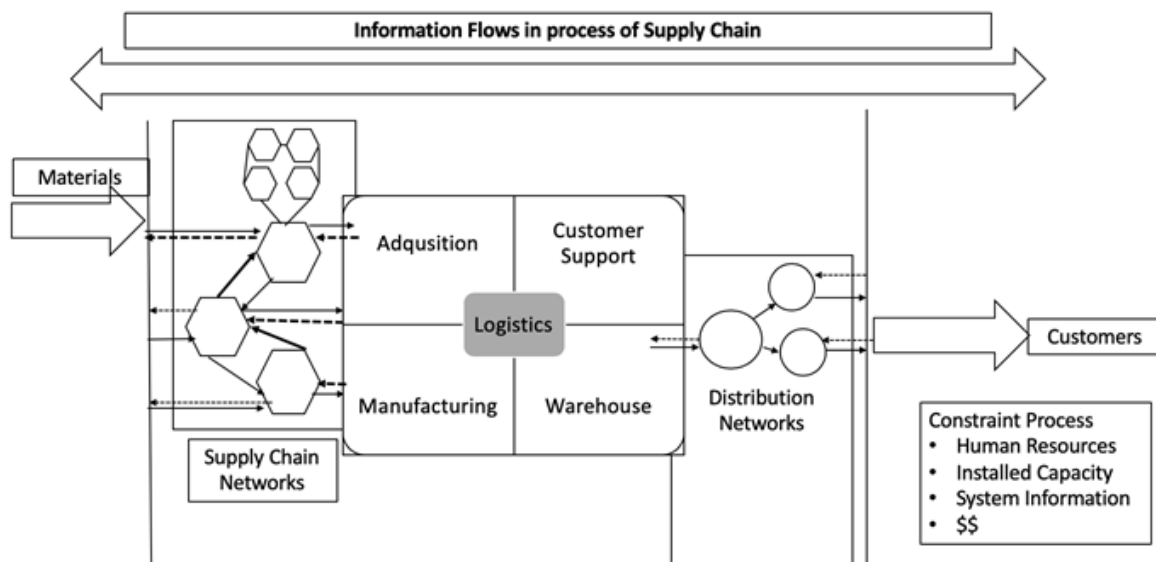
studies about the veracity of the inventories in department store with a result that only a 50% of the items are found correctly located physical and in the Warehouse Management System. In accordance with DE Horatius & Raman (2008), within the inventory management are the cyclic counts which have as a function to guarantee the inventory accuracy through audits to the inventory according to their classification and to an annual program ran by the warehouse supervisor; these are supported on the ABC, which is a technique that classifies the inventory items in one of the three inventory groups according to importance of the matter, Class A very important (represent 80%), Class B Moderately more important (they represent (15%) and Class C(represents 5%) (Park, Bae & Bae, 2014). According to the mentioned last paragraphs and as well as the theory void exists in the topic of this investigation will determine the causes of bad inventory accuracy of the inventories in a company of electrical components manufacturing.

## LITERATURE REVIEW

The logistics activities must be organized within themselves to achieve a better efficiency in the whole productive system. For this reason, the logistic must not be seen as an isolated process but as a global process of added value to the customer, this is, a process made of interconnected tasks one with each other (Ballou, 2004).

In this sense, the logistic is a term that is frequently associated with the distribution and transportation of finished goods; however, that is a partial appreciation of the totality of it, as the logistic related directly since the raw material acquisition and consumables in the origin point, to the delivery of the finished product in the consumer point, this process we can see in the Figure 1 (Bowersox, 2007).

**Figure 1:** Logistic Process Activities (Bowersox, 2007)





Now, within the logistic process we will focus in two activities; warehousing and inventories, paying special attention to the latter. The warehousing is the activity of safekeeping of materials for their future use in the process (Bowersox, 2007).

The warehouses are the physical places where the inventories are kept. The management of warehouses keeps and controls all inventories items, must establish a proper physical space to keep the items from theft and any obsolescence, expiration and manipulation. The warehouse management must consider the maintenance of records, which facilitates an immediate item location. (Brent and Travis, 2008).

On the other hand, the inventories establish an area of the organization in which cost reduction is possible without reducing the revenue, basic element for the survival of the companies in modern times. (Sucky, 2005).

This is why we make a point in inventory management, given this encases the group of decisions, rules, guidelines and/or policies through which is determined the levels of inventories that must be kept, the moment in which existences must be replenished and the size for which these orders must be made.

Following the trajectory of segregation starting from the general to the peculiar, to define the rules or policies that the inventory management will follow will need to be completed with activities of item classification, safety inventory assignment and the estimation of the inventory costs. (Ortiz, 2004).

The item classification seeks to differentiate the goods that make up the inventory according to some criteria, so that according to their importance inventory management policies are applied for each group, in a way that the efforts and costs of administration are proportional to the relative importance of themselves (Flores, 1992).

The most employed method to classify the items is the ABC, which categorizes the articles in 3 groups A, B and C according to a single unique criterion related with the invested value in the goods. The ABC multicriteria, in which are considered aside from the cost other elements to classify the items according to their importance, such as the risk of obsolesce, supplier lead times, criticality, difficulty acquiring the product, among others. (Vollman and others, 1995).

Why to seek to have entry and exit records, materials classification, inventory management, material warehousing, etc. All this has a goal the accuracy of my inventory. The inventory accuracy makes reference to the difference between the physic material against the one registered on the system. According to Kok and Shang (2014) there may be exist negative discrepancies, this means that there is less physic material than we have registered in the system or there are positive discrepancies which is surplus material, we have more physic material that what is registered in the system.

The inventory discrepancies can affect in a severe way the productivity of the companies, creating sales list, customer penalizations, changes in delivery dates, pickups, etc. The inefficiency is a natural consequence as it is planned to trust that the accuracy of my inventory is the correct

one, that the quantity of material that I have registered in the system really exists physical (Sarac, 2016).

To understand the relation that exists between human error and supplier error with the differences of inventory we will start with the basic. All companies be of production commercialization or services requires of raw material to finish their production and/or sales activities and therefore the stock of inventories (Vidal, 2004).

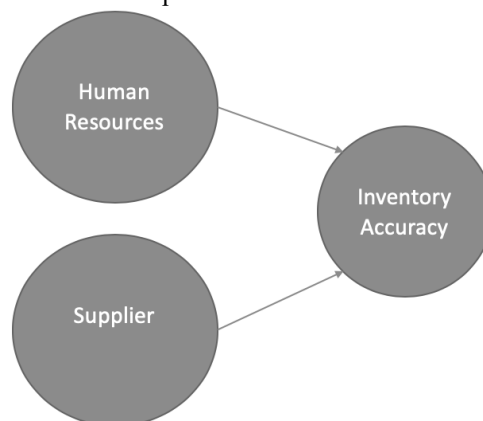
De Horatius and Raman (2008) in an empirical investigation, discrepancies were observed of 65% in 369,567 inventory records compiled from 37 leader retailers in EE. UU. To give answer to what has to do with inventory management, the organizations require of informatic systems that allow to know with accuracy the state of inventories at any time, vital information to plan purchases, manufacture and distribution. (Cooper, 1989) (Uribe, 2012).

At present, organization that have realized the importance of information management are seeking support in integrated systems that count with some models of inventory management. Between the different software's of enterprise resource planning (ERP) known and employed by organizations known at national rate and international as well have the system, applications and processes (SAP), Peoplesoft (SAP), PeopleSoft, JD Edwards and Oracle (Romero y Escalona, 2010).

The introduction of systems and software's replaced the manual inventory registry, it was too promising for the erasing of inventory discrepancies. Nowadays, these systems and the sensors that gather the data are improving every day, nonetheless, there are still errors in the inventory records. In fact, the discrepancies between records of inventory in the informatic systems and the physic inventory are common. The existence and the reach of such discrepancies, to which we refer as discrepancies in the inventory records, have been documented by the literature by several researchers, as well as in industry reports. (Raman, 2001). It is concluded that the low accuracy percentage can be attributed to the contraction (wear and theft), transaction errors, supplier errors and misplaced. Due to that is hard to eradicate completely these execution errors (Shang, 2014).

## HYPOTHESES

**Figure 2:** Diagram of independent variables vs dependent variables



In summary, according to the established findings it was established that the following hypothesis which are intent on being verified with the study object selected “*Empresa Manufacturera de Componentes Electricos*”:

- H1: The human error affects the KPI of inventory accuracy.
- H2: The suppliers’ error affects the KPI of inventory accuracy.

## METHOD

### *Research Setting*

The selected company is classified by the INEGI (2019) as an electrical company; The company has 1000 workers (employers and operators); As for the area to analyze, there only one manager who is dedicated to manage the warehouse activities.

### *Data Collection and Measures*

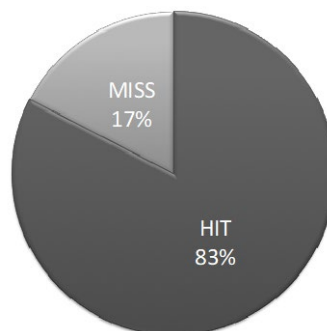
An audit physical was made in warehouse to compare this result with the information of Materials Requirements system during august, September and October, evaluating 574 items located in the warehouse’s company.

### *Treatments Data*

**Table 1:** Classification of Items HIT and MISS

Clasificación	Cantidad de Items	%
HIT	474	83%
MISS	100	17%
Total general	574	1

**Figure 3:** Classification of Items HIT or Miss



According with the information provide for the company, the 574 items audited were classified 250 class A, 150 class B and 174 class C.

Of the gathered data it was identified that of 574 items, 100 of them had discrepancies which gives 17% of the total sample and that in this way an accuracy of 83% (474 items), this can be seen in Figure 3 and Table 1.

It was used as nomenclature HIT those part numbers which result was without difference in the inventory and MISS those that result with difference in the inventory

After detecting those with a difference in the audit it was identified the root cause of the error of each part number as shown in Table 2 and Figure 4.

**Table 2:** Identification of the Root Causes of the Discrepancies

Root Cause	Quantity
ADJUSTMENT ERROR	25
COUNT ERROR	2
EXTRA TRANSFER	2
INCORRECT LOCATION	1
INCORRECT QTY TRANSFER	18
INCORRECT SUPPLIED QTY	23
MATERIAL FOUND IN EMPTY BIN	1
MISSING RECEIPT	1
MISSING TRANSFER	21
INCORRECT LOCATION	4
TRANSFER ERROR	2
<b>Total general</b>	<b>100</b>

**Figure 4:** Root causes of the discrepancies



Of the identified causes the choice was made of grouping them in two segments only in this case adjustment error, count error, extra transfer, incorrect location, incorrect qty transfer, incorrect location, incorrect qty transfer, material found in empty bin, missing receipt, missing transfer, transfer error were identified as discrepancies caused by the human resource and incorrect supplier quality was identified as discrepancy causes by the supplier.

## RESULTS

As results we obtained that the two hypothesis are true, this means that the human errors affect in negative way to the KPI of inventory accuracy and in the same way the supplier errors, reason why the organizations today must worry in hiring and training the human resource, due to the fact that if we observe figure 4, the 80/20 falls in errors causes by the human resource and in a minor take (23%) are the error caused by the supplier

## DISCUSSION

In the present investigation it was proven that the inventory accuracy is an issue that exists, and it affects the manufacturing organizations of components not only the retail stores. Aside this it was identified that the inventory accuracy is an issue of the handling of the operation that must be a motive for worry for managers and researchers in the organizations; the research performed present various limitations due to that this was developed in a company dedicated to the manufacture of electrical components; it is recommended to select a sample of adequate companies according to the population of a state or country to determine that it effectively follows a pattern.

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# **Retail Supply Chains Dynamics Simulation Experimentations and Some Takeaways**

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*This study focuses on developing useful and interesting insights into the functioning of four-echelon a retail supply chain consisting of Supplier- Manufacturer- Distributor- Retailer utilizing a System Dynamics (SD) model developed with Vensim© software. The objective is to understand the response behavior of the Supply Chain to various changes in customer order patterns and to discern what communications practices, information sharing, inventory policies and forecasting policies among the supply chain partners will help accomplish the retail supply chain goals. Goals such as, minimizing, if not eliminating unfilled orders, improved inventory turns, and reduced inventory costs, simultaneously and to generally promote mutual trust and confidence among the supply chain partners. For obvious reasons, elimination of unfilled orders at the retailer should receive the top priority as that would be the ultimate objective of typical retail supply chains i.e. to serve the end user's needs and requirements. We continue in this study, our further experimentations with newer patters of customer orders and the Vensim's built-in sensitivity analysis and optimization functions to provide some interesting and intriguing results.*

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## **Last Mile Strategies: An Opportunity to Increase Quality in Customer Service**

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*Nowadays, the necessity of new global delivery strategies to satisfy enterprises and clients is as important as the actual item by itself. The distribution of raw material in quicker form, in the best quality possible, and at the right time and place is fundamental to a lot of global enterprises and even daily costumers that are shopping online. Last mile strategies have been an option to certain enterprises to increase satisfaction among their processes and customers by dissolving issues related to merchandise and package delivery.*

*The correct distribution of materials and merchandise is something concerning to a lot of buyers and enterprises all around the world. It is estimated that at least 1 in 10 packages disappear without explanation in major USA cities and is estimated 15% of online shopping deliveries never make it to their final destination. (Business Insider and New York Times Report). For this reason, the implementation of correct strategies to manipulate fragile merchandise and packages is fundamental work nowadays; to ensure quality in delivery processes even if is a national delivery or an international delivery.*

*Global enterprises are conscious of the actual situations and its issues related to poor executed delivery processes and are committed to dissolve this matter. For this reason, enterprises are working very close with engineers and logistics to manipulate technology and science to create strategies to deliver merchandise in the best quality aspects needed; all of this to ensure a better development in processes made by parcels like shipping, tracking and merchandise receipting by the costumer, providing them facilities to their needs and a good customer service.*

*Good customer service is related to an excellent quicker response, dissolution of issues and client satisfaction in a timely manner. Costumers all over the world are daily increasing demands linked to these manners and some enterprises are creating solutions to avoid dissatisfaction and maintain a good and stable profitability. In contrast, enterprises that are not working and developing a good client satisfaction nowadays are tentatively going to decay in market and its position in the world.*

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*The importance of enterprises developing and maintaining delivery strategies to meet standards of quality in customer services is important to increase profitability and improve standards of quality in delivery services between enterprises and customers globally. Last mile strategies adopted by enterprises like Amazon are pointing to be the next generation of quality services provided by enterprises and their responsibility to their customers.*

# Can Employees Motivate Themselves? The Link between Peer Motivating Language and Employee Outcomes

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*This study builds upon the leadership, leadership communication, and organizational behavior literature to examine the effects of peer motivating language on employee outcomes. Despite the increasing interest in examining the relationships between leader motivating language and employee attitudes and behaviors, the effects of peer motivating language on such remain unexplored. Researchers Mayfield and Mayfield (2017) are calling for moving beyond ML as a dyadic, leader communication model to research on peer-to-peer motivating language. Moreover, leadership studies started placing greater emphasis on followers to avoid a possible unproductive overemphasis on the leader in an organization. In line with this move is the substitutes for leadership theory. Researchers are calling for the theorizing of further substitutes (Dionne et al., 2005; Jermier & Kerr, 1997). Given these existing research needs, the purpose of this study is three-fold. First, I propose, validate a scale for, and test a new construct called peer motivating language. Second, I develop and test a model that highlights the comprehensive nature of both leader and peer motivating language and employee outcomes, incorporating peer motivating language as a possible new substitute for leadership variable. Specifically, my study examines the questions of whether employee outcomes can be affected through motivating language use among peers, and if these peers, therefore may substitute or weaken the need for a leader's use of motivating language. Therefore, I study motivating language theory from a follower perspective to shed light on the often too narrowly focused leader-centric approaches to leadership and leadership communication. Third, I examine the generalizability of my presented model by testing it in two different countries: the USA and India. The final sample to test my model consisted of 545 respondents from the United States and 511 respondents from India. The results of the study substantiate the validity of the peer ML construct. The findings show that peers' use of motivating language in organizations has the potential to positively influence employee attitudes and behaviors and serves as a substitute for such communication style coming from a leader. The cross-national investigation of this study presents that these relationships may differ depending on the cultural setting, i.e. while peer ML serves as a substitute variable for leader ML for the Indian sample, it does not for the U.S. sample. Several theoretical and practical implications as well as limitations and direction for future research are discussed.*

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## **Turnover and Labor Unrest Causes: Lack of Leadership at the Supervisory Level**

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*Many organizations are having problems retaining workers because they are suffering with the actual policies, traits, and rules that the actual organizations have. They are complaining about the traits of the supervisory level, most of them hard workers but not trained for a leadership role.*

*There are costs related with the turnover caused by many factors, but one particularly is in the supervisory level and is due to the lack of training that results in bad communication, lack of understanding of the leadership role, lack of feedback, bad perceptions of the basics of teamwork, and not understanding the new workers, the so-called Millennials.*

*Also, these actual policies, traits, and rules are producing a social unrest that can be capitalized by the labor unions who ask for more benefits and are also increasing union fees.*

*Many organizations are unable to cope with young workers or compete in today's dynamic global markets. This is primarily a function of an obsolete management practice, and this is so because of the inability or the incompetence of the supervisors and middle managers.*

*Millennials in the workplace:*

*The Millennials are entering into adulthood with optimism and unrealistic expectations, which sometimes leads to disillusionment. Many early Millennials went through post-secondary education only to find themselves employed in unrelated fields or underemployed and job-hopping more frequently than previous generations.*

*Having grown up being bombarded by advertising, Millennials tend to be skeptical about promotional material of any kind. Whether buying products and services or considering employment, Millennials are more likely to listen to their friends than to be affected by marketing or public relations material. This characteristic makes both conventional marketing and employee recruitment practices often ineffective for Millennials.*

*As retiring baby boomers are replaced by Millennials in the workplace, companies are scrambling to understand this generation's strengths and motivators. They're not what supervisor and middle managers think.*

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*Considering all this, we must redesign the organization in order to reduce turnover and potential social unrest, to the new traits, attitudes, views, and also economic and social preferences.*

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# **Rotation of Personnel in Transportation Lines in Mexico and their Impact**

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*In Mexico there is currently a problem of relevant impact on transport companies, mainly affecting the rest of the companies dedicated to trade. This problem arises due to the rotation of personnel in fifth-wheel truck tractors. According to information from the SCT (Secretary of Communications and Transportation) in 2020 there is a deficit of 20,000 operators in Mexico, which represents a considerable percentage in relation to the total number of operators.*

*The problem arises, because the United States a few years ago had a boom in relation to fracking, so that its highway operators left their functions to leave with the oil companies leading to a decrease in the number of active operators on the road generating a change in their law that allows Mexican operators, with some restrictions to be considered to be operators under the B1 format in the United States, which implies that these operators can cross the border of the United States to Mexico to hook up a drag team (dry box, pipe, platform, curtailed, among others) and then return to the United States and deliver to the final destination. This situation has caused Mexican operators to leave their jobs on Mexican roads causing an increase to the aforementioned deficit and an impact on different areas of companies related to transport and logistics.*

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# **Do Minimum Wages Increase Female Employment? Evidence from Vietnamese Manufacturing Firms**

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*In this paper, I empirically examine the employment effect of minimum wages using firm-level data on Vietnamese manufacturing from 2010 to 2015. Employing the seminal approach proposed by Allegretto et al (2011 and 2017) for minimum wage studies, the findings suggests that minimum wages have a positive association with firm's total employment and female employment. I find an interesting results that the female employment effect is the highest on automotive and engineering manufactures, and the lowest on textile, garment and footwear manufactures. I also conducted some alternative regressions by introducing interaction terms between minimum wage variable with different firm types. The estimation results provide evidence that the higher the total factor productivity, the increased female labor share, and the higher pay to their employees the stronger the female employment effect. The female employment impact of minimum wages is positive, but this impact becomes weakened after the uniform minimum wage rate was applied in 2012.*

*KEYWORDS* Minimum wages, female employment, Vietnam

*JEL* D22, J21, K31

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# The Effects of Language on the Gender Dimension of Highly Skilled Migration

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*In order to study how and why highly educated women migrate at different rates and to different countries than their male counterpart, we utilize language as a proxy for cultural and social norms shaping gender expectations and temporal perceptions across countries. We build a gravity model that accounts for grammatical gender intensity and future time reference in the dominant language; in addition to the disparity of women's rights between countries and other neoclassical determinants of migration. Our results show that language is useful to explain the gendered pattern of highly educated migrants, especially the varying responses to the same economic reasons to move. We find that language is a potential variable to account for cultural and social norms that influence important career decisions for women as migrants, and thus useful to advance policies that support their empowerment through education and ultimately, through promising careers and futures.*

**KEYWORDS** *Gender, Migration, Education, Language, Culture*

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# **Differences in Employability Skills Expected by Employers of Accounting Professionals in Large and Medium Size Metropolitan Areas of Texas**

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## **PROPOSAL**

After reaching historic highs in the number of new graduates hired into the accounting/finance functions of U.S. CPAs (2012-2016), the trend declined 11 percent in 2018. The American Institute of Certified Public Accountants (AICPA) in *Trends in the Supply of Accounting Graduates and the Demand for Public Accounting* notes that the profession has experienced an approximately 30 percent decline in the hiring of new accounting graduates (AICPA 2019). Further, a 2015 survey found that about 60 percent of U.S. CFOs declared they face challenges in finding skilled talent (Hagel 2015). Together, these issues may signal the need for a revision of accounting programs to respond to the demands of the job market.

Academia and practitioners have attributed the challenge of finding skilled candidates to the growing gap between higher education in accounting and the accounting profession (Whitfield Broome and Morris 2005; Pincus, Stout, Sorensen, Stocks and Lawson 2017). Educators have addressed this expectations gap via accounting curriculum changes, and professional bodies like the AICPA have developed frameworks defining a set of skills-based competencies needed to prepare students for the accounting profession (AICPA 2019). The AICPA framework identifies three major competencies or pillars: (1) accounting competencies (*Technical Skills*); (2) business competencies; and (3) professional competencies (*Soft Skills*)

In a similar effort, the International Accounting Education Standards Board (IAESB) has developed international education standards (IES) for use by International Federation of Accountants (IFAC) members. These standards prescribe principles of learning and development for professional accountants, which cover the initial and continuing professional development of professional accountants. Among the IESs, Standard 2 addresses *Initial Professional Development – Technical Competences*, IES 3 addresses *Initial Professional Development – Professional Skills*,

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and IES 4 addresses *Initial Professional Development – Professional Values, Ethics and Attitudes*. Together these outline the content that accounting education programs need to develop.

The efforts of professional bodies (and academia) to develop competencies that create value in addressing long-term career demands (Lawson et al. 2014) are a response to the forces that affect higher education and the accounting profession. Pincus et al. (2017) show, for example, that the use of new technology, which changes the way accountants work (i.e. offshoring and automation), is shaping the development of accounting curricula. Islam (2017) notes that increasing regulation and the need for new disclosure rules is another force that is affecting the accounting profession.

The development of accounting education programs has, for the most part, focused on preparing students for careers in public accounting (Lawson et al. 2014) and in satisfying the demand for skilled accountants in large central metropolitan areas. According to Henderson (1997) and Duranton and Puga (2000) large metropolitan areas tend to have a more diversified economies with a higher concentration in services and less manufacturing than do medium metropolitan areas. It is thus likely, that large central metropolitan areas and medium metropolitan areas will demand different technical and soft skills portfolios from professional accountants. This leads us to investigate the different technical and soft skills across metropolitan areas in the state of Texas and identify what appears to be the most important sought in the region.

We propose to investigate differences in *employability* skills expected by employers of accountants in different regions of Texas. We explore the technical skills and soft skills required in the job advertisements for accounting undergraduate and graduate students in the state of Texas. We will focus on the differences between Large Central Metropolitan Areas<sup>2</sup> and Medium Metropolitan Areas. Furthermore, we will analyze the different skill portfolios required by the occupations with the greatest demand (Standard Occupational Classification System)<sup>3</sup>.

The scope of accounting programs and curricula should vary from university to university based, to some extent, on local needs. Overall, our research aims to make recommendations to educators that can be useful in revising their accounting programs.

Furthermore, we seek to recognize the diversity of employability skills and how the demand for specific skills by employers varies by region and occupation. Universities that complement their programs by targeting geographical and industry skills should increase the employability of their students (Bridgstock 2009). Thus an understanding of employability skills can help to reduce the perceptions gap between academia and practitioners. In order to achieve this, however, faculty, career services personnel, and employers will need to work together to identify and incorporate the desired skill sets into the curricula.

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<sup>2</sup> Large central metropolitan counties are areas of 1 million or more population. Medium metropolitan counties are areas of population of 250,000 to 999,999 (NCHS 2013)

<sup>3</sup> The Standard Occupational Classification system (SOC) is used to classify workers into occupational categories.

## ***Literature Review***

A sequence of events and disruptive technologies has changed the accounting profession and affected accounting education programs by demanding new skills. Largely the accounting literature has explored undergraduate accounting students' soft skills and hard skills using traditional methods: focus groups; interview; and surveys. Tan and Laswad (2018), for example, examine the accounting skill demanded by employers in Australia. They find that employers are looking for routine/technical skills, intellectual skills, personal skills, interpersonal skills, and organizational skills.

International commerce has forced the accounting programs in the United States to become more global. These programs not only cover content from International Financial Reporting Standards (IFRS), but also include better coverage of business practices globally. The Master in Accounting from the University of North Carolina at Chapel Hill, for example, offers a course in International Tax.

Globalization and digitalization of transactions in real time has made accounting less mechanical and more interpretative. According to McKinney, Yoos and Snead (2017) in the current age of Big Data, accountants need skills to analyze data and order thinking skills (also known as *Big Judgment* skills). Technology is handling more and more of the routine data processing and accountants increasingly need the skills to interpret data.

Communication skills are essential for accountants and have become more important when the interpretation of data is paramount. Lin, Krishnan, Grace (2013) find that practitioner accounting graduates do not possess adequate communication skills. They suggest that accounting professionals and faculty should be responsible for helping students to develop communication skills. They recommend the use of role-playing and presentations to better prepare students for practice.

Ballou, Heitger and Stoel (2018) suggests that accounting curriculums should focus on a more "scientific approach," where students can engage with other students, ask questions, perform research, and seek out additional information to test alternative solutions. They stress that this approach will allow students to evolve their accounting knowledge and be better prepared for their future careers. The accounting profession demands that students need to focus more on processes and less on content. Educators should thus teach the skills related to finding information when they need it, rather than rote learning of rules and techniques.

Traditional accounting education programs are designed to impart the core technical foundations essential to a successful career in accounting. According to *International Education Standard IES 2*, the primary knowledge part of a professional accounting program should include three main areas: (1) accounting, finance and related knowledge; (2) organizational and business knowledge; and (3) information technology knowledge competences. These hard skills are not, however, enough to increase students' employability.<sup>4</sup> Today, employers are increasingly demanding softer skills. Hard skills are thus necessary, but not sufficient. Christian Cuzick, Chair

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<sup>4</sup> Employability is defined as the set of achievements, understandings and personal attributes that make individuals more likely to gain employment and be successful in their chosen occupations (Knight and Yorke, 2004 p. 22)

of IMA Global Directors considers intellectual curiosity, strong ethical principles, communication skills and being a team player as the skills needed in the accounting profession.

Prior research found that in New Zealand and Australia there is a lag between theory and practice which is responsible for academia being slow in responding to the needs of practitioners (France, 2010). Recent accounting professionals are lacking the skills and knowledge required to pursue a successful accounting career. There are lacking not only the general and technical skills but also communication skills and leadership skills that are very important in the business career. France (2010) found that when seeking for the most frequent technical skills for management accountants, budgeting, reporting, analysis, financial accounting, forecasting, costing, and calculation and analysis of variance were the most frequent.

According to Siegel, Sorensen, Klammer and Richtermeyer (2010) almost two-thirds of accounting graduates begin their careers in industry, and more than half of these students are not fully prepared for the professional career. The knowledge, skills, and abilities (KSAs) required of university accounting students include writing, speaking, presenting, listening, negotiating, persuading, and influencing, along with the ability to work in teams using logical, diagnostic, and reasoned approaches to business problems (or hands-on activities such as role playing). One of the strategies to improve student's skills that they propose, is to design a curriculum that includes social psychology to help graduates understand how to motivate people and resolve conflict.

Omar, Manaf, Mohd and Kassim (2012) find that the graduate unemployment rate in Malaysia will continue to increase unless the Higher Education Institution (HFI) and the graduates are prepared to sharpen their soft skills. The authors suggest that communication skills, interpersonal skills, and team building skills can ultimately benefit students themselves, employees and customers, the community, and the economy in Malaysia as a whole.

Prior research found that in order for universities to effectively engage with the graduate employability agenda and follow the attributes that university graduate students should be aware of, they should focus on a wider set of skills rather than on the generic skills that will only teach students the basics of a professional career (Bridgstock, 2009). According to the author universities should allow for university graduate students to become more involved in the curricula and allow them to form partnerships with facilities and career services or other employers to be able to develop those career management skills that are required to gain a successful career path in the business field.

IFAC IES prescribe the knowledge content of professional accounting education programs that candidates need to acquire in order to qualify as professional accountants. This foundational work is often used as a benchmark for different accounting programs around the world. As business environments become more global and more complex, this creates challenges for accounting programs. There is more to learn and less time in which to learn it. Therefore, accounting programs have become more efficient, however the integration of regionalized generic employability skills has been slow or non-existent.

## Data Collection

**Table 1:** Texas Metropolitan Statistical Areas (MSA) and Counties

No	Metropolitan Statistical Area (MSA)	Metropolitan Counties Name	Metropolitan Counties Number	NCHS Urban Rural Classification (2013)
1	Amarillo	Armstrong, Carson, Oldham, Potter and Randall	6, 33, 180, 188 and 191	Medium Metro
2	Beaumont-Port Arthur	Hardin, Jefferson, Newton and Orange	100, 123, 176, and 181	Medium Metro
3	Brownsville-Harlingen	Cameron	31	Medium Metro
4	Corpus Christi	Aransas, Nueces and San Patricio	4, 178 and 205	Medium Metro
5	El Paso	El Paso and Hudspeth	141 and 229	Medium Metro
6	Killeen-Temple	Bell, Coryell and Lampasas	14, 50 and 141	Medium Metro
7	Laredo	Webb	240	Medium Metro
8	Lubbock	Crosby, Lubbock, Lynn	54 ,152 and 153	Medium Metro
9	McAllen-Edinburgh-Mission	Hidalgo	108	Medium Metro
10	Waco	Falls and McLennan	73 and 155	Medium Metro
11	Austin-Round Rock	Bastrop, Caldwell, Hays, Travis and Williamson	11, 28, 105, 227 and 246	Large Central Metro and Large Fringe Metro
12	Dallas-Fort Worth-Arlington	Collin, Dallas, Denton, Ellis, Hood, Hunt, Johnson, Kaufman, Parker, Rockwall, Somervell, Tarrant and Wise	43, 57, 61, 70, 11, 116,126,129, 184, 199, 213, 220 and 249	Large Central Metro and Large Fringe Metro
13	Houston-The Woodlands-Sugar Land	Austin, Brazoria, Chambers, Fort Bend, Galveston, Harris, Liberty, Montgomery and Waller	8, 20 ,36, 79, 84, 101, 146,170 and 237	Large Central Metro and Large Fringe Metro
14	San Antonio-New Braunfels	Atascosa, Bandera, Bexar, Comal, Guadalupe, Kendall, Medina and Wilson	7, 10, 15, 46, 94, 130, 163 and 247	Large Central Metro and Large Fringe Metro

**Table 2:** Top Occupations Standard Occupational Classification (SOC) system

SOCS	Occupations
13-2011.01	Accountants
13-2011.02	Auditors
43-3011.00	Bill and Account Collectors q
43-3031.00	Bookkeeping, Accounting, and Auditing Clerks
13-1199.00	Business Operations Specialists, All Other
13-2051.00	Financial Analysts
11-3031.02	Financial Managers, Branch or Department
43-1011.00	First-Line Supervisors of Office and Administrative Support Workers
13-1111.00	Management Analysts
15-2031.00	Operations Research Analysts
13-2082.00	Tax Preparers
11-3031.01	Treasurers and Controllers

The data is collected from JobsEQ<sup>5</sup> database, which analyses job postings. We will assess the differences in technical skills and soft skills for the 14 Metropolitan Statistical Areas (MSAs) listed in Table 1, and the 12 Occupational groups listed in Table 2. We will generate the frequencies of skills by MSA and Occupation. We will also do a comparison of mean frequencies, to explore differences among the groups.

**Table 3:** Sample Selection

<b>Sample Selection</b>				
<b>Year</b>	<b>Total Job Advertisements</b>	<b>Medium Metro</b>	<b>Large Central Metro and Large Fringe Metro</b>	<b>Other (Small Metro)</b>
2017	33,320	1,827	29,789	1,704
2018	40,879	2,078	36,484	2,317
2019	43,047	2,368	38,393	2,286
Total	117,246	6,273	104,666	6,307

**Table 4:** Soft Skills

<b>Medium Metro</b>		<b>Soft Skills</b>		<b>Large Central Metro and Large Fringe Metro</b>	
Communication (Verbal and written skills)	1495	Communication (Verbal and written skills)		26722	
Organization	535	Analytical		13613	
Detail Oriented/Meticulous	532	Cooperative/Team Player		11868	
Supervision/Management	527	Self-Motivated/Ability to Work Independently/Self Leadership		10446	
Analytical	511	Detail Oriented/Meticulous		10070	
Cooperative/Team Player	445	Organization		9201	
Ability to Work in a Fast Paced Environment	421	Problem Solving		8513	
Self-Motivated/Ability to Work Independently/Self Leadership	418	Supervision/Management		7417	
Problem Solving	346	Ability to Work in a Fast Paced Environment		6067	
Customer Service	313	Interpersonal Relationships/Maintain Relationships		5523	

<sup>5</sup> JobsEQ is a Software as a Service (Saas) that gives 24-hour online access to labor market data. <http://www.chmuraecon.com/data/>

**Table 4A:** Soft Skills Border Region

	<b>Soft Skills</b>				<b>Total</b>
	<b>Brownsville Harlingen</b>	<b>El Paso</b>	<b>Laredo</b>	<b>McAllen- Edinburgh- Mission</b>	
Communication (Verbal and written skills)	76	383	58	195	712
Supervision/Management	23	138	27	73	261
Organization	32	130	17	80	259
Analytical	25	150	11	64	250
Detail Oriented/Meticulous	17	128	9	89	243
Cooperative/Team Player	19	167	9	44	239
Ability to Work in a Fast Paced Environment	37	116	11	58	222
Self-Motivated/Ability to Work Independently/Self Leadership	23	115	8	54	200
Customer Service	17	99	9	41	166
Problem Solving	11	84	2	62	159

**Table 5:** Hard Skills

	<b>Hard Skills</b>		<b>Total</b>
	<b>Medium Metro</b>	<b>Large Central Metro and Large Fringe Metro</b>	
Microsoft Excel	2335	Microsoft Excel	51019
Accounting	1861	Microsoft Office	24365
Microsoft Office	1439	Accounting	22315
Understanding of Generally Accepted Accounting Principles (GAAP)	923	Finance	18221
Finance	887	Understanding of Generally Accepted Accounting Principles (GAAP)	17638
Personal Computers (PC)	771	Microsoft PowerPoint	13366
Microsoft Outlook	709	Public Accounting	12923
Reconciliation	655	Reconciliation	12651
Microsoft PowerPoint	653	SAP	11449
Bilingual	645	Microsoft Word	10665

**Table 5A:** Hard Skills Border Region

	<b>Hard Skills Border Region</b>				<b>Total</b>
	<b>Brownsville- Harlingen</b>	<b>El Paso</b>	<b>Laredo</b>	<b>McAllen- Edinburgh- Mission</b>	
Microsoft Excel	86	635	85	349	1155
Accounting	127	482	71	331	1011
Microsoft Office	43	372	51	201	667
Understanding of Generally Accepted Accounting Principles (GAAP)	53	274	24	143	494
Personal Computers (PC)	43	193	42	186	464
Finance	51	261	43	71	426
Bilingual	74	180	32	106	392
Reconciliation	30	246	15	84	375
Marketing	60	150	25	68	303
Word Processing	46	110	37	102	295

**Table 6:** Occupations

	<b>Occupations</b>	
	<b>Medium Metro</b>	<b>Large Central Metro and Large Fringe Metro</b>
Accountants	1472	28036
Bookkeeping, Accounting, and Auditing Clerks	910	12930
Tax Preparers	544	11736
Financial Managers, Branch or Department	468	10171
Financial Analysts	293	6045
Auditors	248	4188
Treasurers and Controllers	244	3143
Business Operations Specialists, All Other	163	2111
Credit Analysts	131	1953
Secretaries and Administrative Assistants, Except Legal, Medical, and Executive	131	1523

**Table 6A:** Occupations Border Region

	<b>Occupations Border Region</b>					<b>Total</b>
	<b>Brownsville-Harlingen</b>	<b>El Paso</b>	<b>Laredo</b>	<b>McAllen-Edinburgh-Mission</b>		
Accountants	76	384	33	243		736
Bookkeeping, Accounting, and Auditing Clerks	42	246	47	179		514
Tax Preparers	55	151	25	68		299
Financial Managers, Branch or Department	24	137	5	57		223
Financial Analysts	12	61	20	46		139
Auditors	8	61	14	35		118
Treasurers and Controllers	25	49	2	10		86
Medical and Health Services Managers	11	20	10	28		69
Business Operations Specialists, All Other	1	49	1	9		60
First-Line Supervisors of Office and Administrative Support Workers	11	24	4	19		58

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# Economic Policy Uncertainty Shocks and U.S. Overseas Travel

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*Unlike previous studies, which find that economic policy uncertainty has an adverse impact on tourism flows, our results from Toda-Yamamoto long-run causality tests reveal the absence of Granger-causality from either U.S. or global economic policy uncertainty measures to U.S. overseas travel. Upon further investigation using generalized impulse response analysis, we discover that unexpected shocks to U.S. and global economic policy uncertainty measures reduce overseas travel with the magnitude greater and longer in duration for the case of a positive shock to global economic policy uncertainty.*

*KEYWORDS* overseas travel; economic policy uncertainty; Granger-causality; generalized impulse response functions; tourism demand

*JEL* C32, Z30

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# **In a Globalized World: Hospitality is an Opportunity in Tourism**

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*The purpose of this literature review is to examine the relationship between hospitality and tourism, identify the dimensions that define it, and the studies in which its importance for service companies is explored. The study of hospitality opens the opportunity to know its relevance in the tourist experience and its satisfaction with the visited destination.*

**KEYWORDS** *tourism, hospitality, welcome, altruism, reliability, friendship, satisfaction, host, guest*

# **En un mundo globalizado: La hospitalidad es una oportunidad en el turismo**

*Esta revisión de literatura tiene como propósito examinar la relación de la hospitalidad en el turismo, identificar las dimensiones que la definen, y los estudios en los que se explora su importancia para las empresas de servicios. El estudio de la hospitalidad abre la oportunidad de conocer su relevancia en la experiencia del turista y su satisfacción con el destino visitado.*

**PALABRAS CLAVE** *turismo, hospitalidad, bienvenido, altruismo, confiabilidad, amistad, satisfacción, anfitrión, huésped*

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# Effects of Commercial Opening in International Tourism in Nuevo León

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*Different studies analyze the economic effects of commercial opening in various productive sectors of Mexico. This study aims to show that there are effects of commercial openness in international business tourism in Nuevo León. The international business tourism of Nuevo León is the object of the investigation. The variables to be considered as independent linked to commercial opening are direct foreign investment, exports, imports, as well as industrial park infrastructure. The proposed methodology is a quantitative study based on statistical, econometric models and market research techniques.*

*KEYWORDS* Commercial opening, International tourism, business, Mexico, FDI

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# **Price Discovery and Cross-Market Information Flow in High-Yield Systematic CDS and Equity Markets: Out-of-Sample Evidence**

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*We contribute to the literature on the efficiency of CDS and equity markets by rigorously conducting out-of-sample analysis in order to determine the true predictive power of cross market informational flow in the systematic high yield sector. Extant studies have been based on in-sample analysis only and reported average results across the examined time period, thereby leaving the question of true and persistent predictive power unanswered. Interestingly, we find that both markets are useful in forecasting future values of the other on an out-of-sample basis, indicating that each is more efficient in pricing in certain types of information. However, the CDS market has an informational advantage over the equity market which has increased with time, something not previously documented in the closely related literature. We attribute this finding to the development of the CDS market into more of an index based vs a single name market as well as the relative lower level of volatility and investor fear characterizing the back end of our sample.*

*KEYWORDS* Market Efficiency, Granger Causality, Forecasting, Systematic Credit Risk

*JEL* G11, G12, G14, G17

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# Impact of Climate Risk on Firms’ Use of Trade Credit: International Evidence

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*We examine the association between climate risk and trade credit. We predict that firms exposed to climate risk driven liquidity shocks prefer to use less trade credit. Using the Global Climate Risk Index of 86 countries, we find that firms located in countries characterized by more severe weather events prefer to use less trade credit. In additional analyses, we find that the negative association between trade credit and climate risk is more pronounced for firms with more volatile cash flow and less collateral. Our results are robust to using instrumental variables approach.*

*KEYWORDS* Trade credit; climate risk; liquidity shocks; extreme weather; collateral.

## I. INTRODUCTION

When exposed to liquidity risk<sup>2</sup>, firms prefer more long-term debt than short term debt (Diamon 1991; Gul & Goodwin 2010). Firms prefer more long-term debt, when exposed to liquidity shocks, because firms using more short-term debt must face more renegotiations (Bolton 1990) and rollover risk problems (He and Xiong 2012) and therefore are more likely to be affected by liquidity shocks. Liquidity shocks may arise from different factors such as recessionary economics, breakdown or delays in cash flows from borrowers, inability of a bank to provide cash as stipulated in the contracts (Arif and Anees 2012; Roman and Şargu 2014). Climate risk, relatively unexplored factor, may be the reason for firms’ liquidity shocks (Atta-Mensah 2016; Huang, Kerstein, & Wang 2018). To the extent that climate risk is relate to liquidity shocks, a firm’s use of trade credit depends on how much the firm is exposed to climate risk.

Trade credit is omnipresent. Behind the bank financing, it is the next most important source of short-term financing in a broad range of industries and economies (Fisman 2001). The aggregate balance sheet of U.S. nonfinancial businesses reports that firms’ use of trade credit is three times as large as bank credit and fifteen times as large as commercial paper (Barrot 2016). Within the United States, trade credit is the largest single source of short-term financing (Petersen & Rajan

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<sup>2</sup> Liquidity risk and liquidity shocks have been interchangeably used in this paper.

1997). Empirical studies (e.g., Williams 2008; Barrot 2016) report that almost 90% of global merchandise is purchased on trade credit. Given the prevalence of trade credit and its importance on business financing, both theoretical (Emery 1984; Biais and Gollier 1997; Petersen and Rajan 1997) and empirical (Petersen and Rajan 1997; Love and Zaidi 2010; Molina and Preve 2012; Klapper, Laeven, and Rajan 2012) studies have investigated the determinants of the use of trade credit by firms. No study has yet investigated the impact of climate risk on the trade credit. This paper is the first to investigate the relation between trade credit and climate risk driven liquidity shocks.

Burgeoning literature on the role of climate change risk on economy focuses on firm valuation (e.g., Beatty & Shimshack 2010; Chava 2014), firm performance (Huang, Kerstein, & Wang 2018), earnings quality (Wang 2019), success and failure of foreign direct investment (Lupton et al. 2019), and cost of capital and debt (Kling et al. 2019). In this paper, we analyze a different channel through which climate risk may affect firm liquidity shocks and investigate whether this liquidity shocks are associated with the use of firm trade credit (i.e., a form of short-term debt). Our focus on climate risk in determining firm's use of trade credit is motivated by emerging literature that suggests that extreme weather condition can lead to firm's liquidity shocks (e.g., Atta-Mensah 2016; Huang, Kerstein, & Wang 2018), and firms exposed to liquidity shocks tend to have more long-term debt (e.g., Diamon 1991; Gul & Goodwin 2010) because firms using more short-term debt have to face more renegotiations (Bolton 1990) and therefore are more likely to be affected by liquidity shocks.

Existing literature posits that unequal sharing of losses makes the equity value sensitive to the drop in the bond and share prices and can cause the firm to default at a higher fundamental threshold (He and Xiong 2012). This debt overhang problem highlights the intrinsic conflict of interest between debt and equity holders in debt crises. This problem becomes more severe when the firm has more short-term debt. For example, Toys "R" Us Inc received court permission to borrow more than \$2 billion to pay suppliers, the trade credit (Jessica and Tracy 2017). In the presence of more short-term debt in the balance sheet, the equity holders' financial burden becomes more sensitive to liquidity shocks, and firms may choose to default even when fundamental is still solvent. For this reason, firm chooses not to have more short-term debt when they have probability of exposure to liquidity shocks. Recent studies (e.g., Atta-Mensah 2016; Huang, Kerstein, & Wang 2018) suggest that climate risk can lead firm's liquidity shocks. Therefore, we predict that firms are more likely to have less trade credit, a kind of more short-term debt, when they are exposed to climate risk.

To examine the impact of climate risk on the firm's use of trade credit, we use the Global Climate Risk Index compiled and published by Germanwatch (Kreft and Eckstein 2014), which capture the country level climate risk based on the extent of losses from extreme weather events. We test hypothesis using 228,513 firm-year observations of 86 countries for the period 2006-2018. The empirical results are consistent with our prediction. We find that firms exposed to climate risk driven liquidity shocks are less likely to use trade credit. The results hold after controlling for firm and country level variables. As with many studies, we recognize that our analyses might be subject to endogeneity concerns because firms using less trade credit may be located in more severe weather exposed areas and some firm and country level variables are difficult to measure. We address this

concern by employing instrumental variable approach and find that the results do not change after using the fitted value of climate risk index.

To corroborate inference from our main analyses, we conduct two cross sectional tests. First, we divide the sample into firm-observations with high cash flow volatility and low cash flow volatility and run the main regression for both the sub-samples. We find that the results are consistent with our hypothesis that the association between trade credit and climate risk is more pronounced for firms having more volatile cash flow. Second, we divide the firm-observations with high collateral and low collateral and run the regression. In this case, we again find that the results are consistent with our hypothesis.

This paper contributes to the literature in two important ways. First, the paper is the first one to investigate the association between trade credit and climate risk driven liquidity shocks. This investigation is important because it shows how the climate risk and trade credit are associated, especially at the time when firms are exposed to extreme weather events.

Second, this paper contributes to the growing literature of climate risk. Recent studies show that climate risk is associated with the firm performance (Huang et al. 2018), economic condition, cost of capital, and earnings quality. No study has yet investigated the association between climate risk and trade credit. We contribute to this growing literature by showing that firms located in countries characterized by extreme weather events are less likely to use trade credit.

The remainder of the paper is organized as follows: Section II discusses literature and develops hypothesis; Section III discusses the data sources and defines the variables. In Section IV, we develop our econometric model, discuss results in Section V. Finally, we conclude the paper in Section VI.

## **II. LITERATURE REVIEW AND RESEARCH HYPOTHESIS**

Existing literature examines numerous determinants of firm's use of trade credit (Lee and Stowe 1993; Petersen and Rajan 1997; Biais and Gollier 1997; Smith 1987; Chen et al. 2017; Xu, Wu, and Dao 2019). In this study, we examine the impact of climate risk on the use of trade credit. We predict that firms exposed to extreme weather events (storm, draughts, flood, cyclone, hurricane, Tsunami, fire etc.) are less likely to use trade credit because of the liquidity shocks emerged from climate risk.

In this study, we use the definitions of trade credit and climate risk broadly from existing literature. Following prior studies (Petersen and Rajan 1997; Chen et al. 2017; Hasan and Habib 2019; Xu, Wu, and Dao 2019), we use the term trade credit to refer to the firm's accounts payable as shown on the balance sheet. We utilize Global Climate Risk Index (hereafter CRI) compiled and published by the non-profit, non-government organization Germanwatch (Kreft and Eckstein 2018), which delivers a quantitative measure based on extreme weather-related losses. Existing studies (e.g., Huang, Kerstein, and Wang 2018; Wang 2019; Kling et al. 2019) use this measure to investigate the impact of climate risk on different economic phenomena.

In a recent study examining the impact of climate risk on firm performance, Huang, Kerstein, and Wang (2018) utilize the CRI as a proxy for climate risk and document a negative association between CRI and short-term debt. Huang, Kerstein, and Wang (2018) differ from our study in several ways. Huang, Kerstein, and Wang (2018) primarily motivate their study by focusing on the firm performance and as a supplemental hypothesis they document that firms exposed to extreme weather-related risk use less short-term debt. They use the data from COMPUSTAT global database, which defines short-term debt as the sum of short-term notes and the current portion of long-term debt (debt due in one year). In contrast, our study focuses on the association between firm's use of trade credit, proxied by accounts payable, which is not included in the definition of short-term debt, and firm's exposure to extreme weather event, proxied by climate risk index. Moreover, the debt that is due in one year is termed as short-term debt in COMPUSTAT global, but trade credit is usually due in between 30 to 60 days, which is more short-term than defined short-term debt the Huang, Kerstein, and Wang (2018) study uses.

When facing liquidity risk, firms are more likely to avoid short-term debt because of more frequent renegotiations and the possibility of experiencing credit supply shock and financial constraints (Diamond 1991; Custódio, Ferreira, and Laureano 2013). Financially constrained firms can use short-term debt to reduce borrowing cost, but the use of short-term debt exposes firms to liquidity risk. In this situation of high exposure to liquidity shocks, the use of short-term debt may lead firm to be default even when it is fundamentally healthy. This default problem becomes more severe when maturity of short-term debt becomes shorter (He and Xiong 2009). In this context, the most plausible financial policy for a firm is to avoid short-term debt that has shorter maturity period, the trade credit.

Studies (e.g., Atta-Mensah 2016; Dafermos, Nikolaidi, and Galanis 2018; Olovsson 2018; Huang, Kerstein, & Wang 2018) suggest that climate change (such as global warming, draught, flood, excess rain, cyclones, Tsunami, earthquake) is likely to deteriorate the liquidity of firms, exposing firms to liquidity shocks. Since trade credit (short-term debt with shorter maturity than short-term debt) is to be negatively associated with liquidity shocks due to its frequent renegotiation (Custódio, Ferreira, and Laureano 2013), we expect a negative association between the firm's use of trade credit and climate risk (CRI).

Collectively, these arguments suggest that to the extent climate risk is related to firm liquidity risk, a firm's use of trade credit depends on how much the firm is exposed to climate risk. This leads to our first hypothesis:

**H1:** Firm's use of trade credit is negatively associated with firm's exposure to climate risk.

We have a critical assumption regarding our first hypothesis. We assume that firms are more conscious about the liquidity shocks than any other potential problems, and for this reason firms that are exposed to climate risk driven liquidity shocks use less trade credit. It can be inferred that firms exposed to climate risk are more likely to use more long-term debt than short-term. One might argue that having long-term debt is also problematic. For example, Aivazian, Ge, and Qiu (2005) posits that using more long-term debt than short-term one reduces the investment of firms



with higher growth opportunities. Similarly, Barclay and Smith (1995) also document a significantly negative relation between growth opportunities and long-term debt. Another criticism of using long-term debt is that firms with higher probability of default risk use more long-term debt (Dalbor and Upneja 2004). If it is true that firms are equally conscious about consequences of short-term and long-term debt when they are exposed to climate risk driven liquidity shocks, we may not find results consistent with our first hypothesis. For this reason, it is an empirical question.

#### Cross sectional hypotheses

The use of firm's trade credit is likely affected by the degree of liquidity shocks firm is exposed to. Studies (e.g., Diamon 1991; Gul & Goodwin 2010; Custodio, Ferreira, and Laureano 2013; Huang, Kerstein, and Wang) posit that firms with higher liquidity risk are more likely to prefer long-term debt because of short-term liquidity concerns. Existing literature (e.g., Jayaraman 2008; Huang, Kerstein, and Wang 2018) uses cash flow volatility as a proxy for liquidity risk. Therefore, we expect that firms with higher cash flow volatility are more likely to use less trade credit, and, thus, our second hypothesis is as follows:

**H2:** The association between the use of trade credit and climate risk is stronger for firms with more volatile cash flow than less volatile cash flow.

Liquidity shock may be less important for big firms, which have better access to finance. Firms with higher collateral assets have better access to external finance; therefore, they use less trade credit. On the other hand, firms with lower collateral assets use more trade credit. Trade credit literature suggests that credit rationed firms, small firms, and firms with less access to finance use more trade credit (e.g., Petersen and Rajan 1997; Biais and Gollier 1997). Similarly, studies investigating the association between trade credit and collateral (e.g., Voordeckers and Steijvers 2006; Cunat 2007) find a significantly negative relation. Firm's tangibility is popularly used as a proxy for collateral, and intangible assets have zero collateral value (Voordeckers and Steijvers 2006). It means that firms with less tangibility use more trade credit. Therefore, in instances when firms are exposed to higher climate risk and have less tangibility should also be using less trade credit. And hence, our third hypothesis is as follows:

**H3:** The association between the use of trade credit and climate risk is stronger for firms with less collateral.

### III. THE DATA

We obtain data from different sources. The initial sample consists of 637,359 firm-year observations of Global and North American firms for thirteen years (2006-2018)<sup>3</sup>, drawn from Compustat Global and Compustat North American databases. Our Climate Risk Index (CRI) dataset starts with data of 113 countries. We remove countries for which we have less than 10 observations. After merging the data with country level CRI database and deleting observations of missing variables, the sample is reduced to 228,513 firm-year observations of 86 countries. In our analysis,

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<sup>3</sup> The annual CRI data is available from 2006.

we keep all industry data so that we can investigate clean association between our interest variables. To alleviate the impact of systematic differences in risk and performance across industries and financial environmental differences across countries, we control for industry and country fixed effects respectively.

Our dependent variable is trade credit, and we define trade credit as the ratio of accounts payable to total assets (AP/AT). As alternative measures of trade credit, we calculate trade credit as accounts payable scaled by cost of goods sold (AP/COGS) and the sum of notes payable and accounts payable scaled by total assets [(NP+AP)/AT]. These measures have been extensively in prior studies (e.g., Petersen and Rajan 1997; Biais and Gollier 1997; Molina and Preve 2012; Shenoy and Williams 2017).

The variable of interest, the independent variable, is the Climate Risk. We use the 2020 Global Climate Risk Index (CRI), which is the measure of climate risk by country. The CRI indicates the level of exposure and vulnerability to extreme events and reflects the direct losses and fatalities (Kreft and Eckstein 2020). Existing studies (e.g., Burnell 2012; Rivera and Wamsler 2014; Huang et al. 2018) investigating the impact of climate risk have extensively use CRI. The Germanwatch.org started publishing the annual Global CRI since 2006, and 2020 Index is their fifteenth and latest publication. Every edition publishes the scores based on the data pre-dating two years the edition year. For example, the 2020 edition reports the scores of 2018. We use the annual scores for the years 2006-2018.

In the regression analysis, we control for a battery of firm and country level variables that prior studies suggest being associated with trade credit (Petersen and Rajan 1997; Molina and Preve 2012; Fabbri and Klapper 2016; Yang and Birge 2018; Hasan and Habib 2019). Petersen and Rajan (1997) suggest that small firms have limited access to financial institutions, and for this reason they need more trade credit. Therefore, in the regression, we control for firm size (*SIZE*) measured as the natural log of total assets (*AT*). Firm with more information asymmetry use more trade credit (Smith 1987). Growth firms and firms investing more in research and development activities are associated with more information asymmetry (Petersen and Plenborg 2006; Fosu, Danso, Ahmad, and Coffie 2016). To control for information asymmetry, we include return on assets (*RAO*) measured as net income scaled by total assets, sales growth (*SALEGR*), and research development expense divided by total assets (R&D). Firm's level of indebtedness can also explain the use of trade credit (Molina and Preve 2009). We control for leverage (*LEVERAGE*), which is measured as the long-term debt scaled by total assets. We include cash (*CASH*) because firm's liquidity position affects the use of trade credit. We measure cash as the cash and marketable securities divided by total assets. Firm's level of revenue can affect the use of trade credit. For example, when firms are having more revenue, they are more likely to use more trade credit. We include log of revenue (*LOGREV*). Organizational slack is associated with firm's risk-taking behavior (Moses 1992), and the use of trade credit is also associated with firm risk. We include available slack (*AVSLACK*) measured as current assets over current liabilities and recoverable slack (*RECSALCK*) measured as the selling, general, and administrative expense divided by sales. We have also controlled for capital intensity (*CAPINT*) and current liabilities excluding accounts payable scaled by total assets (*CLXTRADE*) to control for the effects of working capital on trade credit. Besides firm-level control variables, we have also controlled for country level variables

such as per capita GDP (*PCGDP*) and population density (*POPENSITY*). In addition, we controlled for industry, year, and country fixed effects.

#### IV. THE ECONOMETRIC MODEL

To test our hypothesis, we develop our model following Petersen and Rajan (1997) in identifying supply and demand factors of trade credit and estimate the following multivariate regression model:

$$TRADECREDI_{it} = \beta_0 + \beta_1 CRI_{it} + \sum_{j=2}^{14} \beta_j CONTROLS + Ind_i + Y_t + Country_c + \varepsilon_{it} \quad (1)$$

Where  $TRADECREDI_{it}$  is the firm-level trade credit over the period  $t$ .  $CRI_{it}$  is the climate risk index and  $CONTROLS$  are the control variables.  $Ind_i$  is to control for industry variation,  $Y_t$  for year control,  $Country_c$  is for country fixed effect, and  $\varepsilon_{it}$  is for error term of the regression. Following (Munch and Schaur 2018; De Haas and Poelhekke 2019; Kinzius, Sandkamp, and Yalcin 2019), we use the estimator developed by Correia (2016) to deal with the international data with different levels of fixed effects in a computationally efficient way<sup>4</sup>.

#### V. RESULTS

In Table 1, Panel A we present the descriptive statistics of the variables used in the trade credit model. We use the log of CRI score and multiply the value with -1. The mean (median) of climate risk index (*CRI*) is -3.70 (3.70) in the sample. The mean and median of trade credit (*TRADECREDIT*) are 0.10 and 0.08 respectively. The sample has a mean *SIZE* of 6.98, *ROA* of 0.11, *SALEGR* of 7.93, *LOGREV* of 6.54, *LEVERAGE* of 0.11, *AVSLACK* of 2.05, *RECSLACK* of 0.23, *R&D* of 0.01, and *CLXTRADE* of 0.20. The percentage of cash holding is 15% of total assets, and capital intensity is 28% of total assets. The mean of the sample per capital GDP (*PCGDP*) is 7.86 and population mean is 175.30.

**Table 1:** Panel A: Descriptive statistics

Variable	n	Mean	S.D.	Min	0.25	Mdn	0.75	Max
<i>TRADECREDIT</i>	228,513	0.10	0.08	0.00	0.34	0.08	0.15	0.26
<i>CRI</i>	228,513	-3.70	0.59	-5.16	-4.16	-3.70	-3.30	-0.77
<i>SIZE</i>	228,513	6.98	3.11	-6.91	4.90	6.94	8.93	19.66
<i>ROA</i>	228,513	0.11	0.28	-0.23	0.00	0.02	0.12	0.81
<i>SALEGR</i>	228,513	7.93	15.79	-0.99	-0.86	0.00	6.29	46.98
<i>LOGREV</i>	228,513	6.54	3.46	-6.91	4.49	6.59	8.70	19.29
<i>LEVERAGE</i>	228,513	0.11	0.13	0.00	0.00	0.05	0.19	0.37
<i>AVSLACK</i>	228,513	2.05	1.40	0.63	1.06	1.56	2.55	5.42
<i>RECSLACK</i>	228,513	0.23	0.18	0.04	0.09	0.17	0.33	0.61
<i>R&amp;D</i>	228,513	0.01	0.02	0.00	0.00	0.00	0.01	0.07
<i>CASH</i>	228,513	0.15	0.14	0.01	0.04	0.11	0.23	0.46
<i>CLXTRADE</i>	228,513	0.20	0.13	0.04	0.09	0.17	0.29	0.46
<i>CAPINT</i>	228,513	0.28	0.21	0.01	0.09	0.24	0.44	0.65
<i>PCGDP</i>	228,513	7.86	3.14	2.36	7.00	8.97	10.57	11.95
<i>POPENSITY</i>	228,513	175.30	146.48	6.22	34.55	141.10	348.35	425.73

<sup>4</sup> The high dimensional fixed effects models are implemented using *reghdfe* (Correia 2016).

**Table 1:** Panel B: Descriptive statistics by high Risk and Low Risk

Variable	High Risk			Low Risk			Mean Diff.	p-value
	n	Mean	SD	n	Mean	SD		
<i>TRADE CREDIT</i>	114,293	0.099	0.080	114,220	0.102	0.078	-0.003***	0.000
<i>CRI</i>	114,293	-3.697	0.395	114,220	-4.174	0.304	0.954***	0.000
<i>SIZE</i>	114,293	6.910	2.944	114,220	7.054	3.256	-0.143***	0.000
<i>ROA</i>	114,293	0.089	0.258	114,220	0.133	0.295	-0.043***	0.000
<i>SALEGR</i>	114,293	8.243	16.107	114,220	7.615	15.452	0.627***	0.000
<i>LOGREV</i>	114,293	6.458	3.271	114,220	6.616	3.629	-0.158***	0.000
<i>LEVERAGE</i>	114,293	0.114	0.133	114,220	0.105	0.120	0.008***	0.000
<i>AVSLACK</i>	114,293	2.093	1.434	114,220	2.000	1.360	0.092***	0.000
<i>RECSLACK</i>	114,293	0.237	0.187	114,220	0.230	0.179	0.006***	0.000
<i>R&amp;D</i>	114,293	0.013	0.024	114,220	0.011	0.021	0.002***	0.000
<i>CASH</i>	114,293	0.156	0.145	114,220	0.152	0.152	0.004***	0.000
<i>CLXTRADE</i>	114,293	0.204	0.135	114,220	0.203	0.129	0.000	0.051
<i>CAPINT</i>	114,293	0.276	0.209	114,220	0.277	0.211	-0.000	0.835
<i>PCGDP</i>	114,293	6.327	3.188	114,220	9.398	2.211	-3.070***	0.000
<i>POPENSITY</i>	114,293	162.300	151.518	114,220	188.303	140.050	-26.002***	0.000

All continuous variables are winsorized at the 1st and 99th percentile. \*, \*\*, and \*\*\* denote significance levels of 10%, 5%, and 1%, respectively. Variable definitions are in Section III.

We divide the sample into firm-observations with high CRI and low CRI and present the mean and standard deviation on Table 1, Panel B. The results show that the mean of *TRADE CREDIT* for the high CRI is 0.099 and for the low CRI is 0.102. The mean difference is statistically significant, suggesting that the use of trade credit is lower for firms exposed to higher climate risk. Additionally, the results show that the mean of firm *SIZE* in high CRI sample is 6.910 and in low CRI sample is 7.054, which reveal that the observations with high CRI are smaller firms and normally are more likely to use more trade credit (Petersen and Rajan 1997).

In Table 2, we present the correlation among the variables used in our analysis. The results show that the correlation between *TRADE CREDIT* and *CRI* is negative (coefficient=-0.01). This indicates that firms exposed to extreme weather events use less trade credit. Consistent with prior studies (Petersen and Rajan 1997; Molina and Preve 2012), we find *TRADE CREDIT* is negatively associated with *SIZE* (coefficient = -0.003), *ROA* (coefficient =-0.01), *LEVERAGE* (coefficient = -0.12), *AVSLACK* (coefficient = -0.35), *RECSLACK* (coefficient =-0.15), *CASH* (coefficient = -0.10), and *CAPINT* (coefficient = -0.15). In addition, we find positive association between *TRADE CREDIT* and *SALEGR*, *LOGREV*, *PCGDP*, and *POPENSITY*. The results indicate that firms with the possibility of high exposure to climate risk less likely to use trade credit, suggesting our hypothesis.

**Table 2:** Correlation Matrix

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1 <i>TRADE CREDIT</i>	1.00														
2 <i>CRI</i>	<b>-0.01</b>	1.00													
3 <i>SIZE</i>	-0.003	0.05	1.00												
4 <i>ROA</i>	-0.01	-0.08	-0.08	1.00											
5 <i>SALEGR</i>	0.03	0.02	0.26	-0.11	1.00										
6 <i>LOGREV</i>	0.13	0.05	0.94	-0.07	0.27	1.00									
7 <i>LEVERAGE</i>	-0.12	0.03	0.16	-0.11	0.15	0.14	1.00								
8 <i>AVSLACK</i>	-0.35	0.02	-0.15	0.07	-0.11	-0.20	-0.27	1.00							
9 <i>RECSLACK</i>	-0.15	0.01	-0.40	-0.03	-0.14	-0.47	-0.11	0.19	1.00						
10 <i>R&amp;D</i>	-0.06	0.06	-0.10	-0.07	-0.01	-0.11	-0.11	0.19	0.37	1.00					
11 <i>CASH</i>	-0.10	-0.01	-0.14	0.03	-0.09	-0.14	-0.33	0.53	0.28	0.31	1.00				
12 <i>CLXTRADE</i>	0.18	0.01	-0.04	-0.01	-0.01	0.04	-0.05	-0.58	0.00	-0.03	-0.14	1.00			
13 <i>CAPINT</i>	-0.15	0.00	0.20	-0.04	0.03	0.14	0.29	-0.25	-0.22	-0.28	-0.38	-0.09	1.00		
14 <i>PCGDP</i>	0.08	-0.43	0.16	0.20	-0.04	0.13	-0.16	-0.03	-0.11	-0.15	0.02	0.07	0.01	1.00	
15 <i>POPENSITY</i>	0.09	-0.01	0.35	0.12	-0.04	0.35	-0.06	-0.05	-0.19	-0.12	-0.06	0.10	0.01	0.42	1.00

Table 3 presents the results from our estimated equation (1) using *TRADE CREDIT* as dependent variable and *CRI*. We use three measures of *TRADE CREDIT* as described in variable section. We find negative and significant coefficients ( $p$ -values  $<0.001$ ) for all three measures of *TRADE CREDIT*. These results are consistent with our main hypothesis and suggest that firms exposed to higher climate risk tend to use less trade credit. Additionally, all the coefficients of control variables included in equation (1) have expected sign and significance. For example, *SIZE* significantly negatively associated with *TRADE CREDIT*.

**Table 3:** Impact of climate risk and trade credit

	Dependent variable = <i>TRADE CREDIT</i>					
	<i>TRADE CREDIT1</i>		<i>TRADE CREDIT2</i>		<i>TRADE CREDIT 3</i>	
	Coeff.	$p$ -value	Coeff.	$p$ -value	Coeff.	$p$ -value
<i>CRI</i>	-0.018***	0.000	-0.004***	0.000	-0.002***	0.006
<i>SIZE</i>	-0.259***	0.000	-0.026***	0.000	0.038***	0.000
<i>ROA</i>	-0.122***	0.000	-0.018***	0.000	-0.014***	0.000
<i>SALEGR</i>	0.002***	0.000	0.000***	0.000	0.000	0.302
<i>LOGREV</i>	0.192***	0.000	0.016***	0.000	-0.042***	0.000
<i>LEVERAGE</i>	-0.692***	0.000	-0.108***	0.000	-0.048***	0.000
<i>AVSLACK</i>	-0.331***	0.000	-0.037***	0.000	-0.055***	0.000
<i>RECSLACK</i>	-0.045***	0.001	-0.052***	0.001	0.228***	0.000
<i>R&amp;D</i>	-1.337***	0.000	-0.211***	0.000	0.275***	0.000
<i>CASH</i>	0.398***	0.000	-0.041***	0.000	0.084***	0.000
<i>CLXTRADE</i>	-1.555***	0.000	0.224***	0.000	-0.294***	0.000
<i>CAPINT</i>	-0.806***	0.000	-0.088***	0.000	-0.085***	0.000
<i>PCGDP</i>	0.037***	0.000	0.005***	0.000	0.023***	0.000
<i>POPENSITY</i>	0.001***	0.003	0.001***	0.000	0.001	0.176
<i>Constant</i>	2.431***	0.000	0.232***	0.000	0.143***	0.000
Year FE	Yes		Yes		Yes	
Industry FE	Yes		Yes		Yes	
Country FE	Yes		Yes		Yes	
Adj. R <sup>2</sup> /R <sup>2</sup>	0.444		0.538		0.380	
Observations	228,193		228,104		224,560	

All continuous variables are winsorized at the 1st and 99th percentile. \*, \*\*, and \*\*\* denote significance levels of 10%, 5%, and 1%, respectively. Variable definitions are in Section III.

We recognize that our results might be subject to endogeneity because firms that are using less trade credit might be in higher climate risk areas. Besides, our model may have omitted variable bias because some country level or regional variables are difficult to measure. To mitigate the endogeneity concerns, we employ two-stage least square (2SLS) instrumental variable approach as commonly used in literature. Following Huang et al. (2018), we chose population density as the instrumental variable because it is likely to be highly associated with climate risk (Albouy, Graf, Kellogg, and Wolff 2013), and are unlikely to be correlated with our dependent variable, *TRADE CREDIT*. We divide the total population of a country by the total land area. We obtain population and land area data from World Bank. In the first stage, we regress *CRI* on population density (*POPENSITY*) and on firm level variables included in our equation (1): *SIZE*, *CAPINT*, *PPE*, *INTANGIBLE*, and *SALEGR*. We calculated the fitted value of *CRI* and included the fitted value in our second stage regression based on equation (1). Table 4, Panel A presents the results of first stage regression and Table 4, Panel B presents the results of second-stage regression. We use all three measures of *TRADE CREDIT* in the regression. We find that the results are consistent even after using the fitted value of *CRI*, indicating that our results are not driven by omitted variables.

**Table 4:** Climate risk and trade credit: Instrumental variable method

Panel A: First stage estimate fitted value of climate risk

	Coeff.	<i>p</i> -value
<i>POPENSITY</i>	-0.009***	0.000
<i>INTANGIBLE</i>	-0.076	0.777
<i>SIZE</i>	0.444***	0.000
<i>PPE</i>	-2.052***	0.000
<i>SALEGR</i>	-0.024	0.945
Constant	-47.053***	0.000
R <sup>2</sup>	0.129	
Observations	226,429	

Panel B: Climate risk and trade credit: Second stage regression.

	Dependent variable = <i>TRADE CREDIT</i>					
	<i>TRADE CREDIT1</i>		<i>TRADE CREDIT2</i>		<i>TRADE CREDIT3</i>	
	Coeff.	<i>p</i> -value	Coeff.	<i>p</i> -value	Coeff.	<i>p</i> -value
<i>EXP(CRI)</i>	-0.019***	0.002	-0.007***	0.000	-0.006***	0.000
<i>SIZE</i>	-0.253***	0.000	-0.023***	0.000	0.040***	0.000
<i>ROA</i>	-0.123***	0.000	-0.018***	0.000	-0.014***	0.000
<i>SALEGR</i>	0.002***	0.000	0.000***	0.000	0.000	0.416
<i>LOGREV</i>	0.193***	0.000	0.016***	0.000	-0.042***	0.000
<i>LEVERAGE</i>	-0.693***	0.000	-0.108***	0.000	-0.049***	0.000
<i>AVSLACK</i>	-0.331***	0.000	-0.037***	0.000	-0.055***	0.000
<i>RECSLACK</i>	-0.052***	0.000	-0.053***	0.000	0.227***	0.000
<i>R&amp;D</i>	-1.354***	0.000	-0.212***	0.000	0.273***	0.000
<i>CASH</i>	0.405***	0.000	-0.040***	0.000	0.086***	0.000
<i>CLXTRADE</i>	-1.561***	0.000	0.224***	0.000	-0.296***	0.000
<i>CAPINT</i>	-0.842***	0.000	-0.100***	0.000	-0.096***	0.000
<i>PCGDP</i>	0.045***	0.000	0.007***	0.000	0.024***	0.000
<i>POPENSITY</i>	0.001	0.181	0.001	0.293	0.001***	0.004
Constant	1.521***	0.000	-0.093*	0.055	-0.117***	0.000
Year FE	Yes		Yes		Yes	
Industry FE	Yes		Yes		Yes	
Country FE	Yes		Yes		Yes	
Adj. R <sup>2</sup>	0.444		0.538		0.380	
Observations	226,111		226,042		222,515	

All continuous variables are winsorized at the 1st and 99th percentile. \*, \*\*, and \*\*\* denote significance levels of 10%, 5%, and 1%, respectively. Variable definitions are in Section III.

To test H2, we divide the sample into firm-observations with high cash flow volatility and low cash flow volatility and run the main regression in equation (1). Table 5, panel A presents the results of this cross-sectional analysis. We find that the association between *TRADE CREDIT* and *CRI* is significantly more negative for firms with higher cash flow volatility [Panel A, Column (1) *p*-value = 0.000 and *p*-value = 0.057, respectively]. We also use second measure of *TRADE CREDIT* and find consistent results, indicating that the impact of *CRI* on *TRADE CREDIT* is stronger for high cash flow volatility sample.

**Table 5:** Cross sectional analysis

Panel A: High Cash Flow volatility vs Low Cash Flow Volatility

	Dependent variable = <i>TRADE CREDIT</i>							
	(1)				(2)			
	High CF Volatility		Low CF Volatility		High CF Volatility		Low CF Volatility	
	Coeff.	p-value	Coeff.	p-value	Coeff.	p-value	Coeff.	p-value
<i>CRI</i>	-0.023***	0.000	-0.012	0.057	-0.027***	0.000	-0.010	0.104
<i>SIZE</i>	-0.250***	0.000	-0.283***	0.000	-0.252***	0.000	-0.278***	0.000
<i>ROA</i>	-0.123***	0.000	-0.103***	0.000	-0.121***	0.000	-0.091***	0.000
<i>SALEGR</i>	0.002***	0.000	0.001***	0.000	0.002***	0.000	0.001***	0.000
<i>LOGREV</i>	0.181***	0.000	0.223***	0.000	0.184***	0.000	0.226***	0.000
<i>LEV</i>	-0.707***	0.000	-0.633***	0.000	-0.672***	0.000	-0.730***	0.000
<i>AVSLACK</i>	-0.338***	0.000	-0.314***	0.000	-0.335***	0.000	-0.316***	0.000
<i>RECSLACK</i>	-0.068***	0.000	-0.021	0.397	-0.016	0.267	-0.147***	0.000
<i>R&amp;D</i>	-1.239***	0.000	-1.688***	0.000	-1.303***	0.000	-1.323***	0.000
<i>CASH</i>	0.403***	0.000	0.337***	0.000	0.396***	0.000	0.360***	0.000
<i>CLTRADE</i>	-1.638***	0.000	-1.379***	0.000	-1.539***	0.000	-1.616***	0.000
<i>CAPINT</i>	-0.819***	0.000	-0.780***	0.000	-0.823**	0.000	-0.760***	0.000
<i>PCGDP</i>	0.017***	0.080	0.049**	0.020	0.011	0.293	0.033	0.111
<i>POPENSITY</i>	0.002***	0.097	0.001***	0.011	0.000**	0.031	0.002	0.269
<i>Constant</i>	2.555***	0.000	2.287***	0.000	2.557***	0.000	2.569***	0.000
<i>Year FE</i>	Yes		Yes		Yes		Yes	
<i>Industry FE</i>	Yes		Yes		Yes		Yes	
<i>Country FE</i>	Yes		Yes		Yes		Yes	
<i>Adj. R<sup>2</sup></i>	0.443		0.450		0.436		0.471	
<i>Observations</i>	156,233		71,960		157,567		70,626	

All continuous variables are winsorized at the 1st and 99th percentile. \*, \*\*, and \*\*\* denote significance levels of 10%, 5%, and 1%, respectively. Variable definitions are in Section III.

**Table 5:** Cross sectional test:

Panel B: High vs Low Collateral firms:

	Dependent variable = <i>TRADE CREDIT</i>			
	<i>LOW COLLATERAL</i>		<i>HIG COLLATERAL</i>	
	Coeff.	p-value	Coeff.	p-value
<i>CRI</i>	-0.037***	0.000	-0.002	0.647
<i>SIZE</i>	-0.268***	0.000	-0.230***	0.000
<i>ROA</i>	-0.144***	0.000	-0.091***	0.000
<i>SALEGR</i>	0.002***	0.000	0.001***	0.000
<i>LOGREV</i>	0.183***	0.000	0.178***	0.000
<i>LEVERAGE</i>	-0.787***	0.000	-0.532***	0.000
<i>AVSLACK</i>	-0.367***	0.000	-0.295***	0.000
<i>RECSLACK</i>	-0.246***	0.000	0.206***	0.000
<i>R&amp;D</i>	-0.984***	0.000	-0.714***	0.000
<i>CASH</i>	0.498***	0.000	0.288***	0.000
<i>CLXTRADE</i>	-1.919***	0.000	-1.152***	0.000
<i>CAPINT</i>	-0.148***	0.000	-1.133***	0.000
<i>PCGDP</i>	0.012	0.381	0.018	0.124
<i>POPENSITY</i>	0.001***	0.291	0.001***	0.000
<i>Constant</i>	2.849***	0.000	2.466***	0.000
<i>Year FE</i>	Yes		Yes	
<i>Industry FE</i>	Yes		Yes	
<i>Country FE</i>	Yes		Yes	
<i>Adj. R<sup>2</sup></i>	0.469		0.427	
<i>Observations</i>	115,301		112,892	

All continuous variables are winsorized at the 1st and 99th percentile. \*, \*\*, and \*\*\* denote significance levels of 10%, 5%, and 1%, respectively. Variable definitions are in Section III.



To test H3, we again divide the sample into firm-observations with high collateral and low collateral and run the regression in equation (1). Table 5, panel B presents the results. Consistent with our hypothesis, we find that the association between *TRADE CREDIT* and *CRI* is more pronounced for firms with low collateral (Panel B,  $p$ -value=-0.037 and  $p$ -value =0.647, respectively). The results suggest that firms with low collateral have less access to external finance and are more likely to be affected by liquidity risk and are less likely to use trade credit.

## VI. CONCLUSION

In this paper, we examine whether extreme weather driven liquidity shocks play a role in the firm's use of trade credit. Based on the literature on trade credit and climate change risk, we develop hypotheses in relation to climate risk and trade credit. When firms are exposed to liquidity risk, they are more likely to use more long-term debt than short-term because short-term debt requires more renegotiations and firms face rollover risk. Liquidity risk may arise from different sources such as customer defaults, recessionary economics, and banks' failure to provide cash as stipulated in the contracts. Firm's liquidity risk may also arise from climate risk, an unexplored factor. Based on these arguments, we develop an alternative hypothesis that firms exposed to extreme weather driven liquidity shocks are more likely to use less trade credit.

Using a large international sample of 86 countries, we show that firms located in countries characterized by extreme weather events less likely to use trade credit. In additional analysis, we find that the association between trade credit and climate risk is more pronounced for firms with higher cash flow volatility and low collateral.

Our findings contribute to the growing literature of climate risk and trade credit. It also adds to the literature that focuses on the corporate decision while facing the natural disasters. Our findings are important for policy implications for managers. Climate risk can shape the behavior of the managers dealing with corporate investment decisions. Managers and policy makers should consider the location of business before making the decisions because climate risk varies location to location. Moreover, the non-government organizations, policy think tanks, and management may consider climate risk as a potential mechanism to influence the corporate behavior.

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# Origination of RMBS: Escape from Crisis or Maintain Reputation?

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*In this paper, we investigate the optimized decisions made by the originators of the residential mortgage-backed security (RMBS). Conditional on default and prepayment risks, originators choose (i) the asset pool to be securitized from their entire mortgage obligations, (ii) coupon interest rates of the senior tranche, and (iii) disclosure of the condition and risks of the asset pool to achieve highest benefits from reinvestment opportunity and reputation. We find that myopic originators conceal true risks or even exaggeratedly disclose high risks to attract investors and to ensure the current issuance. We also discover that repeated originators are concerned about the dispersion of risks and disclose true risks because reputation enlarges their total profits from facilitating their future originations.*

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# Features of Building Scholars' Summer Research Weeks towards Student Retention and Graduation

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*Title V - Building Scholars is a partnership between Texas A&M International University (TAMIU) and Laredo College (LC) to increase the number of Hispanic and low-income students attaining post-secondary certifications, associate and bachelor's degrees. It aims to prepare students to compete for positions in graduate and professional schools, thus increasing the competency and diversity of our workforce. One of the integral parts of this program is the Summer Research Week (SRW), held every year since the inception of the program. It provides incoming TAMIU students, particularly transfer students from LC, with the necessary skills for discipline-specific research to succeed in the entry-level courses at TAMIU. SRW is a week-long program consisting of 10 modules that includes training in the responsible conduct of research, building basic writing skills and exposing students to science laboratories and research in non-science fields such as language, literature, art, education and criminal justice. Modules are conducted at an interval of two modules per day: morning modules from 9:00 am to 12:00 pm and afternoon modules from 1:00 pm to 4:00 pm. Scholars complete 30 hours of lecture and activities to expand their research potential and to experience the discipline-specific research topics unique to their program of study with the guidance of a faculty leader. As some scholars are motivated by collaboration rather than competition, daily breaks are provided for socialization opportunities with faculty members and other scholars. This bridge program will strengthen scholar's navigational knowledge to engage in academically sensitive coursework, thereby succeeding in their courses and, in turn, in their program of study. Thus, setting the institution on a stable footing to improve the retention and graduation among Hispanic and low-income undergraduate students, as these measures are now tied to the institutional sustainability.*

*The Building Scholars' fifth SRW took place from Monday, July 8, 2019 to Friday, July 12, 2019. This presentation highlights the extent of faculty intervention in this component of the program, including features, format, and successes of previous SRWs.*

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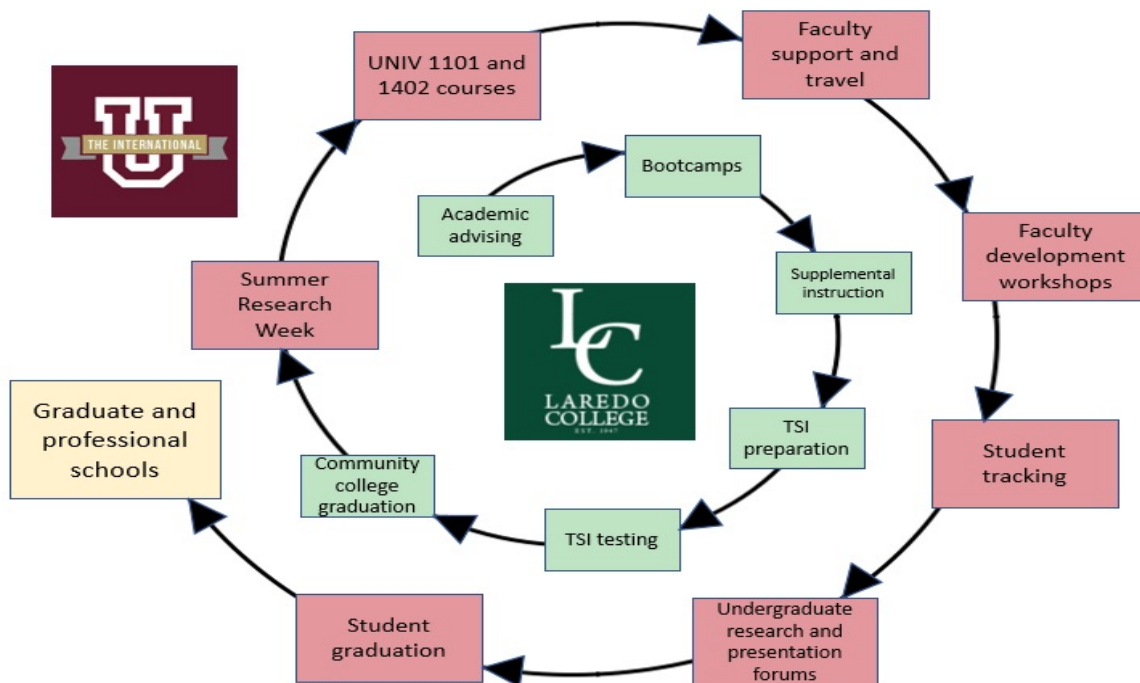
## PRELIMINARIES

Title V - Building Scholars is a partnership between Texas A&M International University (TAMIU) and Laredo College (LC), formerly known as Laredo Community College (LCC), to increase the number of Hispanic and low-income students attaining post-secondary certifications, associate and bachelor's degrees. It aims to prepare students to compete for positions in graduate and professional schools, thus increasing the competency and diversity of national, state and local workforce.

TAMIU and LC jointly serve the predominately-Hispanic community, a group historically underrepresented in research careers and positions of leadership in the nation. Laredo is a South Texas city, located on the US-Mexico border. Once considered the fastest growing city in the U.S. with a per capita income of \$15,872, compared to \$29,829 nationally, a sustainable workforce is required to serve its rapidly growing population. Laredo has a somewhat young population, 58.7% are under 35 years of age. As a result of its proximity to Mexico, 26.6% of Laredo residents are foreign-born, 95.4% are Hispanic or Latino, and 89.5% are Spanish speakers (U.S. Census Bureau).

The demographic profiles in Laredo, Texas, estimate a huge percentage of Hispanics in this emerging population with a low educational attainment, needing a rigorous intervention in and out of classrooms. Students who are pursuing to enter higher education institutes, such as TAMIU and LC, are mostly first generation college students. This growing population not only needs support to pursue and navigate the academic demands and rigor of a college education, but also to continue with an education endeavor.

**Figure 1:** Activity Model Implemented by Building Scholars (Goonatilake & Maldonado, 2019).



The program consists of diverse activities developed by both institutions, as seen in Figure 1. One of the objectives of the Building Scholars program is to increase student preparation, engagement and retention of Hispanic and low-income students. Hence, a bridge component to the program has been developed to strengthen students' navigational knowledge to engage in academically sensitive coursework, thereby succeeding in their courses and, in turn, in the program of study.

## **LITERATURE REVIEW AND RELATIONS**

According to the National Center for Education Statistics between 2010-2016 Hispanic students' enrollment in higher education is lower than that of White students by 10% (NCES, 2018). Similarly, researchers concur that Hispanic and low income students' underrepresentation in two and four year college campuses continues to persist (Yosso, 2005; Valenzuela, 1999; Rendón, Nora, & Kanagala, 2014; Gándara, 2010). Therefore, it is imperative that Hispanic Serving Institutions create innovative academic pathways to recruit and retain Hispanic and low-income students (Rendón & Kangala 2017; Zambrana & Hurtado, 2015). Summer research opportunities for underserved and underrepresented undergraduate students work well because faculty mentors have an opportunity to correlate their respective academic knowledge with students' scholarly inquiries (Raman, Geisinger, Kemis, & de la Mora, 2016). Raman et al. concluded that engaging undergraduate students in summer research explorations that involve more than the traditional lectures positively impact students' interest in inquiry-based learning and increases college retention rates (2016).

The value of faculty members engaging in direct intimate discussions with future college students is an invaluable commodity (Wilson, Woods, & Gaff, 1974). According to research, students engaged in these types of activities learn the importance of teacher–student interactions related to understanding and engaging in academic problem solving activities related to their future course work (Lopatto, 2007; National Science Foundation, 2013). Relatedly, Baiduc, Drane, Beite & Flores (2017) concluded that undergraduate research programs and opportunities for first-year students increase their persistence. In addition, undergraduate research programs conducted during the summer prior to the students' first year college, or future college enrollment empowers Hispanic first-generation and low income students because they get to make connections with peers with similar cultural backgrounds while at the same time learn about the social norms of their future college (Arbona & Nora, 2007; Bosch, 2017).

## **ACTIVITY SYNOPSIS AND FEATURES**

One of the integral activities of the Building Scholars program at TAMU is the Summer Research Week (SRW), held every year since the inception of the program. It provides incoming TAMU students, particularly transfer students from LC, with the necessary skills for discipline-specific research to succeed in the entry-level courses at TAMU. SRW is a week-long program consisting of 10 modules, that include training in the responsible conduct of research, building basic writing skills and exposing students to science laboratories and research in non-science fields such as language, literature, art, education and criminal justice. Modules are conducted by faculty mentors



at an interval of two modules per day: morning modules from 9:00 am to 12:00 pm and afternoon modules from 1:00 pm to 4:00 pm. Selection of faculty mentors is primarily based on their academic expertise and prior experience in past SRWs. The scholars complete 30 hours of lecture and activities to expand their research potential and to experience the discipline-specific research topics unique to their program of study with the guidance of a faculty leader. As some scholars are motivated by collaboration rather than competition, daily breaks are provided for socialization opportunities with faculty mentors and other scholars. Scholars who successfully complete the entire summer workshop will receive a certificate of accomplishment along with equipment and supplies that not only support the workshop, but will also help them during the continuation of their program of study and beyond. Academic supplies delivered to the scholars include a graphic calculator, backpack, notebooks, and smart note taking pen. These are important and necessary items for first generation college students who are already financially and emotionally stressed about successfully completing their first year of college. This bridge program is expected to strengthen scholars navigational knowledge to engage in academically sensitive coursework, thereby succeeding in their courses and, in turn, in the program of study. This will set the institution on a stable footing to improve the retention and graduation among its undergraduate student population, as these measures are now tied to the institutional sustainability.

The goal of this component is to increase the number of Hispanic and low-income students involved in original research. This workshop takes place every summer in the month of July. It is a week-long workshop that includes 10 modules. Scholars will complete 30 hours of lecture and activities to embellish their research experience. Participating in this workshop will expose students to cutting edge research techniques and methodologies that are applicable to a wide range of fields. Scholars were trained in developing testable hypotheses, utilizing technology and critical thinking to analyze data, draw appropriate conclusions, as well as the effective communication of experimental results.

## **RESULTS AND ACTIVITY SUCCESSES**

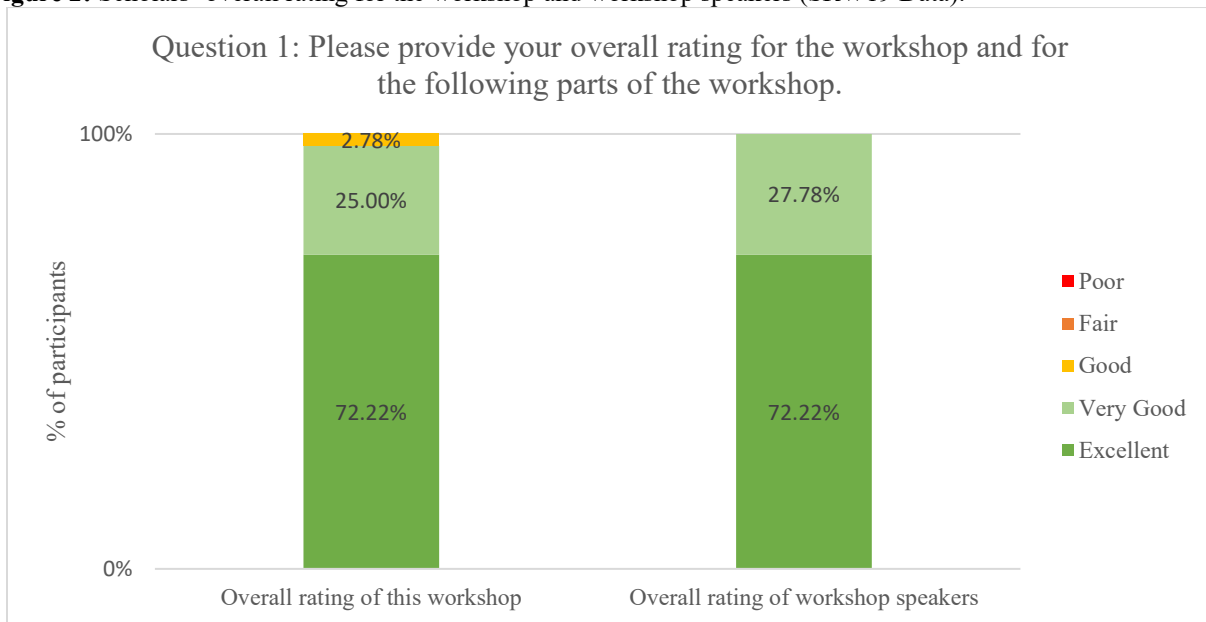
Since 2015, SRW attendance has been increased from the proposed 24 to 36 undergraduates per year from diverse academic fields. Recruitment efforts for the SRW begin early in the year by visiting local high schools, Laredo College, and participating in various collaborative recruitment and orientation events at TAMIU. Potential scholars are asked to complete an application and write a short essay describing their professional goals and career plans. Applications are reviewed by the Building Scholars team and the scholars selected are contacted to confirm their attendance. This year, SRW 2019, a total of 52 applications were received. Out of those, 36 were selected to participate in the workshop. Scholars were divided into two cohorts, conducted simultaneously, of 18 scholars per cohort.

SRW19 consisted of 10 modules from the following main discipline-specific themes for scholars in all majors: 1) Research and the Scientific Method, 2) Introduction to Nanotechnology, 3) Introduction to Statistical Analysis, 4) Writing and the Peer Review Process, 5) Introduction to the Psychology of Language and Bilingualism, 6) Research Safety, Ethics and Compliance, 7) Introduction to GPS, Mapping and Map-Making, 8) Introduction to Problem Solving in Education, 9) Cops, Courts and Intelligence Interrogations, and 10) Introduction to Forensic Chemistry.

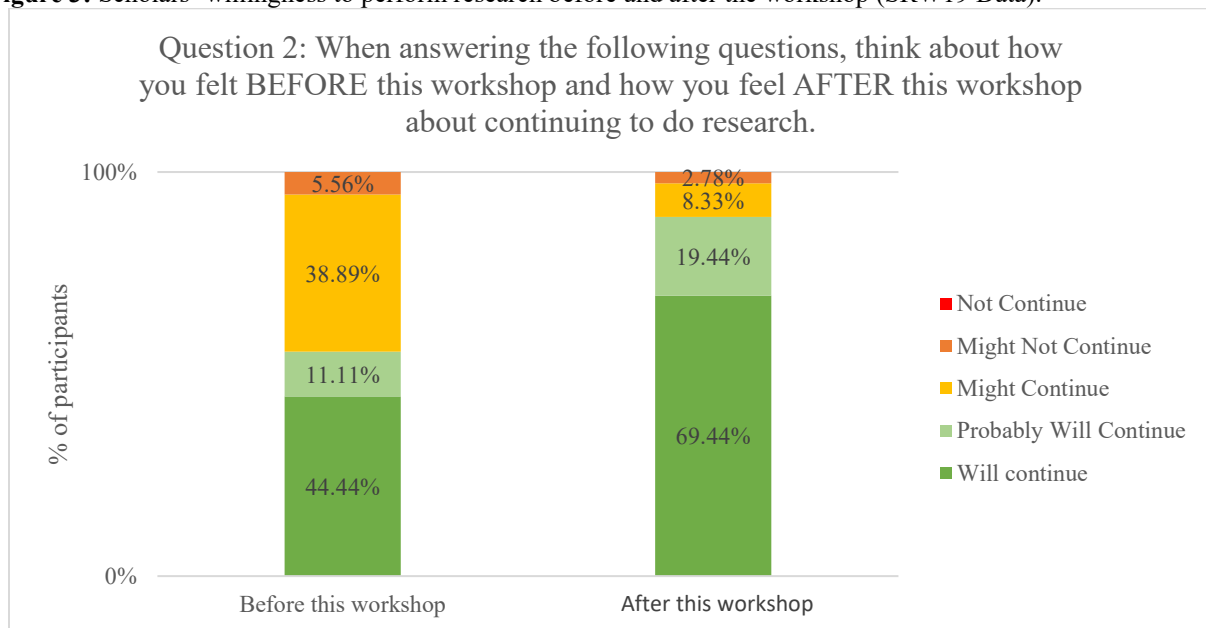
At the end of the week, scholars were provided with a voluntary and anonymous survey, composed of a feedback form and a demographics questionnaire. This survey consisted of multiple choice, rating, and open-ended questions.

Both the workshop as a whole and the workshop speakers resulted in a positive impact, as all of the scholars provided “Good,” “Very Good,” and “Excellent” ratings for these two categories, as illustrated in Figure 2.

**Figure 2:** Scholars’ overall rating for the workshop and workshop speakers (SRW19 Data).



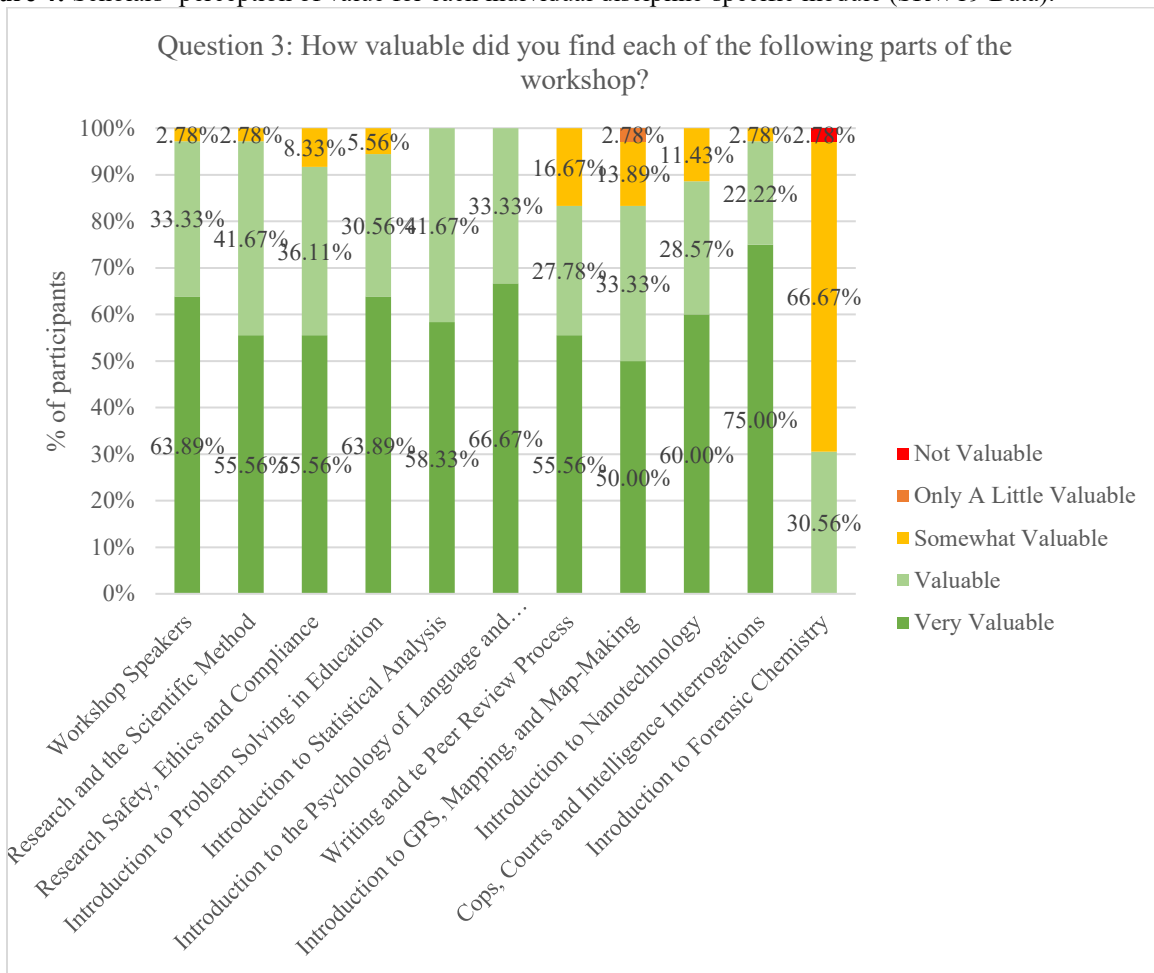
**Figure 3:** Scholars’ willingness to perform research before and after the workshop (SRW19 Data).



The scholars' willingness ("Will continue" and "Probably Will Continue") to perform undergraduate research before and after the workshop dramatically increased from 55.55% to a phenomenal 88.88%, as shown in Figure 3.

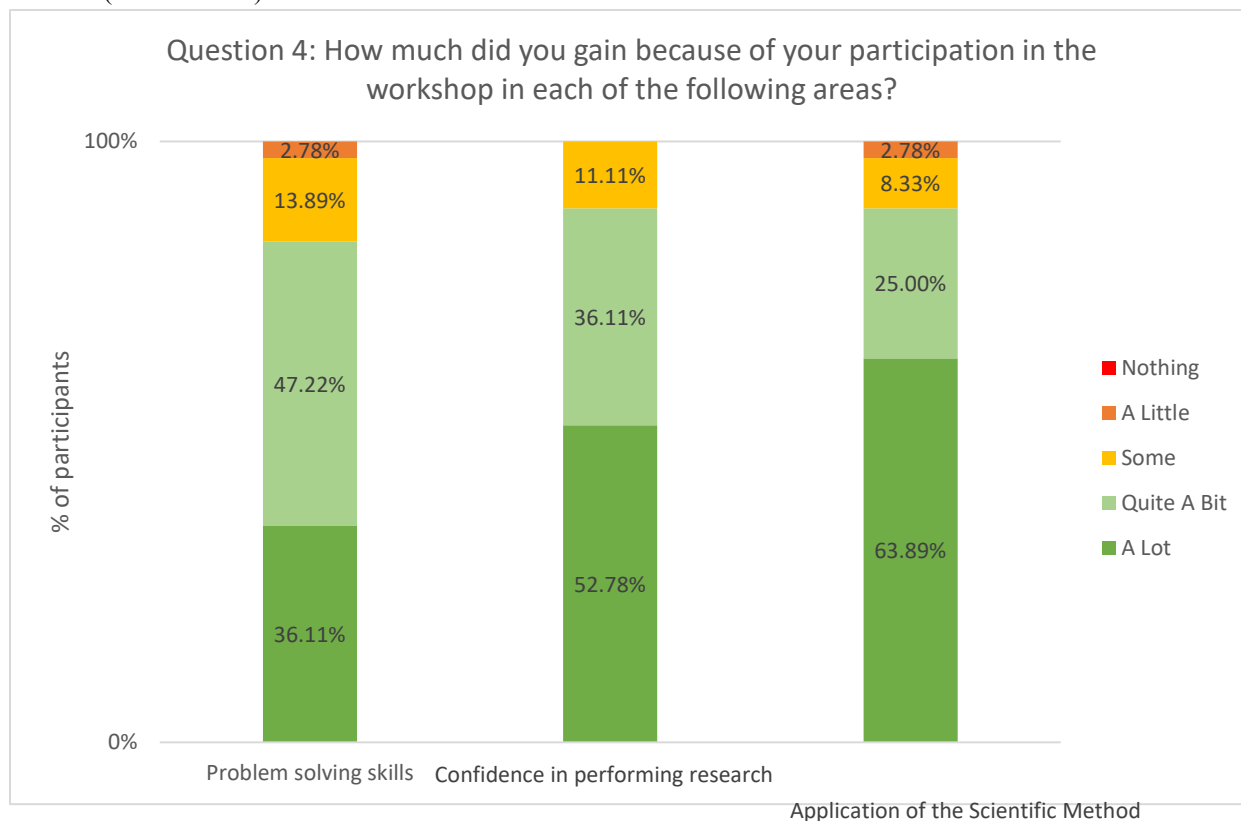
Given the diverse academic interests of the scholars, the perceived value of each individual discipline-specific module varied. Nevertheless, as pictured in Figure 4, the vast majority of the scholars identified at least some value in every single module. The highest rated modules were "Introduction to the Psychology of Language and Bilingualism" and "Introduction to Statistical Analysis", as they were both found either "Valuable" or "Very Valuable" by every participant. The lowest rated module was "Introduction to Forensic Chemistry."

**Figure 4:** Scholars' perception of value for each individual discipline-specific module (SRW19 Data).



A significant majority of the scholars felt that they gained "Quite a Bit" and "A Lot" of confidence in problem solving skills (83.33%), performing research (88.89%), and application of the Scientific Method (88.89%), as seen in Figure 5

**Figure 5:** Scholars' perceived gain in problem solving skills, performing research, and application of the Scientific Method (SRW19 Data).



Question 5 invited scholars to express their favorite thing about the workshop. The majority highlighted a specific module that they enjoyed and the networking relationships created amongst the faculty peers.

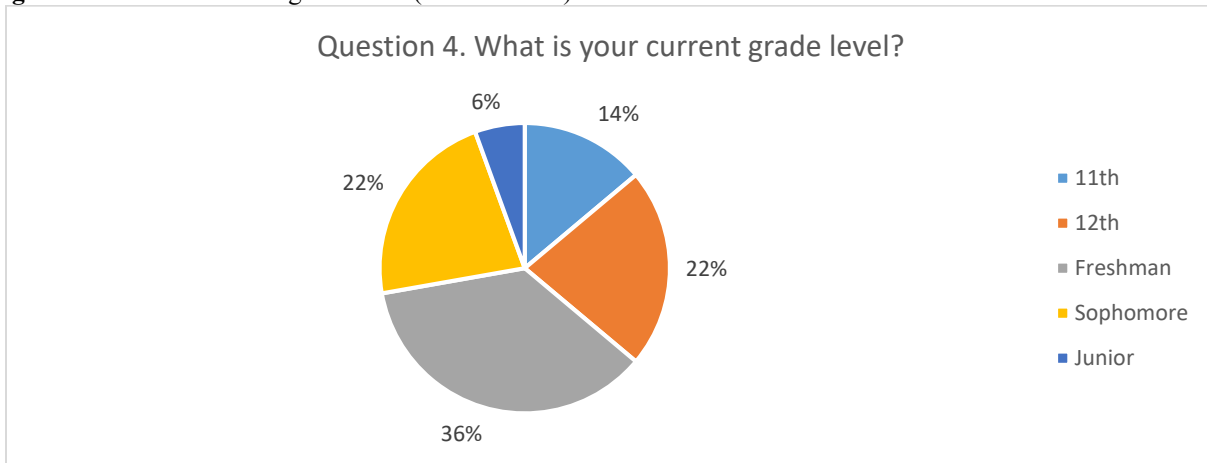
Scholars unanimously agreed on Question 6 that the SRW experience was worthwhile, as they all would recommend other students to attend.

Finally, in Question 7, scholars were asked for any additional comments or suggestions to be taken into consideration in the future.

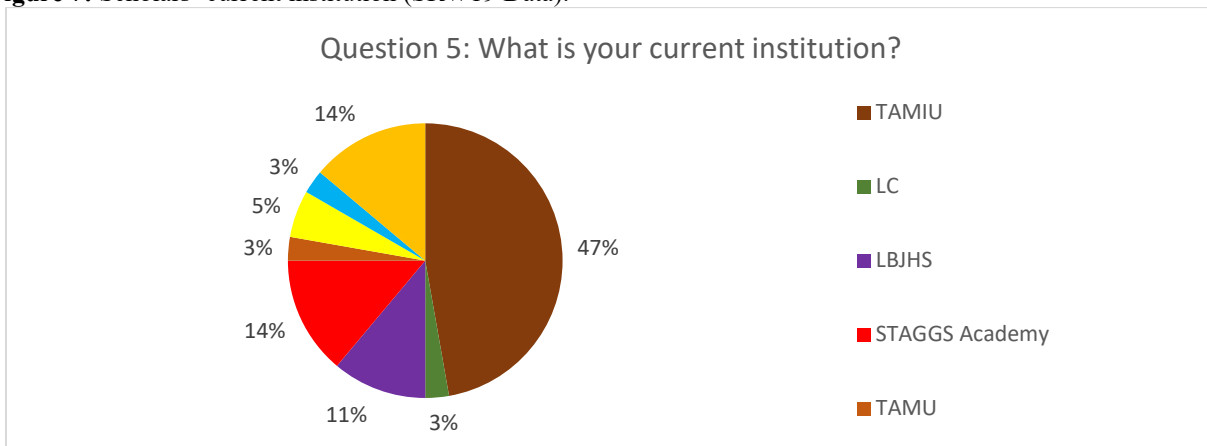
In regards to the demographics Questions 1-3 revealed that more than half, 53%, were females, 92% Hispanic, and 19% identified Spanish as their primary language.

The grade level of the scholars ranged from 11<sup>th</sup> graders in high school, up to Juniors in college, as depicted in Figure 6. Some of the high-school level scholars were enrolled in dual credit schools such as early colleges and/or magnets. Hence, they could also be classified as Freshmen and/or Sophomores in college. Figure 7 shows that half of the scholars were college students, from either TAMIU or LC.

**Figure 6:** Scholars' current grade level (SRW19 Data).

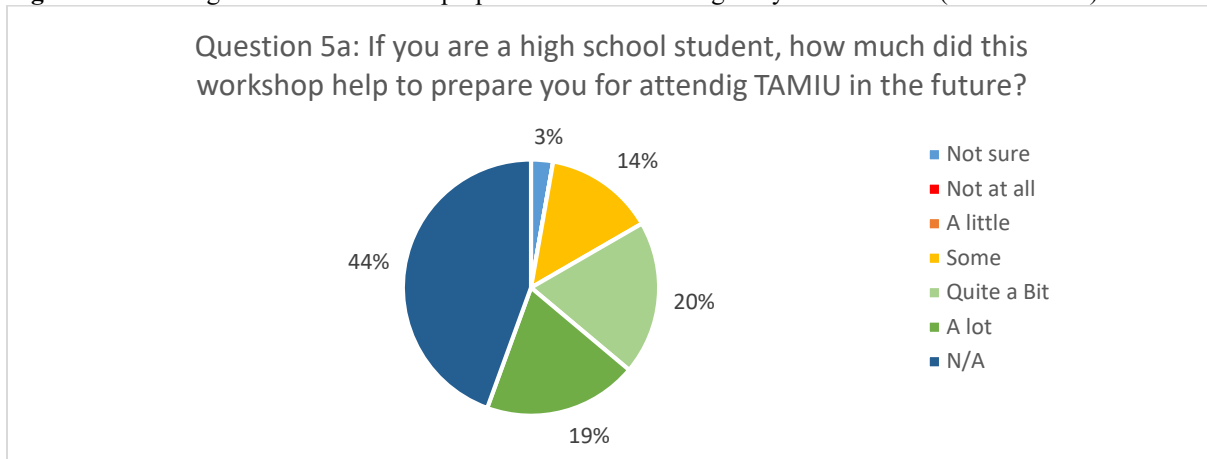


**Figure 7:** Scholars' current institution (SRW19 Data).

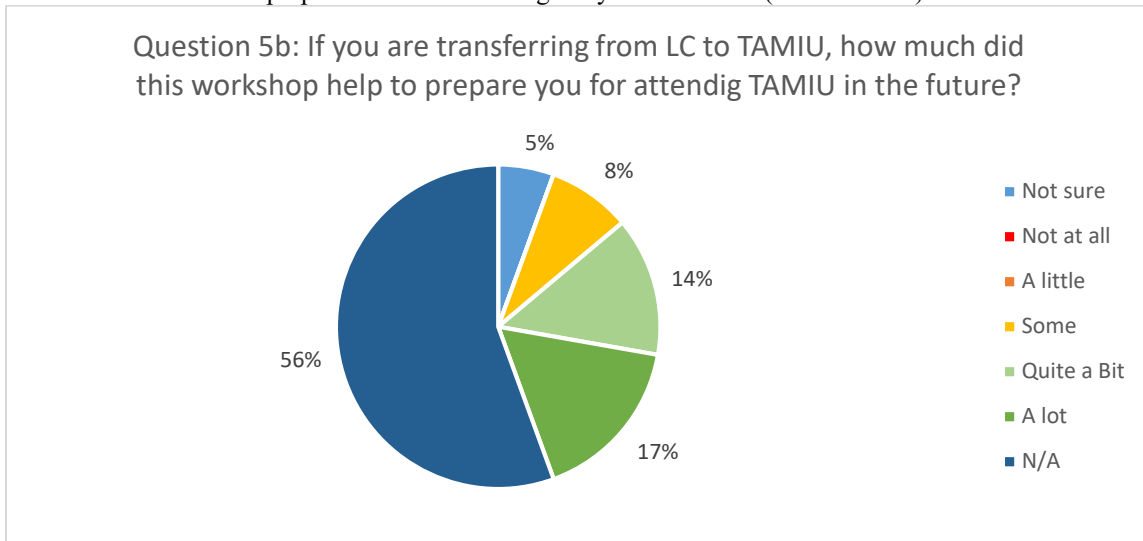


One of the purposes of the SRW is to bridge the transition of incoming Freshman (Figure 8) and transfer students (Figure 9) into a 4-year institution, such as TAMIU. Where applicable, the majority of the scholars agreed that, indeed, the SRW helped them prepare “Quite a Bit” and “A lot”.

**Figure 8:** Incoming Freshman scholars' preparedness for attending a 4-year institution (SRW19 Data).

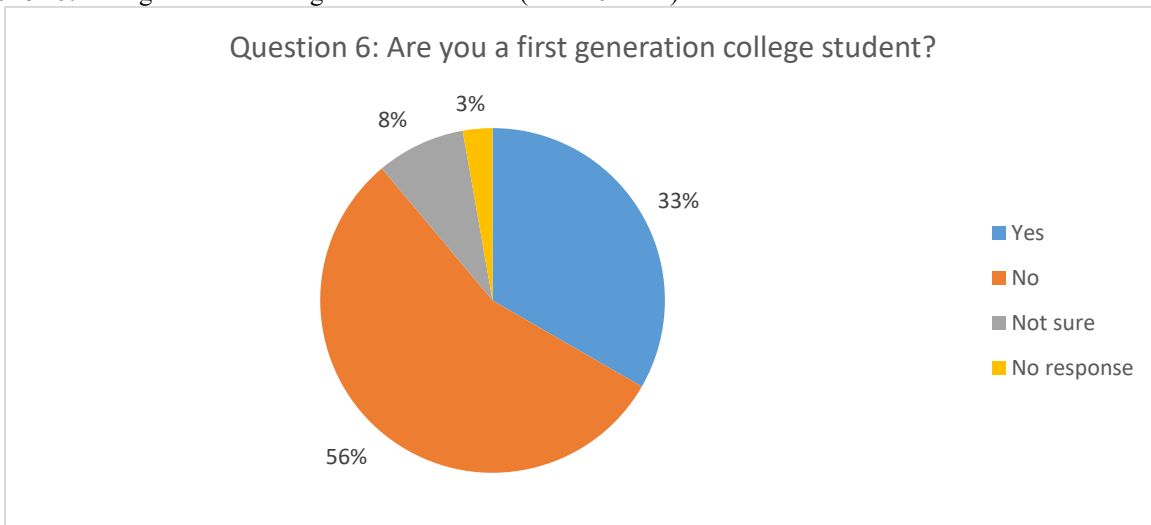


**Figure 9:** Transfer scholars' preparedness for attending a 4-year institution (SRW19 Data).



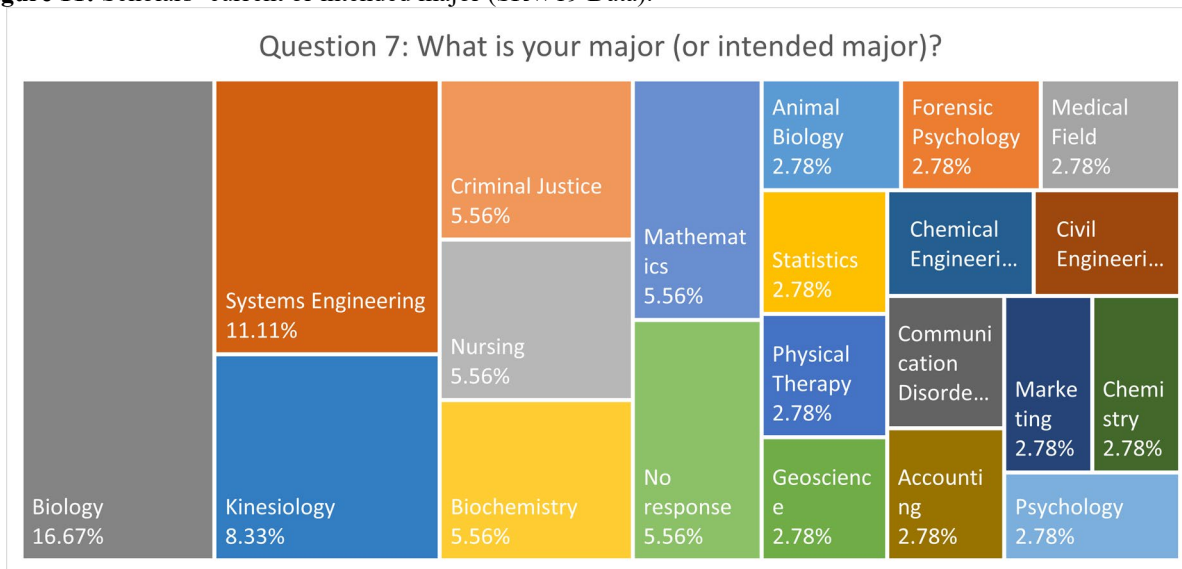
One-third of the scholars identified themselves as being first generation college students, as indicated by Figure 10. Even though their majors of study (or intended majors of study) varied, Figure 11 reveals that the majority were interested in biology/medical field and engineering.

**Figure 10:** First generation college student scholars (SRW19 Data).



Last but not least, in Question 8, scholars conveyed their main reason(s) for joining the SRW. Most of them did it to experience the different academic fields and gain new insights.

**Figure 11:** Scholars' current or intended major (SRW19 Data).

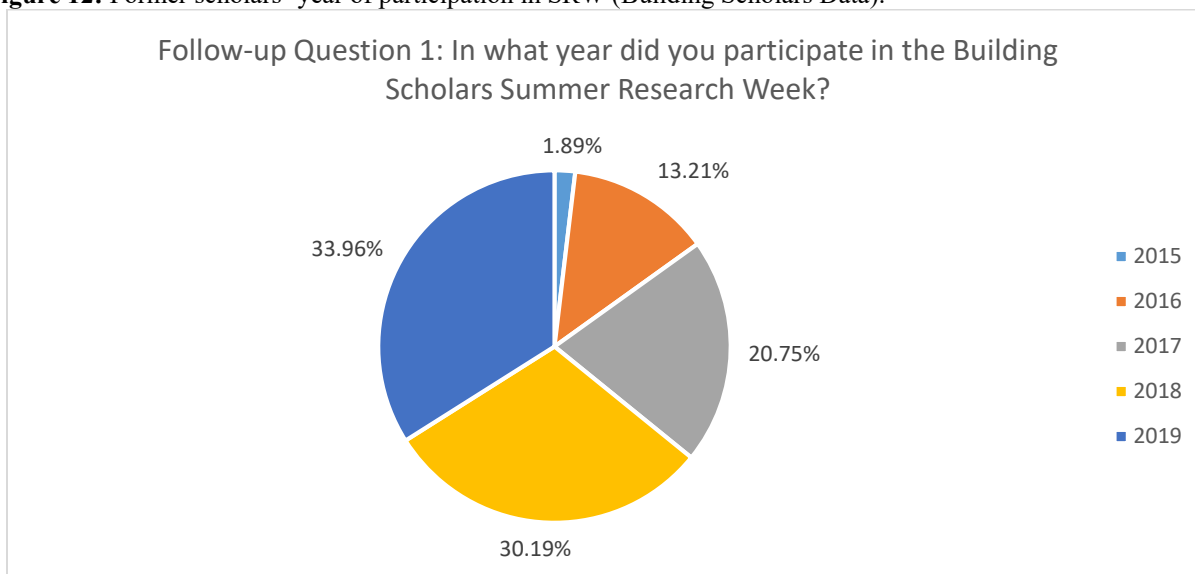


The SRW has served 146 students since 2015. According to the aggregated data throughout the years, the scholars' willingness to perform undergraduate research before and after the workshop dramatically increased 40.5% (from 46.9%, less than half of the participants, to 87.4%). The overall increase is higher than that of this year's SRW19 alone, as illustrated earlier in Figure 3.

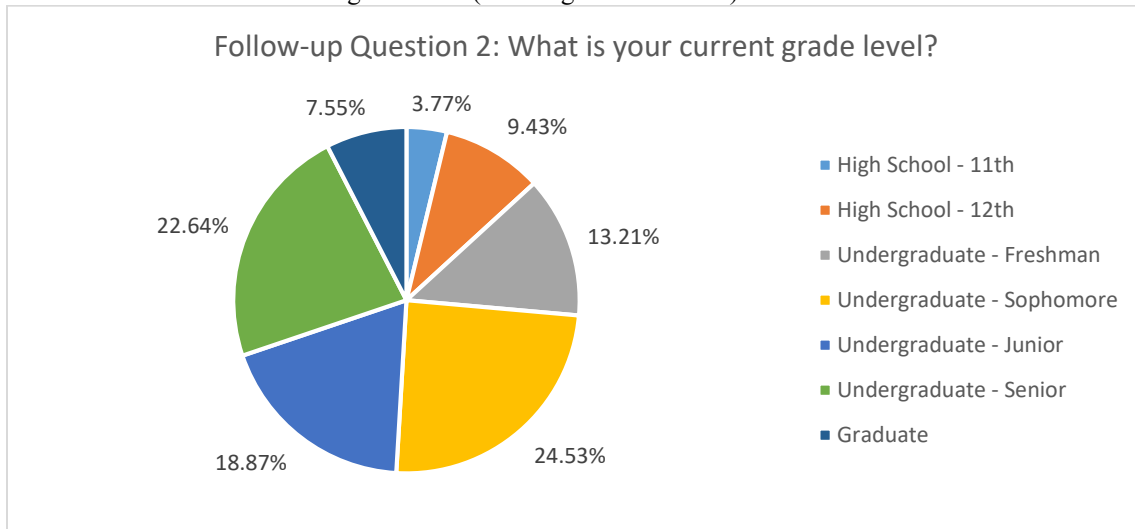
A follow-up questionnaire was sent out this year with the purpose of tracking former scholars who have participated in any of the SRWs. Of the 146 participants, 36.3% responded.

Follow-up Questions 1 and 2, in Figures 12 and 13 respectively, indicate that most of the respondents are recent SRW graduates between the Sophomore to Senior year.

**Figure 12:** Former scholars' year of participation in SRW (Building Scholars Data).

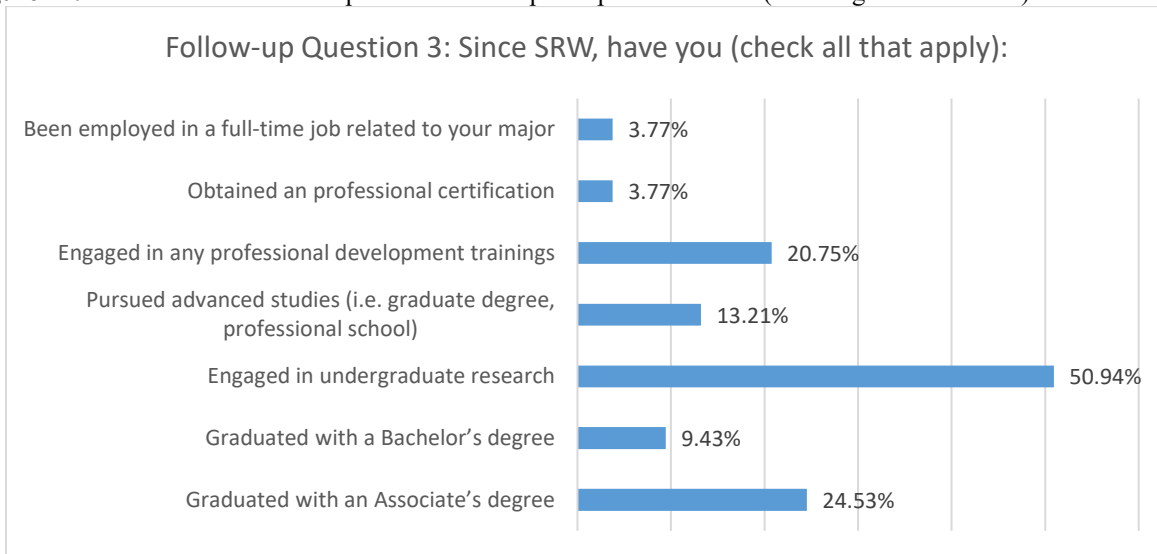


**Figure 13:** Former scholars' current grade level (Building Scholars Data).



Since attending the SRW, half of the respondents (50.94%) have engaged in undergraduate research, according to Follow-up Question 3 in Figure 14.

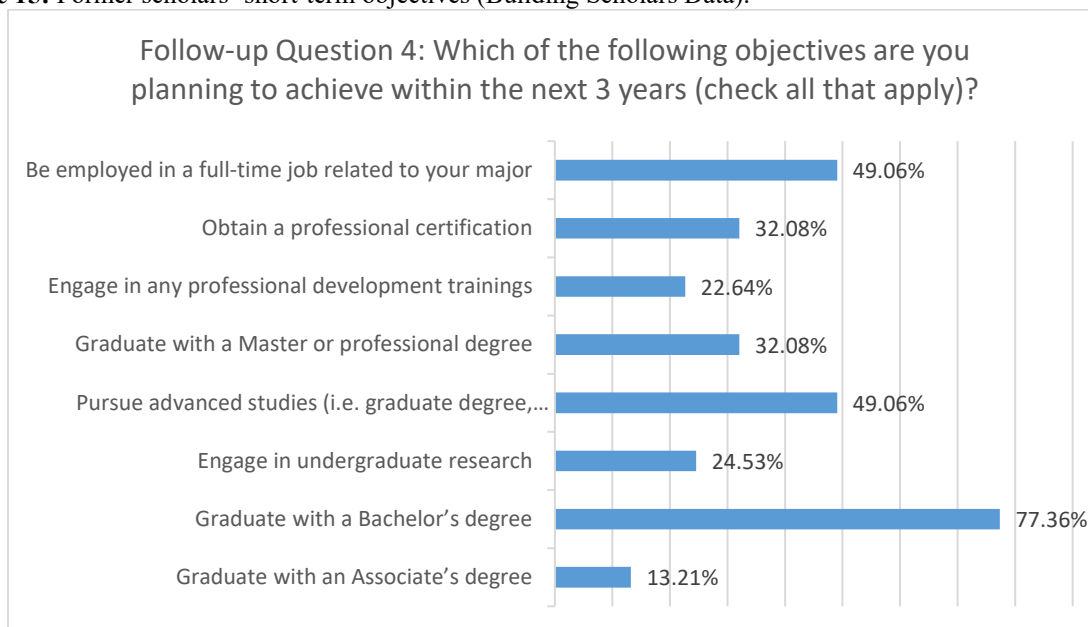
**Figure 14:** Former scholars' accomplishments since participation in SRW (Building Scholars Data).



Within the next three years, a great majority of the respondents plan to graduate with a Bachelor's degree and almost half plan to pursue advanced studies and be employed in a full-time job related to their majors, shown by Follow-up Question 4 in Figure 15.



**Figure 15:** Former scholars' short-term objectives (Building Scholars Data).



Lastly, Follow-up Question 5 was open-ended for respondents to add any comments. All of the responses were positive, emphasizing on how the SRW promoted their interests, introduced them to the college experience, and prepared them with supplies that are useful to this day.

## CONCLUSIONS

This is the fifth SRW conducted for the Building Scholars program. Overall, the SRW19 was effective, yielding to positive results. At least one-third (33.33%) of the scholars changed their minds in terms of the possibility of engaging in research activities, as determined from the survey findings. Given the demographic profile of Laredo, Texas, its proximity with Mexico, combined with the fact that one-fourth (25%) of the scholars' primary language is different from English and 92% are of Hispanic origin, the "Introduction to the Psychology of Language and Bilingualism" module was the highest rated, as many may have felt a connection with this topic. There were a total of 21 different majors (or intended majors) identified among the scholars allowing them to expand their research potential and experience to perform a wide range of discipline-specific research unique to their chosen program of study, as a result of the knowledge gained from this workshop. Retention for the SRW was 100%, as all of the scholars successfully concluded the workshop. The average hours completed per student were 28.5, out of 30. Only 64% of the scholars achieved perfect attendance. This was mainly due to the fact that a few were excused for taking summer classes. In addition, there were a few no-shows on the first day, resulting on the admittance of waitlisted applicants and new recruits. Interactions between the scholars and the research leaders was high and visible throughout the SRW.

Low overall follow-up response rate was mainly due to graduating participants, especially those from SRWs 2015 and 2016, not checking their student email. Results demonstrate that the program has been successful as the majority of SRW scholars already have or plan to engage in

research activities, attain post-secondary certifications, associate and bachelor's degrees, positions in graduate and professional schools, and join the workforce. As Title V - Building Scholars comes to an end on September 2020, the sixth and last SRW is scheduled from Monday, July 6, 2020 to Friday, July 10, 2020.

The success of the instructional programs is determined based on the rates in which the scholars graduate, their sustainability, and higher retention. Towards this, TAMIU recently announced that its 6-year graduation rate increased from 45% to 55% over the last ten years. TAMIU's four-year graduation rate also has increased during this period from 17.5% to 28% (TAMUS, 2019), concluding that programs similar to Building Scholars have had some effect on maintaining these ongoing undergraduate retention and graduation accomplishments.

## ACKNOWLEDGEMENTS

This work was primarily supported by the US Department of Education funded Title V - Building Scholars program grant (award #: P031S140130), with additional support from the TAMIU College of Arts and Sciences and the Department of Mathematics and Physics. Title V - Building Scholars is a partnership between Texas A&M International University (TAMIU) and Laredo College (LC), formerly Laredo Community College. We thank the project personnel that have been part of Building Scholars in the past and facilitators of each part of the project components for their excellent support, which is valuable and greatly appreciated.

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## **The Effect of NSF S-STEM CASC-aid Scholarship Program on College Students in South Texas**

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*Since 2016, the NSF S-STEM Program at TAMIU, which is known as the CASC-aid (College of Arts & Sciences Community-aid) Scholarship, has annually provided 18 scholarships of up to \$6,800 each to TAMIU STEM students. In addition to the financial aid, student scholars are required to participate in many enrichment activities in order to enhance retention and graduation. By now, more than 20 students have graduated from TAMIU STEM programs, most of whom have entered the workforce of South Texas.*

*During implementation of the CASC-aid project, data have been collected to study the impact of the project. Analysis of results demonstrate that the CASC-aid project is effective in supporting students' long-term goals, career major decisions, and overall knowledge of a wider STEM field.*

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# Impact of Digital Technology in Higher Education: Perspective from Bangladesh

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*This study replicates on the growing importance of digital technology on higher education in Bangladesh over the period 1988-2018. The study employs the vector error correction model (VECM) for investigating the positive relationship between digital technology and higher education. The outcomes suggest that digital technology can stimulate higher education in both the long and short run, where learners, educators, and nations are consistently gainer of this country. The study also highlights that higher education also consistently contributes to gross domestic product. Thus, public policies would make educational changes in the use of the digital technology of Bangladesh.*

*KEYWORDS* Digital Technology, Higher Education, VECM

## 1. INTRODUCTION

In the modernization of socio-economies, digital technology has directed as a critical role in higher education in economic development (Chacko 2005; Kottemann and Boyer-Wright 2009; Balamoune-Lutz 2003; Unwin 2019). Correspondingly, digital technology has prejudiced higher education, and it has changed people's daily life from all perspectives. Hence, education is an important factor for social, institutional, and economic change for every nation, where education trains a lot of talents through digital technology.

Consequently, digital technology stimulates economic development and provides a substantial contribution to education. The rapid growth of the economy makes people clearly understand that technology provides a significant role in promoting higher education in economic development. However, the economy can only rely on technological progress to attain sustainable development, and education can take part in better and faster development; accordingly, technology, education, and economic growth are inseparable. However, the developing economies

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are achieving dynamic growth by advanced technology and higher education over the past few decades (World Bank 2019).

Conventionally, technological advancement has not been uniform transversely in different segments of economic activities. Higher education has been the entire productive segment for the adoption of new technologies, be responsible for certain services, such as learning, sharing, teaching, medical care, performing arts, public administration, etc. for the nation. However, the reality is not providing similar statistics for the developing countries due to the bundle of rules, lack of adoption ability, and low investment for new technology. Hence, the useful, suitable, strategic, and transformative use of advanced technology may increase the participation, networking, teaching, learning, empowerment, and innovation processes, which would have substantial effects in terms of countries growth (Billon, Crespo, and Lera-López 2017; Capello and Spairani 2006).

The foremost trend of research motivates the standing of this study on the assessment of the relationship between digital technology and higher education in Bangladesh over the period 1988-2018. Here, digital technology has defined by telecommunications technology, namely internet users (Donou-Adonsou 2019). The study contributes to the very new concepts in scientific research and never studied for Bangladesh, where only Donou-Adonsou (2019) study studied for sub-Saharan African countries before. However, this study applies the Johansen cointegration test (Johansen 1988) and vector error correction model (VECM) for finding the relationship between digital technology and higher education, whereas the VECM is an entirely appropriate and effective procedure for assessing the relationship between variables both long and short-run, where all the variables must stationary in first difference. However, this model would correctly identify the serial correlation, heteroscedasticity, and normal distribution problems from the series. Hence, the main motto of this research is that higher education may upgrade through access of digital technology to better economic development of Bangladesh.

The study has been organized as follows: Section 2 discusses the review of previous literature; section 3 provides the data, empirical methodology, and section 4 describes the findings and discusses. Finally, the study concludes with significant policies and future research.

## **2. LITERATURE REVIEW**

Some studies have defined that today's world today is existing in digital technology for higher growth of the country (Newby et al. 2013; Baum and Rowley 2008; Castells 2004; Chen and Wellman 2004), the reason why the learners and educators are getting access to digital technology. Hence, digital technology can positively support learning and teaching if it is adopted and implement effectively with skills in higher education in developing countries and the global economy (Newby et al. 2013). However, teachers should have useful training, adequate knowledge of technology for excellent teaching, and institutions should have the capability and availability of technological infrastructure such as computers, computers lab, etc. for getting quality education from the students, for the case of Ugandans secondary schools.

Donou-Adonsou's study investigated the effect of education in technological progress towards economic growth in Sub-Saharan Africa by the fixed-effects GMM estimator over the year from 1993 to 2015. The results suggest that the internet contributes to economic growth with better access to education in countries; however, mobile phones do not have any direct effect on the economic growth of SSA countries. It seems that mobile phone usage is irrelevant without the internet for higher education. Hence, if the mobile phones may have access to the Internet, the mobile phones may perform such as video calls, doing research, looking at the map, to mention a few, resulting higher education may get the benefit, and it may contribute to the economy as well (Donou-Adonsou 2019).

Pegkas & Tsamadias (2014) estimated the effect of higher education on economic growth in Greece by using co-integration and vector error-correction model (VECM) over the period 1960–2009. The empirical analysis exposes that there exists a long-run relationship between higher education, physical capital investments, and economic growth. The findings also recommend that there is a unidirectional causality running from higher education and physical capital investments towards GDP growth in the long-run and short-run.

Another study investigated the effect of higher education human capital on economic growth in African countries with a modified neoclassical growth equation, and a dynamic panel estimator over the year 1960–2000 period. The study found that all levels of education human capital have a positive and significant relationship on the per capita growth in African countries (Pegkas and Tsamadias 2014).

Katircioğlu, Fethi, & Kiliñç (2010) analyzed a long-run equilibrium relationship between the higher education sector and real income growth by the autoregressive distributed lag (ARDL) and VECM techniques from 1979 to 2007 in the Turkish Republic of Northern Cyprus (TRNC). They reveal that there is a long-run and short-run equilibrium relationship running from the higher education sector to the real income growth of this economy.

Kottemann & Boyer-Wright (2009) found that education quality is significantly and positively associated with information communication technology (ICT) and GDP per capita in 122 countries and individual countries. The study has suggested that per capita income can stimulate by technological development and quality education, where ICT has played an essential role in quality education in these countries.

Billon, Crespo, & Lera-López (2017) estimated to signify the considerable outcome between educational inequality, technology, and economic growth of different levels of economies (high, middle and low income) for the 1995–2010 period. They reveal that educational inequality has a negative effect on ICT use on the economic growth of these economies. Likewise, Wunnava & Leiter (2009) employ panel data using the ordinary least square method from 100 developed and developing countries. The study shows that education has a positive and significant effect on ICT of these countries. Ifa & Guetat (2018) investigated the influence of the Tunisian and Moroccan economy during the period 1980-2015 using the ARDL model. The empirical findings stat that education is positive for Moroccan economic growth but negative for the Tunisian economy in the short-run. However, in the long term, education positively assists in increasing the economic growth of these two countries. The study also suggests that there are many opportunities

to broaden people's knowledge and improve their skills with higher education. It is also blessings for factors of growth, which could assist in research & development and the accumulation of human capital & skilled labor.

Asongu & Odhiambo (2019) tried to explore the role of basic formal education on information technology on comprehensive human development in 49 SSA countries by instrumental quantile regressions throughout 2000-2012. The paper reveals that poor primary education reduces the positive effect of technological involvement on inclusive human development. Hence, quality education can improve by increasing the number of schools and teachers as well as increasing the government budget in education.

Tsamadias & Prontzas (2012) inspected the effect of education on economic growth in Greece throughout 1960–2000 by using the Solow growth model represented by Mankiw, Romer, & Weil (1992). The outcomes of the empirical analysis imply that education has a positive and statistically significant impact on economic growth in Greece. Moreover, physical capital, human capital, and labor also have a positive effect on economic growth in Greece. Conversely, the Greek educational system faced a series of problems in the twenty-first century, such as the low quality and low effectiveness of education at all levels, graduate unemployment, massive student exodus abroad, brain drain, misallocation of resources, regressive social transfers, reduced human capital investment. But currently, the Greek educational system is overcoming the problems day by day.

Picatoste, Pérez-Ortiz, & Ruesga-Benito (2018) examined the effect of ICT technology on education for EUROSTAT to young people (16-24 years) by applying structural equation modeling (SEM). The findings reveal that informal ICTs training stimulates employment and training in computer management. Hence, the EUROSTAT needs to provide channels of informal personal training to adopt the requirements of temporal and longitudinal accessibility of each.

Recently, more than one-third of educators either demonstrate themselves or practice their remaining expertise to support digital pedagogy and also to distribute materials they use learning management systems (LMS) which are both digital and non-digital apparatuses; The study suggested to make the teachers more trained up to use digital resources to write; communicate as well as for best practices.

The above literature also confirms that the learners and educators require to potentially use of digital technology for the enormous diffusion of higher education.

Therefore, the study fixes some objectives as follows:

- a) There is strong evidence between digital technology and higher education in the long-run and short-run in Bangladesh and
- b) The digital technology contributes positively to higher education with better access.



### 3. THE DATA AND METHODOLOGY

The study uses data from 1988-2018 for Bangladesh as a developing country. Therefore, the study has collected data from World Bank (WDI, 2019). All the variables data has converted into a natural logarithm form before starting the econometric analysis. However, the study uses total educational attainment by population 25 years old and over as proxy of higher education, total internet users as a proxy of digital technology, and real gross domestic product (GDP) in \$US (constant 2011) is an explanatory variable.

The econometric models have constructed on scientific observations. The researchers also use the same technique when they proceed into account to find out the effect between variables; so that specific relationships between variables can be examined. Afterward, they select the appropriate econometric procedures to estimate the extent and direction of the linkage. The researchers also develop either new theoretical thought about the phenomenon or recommend the existing theory based on the findings. Hence, the construction of the correct growth model is the key to define the relationship between regressors and regressand in order to get exact estimates.

Meanwhile, this study aims to estimate the effect of digital technology on higher education for Bangladesh. The study has been used the Johansen cointegration test and VECM procedures for econometric analysis (Pegkas and Tsamadias 2014; Katircioğlu, Fethi, and Kiliç 2010), which dynamically stipulates the results of the series. Thus, these analyses are the utmost suitable and effective process for assessing the relationship between digital technology and higher education. However, if we run the baseline model, there would exist the endogeneity problem, as the maximum of the regressors might not be accurately exogenous. The application of appropriate explanatory variables can meet the proper solution. Hence, the study forms a preceding equation as follows:

$$LE = f(LT, LY) \quad (1)$$

where L's denote logarithm form. E means total educational attainment by population 25 years old and over as a proxy of higher education, T is total internet user as a proxy of digital technology, Y denotes real gross domestic product in \$US (constant 2011) of Bangladesh. Hereafter, the functional form of the VECM model can be written by the following equation:

$$LE_t = \alpha_0 + \beta_1 LT_t + \beta_2 LY_t + \varepsilon_t \quad (2)$$

where  $\alpha_0$  denotes intercept term,  $\beta_1$  &  $\beta_2$  are the coefficients of explanatory variables, t indicates the period, and  $\varepsilon$  means the error correction term of the model.

Before applying the VECM estimator, the study analyzes the descriptive analysis for characteristics of the data and correlation metrics for avoiding the multicollinearity of the series. Table 1 demonstrates the descriptive analysis of the data. The statistics explain that the mean and maximum of LE is 2.9225 and 3.4192. Similarly, the mean and maximum of LT is 2.9545 and 3.2032. Hence, the mean and maximum of LY is 25.1163 and 25.9919.

**Table 1:** The Descriptive Analysis

Variable	Observation	Mean	Standard Deviation	Minimum	Maximum
LE	31	2.9225	0.2959	2.4364	3.4192
LT	31	2.9545	5.0177	-11.6450	3.2032
LY	31	25.1163	0.4835	24.3882	25.9919

Source: Author's calculations

After that, the study will try to check the augmented Dickey-Fuller unit root tests (Dickey and Fuller 1979), which can fix the spurious regression results from the series (Pedroni, 1999). Then, the study will run the vector autoregressive (VAR) estimator for finding the optimal lag length. Conversely, the study will also run the Johansen cointegration tests for finding the rank and long-run relationship between variables (Johansen 1988; Johansen and Juselius 1990). However, if the variables exist cointegration in the long-run, then there necessities to test the error correction metrics (ECM) representations by the VECM (R.F. Engle and Granger 1987; Robert F Engle and Granger 1987). After confirming the long-run associations, the study will employ the VECM procedure for long and short-run analyses. The study applies serial correlation, heteroscedasticity, Jarque-Bera, CUSUM, and CUSUM square tests to identify the robustness of the VECM process.

#### 4. FINDINGS AND DISCUSSIONS

The technological efficiency and higher education show the convergence with the level of economic development, and the "Catch-up effect" promotes the improvement of technological capability and achieves catch-up with higher education in developing countries. Here, the study employs the ADF unit root test and finds the results of the unit root test. Table 2 states that all the variables are stationary in the first difference, which meets the pre-condition of Johansen cointegration and VECM estimator.

**Table 2:** ADF Unit Root Test

Variable	At Level		First Difference	
	T-statistic	Probability Value	T-statistic	Probability Value
LE	-0.108	0.9487	-3.929	0.0018*
LT	-1.542	0.5129	-2.899	0.0454**
LY	-6.838	1.0000	-2.813	0.0565***

Notes:  $\Delta$  denotes Significant at \* 1% level, \*\* 5% level and 10% level; ADF test defined by Mackinnon (1996) formula

Source: Author's calculations

Now, we check the lag length criterion by the VAR model. Table 3 implies that the optimal lag is 6. The study will apply lag length by Akaike information criterion (AIC) for running the Johansen cointegration and VECM estimator. The appropriate lag is crucial for running any regression model, which can provide correct results.

**Table 3:** Lag length Criterion

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-14.1831		.000794	1.37465	1.41522	1.52091
1	125.614	279.59	2.3e-08	-9.08908	-8.92681	-8.50402
2	132.545	13.863	2.8e-08	-8.92359	-8.63962	-7.89974
3	141.028	16.966	3.2e-08	-8.88224	-8.47656	-7.41959
4	152.043	22.029	3.3e-08	-9.0434	-8.51602	-7.14196
5	168.022	31.959	2.8e-08	-9.60178	-8.9527	-7.26154
6	199.624	63.204*	9.2e-09*	-11.4099*	-10.6391*	-8.6309*

Notes: \* indicates lag order selected by the criterion; LR: Sequentially modified LR test statistic (each test at 5% level); FPE: Final prediction error; AIC: Akaike information criterion; SC: Schwarz information; HQ: Hannan-Quinn information criterion

Source: Author's calculations

After getting the Johansen cointegration results, Trace and Maximum Eigenvalue suggests that there is one (1) cointegrating equations in the series (see table 4). Hence, Johansen's cointegration results recommend that all the variables are cointegrated in the long-run. Now, the study would apply for the VECM long and short-run procedures.

**Table 4:** Johansen Cointegration Rank Test (Trace and Maximum Eigenvalue)

Trace Test					Maximum Eigenvalue Test				
Maximum Rank	LL	Eigenvalue	Trace Statistic	0.05Critical Value	Maximum Rank	LL	Eigenvalue	Max-Eigen Statistic	0.05Critical Value
0	142.82404		30.0089	29.68	0	142.82404		16.9230	20.97
1	151.28555	0.46569	13.0859*	15.41	1	151.28555	0.46569	10.9251	14.07
2	156.74809	0.33278	2.1608	3.76	2	156.74809	0.33278	2.1608	3.76
3	157.82851	0.07691			3	157.82851	0.07691		

Johansen cointegration tests (Trace and Maximum Eigenvalue) indicate one (1) cointegrating equation using MacKinnon et al. (1999) p-values

Source: Author's calculations

Table 5 recommends that there is a long-run association-ship running from digital technology (LT) and GDP (LY) to higher education (LE). Because ECM is negative (-1.510) and statistically significant, the ECM coefficient (-1.510) confirms that the speed of adjustment corrects 100% in the current year and 51% corrects in the past year of this economy. It means that the economic development is very fast by higher education and digital technology of Bangladesh.

**Table 5:** VECM Long-run Representations: Exports as a Dependent Variable

	Coefficient	Std. Error	t-Statistic	Probability Value
ECM	-1.510	0.568	-2.66	0.008*

Significant at \* 1% level

Source: Author's calculations

Therefore, the VECM long-run equation can be expressed after analysis as follows:

$$ECM_{t-1} = [1.000LE_{t-1} - 0.032657LT_{t-1} - 0.189352LY_{t-1} + 1.986198] \quad (3)$$

The long-run equation suggests that if digital technology (LT) increases 1%, the higher education (LE) increases by 3.26%, this results in support by Newby et al. (2013) and Donou-Adonsou (2019). Similarly, if GDP (LY) increases 1%, the higher education increases (LE) by 18.93% in the long-run of Bangladesh, as Katircioğlu, Fethi, & Kiliç (2010) and Tsamadias & Prontzas (2012).

**Table 6:** VECM Short-run Representations: Wald Test

Variables	Chi-square Value	Probability Value
LT	7.47	0.0584***
LY	6.59	0.0863***

Significant at \*\*\*10% level

Source: Author's calculations

Likewise, Table 6 implies that LT and LY probability is significant at the 10% level. Hence, there exists a short-run relationship running from digital technology (LT) and GDP (LY) to higher education (LE) whereas, LT and LY probability value are significant at the 10% level. The results also suggest that digital technology is a blessing for higher education and economic growth as well for Bangladesh. Technological transformation does not only helps an approach to develop the countries economy but also provides the people's capability to do many things that people did not do further. However, novelty means whether the quality of people's lifestyles will positively or negatively grow (Freeman and Soete 2003). This title for twisting up higher education in the kind of digital technology that effectively contributes to educational institutions and countries to remain long-term response. Bangladesh must be beneficial by growing technological development in higher education.

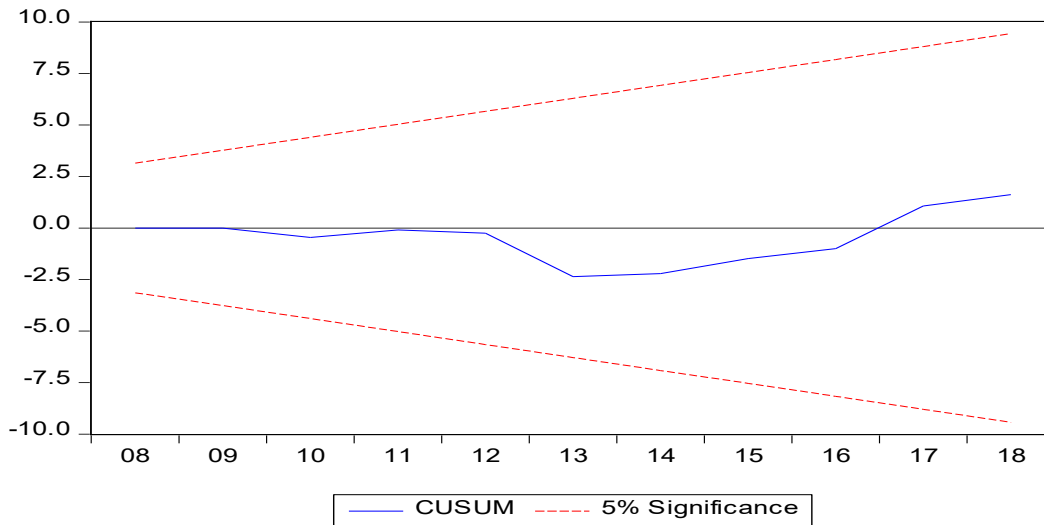
**Table 7:** Diagnostic test

	Jarque-Bera	F-statistic	Probability Value*
Normality	3.264		0.19549
Serial Correlation: Breusch-Godfrey LM test		14.0303	0.12125
Heteroscedasticity: Breusch-Pagan-Godfrey		0.37474	0.8582

Source: Author's calculations

For the robustness check of said model, there is no Serial Correlation in the series, because the Breusch-Godfrey LM test provides insignificant probability value, i.e., 0.12125 (see table7). However, the Jarque-Bera probability value also shows insignificant probability value, i.e., 0.19549, which means that the series is normally distributed (see table7). The table 6 also shows, there is no heteroscedasticity problem in the series. Figure 1 also states that the cumulative sum (CUSUM) plot is inside the parameter of stability. Overall tests show the VECM estimator is the best and robust model of this study.

**Figure 1: CUSUM**



## 5. CONCLUSION

This study replicates on the growing importance of digital technology in higher education over the period 1988-2018 of Bangladesh. The paper uses the Johansen cointegration and VECM estimator for econometric analysis, which dynamically stipulates the robust results of the series. Furthermore, the nature of digital technology and its linkage to higher education have extensively conversed in the long-run and short-run. The outcomes suggest that digital technology can positively stimulate higher education in both the long and short-run, where learners, educators, and nations are consistently gainer of this country. The study also highlights that higher education also consistently contributes to the gross domestic product of Bangladesh both long and short-run. The outcomes confirm that digital technology might contribute positively to higher education with better access to Bangladesh. The results also suggest that digital technology is a blessing for higher education and economic growth as well for Bangladesh. Technological transformation does not only helps an approach to develop the countries economy but also provides the people's capability to do many things that people did not do further. However, novelty means whether the quality of people's lifestyles will positively or negatively grow (Freeman and Soete 2003). This title for twisting up higher education in the kind of digital technology that effectively contributes to educational institutions and countries to remain long-term response. Bangladesh must be beneficial by growing technological development in higher education. In this aspect, future research is necessary for access to digital technology for the higher education of this country.

Consequently, the policymakers should emphasize more budgets in advanced technology and higher education to increase more economic development of Bangladesh. Likewise, public policies would make educational changes in the use of digital technology as well.

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# International Marketing Practices in Cross-Border Companies

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*In this research, we study the international marketing practices implemented by three companies in Rio Bravo, Tamaulipas (Mexico) that are leaders in their industries with more than 20 years of operations. Being companies that over time have consolidated in the local market and that in the last five years have extended their market influence in the cross-border region of northern Tamaulipas and Texas Valley, the comparative analysis is very interesting, since that there is no previous reference at local and regional level. The study is exploratory in nature with an explanatory scope and the methods used are qualitative. Various research techniques were implemented, mainly the semi-structured interview and the survey validated by experts in the field, to the managers of the marketing areas, and web quality analysis tools based on the Metricspot software, which makes it possible to analyze more than fifty SEO parameters (Search Engine Optimization). Our main finding is that marketing is viewed and applied in a segmented manner, reducing it to advertising activity and seen as something that can be done in an improvised way which reduces its potential benefits in market expansion.*

**KEYWORDS** *cross-border companies, international marketing, qualitative research, search engine optimization*

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# Corporate Ethics and Price Fairness: The Strategic Binomial for Responsible Consumption

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*Corporate ethics has become one of the most recognized predictors of responsible consumption. Empirical research has demonstrated the emergence of ethical consumers in different countries, confirming their existence with greater emphasis on the new generations. Once this typology of consumers is evidenced, it is necessary to consider variables that influence the purchase intentions according to their income. The price is one of the main variables that, in general, consumers refer to, as a discriminating factor before purchasing. This is due to the price sensitivity according to the consumer's income. When a corporate ethical responsibility is perceived by consumers, the price tends to be perceived as fair. Thus, when consumers perceive that a product was made through responsible actions, the value of such product increases. Accordingly, the perceived effort and sacrifice for that acquisition will be justified, being a valid argument to purchase. Therefore, the relationship between corporate ethics and perceive price fairness, as a determining binomial to explain the responsible purchase intentions, is confirmed. The purpose of this research was to analyze the corporate ethics effects on the perceive price fairness and the socially responsible repurchase intention, being the price fairness perception, the mediating variable. The perceptions of 153 middle income responsible consumers were analyzed. Through a Structural Equations Model, the mediating effect of the perceived price fairness was demonstrated in a total mediation effect.*

**KEYWORDS** *corporate ethics, price fairness, responsible consumers*

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# **Interdependence of Property Prices and Building Vacancy Rates in Residential and Commercial Real Estate Markets: Hong Kong and Singapore**

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*We investigate the relationship between vacancy rates and property prices in the residential and commercial real estate markets. We find that in Singapore's residential market, the lagged differenced vacancy rate negatively affects the future differenced house price, a relation that results from what we term the "fundamental-driven effect." As housing vacancies can be regarded as excess supply in real estate market, vacancies will result in decreased prices to reduce excess supply and achieve long-term equilibrium when supply exceeds the fundamental demand for residential housing. By considering the two types of property prices in Hong Kong, we identify a long-term relationship between residential prices and office building prices.*

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# **The Impact of Ethnic Identity on Insurance Perceptions and Acquisition**

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*Literature regards homeowner ethnicity as an important cultural element that informs insurance acquisition. Prospect theory suggests that homeowners perceive insurance as either cost burden or coverage against potential losses in future. Using zip code based archival data on White Caucasian and Hispanic homeowners in Texas, this study examines whether and to what extent perceptions of insurance mediate the relationship between homeowner ethnicity and insurance acquisition. The empirical evidence highlights the direct effect of homeowner ethnicity on insurance acquisition and suggests that the mediated effects are largely overshadowed by the direct effect. A very high effect size of the direct association of ethnic identity with homeowner insurance acquisition also implies that ethnic identity may serve as a sole key predictor of insurance acquisition.*

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# Impacts of Communication between the Internal Audit Function and the Audit Committee on the Audit Effectiveness

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## INTRODUCTION

Internal auditing is a crucial organizational function to address the growing needs for transparent and reliable corporate governance. The Internal Audit Function (IAF) and the Audit Committee (AC) are the two primary agents of the process. The IAF assist the role of the AC by providing relevant audit information, and at the same time, the AC evaluates whether IAF's priorities such as monitoring critical internal controls, identification of enterprise risks, and operational improvements are aligned with those of the AC (Deloitte, 2018). A strong relationship between the AC and the IAF and their interactions between the IAF and the AC are essential elements that provide a supportive internal information environment for internal auditors to improve thorough corporate governance and better financial reporting (Goodwin 2003; Zain and Subramaniam 2007). Effective communication from the IAF to the AC or *vice versa* encourages direct input from each other to obtain and share the necessary information for continuous improvement in the organization. For instance, frequent meetings and formal reporting lines are essential for each of them to fulfill their responsibilities (Archambeault et al. 2008; Arena and Azzone 2009).

The United States Committee of Sponsoring Organizations of the Treadway Commission framework (COSO, 2013) recommends several ways to facilitate the interaction and communications. Specifically, Principle 14 states that information on the objectives and responsibilities of internal control needs to be cascaded to organizational personnel properly at the appropriate time. It entails the use of separate reporting lines between AC and IAF to be independent of management because the AC needs to support IAF to maintain appropriate independence and stature from management when IAF needs to report potential management lapses (Deloitte, 2018). The underlying assumption of Principle 14 is that active communication flow between IAF and AC is crucial for effective internal audit, and organizational communication practice can improve the communication flow to enhance audit effectiveness.

Prior research on internal auditing has predominantly investigated the characteristics of IAF and the AC influencing internal audit effectiveness, i.e., incentives to establish internal control

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systems (Ge and McVay 2005), the impact of weaknesses in material internal control on financial reporting (Lin et al. 2011; Prawitt et al. 2012), and characteristics of audit committees or internal audit departments (Abbot et al. 2003; Krishnan 2005; Goodwin-Stewart and Kent, 2006; Boo and Sharma, 2008; Choi et al. 2013; Cho et al. 2015). It tends to investigate characteristics of the two agents separately, assuming that two agents with recommended characteristics naturally engage in constructive interactions and communications. However, the interactions between the two agents concerning information sharing and communications in the context of internal auditing have been relatively understudied (i.e., (Goodwin 2003; Raghunandan et al. 2001; Zain and Subramaniam 2007).

In this study, we investigate how effectively the recommendations of Principle 14 enhance audit effectiveness through the quantity and quality of communication. Specifically, we conjecture that the quality of IAF such as knowledge diversity of internal auditors, the level of industry experience, systemized reporting line between CAE and AC, and the joint responsibility between CAE and AC enhances communication effectiveness in terms of quantity and quality because it provides efficient internal information environment. This will trigger IAF to improve the quality of internal control audits by identifying, reporting, and remediating internal audit deficiencies. We focus on U.S. firms within the Global Audit Information Network (GAIN) database provided by the Institute of Internal Auditors (IIA) from 2007 to 2016 as our entire dataset of total 4,357 firm-year observations. The GAIN database collect data on internal audit practices from various types of institutions such as publicly traded firms, private firms, and educational and governmental institutions. We document two key findings with regard to information and communication components within Principle 14. First, internal auditors' knowledge diversity and industry experience, active reporting lines and the joint responsibility between CAE and AC enhance internal communications in terms of both quantity and quality. Second, the quantity of communication has a negative impact on audit effectiveness, whereas the quality of communication has a positive impact on audit effectiveness measured with the number of internal audit findings. These results corroborate the objectives of COSO Principle 14.

In the next section of this paper, we describe our research model and hypotheses and describe the research methodology. We explain our research design and then discuss the results. Finally, the academic and practical implications of this study will be discussed.

# **On the Determinants of Corruption: Evidence from Firm-Level Data**

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*The economic literature has identified many factors affecting corruption. However, few studies have examined the determinants of corruption at the firm level. This study examines how the characteristics of firms affect their experience with corruption. Specifically, it tests whether firms' financial performance and dependence on government are associated with paying bribes. I find that firms' ability to pay bribes, measured by firm sales, can explain the variation in bribe payment among firms. A 1 percent increase in firm sales leads to a net 0.5 percent increase in the size of the bribe. Also, I find that dependence on government is an important predictor of the incidence of bribery. I use two measures identifying firms' dependence on government: number of requests for licenses and permits; and the time they spend dealing with government officials. Both measures have statistically significant positive coefficients in the probability specifications. The results are robust across a broad set of model specifications.*

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# **Analysis of Early Warning Mechanism of Modern Society: From the Perspective of Risk Society Theory**

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*Through the lens of risk society perspective by Ulrich Beck (1992), a German sociologist, we have examined different risks faced by the modern society and the control conundrums associated with these risks. By analyzing various characteristics of these risks, we think it is necessary to establish an early warning mechanism against the risks. To make this mechanism sensitive to the risk characteristics, we must make breakthroughs in the risk dimensions, risk critical threshold, responsibility sharing and social justice. On this basis, we put forward some suggestions on how to establish and improve the modern social early warning system.*

**KEYWORDS** Risk, Risk society, Risk early warning

## **INTRODUCTION**

In the West, people have long been fascinated with modern material feasts, but the introduction of risk society theories (Beck, 1992 & Giddens, 1999) has calmed them down to contemplate the risks that modern society has or will face. The reality is constantly showing people that modern technological means and management methods enhance the ability of human survival but have not been able to free people from the invasion of risk completely. Moreover, with the expansion of human life and the exploration of unknown areas, the risks caused by various modern control and management methods have gradually become new problems that plague people. Employing the perspective of Beck's risk society theory, we tried to explore risks around us, and the risk

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management models of modern society. This will provide not only new ideas for grasping the formation mechanism and solutions to many contemporary social problems but also pose new challenges for the modern government crisis management.

## **RISK FROM A MULTIDIMENSIONAL PERSPECTIVE AND MODERN SOCIETY**

The occurrence of the 911 incident in the United States and the subsequent crises of varying degrees in various countries of the world have brought the concepts of "risk" and "risk society" into the discourse of the public. Among many studies on risk, Beck's risk society theory is highly respected. This theory not only expands people's perception of risk but also expresses strong concern for the real society and the future of mankind. The key point is that it puts aside the dissolving context commonly used in postmodern theory and emphasizes the mission of construction, which has important practical significance for the establishment and improvement of a modern risk warning system. It is very critical to have a holistic, systematic view on how risks will come about. This paper will analyze risks from five dimensions: feature dimension, measurement dimension, institutional dimension, political dimension, and social dimension.

### **1. Feature Dimension: The Risk of Humanization**

Beck (1992) pointed out that various social forms at different periods in human history are in a certain sense risk society, and risks are everywhere. However, if the traditional risk is mainly due to the unpredictable nature, the risks faced by modern society are more of a humanized risk. The so-called humanization risk, on the one hand, refers to the fact that due to human intervention in, and invasion of, the natural world, the natural system originally in an equilibrium status has been severely damaged, which leaves behind the risks that seem purely natural, with many traces of human interference. On the other hand, the rapid development of science and technology and the change of social management methods have exposed the whole society inevitably to new risks resulting from out-of-control technology and institutional dislocation. In essence, all these risks are inseparable from social progress. While human beings are trying to get rid of the threat of natural risks through technology and institutions, they create new risks. With the advancement of globalization, new risks are expanding both in terms of harm level and management difficulty.

### **2. Measurement Dimension: Uncertain Risk**

With the continuous development of science and technology, people can employ the calculation of a series of natural movements to obtain the degree of such harm of natural risks like earthquakes, tsunamis, or hurricanes and use modern means to effectively predict and respond to them. It is precisely the risks brought by the scientific civilization itself that often lacks the support of certain data and laws. Thereby people cannot make accurate judgments and accurate calculations for the harm caused by these natural risks. Moreover, disasters caused by risks are often no longer confined to the place where they occur. It is difficult for people to estimate from experiences how much harm the risks will produce. Some highly risky technologies will destroy the entire human society once they get out of control. The risk calculation methods established by modern science and law are far from meeting the needs of modern society for risk pre-control. These unknown risks destroy the ideas and methods that modern institutions rely on to deal with risks: risk

calculation or computational rationality. Eventually, in the risk society, unclear and unpredictable consequences become the dominant force in history and society (Beck, 1992).

### **3. Institutional Dimension: Organized Irresponsibility**

An important aspect of risk exploration is to clarify the relationship of responsibility: what causes the risk, who defines the risk, and who is responsible for it. However, once getting to the root cause of risks, people often find that the entire society is caught in an organized, irresponsible dilemma when dealing with risks. In the face of the deteriorating ecological environment, modern institutions are unable to identify the responsible entities that have devastated the environment for centuries. Moreover, those groups and institutions that should have assumed responsibility are utilizing the laws and sciences in their hands as a defense to find ways to excuse themselves and try not to assume their responsibilities. Accompanied by the standard refinement and the clarification of the system is the diversification of the responsible entity, and the result of the responsibility apportion can easily lead to the state of everyone being responsible but everyone being not responsible. This ultimately leads to the reality of missing responsibility and subjective vacancy in the actual operation process.

### **4. Political Dimension: Risk under Knowledge Politics**

Before the risk does not really happen, it only exists as a symbol in the people's predictive discourse system. Due to the invisibility of risk, the risks of modern society have exceeded the direct human perception. For example, with sensory judgment alone, people cannot determine the toxins and pollution in the air, food and water. Risks only exist or manifest themselves in the knowledge about them. Because the perception of risks depends on knowledge about them, the perception can also be changed in knowledge: being exaggerated, demised, or even concealed. Therefore, the perception of risks is easily controlled by intellectual politics. As a result, the mass media, science, and legal professions that define risks are in the key social and political positions (Chen). Clearly, in a society with diverse interests, certain truth of risks is easily concealed under the interests of certain special social groups and may even directly become the source of some groups for profit.

### **5. Social Dimension: Equality and Inequality of Risks**

In the discussion of risks, if it is limited to chemical, biological or technical terms, it is easy to simplify and flatten social risks. In the long run, risks in the process of diffusion do reflect an equal boomerang effect, in which the perpetrator will eventually become a victim. However, within a certain period, risks are not merely applied to each social individual on average, and the damage caused by the risks are different for people who are at different levels of development or different social status. Social structures have the effect of social filtering or expansion. People in different social positions can adopt different coping styles in terms of their ability and potential to cope with risks. At the national level, developed countries can use the short-term benefits of high attractiveness to transfer risks to developing countries, as evidenced by the fact that many developing countries have become clusters of highly polluting industries. At the individual level, groups of higher social classes clearly have more financial, material, and information resources than the lower social classes to temporarily avoid risks, such as moving out of contaminated areas or picking up high-quality, pollution-free food. Clearly, the combination of risks and social institutions complicates otherwise uncertain risks.

## RISKS AND RESPONSES

Although the uncertainty of the risks faced by modern society is increasing, and all kinds of risks are infiltrated with complex social structures, it does not mean that people can only passively resist and passively withstand modern risks. As long as there is sufficient understanding of the risks inherent in modern society, and an in-depth understanding of the various risk traps caused by technology and institutions, the catastrophic consequences of various risks can be reduced through effective risk warning.

Risks can be broadly divided into three categories from their root causes: natural risks, technical risks, and institutional risks. As the breadth and depth of human intervention in social life and nature continue to expand, the misconduct in human decision-making and behaviors have become the main source of modern risk. For example, the invention of automobiles has shortened the distance of people's living space, but the excessive emission of carbon dioxide caused by the surge in the number of cars and the subsequent series of effects has resulted in abnormal global climate, and finally, the natural disasters are the most obvious consequences. The development of modern science and technology has reduced natural risks but meanwhile introduced some risk parameters that people have little or no knowledge or experience. Therefore, some new risks are brought about. For this reason, it is accurate to say that the risks of modern society mainly come from the technology and scientific systems that we rely on. The risks brought by science and technology have long been self-evident, but the risks brought about by the social system do not get enough attention. Anthony Giddens (Giddens, 1991 & 2006), the sociological theory master clearly pointed out that the four institutional pillars for modernity may bring far more serious risks in the process of globalization than any of the following: 1) The world nation-state system can bring totalitarianism; 2) The world capitalist economic system will produce economic collapse; 3) The international division of labor system will bring about ecological deterioration; and 4) The military order will trigger the outbreak of the nuclear war. Specific to the operating mechanism of each country, failure or deviation of certain systems in the process of operation often brings people into turbulent risks. The catastrophic consequences of these risks are often more severe and riskier than natural risks in the traditional sense.

When people realize the risks are imminent, they will attempt to employ various methods to protect themselves from the dangers. In dealing with risks, the risk society theory (Beck, 1992) presupposes two choices: one is to eliminate the risk source in primary science. The other is to make up for the loss through secondary industrialization. Taking diseases as an example, people can reduce the risk of disease by reducing pollution and promoting a healthy lifestyle. They can also use the medical means and biochemical agents to relieve the disease, thus getting rid of the risk after the illness. The former is a primary scientific approach of prevention, and the latter is a secondary industrialization solution. Obviously, the former is easier to reduce the risk loss than the latter. However, the secondary industrialization solution is easier to operate than the primary scientific prevention method and has more economic benefits and market space. Thus, it has attracted more application in real society. This secondary industrialization solution has brought more scientific and technological factors in helping people to solve problems, whereas it has brought more new risks, more unpredictable and more challenging to assess. This paradox has created a cyclical relationship in the process of risk generation and control. Risks of this nature are constantly replicated in the habitual risk management models.

In fact, modern risks are more or less inevitable in the shadow of technology and institutions both in their origin and in the process of control. In the past, risk warnings were more concerned with the defense against unpredictable natural risks, while modern social warnings must pay more attention to the social risks brought about by technology and institutions. Moreover, it is also necessary to change the way of thinking in response to risk, that is, to change from a secondary industrialization solution with short-term benefits to a primary scientific prevention method. This is the transformation from passive risk management to active risk pre-control.

## **CHALLENGE OF THE RISK SOCIETY THEORY TO THE EARLY WARNING MECHANISM OF MODERN SOCIETY**

Generally speaking, risk warning is based on the rules of the development process. Through detailed data collection and research, people employ advanced technology and avenues to make accurate judgments on the realities so as to evaluate, predict and alert the quality and consequences of a part or whole of the social system. The initial social warning appeared in the mysterious miracle forecast. Many ethnic groups have such records in their ancient culture. With the increase in people's understanding of nature and society, human perception of social risks gradually began to evolve from a vague perceptual experience to a rigorous rational analysis.

In the true sense, social early warning research was formed after World War II. In the 1980s, the future school represented by the Roman Club established a comprehensive social early warning research model. Among the 12 factors (population, energy, raw materials, environment, water, sanitation, food, education, employment, economic development, urban conditions, and living environment), an interactive network of objective systems was formed. These factors also interacted with other factors such as human daily behaviors, economy, politics and psychology in the society, and thereby formed a lot of staggering points. Many of them have become crisis points. Therefore, society has encountered extremely complicated and serious situations in which various crises are mutually constrained.

In the 1990s, thanks to the deepening of the interdependence of the world, all countries strived to get hold of the trend of social development change from the overall connection of these factors for government decision-making. Therefore, the research horizon of social early warning has been further expanded. The outbreak of the financial crisis in Southeast Asia has further strengthened the world's further reflection on the issue of social early warning. The global risks in the process of economic development, the increasing risk of modern social-political risks, and military risks have prompted countries to accelerate the establishment of comprehensive and even global social early warning mechanisms.

Beck's risk society theory has enabled people to understand from multiple perspectives the challenges that risks pose to modern social early warning mechanisms. Risks are no longer computable and controllable. Through the conceit of technology and institutional loopholes, risks have even begun to invade people's daily lives as they are constantly copied and expanded. The various characteristics of risk require a new early warning mechanism in line with social security and stability. In this early warning mechanism, risks are no longer regarded as independent, but permeate in the social movement process and thereby affect the social development in the

interaction with the social environment. Therefore, the new social early warning mechanism must be able to accurately grasp the characteristics of modern risks for the purpose of effective early warning. All these require the new early warning system to get focused on the following four aspects.

### **1. Value Neutrality in the Progress of Risk Definition.**

Modern risks are more likely to come from within the social system. Therefore, knowledge about risks is in a state of monopoly. Those who have sufficient intellectual capital or social power have the right to interpret risks. In fact, no matter for the government or professionals, there is a lack of detailed research and definition of modern risks other than natural disasters. Moreover, owing to the lack of mechanisms and means to disseminate risk knowledge to the public, people do not have sufficient risk awareness and risk prevention skills. When risks occur, they can only adopt it passively rather than respond actively. Therefore, an effective risk warning mechanism must have a set of risk interpretation systems based on an objective basis, rather than an interpretation system that is subject to other factors in the process of interpreting and defining various risks in society. The public has the right to know the risks, and the government has an obligation to inform the public in detail. The definition of risk needs to strictly follow the principle of natural science that has always been adhering to the principle of value neutrality to clearly define and interpret the risks that already exist or may occur in the process of social development. In this way, people can calmly handle the risks with sufficient information.

### **2. Accuracy in Risk Threshold.**

Under normal circumstances, risks exist only in a potential state. According to the social combustion theory (Niu, 2009) in social physics, the potential risk can only break out of the destructive force when it reaches the flame point. Therefore, in the entire early warning system, the identification and determination of the risk threshold are particularly important. Risks are inevitable, but they can be controlled within a certain safety interval. Moreover, the risk threshold is also directly related to the risk level determination and subsequent countermeasures. The determination of the critical risk threshold is not a simple technical problem. It involves many comprehensive factors such as the structural characteristics, development status, and internal and external environment of the whole society. It not only requires a large amount of aggregated data for analyses but also needs a group of experienced experts to make detailed judgments based on the specific conditions of the local region, taking into account the risk threshold set up in similar risk early warning system at home and abroad. Accurate determination of the critical risk threshold cannot only control the probability of a catastrophic consequence of the risk but also make the entire early warning work focus on the target to prevent the possible chaos in the face of complicated situations.

### **3. Responsibility Sharing in Risk Warning.**

Modern risks are more likely to be caused by human factors, and thus are more destructive. The organized irresponsible social operation system increases not only the probability of risk but also the cost of risk management. Most people bear the risk loss resulted from a few interest groups. The early warning system of modern society should focus on eliminating this irrational risk-taking mechanism to strengthen the sense of responsibility of risk sources and strictly align the responsible person with the risk loss and the risk degree in the process of refining the

responsibility. We should try to avoid the unprincipled responsibility evaluation mechanism causing the embarrassing situation in which the law is not accountable to the public. The government must not only define their limits of responsibility in risk management but also strictly urge enterprises to establish sound risk-responsibility mechanisms. For certain high-risk industries and sectors, mandatory insurance can be used to increase the cost of profits they make at the expense of manufacturing risks, on the other hand, it can give full play to the risk sharing mechanism of the insurance industry to dangerous industries, and reduce the risk of oscillations in social life.

#### **4. Social Justice in Risk Sharing Progress.**

In modern society, the interaction between risk and social operating mechanisms makes the trend of social stratification more obvious. There is considerable overlap between risk distribution and the wealth distribution mechanism of industrial society or class society: wealth gathers at the upper level, and risk gathers at the lower level. The advantages of wealth, power, and access to information enable the upper echelons of society to temporarily transfer risks to the margins of society, resulting in a large number of risks clustered at the margins of society. Influenced by three major reasons: low awareness of risks, poor resilience and lack of adequate support in social security, risks are not only difficult to resolve in the marginalized groups but also form some new risks when combining with the unstable factors at the bottom of the society. The edge of society is slowly becoming a source of social problems and a high-risk area. Therefore, when discussing effective social early warning mechanisms, we must not neglect the reality of the stratification of risks and need to shift the attention and resources from the conventional risks to the high-risk areas. In dealing with risks, we cannot just resolve those using technical means. What we need to consider is how to promote institutional-level reforms and enhance the ability of marginalized groups to respond to risks while reducing the new marginal risks.

### **CONCLUSION: CONSTRUCTION AND IMPROVEMENT OF EARLY WARNING SYSTEM IN MODERN SOCIETY**

The ubiquity of risks imposes enormous challenges to the governance structure of modern government, which is characterized by clear hierarchy and detailed power and responsibility. Osborne and Gaebler (1992), proposed the governance paradigm of foreseeable government: prevention instead of treatment. Establishing a sound and effective social risk early warning system has become a concern of governments. In recent years, various countries accelerated the pace of building a social risk early warning system, which not only strengthens the government's responsibility in early warning but also expands the field of government early warning. Relevant laws and regulations have also been formulated and improved, and early warning and managing risks in accordance with laws have become a consensus. Strictly speaking, the early warning system is still at the stage of theoretical exploration and preliminary practice. The entire social system has not yet established a risk early warning and monitoring network that can integrate information collection, transmission, processing and feedback. There is also a lack of an independent early warning organization with complete structure and clear responsibility. Correspondingly, the public's risk warning awareness is weak, and the risk response ability is generally low. Therefore, it is necessary to establish a set of social risk early warning systems that are suitable for modern risks. Four critical actions that need to be implemented are recommended

to conclude with this paper: strengthen the awareness of risk among members of society, establish a three-dimensional organization structure for social early warning, build a platform for the operation of the social early warning system, and improve the social early warning index system.

### **1. Strengthen the Awareness of Risk among Members in Society**

In the traditional concept of risk management, risk is often seen as a mistake in work and a factor that easily causes social panic and is often deliberately avoided. Coupled with years of steady social development and low incidence of natural risks, the risk awareness of the entire society, both at the government level and at the individual level, is relatively weak. Once the risk strikes, people do not have enough preparations to cope with it due to the long-term lack of sufficient risk awareness and ability. At the government level, due to the lack of a comprehensive risk early warning system and risk response plan, rushed decision-making and passive response often cost double efforts and resources with less satisfying results. At the public level, because the government often considers the stability of the social mentality, the risk-related information is strictly controlled within a small group of individuals. This often causes panic in the public about unknown risks when they have incomplete information. When the risk occurs, people cannot employ an objective attitude to face the risk and also lack the skills to deal with the risk. They can only respond negatively under the panic, which is not conducive to the control of the risk. In modern society, risk has become difficult to be ignored in the process of social development. The goal of risk warning is to control the risk to a small content and minimize the risk destructiveness. Therefore, for the current actual situation, the first thing to do is to strengthen the risk awareness of the whole society and guide the members of the society to look at the risks rationally. Doing so can help strengthen the general public's understanding of risk knowledge and enhance their risk prevention capabilities. There is a need for an unimpeded channel in the dissemination of risk information between the government and the public. Only when the whole society has a rational understanding of risks and master certain risk defense skills, can modern all-round risk warning system be truly established.

### **2. Establish Three-Dimensional Organization Structure for Social Early Warning**

Any effective mechanism is inseparable from an efficient organization. At present, some departments in China, such as fire prevention, sanitation, water conservancy and agriculture, have established corresponding emergency warning agencies. However, due to the lack of unified planning and deployment, there is a lack of regular and institutional communication and contact among institutions. In the case of a major emergency, it is difficult to generate a joint power. In modern society, people may face more risk invasion than ever before, and therefore, the corresponding social early warning system must have a three-dimensional organization with clear responsibilities and strict structure. The three-dimensional organizational structure is different from that of the single social early-warning organizational structure in that the latter was completely dominated by the government in the past. The complexity of modern social risks must not only establish a permanent social emergency warning at the national level but also at all levels of government. The decision-making department and the comprehensive coordination department must also incorporate civil society organizations, professional and technical institutions, and industry experts into the risk early warning system in different forms, thus constituting the three-dimensional organizational structure with all levels of government as the center and with other forms of organization as the peripheral vertical hierarchy and strong horizontal connection. Once

a crisis occurs, it can effectively mobilize the forces of the whole society in a timely and effective manner. Government departments at all levels form a core emergency linkage structure. Experts, professional technical organizations and civil organizations in different research fields take different forms of participation in risk prevention through flexible methods, which can effectively enhance the flexibility of government agencies in dealing with special situations and thus minimize the losses caused by risks.

### **3. Build Operation Platform for the Social Early Warning System**

It has been more than half a century after the modern risk early warning system developed since the post-World War II. Although there are many relevant researches, realistic results have never been achieved in practical applications, not to mention a strong early warning role in social development. The reason is that the lack of a set of early warning system operation platform suitable for the national conditions is the key. For example, in the United States where the social early warning system is relatively complete, various risk emergency plans and contingency plans should be implemented by relying on an emergency platform that integrates the latest technologies and has such functions as risk analysis, monitoring and dynamic decision-making, comprehensive coordination, emergency linkage and assessment. Therefore, the platform can establish a horizontal and vertical interconnected homeland security information network, which can analyze and assess security risks and threats with strong geospatial information support. Establishing such an effective social early warning system requires an integration of multiple scientific fields such as management, sociology, statistics, ecology, informatics and mathematics. Through simulation, the impacts of existing risks on various systems of social development and future development trends can be presented in the form of the equation model. On the basis of this simulation platform, a risk early warning operation platform can be established that embraces subsystems can perform information collection and transmission, data and computer processing, early warning expert analysis feedback, emergency plan formulation and risk control. Through this platform, the efficient scheduling and unified management of the risk warning control center are made possible, and thus response can take place timely and effective when the risk occurs.

### **4. Improve the Social Early Warning Index System**

The index system is the core part of the whole social early warning system. It bears the role of risk sensors. The content and quality of early warning index determine whether the early warning is effective or not. In general, the difficulty of the index system is no more than two: one is the measurability and effectiveness of the indicators and the other is the distribution of weights. The former involves the substance of the indicator and the latter involves methods of statistical measurement. In modern society, the diversity and complexity of risks require risk early warning indicators to be continuously increased, decreased and improved according to the actual situation of the social development. The indexes of the indicators and measurement calibers need to be as consistent as possible with the national statistical information to reduce the complexity of work. Specifically, in the design of content, the attention to risks should be extended from natural risks to social risks. For example, at the institutional level, data needs to be collected in such areas such as the gap between the rich and the poor, corruption, urban, and rural barriers. At the technical level, sufficient information is needed in food safety, genetic pollution, and nuclear control. The concept of generalized risk extends the tentacles of social early warning systems to many aspects of social life. In terms of measurement methods, because different indicators have different degrees



of risk induction, they need to be treated differently in statistics. On the one hand, the determination of weights draws on the mature social warning theory and practice. We should ensure the effectiveness of the index by means of experts from relevant departments, which are proved repeatedly in the local actual situation. According to the information obtained from the index system within the early warning platform, a series of standard statistical procedures can be used to obtain information reflecting the risk status, and then with certain established standard, corresponding to the different alarm intervals, the reference as the next concrete measure can be obtained.

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# **Aproximaciones tecnológicas al robo de neumáticos en la industria del transporte de Nuevo Laredo**

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*La ciudad de Nuevo Laredo Tamaulipas, localizada en uno de los estados fronterizos con Estados Unidos de América es considerada por INEGI como el primer puerto terrestre del norte del país, en él cruzan hacia y desde Estados Unidos 15,850 (ICCE de Nuevo Laredo) tracto camiones al día trasportando mercancías muy variadas. Las cajas tráiler que contienen las mercancías son almacenadas en patios ubicados geográfica y estratégicamente en centros de distribución en ambos países, Estados Unidos y México. Actualmente los índices delictivos en nuestro país se han incrementado, y en consecuencia la empresa transportista se ha visto afectada en dos formas diferentes; el robo de combustible a sus tractos camiones y el robo de llantas a las cajas tráiler.*

*El primer problema fue resuelto con tecnología, colocando sensores en el tanque de combustible y enviando mensajes de texto a través de mensajería instantánea a mandos intermedios cuando se percibían cambios abruptos en los niveles de combustible y el segundo es el robo de neumáticos, es un problema actualmente abierto, sin una solución aún. En el presente artículo se abordan las aproximaciones que los autores han investigado como posibles soluciones a este último problema. Con el uso de transferencias tecnológicas y el uso de tecnologías emergentes los autores presentan los resultados preliminares de las investigaciones realizadas con el fin de mitigar o solucionar el problema de robo de neumáticos.*

**PALABRAS CLAVE** *neumáticos, QR, RFID*

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## **Technological Approaches to the Theft of Tires in the Transport Industry of Nuevo Laredo**

*The city of Nuevo Laredo, Tamaulipas is located in one of the border states with the United States of America. It is considered by INEGI to be the first land port in the north of the country. Through it, 15,850 tractor trucks cross to and from the United States per day transporting varied goods. The trailers that contain the goods are stored in courtyards located geographically and strategically in distribution centers in both the United States and Mexico. Currently the criminal indices of our country have increased, and consequently, carrier companies have been affected in two different ways; fuel theft from their tractor trucks and tire theft from the trailers.*

*The first problem was solved with technology, placing sensors in the fuel tank and texting via instant messaging to intermediate commands when abrupt changes in fuel levels are perceived. The second problem, the tire theft, is an open problem currently with no solution. This article addresses the approaches that the authors have investigated as possible solutions to this last problem. With the use of technology transfers and of emerging technologies, the authors present the preliminary results of the research carried out in order to mitigate or solve the problem of tire theft.*

# Uso y explicación de los comprobantes fiscales digitales por internet para el control de ingresos y egresos en México

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*La manera de comprobar gastos ha evolucionado con el paso del tiempo pasando de ser un simple comprobante que cualquiera podría falsificar a una factura sellada digitalmente a tiempo real mediante un tercero llamado Proveedor Autorizado de Certificación (PAC) Llegando a quedar sellada brindando largas líneas de código e inclusive un código QRSS con el que, mediante un lector de códigos descargable en nuestros móviles podemos confirmar la veracidad de ese comprobante sellado digitalmente.*

*Con el avance del tiempo los comprobantes han pasado innumerables cambios hasta llegar a lo que son hoy en día, siendo un desafío para quienes nunca han visto la estructura o la forma de cómo llenar este tipo de formato necesario en México, y, a pesar de todos los cambios que han tenido, la esencia misma de los comprobantes sigue y seguirá manteniéndose actualización fiscal tras actualización fiscal.*

*The way to prove expenses has evolved with the passing of time, from being a simple document that anyone could falsify, to a digitally sealed invoice in real time through a third party called Authorized Certification Provider (ACP). It is sealed and is comprised of long lines of code. It even provides a QRSS code with which, through a downloadable code reader on our phones, we can confirm the accuracy of the digitally sealed voucher.*

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*As time has progressed, vouchers have gone through innumerable changes until they reach what they are today, presenting a challenge for those who have never seen the structure or the way to fill this type of format in Mexico. Despite all the changes they have gone through, the essence of the vouchers continues and will continue to be maintained fiscal update after fiscal update.*

## **INTRODUCCIÓN**

En México, normalmente para que una persona física o moral justifique las compras y ventas se realiza por medio de una factura, pero como ha habido antecedentes en donde los contribuyentes de personas físicas o morales pueden falsificar las facturas, el Sistema de Administración Tributario (SAT) originó los comprobantes fiscales. En donde sirven de apoyo para que se pueda comprobar los pagos realizados por los contribuyentes y brinda veracidad a todas las operaciones realizadas.

En la actualidad se emiten Comprobantes Fiscales Digitales por Internet (CFDI) en donde facilita a las empresas e individuos, el poder realizar su facturación de forma electrónica, es decir que si a un contribuyente extravía una factura se puede recuperar fácilmente por internet. Además, al subir la contabilidad electrónicamente el SAT también tiene acceso a las facturas emitidas y recibidas por proveedores y clientes. De esa manera el SAT puede vincular la información presentada por ambas partes (proveedores y clientes) y asegurarse de que la información sea la misma y no haya facturas apócrifas.

La expedición de comprobantes fiscales digitales también ayuda al SAT a verificar la cantidad de ingresos y egresos de sus contribuyentes porque un CFDI puede ser tomado como un ingreso para un proveedor y a la misma vez como un egreso para un cliente. Cada CFDI cuenta con un folio fiscal único e irrepetible de treinta y dos caracteres alfanuméricos que al momento de hacer una revisión por parte del SAT, dicho folio tiene que aparecer como vigente y en la base de datos del SAT con la información de sus contra parte, dando como resultado auditorias fiscales de ingresos y egresos más confiables y eficientes.

## **PLANTEAMIENTO DEL PROBLEMA**

¿Qué tan factible puede ser el CFDI como base de las obligaciones fiscales en un país en donde no todo el territorio tiene acceso a internet y no toda la población tiene los conocimientos tecnológicos necesarios?

## **OBJETIVOS**

El siguiente proyecto de investigación tiene como objetivo primario el contestar el planteamiento del problema a investigar y además se pretende con la recolección de información completar los siguientes objetivos:

1. Elaborar un marco teórico que justifique y explique el CFDI
2. Explicar detalladamente la estructura de un CFDI
3. Desarrollar una conclusión donde expresemos nuestra opinión acerca de la veracidad de un sistema tributario basado en CFDI.

## **MARCO TEÓRICO**

### **I. ANTECEDENTES**

#### **II ANTECEDENTES DE LA FACTURACIÓN EN MÉXICO**

La facturación era manejada en formatos físicos, es decir, era necesario darse de alta como contribuyente en el SAT y después de completar el proceso se informaba las imprentas autorizadas por secretaria de hacienda en las cuales podías solicitar la impresión de las facturas.

La impresión era un bloque de 100 facturas cada uno el cual incluía:

- Nombre de la empresa.
- N° de folio.
- Datos del cliente (Nombre, dirección, número de teléfono).

Con el paso del tiempo el SAT decidió realizar modificaciones en el sistema de facturación por dos principales razones: “avance tecnológico” y “evasión de impuestos”. Entre otras razones menos populares se encontraba los altos costos administrativos para las empresas que conllevaba archivar las facturas de manera física por lo menos 5 años.

#### **II.I EVASIÓN DE IMPUESTOS**

Evadir impuestos mediante este sistema era realmente sencillo. Un cliente llegaba a la empresa y realizaba su compra y al momento de pagar comentaba con los vendedores que no requería factura debido a que no deseaba pagar impuestos, y esta compra pasaba a ser ilícita ya que, según los papeles, no había ocurrido ninguna operación.

También era común que los mismos proveedores eran quienes no entregaban factura a sus clientes, ya que al no entregar el formato físico era como si no se hubiese arrancado un folio del bloque por lo cual, tampoco había entrado dinero a la empresa, siendo esto una evasión de impuestos.

#### **II.II AVANCE TECNOLÓGICO**

Debido al avance de la tecnología se volvió común que las empresas tuvieran una computadora en la cual registraban sus operaciones mediante formatos independientes elaborados por ellos para controlar sus ingresos-egresos.

El SAT al percatarse de esto decidió que para tratar de erradicar la evasión de impuestos ahora las empresas debían subir su contabilidad de manera electrónica a la página del SAT, esto incluía la facturación electrónica. Este sistema comenzó en 2005 implementándose el CFD V1

(Comprobante Fiscal Digital). En ese entonces el SAT era el único que permitía la facturación electrónica, sin embargo, al ver el auge que conllevó esta modificación y sin poder satisfacer el público deseado autorizó la facturación electrónica a través de terceros.

## **I.II COMPROBANTE FISCAL POR INTERNET**

En 2011 entra en vigor el esquema CFDI, esto significa que cada factura realizada requería de una certificación emitida en tiempo real a través de un tercero mediante internet, también conocida como “Sello Fiscal Digital”.

Al realizar una factura esta era timbrada, es decir, se emitía una certificación en tiempo real y recibía un sello mediante un PAC (Proveedor Autorizado de Certificación) el cual es único para cada factura y consiste en líneas de números y letras las cuales avalan que ha sido correctamente emitida.

El sustento legal de la obligatoriedad del CFDI se puede encontrar en el artículo 29 del Código Fiscal de la Federación (CFF), el cual establece que cuando las leyes fiscales establezcan la obligación de expedir comprobantes fiscales por los actos o actividades que realicen, por los ingresos que se perciban o por las retenciones de contribuciones que efectúen, los contribuyentes deberán emitirlos mediante documentos digitales a través de la página de internet del SAT.

## **II. CONCEPTO DEL CFDI**

El Comprobante Fiscal Digital por Internet es la conjunción de dos archivos electrónicos que comprueban algún tipo de ingreso, egreso, y otro tipo de actividades económicas. El XML es una secuencia de líneas de código en el cual se encuentra toda la información de la factura previamente emitida, como nombre, producto o servicio, cantidad, sello fiscal digital, entre otros datos de manera codificada debido a que este ocupa menos almacenamiento en los computadores, además de que este archivo es el necesario para poder elaborar nuestras declaraciones fiscales al SAT. El PDF es solo una representación física de la información que contiene el XML de manera más simple y estética.

### **II.I COMPROBANTE FISCAL DIGITAL VERSIÓN 3.3**

Durante el 2017 se toma la decisión que los recibos de nómina también deberán contar con un Sello Fiscal Digital. Desde entonces se les conoció como “complemento de nómina”. También, durante este año el SAT decide publicar los nuevos lineamientos de la versión 3.3 del CFDI.

La versión 3.3 del CFDI se volvió muy polémica ya que esta no solo timbraba las facturas y los recibos de nómina, si no también timbraba los pagos de las facturas. Este cambio produjo problemas e inconformidades entre empresas ya que el proveedor le pedía al cliente el número de cuenta con el que realizaría su pago, además su método de pago (siendo este efectivo, tarjeta de crédito, débito, cheque, etc.) y su plan de pago ya fuera PPD (Pago en Parcialidades o Diferido) o PUE (Pago en Una Exhibición).

Este entro en vigor el 1 de diciembre del 2017 y para ese entonces ya había salido el reglamento de la ley, significando esto que ya estaban establecidas las bases y bien explicado los nuevos campos en la facturación los cuales generaban confusión entre las empresas.

### **III. TIPOS DE CFDI.**

1. Comprobante de ingreso.  
Se emiten por los ingresos que obtiene los contribuyentes, ejemplo: prestación de servicios, arrendamientos, honorarios, donativos recibidos, enajenación de bienes y mercancías, incluyendo la enajenación que se realiza en operaciones de comercio exterior, etc.
2. Comprobante de egreso.  
Las cuales amparan devoluciones descuentos bonificaciones para efectos de deducibilidad y también puede utilizarse para corregir o restar un comprobante de ingresos en cuanto a los montos que documenta, como la aplicación de anticipos. Este comprobante es conocido como nota de crédito, la cual no resta ingreso, no cancela CFDI, es deducción autorizada.
3. Comprobante de nómina.  
Es un pago CFDI que incorpora el complemento recibo de pago de nómina, el cual debe emitirse por los pagos realizados por conceptos de remuneraciones de sueldos, salarios y asimilados a estos, es equivalente a una factura de egreso.
4. Comprobante de traslado.  
Sirve para acreditar la tenencia o posesión legal de las mercancías objeto del transporte durante su trayecto, tanto para el propietario de la mercancía, como para el transportista.
5. Comprobante de recepción de pagos.  
Es un pago CFDI que incorpora un complemento para recepción de pagos (CRP), el cual debe emitirse en los casos de operaciones con pago en parcialidades o cuando al momento de expedir el CFDI no reciban el pago de la contraprestación y facilita la conciliación de las facturas contra pagos.
6. Comprobante de retenciones e información de pagos.  
Se expiden en las operaciones en las cuales se informa de la realización de retenciones de impuestos, incluyendo el caso de pagos realizados a residentes para efectos fiscales en el extranjero y las retenciones que se les realicen; este comprobante no forma parte del catálogo tipo de comprobantes ya que se genera con el estándar contenido en el rubro II del Anexo 20.

### **IV. ESTRUCTURA Y LLENADO DE UN COMPROBANTE FISCAL DIGITAL POR INTERNET VERSION 3.3.**

A continuación se mostraran las bases que debe contener un comprobante fiscal digital por internet de acuerdo al SAT (Servicio de Administración Tributaria, 2017).

**Versión:** Debe tener el valor “3.3”. Consiste el sistema que el contribuyente utiliza para emitir el comprobante.

**Serie:** Contiene el número de serie que utiliza el contribuyente para el control interno de su información. Este debe contener de 1 hasta 25 caracteres alfabéticos.

**Folio:** Es el folio de control interno que asigna el contribuyente al comprobante, puede conformarse desde 1 hasta 40 caracteres alfanuméricos.



**Fecha:** Es la fecha y hora de expedición del comprobante fiscal. Debe de expresarse de la siguiente forma, AAAA-MM-DDThh:mm:ss y debe corresponder con la hora local donde se expide el comprobante.

**Sello:** Este es el sello digital del comprobante fiscal generado con el certificado de sello digital del contribuyente emisor del comprobante, es decir, se sustituye como la firma del emisor del comprobante y lo integra el sistema que utiliza el contribuyente para la emisión del comprobante.

**Forma de pago:** Se debe registrar la clave de la forma de pago de los bienes, la prestación de los servicios, el otorgamiento del uso o goce, o la forma en que se recibe el donativo, contenidos en el comprobante.

- En caso de aplicar más de una forma de pago en una transacción, estos deben incluir en este campo, la clave de forma de pago con la que se liquida la mayor cantidad del pago. En caso de que se reciban distintas formas de pago con el mismo importe, el contribuyente debe registrar a su consideración, una de las formas de pago con las que se recibió el pago de la contraprestación.
- En el caso de que no se recibiera el pago de la contraprestación al momento de la emisión del comprobante fiscal (pago en parcialidades o diferido), los contribuyente deberán seleccionar la clave “99” (por definir) del catálogo FormaPago publicado en el portal del SAT.

En esta ocasión la clave del método de pago debe ser “PPD” (Pago en parcialidades o diferido) y cuando se reciba el pago total o parcial se debe emitir adicionalmente un CFDI al que se le incorpore el “complemento para recepción de pagos” por cada pago que se reciba.

Para realizar algún donativo deberá registrar la clave “12” (Dación en pago).

**NoCertificado:** Es el número que identifica al certificado de sello digital del emisor, el donde se incluye en el comprobante fiscal que utiliza el contribuyente para la emisión.

**Certificado:** Es el espacio del certificado del sello digital del emisor y lo integra el sistema que utiliza el contribuyente para la emisión del comprobante fiscal.

**CondicionesDePago:** Las condiciones comerciales se pueden registrar para el pago de comprobante fiscal, cuando existan estas y cuando el tipo de comprobante sea “I” (Ingreso o “E” (Egreso). Solo se pueden registrar de 1 hasta 1000 caracteres.

**SubTotal:** Es la suma de los importes de los conceptos antes de descuentos e impuestos. No se permiten valores negativos.

- Este campo debe tener hasta la cantidad de decimales de acuerdo a la base de la moneda.
- Cuando en el campo “TipoDeComprobante” sea “I” (Ingreso), “E” (Egresos) o “N” (Nómina), el importe que se registra debe ser igual al redondeo de la suma de los importes de los conceptos registrados.

- Cuando en el campo “TipoDeComprobante” sea “T” (Traslado) O “p” (Pago) el importe registrado en este campo debe ser igual a cero.

Descuento: Se puede registrar el importe total de los descuentos aplicables antes de impuestos. Igualmente no se permiten valores negativos. Se debe registrar cuando existan conceptos con descuento.

- Debe tener hasta la cantidad de decimales dependiendo el tipo de moneda.
- El valor registrado debe ser menor o igual que el campo del Subtotal.
- Cuando en el campo TipoDeComprobante sea “I” (Ingreso), “E” (Egreso) o “N” (Nomina), y algún concepto que incluya un descuento debe ser igual al redondeo de la suma de los campos Descuento registrados en los conceptos; en otro caso se debe omitir este campo.

Moneda: Se debe registrar la clave de la moneda utilizada para expresar los montos, cuando se usa la moneda nacional se registra “MXN”, conforme con la especificación ISO 4217.

TipoCambio: Se puede registrar conforme a la moneda registrada en el comprobante. Cuando la clave de moneda sea distinta de “MXN” (Peso Mexicano) y a la clave “XXX” (Los códigos asignados para las transacciones en que intervenga ninguna moneda). El valor debe reflejar el número de pesos mexicanos que equivalen a una unidad de la divisa señalada en el atributo moneda. Si el valor esta fuera del porcentaje aplicable a la moneda tomado del catálogo, el emisor debe obtener del PAC que vaya a timbrar el CFDI, de manera no automática, una clave de confirmación para ratificar que el valor es correcto e integrar dicha clave en el atributo Confirmación.

Total: Es la suma del subtotal, menos los descuentos aplicables, mas las contribuciones recibidas (impuestos trasladados) menos los impuestos retenidos federales o locales. No se permiten valores negativos.

TipoDeComprobante: Se debe registrar la clave con la que se identifica el tipo de comprobante fiscal para el contribuyente emisor. Cuando el “TipoDeComprobante” sea “T” (Traslado), “P” (Pago) o “N” (Nomina), no debe existir el campo “CondicionesDePago” y Modo Impuestos. Para los “T” (Traslado) o “P” (Pago) no se incluyen los descuentos y los campos “FormaPago” y “MétodoPago.”

MétodoPago: Se debe registrar la clave que corresponda dependiendo de si se paga en una sola exhibición o en parcialidades.

Se debe registrar la clave “PUE” (Pago en una sola exhibición) cuando se realice el pago al momento de emitir el comprobante.

La clave “PPD” (Pago en parcialidades o diferido) cuando se emita el comprobante de la operación y en donde se vaya a liquidar en un solo pago el saldo total o en varias parcialidades.

LugarExpedición: Se debe registrar el código postal del lugar de expedición del comprobante (domicilio de la matriz o de la sucursal), debe corresponder con una clave de código postal incluida en el catálogo.

En una sucursal, se debe registrar el código postal de ésta, independientemente de que los sistemas de facturación de la empresa se encuentre en un domicilio distinto al de la sucursal.

Confirmación: Se debe registrar la clave de confirmación única e irrepetible que entrega el proveedor de certificación de CFDI o el SAT a los usuarios para expedir el comprobante con importes o tipo de cambio fuera del rango establecido o en ambos casos. Se deben registrar valores alfanuméricos de 5 posiciones.

Nodo CDFI relacionados: En este nodo se puede expresar la información de los comprobantes fiscales relacionados.

TipoRelación: Se debe registrar la clave de la relación que existe entre este comprobante que se está generando y el o los CFDI previos.

#### Catálogo de tipo de relación

- 01: Nota de crédito de los documentos relacionados.
- 02: Nota de débito de los documentos relacionados.
- 03: Devolución de mercancía sobre facturas o traslados previos.
- 04: Sustitución de los CFDI previos.
- 05: Traslados de mercancías facturados previamente.
- 06: Factura generada por los traslados previos.
- 07: CFDI por aplicación de anticipo.

UUID: Campo requerido para registrar los 36 caracteres del folio fiscal (UUID) relacionado con el presente comprobante.

RFC (emisor): Se requiere para registrar la Clave del Registro Federal de Contribuyentes del emisor del comprobante. En caso de que el emisor sea una persona física, este debe contener una longitud de 13 caracteres y en personas morales una longitud de 12 caracteres.

Nombre (emisor): Atributo opcional para registrar el nombre, denominación o razón social del contribuyente emisor del comprobante.

Régimen Fiscal: Se registra la clave del país de residencia para efectos fiscales del receptor del comprobante.

RFC (Receptor): Se registra la Clave del Registro de Contribuyentes del receptor del comprobante. En personas físicas una longitud de 13 caracteres y personas morales una longitud de 12 caracteres.

**Nombre (Receptor):** Se debe registrar el nombre, denominación o razón social del contribuyente receptor a registrar en el comprobante.

**ResidenciaFiscal:** Campo condicional para registrar la clave del país de residencia para efectos fiscales del receptor del comprobante. Si la residencia fiscal de la empresa receptora es extranjera se debe registrar la clave del país de residencia para efectos fiscales del receptor del comprobante.

**NúmRegldTrib:** Se expresa el número de registro de identidad fiscal del receptor en dado caso que el receptor se encuentre en el extranjero, es obligatorio cuando se incluya el complemento de comercio exterior. Tiene que tener una longitud de 1 hasta 40 caracteres.

**UsoCFDI:** Se registra la clave que corresponda al uso que le dará al comprobante fiscal el receptor, en caso que se emita un CDFI a un residente en el extranjero con su RFC, este se debe registrar la clave "PP01" (Por definir).

**ClaveProdSer:** Atributo requerido para expresar la clave del producto o del servicio amparado por el presente concepto. Es requerido y debe utilizar las claves del catálogo de productos y servicios, cuando los conceptos que registren correspondan con dichos conceptos.

**NoIdentificación:** En este campo es opcional para expresar el número de parte, identificador del producto o servicio, la clave de producto o servicio, SKU (Numero de referencia) o equivalente, propia de la operación del contribuyente emisor del comprobante fiscal descrito en el presente concepto. Se puede utilizar claves estándar GTIN (número global de artículo comercial) y puede conformarse de 1 hasta 100 caracteres alfanuméricos.

**Cantidad:** Campo para precisar la cantidad de bienes o servicios del tipo particular definido por el presente concepto, puede contener de cero hasta seis decimales.

**ClaveUnidad:** Se requiere para precisar la clave de unidad de medida estandarizada aplicable para la cantidad expresada en el concepto. La unidad debe corresponder con la descripción del concepto.

**Unidad:** Este campo es opcional para precisar la unidad de medida propia de la operación del emisor, aplicable para la cantidad expresada en el concepto. La unidad debe corresponder con la descripción del concepto.

**Descripción:** Requiere la descripción del bien o servicio cubierto por el presente concepto. Puede conformarse de 1 hasta 1000 caracteres alfanuméricos.

**ValorUnitario:** En este campo se debe registrar el valor o precio unitario del bien o servicio: por cada concepto, el cual puede contener de cero hasta seis decimales.

**Importe:** Atributo requerido para precisar el importe total de los bienes o servicios del presente concepto. Debe ser equivalente al resultado de multiplicar la cantidad por el valor unitario expresado en el concepto. No se permiten valores negativos.

Descuento: Atributo opcional para representar el importe de los descuentos aplicables al concepto. No se permiten valores negativos.

Base: Campo requerido para señalar la base para el cálculo del impuesto, la determinación de la base se realiza de acuerdo con las disposiciones fiscales vigentes. No se permiten valores negativos.

Impuesto: Se debe registrar la clave del tipo de impuesto trasladado aplicable a cada concepto.

TipoFactor: Campo que se requiere para señalar la clave del tipo de factor que se aplica a la base del impuesto.

TasaOCuota: Se puede registrar el valor de la tasa o cuota del impuesto que se traslada para cada concepto. Es requerido cuando el atributo “Tipo de Factor” tenga una clave que corresponda a tasa o cuota.

Importe: Señala el importe del impuesto trasladado que se aplica al concepto. No se permiten valores negativos. Es requerido cuando el tipo de factor sea tasa o cuota. En caso de que un concepto contenga impuesto retenido por tasa o cuota debe registrarse en diferentes apartados.

Base: Campo donde se requiere para señalar la base para el cálculo de la retención, la determinación de la base se realiza de acuerdo con las disposiciones fiscales vigentes. No se permiten valores negativos. En dado caso que el campo “Tipo de factor” sea tasa este debe tener hasta la cantidad de decimales que soporte la moneda y si es cuota debe tener hasta 6 decimales.

Impuesto: Es requerido para señalar la clave del tipo de impuesto retenido aplicable al concepto.

TipoFactor: Campo requerido para señalar la clave del tipo de factor que se aplica a la base del impuesto.

TasaOCuota: Campo para señalar la tasa o cuota del impuesto que se retiene para cada concepto. Si el valor es fijo debe corresponder al tipo de impuesto y tipo de factor conforme catálogo. Cuando el valor sea variable debe corresponder al rango entre el valor mínimo y valor máximo del catálogo de tasa o cuota. Si la retención del IVA es del 16% se registra 0.160000 y si la retención del IVA sea del 4% se registra 0.040000.

Importe: Se debe registrar el importe retenido que aplica a cada concepto. No se permiten valores negativos. En este campo para introducir la información aduanera aplicable cuando se trae de ventas de primera mano de mercancías importadas o se trate de operaciones de comercio exterior con bienes o servicios.

NumeroPedimento: Campo requerido para expresar el número del pedimento que ampara la importación del bien que se expresa en el siguiente formato. Últimos 2 dígitos del año de validación seguidos por dos espacios, 2 dígitos de la aduana de despacho seguidos por dos

espacios, 4 dígitos del número de la patente seguidos por dos espacios, 1 dígito que corresponde al último dígito del año en curso, salvo que se trate de un pedimento consolidado iniciado en el año inmediato anterior o del pedimento original de una rectificación, seguido de 6 dígitos de la numeración progresiva por aduana. Se debe registrar cuando no contenga el CFDI el complemento de comercio exterior.

En la cuenta predial se puede expresar el número de cuenta predial con el que fue registrado el inmueble en el sistema catastral de la entidad federativa de que trate o bien para incorporar os datos de identificación del certificado de participación inmobiliaria no amortizable.

Número: Atributo requerido para precisar el número de la cuenta predial del inmueble cubierto por cada concepto o bien, para incorporar los datos de identificación del certificado de participación inmobiliaria no amortizable, tratándose de arrendamientos. En caso de que la cuenta predial este conformada por números y letras, estas últimas se sustituirán con el número cero y se debe registrar en el campo “descripción” el numero de la cuenta predial con los números y letras, tal cual está conformada.

El nodo complemento concepto se incluye los nodos complementarios de extensión al concepto definidos por el SAT, de acuerdo con las disposiciones particulares para un sector o actividad específica.

En nodo parte se pueden expresar las partes componentes que integran la totalidad del concepto expresado en el CFDI.

ClaveProdServ: Campo requerido para expresar la clave del producto o del servicio amparado por la presente parte. Es requerido y debe utilizar las claves del catalogo de productos y servicios, cuando los conceptos que registren por sus actividades correspondan con dichos conceptos.

NoIdentificación: Campo para expresar el número de serie número de parte del bien o identificador del producto o del servicio amparado por la presente parte. Opcionalmente se puede utilizar claves del estándar GTIN (numero de articulo de comercio global). Puede conformarse desde 1 hasta 100 caracteres alfanuméricos.

Cantidad: Atributo requerido para precisar la cantidad de bienes o servicios del tipo particular definido por la presente parte.

Unidad: Campo opcional para precisar la unidad de medida propia de la operación del emisor, aplicable para la cantidad expresada en la parte. La unidad debe corresponder con la descripción de la parte. Puede conformarse desde 1 hasta 1000 caracteres alfanuméricos.

ValorUnitario: Atributo opcional para precisar el valor o precio unitario del bien o servicio cubierto por la presente parte. No debe contener números negativos.

**Importe:** Atributo opcional para precisar el importe total de los bienes o servicios de la presente parte. Debe ser equivalente al resultado de multiplicar la cantidad por el valor unitario expresado en la parte, el cual debe ser mayor que cero.

Nodo de información aduanera, es opcional para introducir la información aduanera aplicable cuando se trate de ventas de primera mano de mercancías importadas o se trate de operaciones de comercio exterior con bienes o servicios.

**NúmeroPedimento:** Atributo requerido para expresar el número del pedimento que ampara la información del bien que se expresa en el siguiente formato: últimos 2 dígitos del año de validación seguidos por dos espacios, 2 dígitos de la aduana de despacho seguidos por dos espacios, 4 dígitos del número de la patente seguidos por dos espacios, 1 dígito que corresponde al último dígito del año en curso, salvo se trate de un pedimento consolidado iniciado en el año inmediato anterior o del pedimento original de una rectificación, seguido de 6 dígitos de la numeración progresiva por aduana.

Nodo opcional de los impuestos para expresar el número de los impuestos aplicables.

**TotalImpuestosRetenidos:** Atributo condicional para expresar el total de los impuestos retenidos que se desprenden de los conceptos expresados en el CFDI. Es requerido cuando en los conceptos se registren impuestos retenidos. Debe de ser igual a la suma de los importes registrados en la sección retenciones.

**Total Impuestos Traslados:** Atributo condicional para expresar el total de los impuestos trasladados que se desprenden de los conceptos expresados en el CFDI, debe ser igual a la suma de los importes registrados en la sección trasladados. Es requerido cuando en los conceptos se registren impuestos trasladados.

Nodo retenciones, es condicional para capturar los impuestos retenidos aplicables. Es requerido cuando en los conceptos se registre algún impuesto retenido.

Nodo retención, es requerido para la información detallada de una retención de impuesto específico.

**Impuesto:** Atributo requerido para señalar la clave del tipo de impuesto retenido.

**Importe:** Atributo requerido para señalar el monto del impuesto retenido.

Nodo trasladados, es condicional para capturar los impuestos trasladados aplicables, es requerido cuando en los conceptos se registre un impuesto trasladado. En caso de que solo existan conceptos en el CFDI con un tipo de factor exento, este nodo no debe existir.

Nodo traslado, es requerido para la información detallada de un traslado de impuesto específico.

**Impuesto:** Atributo requerido para señalar la clave del tipo de impuesto trasladado.

TipoFactor: Atributo requerido para señalar la clave del tipo de factor que se aplica a la base del impuesto.

TasaOCuota: Atributo para señalar el valor de la tasa o cuota del impuesto que se traslada por los conceptos amparados en el comprobante.

Importe: Atributo requerido para señalar la suma del importe del impuesto trasladado, agrupado por impuesto, tipo de factor y tasa o cuota.

Nodo complemento, es opcional donde se incluye el complemento “Timbre Fiscal Digital” de manera obligatoria y los nodos complementarios determinados por e SAT, de acuerdo con las disposiciones particulares para un sector o actividad específica.

Nodo addednda, es opcional para recibir las extensiones al presente formato que sean de utilidad al contribuyente. Para las reglas de uso del mismo, referirse al formato origen.

## **V. CANCELACIÓN DE UN CFDI.**

Una duda recurrente acerca de la implementación de una factura digital era saber el proceso a seguir al momento de corregir o re facturar un archivo digital (CFDI). Lo anterior es de suma importancia debido a que la información que contienen las facturas digitales y/o físicas, son susceptibles al error humano. Es decir, que aunque el concepto y la implementación de un CFDI sea correcto, la información que contiene puede estar incorrecta, haciendo que el CFDI no sea válido. Por lo anterior, la autoridad fiscal decidió implementar un proceso para la cancelación de facturas digitales.

De acuerdo al artículo 29-A del CFF, párrafo 4to y 5to, es necesario que la persona o empresa a favor de quien se expida el CFDI autorice la cancelación del mismo. Lo anterior para evitar cancelaciones de facturas por parte del emisor de manera arbitraria y dolosa. De la misma manera, el receptor también puede solicitar al emisor la cancelación del CFDI, lo anterior por diversos motivos, como lo son: error en el RFC del cliente, error en la forma de pago, error en el método de pago, clave incorrecta del producto o servicio, clave incorrecta de la unidad y medida, descripción incorrecta del producto o servicio, cancelación de la operación, etc (Diario Oficial de la Federación, 2017).

Si el emisor desea cancelar un CFDI es necesario que realice una solicitud de cancelación de CFDI, la cual llegara al receptor mediante su buzón tributario. Si el receptor no contesta la solicitud en los siguientes tres días, se dará por entendido que acepta la cancelación del CFDI.

No obstante, existen ciertos escenarios en los que no es necesario que el receptor no autorice la cancelación los cuales son:

- Que no excedan el monto de 5,000 pesos
- Por concepto de nómina
- Por concepto de egresos
- Por concepto de traslado
- Por concepto de ingresos expedidos a contribuyentes del RIF.



- Emitidos a través de la herramienta electrónica “Mis cuentas” en aplicativos “Factura fácil”.
- Que amparen retenciones e información de pagos.
- Expedidos en operaciones realizadas con el público en general de conformidad con la 2.7.1.24.
- Emitidos a residentes en el extranjero (RFC genérico).
- Cuando la cancelación se realice de los tres días siguientes a su expedición.
- Por concepto de ingresos de enajenación de bienes, uso temporal de bienes inmuebles, uso goce de terreno y contribuyentes que se dedique exclusivamente a actividades AGAPES.
- Emitidos por los integrantes del sistema financiero.

## CONCLUSIÓN

El uso del CFDI como base fundamental de un sistema tributario es una buena elección por parte de las autoridades de la Secretaría de Hacienda y Crédito Público (SHCP). Las ventajas que ofrece dicho tipo de comprobantes son numerosas y de gran beneficio para la recaudación de contribuciones, ya que, obliga a todos los contribuyentes (personas físicas y/o morales) al respaldar sus ingresos o sus gastos mediante un CFDI, el cual eventualmente se sube a la base de datos del SAT.

Lo anterior disminuye el número de evasiones fiscales y ayuda a recaudar más contribuyentes a la autoridad tributaria. El CFDI obliga a los comerciantes y/o prestadores de servicios a darse de alta como contribuyentes porque de lo contrario no podrían ofrecer sus productos o servicios a las grandes empresas debido a que no emiten facturas fiscales. Es decir, la captación de contribuyentes aumentó por necesidad de seguir ofreciendo sus productos y/o servicios.

Por otra parte, el uso de CFDI como piedra angular de un sistema tributario cien por ciento confiable no es del todo verdadero, ya que, aquellos contribuyentes que no tengan acceso a internet o desconozcan el uso de la tecnología, se les permite juntar notas de remisión o cualquier control de ingresos o gastos para hacer una estimación de sus ingresos y egresos fiscales. Después, al final del mes acudir a una oficina del SAT para hacer su pago de impuestos mensual, lo que causa incertidumbre en la veracidad de sus notas de remisión o control de ingresos y gastos. Lo anterior causa que el pago de impuestos de los “pequeños contribuyentes” no sea de todo confiable. No obstante a los “grandes contribuyentes” si se les exige un CFDI por cada gasto y por cada ingreso que perciban, es decir, todos aquellos que pagan mayor cantidad de impuestos se les exige en mayor medida que aquellos que pagan poco. En otras palabras, un sistema tributario basado en CFDI exige y da más prioridad a las grandes empresas que a los pequeños comerciantes.

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# **Análisis de la productividad de la industria automotriz mexicana: Resultados empíricos**

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*El crecimiento de la productividad es la principal fuente de crecimiento económico moderno. En caso de que los valores de productividad se incrementen, las empresas alcanzarían volúmenes de producción superiores con un cierto nivel de entradas, obteniendo ganancias que incrementan los ingresos y enriquecen los niveles de vida. La industria automotriz juega un papel determinante en la economía de México, en el año 2017 de cada 100 pesos de productos manufactureros, se estimaba que 20 pertenecían al sector automotriz. Por otro lado se efectuaron exportaciones, las cuales lograron situar a México en el cuarto lugar de los países que fueron mayores exportadores. En esta investigación se realizó un estudio acerca los estudios empíricos que abordan la relación entre la productividad de la industria automotriz y diversos factores que fueron determinados en estudios previos, los cuales fueron los recursos humanos, la tecnología, la flexibilidad laboral-fabricación, la innovación, los proveedores y la cooperación. El objetivo de esta investigación analizar estudios empíricos que demuestren la relación entre la productividad del sector automotriz y diversos factores.*

*PALABRAS CLAVE* *productividad, factores, industria automotriz*

*Productivity growth is the main source of modern economic growth. In the event that productivity values increase, companies would reach higher production volumes with a certain level of income, obtaining profits that increase income and enrich living standards. The automotive industry plays a decisive role in the economy of Mexico. In 2017, out of every 100 pesos of manufacturing products, it is estimated that 20 belonged to the automotive sector. On the other hand, Mexico's exports placed them in fourth place among the countries that were the largest exporters. In this article, a study was conducted on empirical studies that address the relationship between the productivity of the automotive industry and various factors that were determined in previous*

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*studies, which were human resources, technology, labor-manufacturing flexibility, innovation, suppliers, and cooperation. The objective of this study is to analyze empirical studies that demonstrate the relationship between the productivity of the automotive sector and various factors.*

**KEYWORDS** *productivity, factors, automotive industry*

## **I. INTRODUCCIÓN**

La producción total de vehículos a nivel mundial en el año 2018, fue superior a los 91 millones, esto constituyó un descenso de la producción automotriz, debido a que en 2017 la producción fue de más de 97 millones, por lo tanto la producción automotriz a nivel mundial sufrió una disminución del 5.9%. Examinando específicamente el caso de México se investigó que la producción automotriz aumento en un 152% de 1999 al 2018, esto posiciono al país entre los 7 primeros países productores de vehículos a nivel mundial (OICA, 2019).

Durante los últimos años cuantiosos investigadores han analizado el tema de las variaciones de productividad, se han centrado en la pregunta de cómo es posible que algunas empresas aunque tengan las mismas capacidades productivas, puedan tener diferentes valores de productividad. Algunos autores piensan que podría ser suerte, o de los productores. En la actualidad hay una urgente necesidad de mejora continua de la productividad, pero los estudios que analizan los factores que inciden en la productividad en la industria automotriz son muy escasos (Nallusamy & Ahamed, 2017).

Por todo lo analizado anteriormente esta investigación está dirigido a estudiar realizando una revisión de estudios empíricos cuales son los factores que más estudios empíricos analizan como factores que influyen en la productividad. Por lo que el objetivo del mismo sería analizar los estudios empíricos de los factores que influyen en la productividad de la industria automotriz. Enfocados en dar cumplimiento al objetivo se efectuará una revisión de literatura que permitirá determinar los factores que según diferentes autores influyen en el comportamiento de la productividad y de igual manera enlistar los ítems que se mencionan en cada estudio, como influyentes en cada uno de los factores.

## **II. MARCO TEÓRICO**

### **Análisis descriptivo de la industria automotriz**

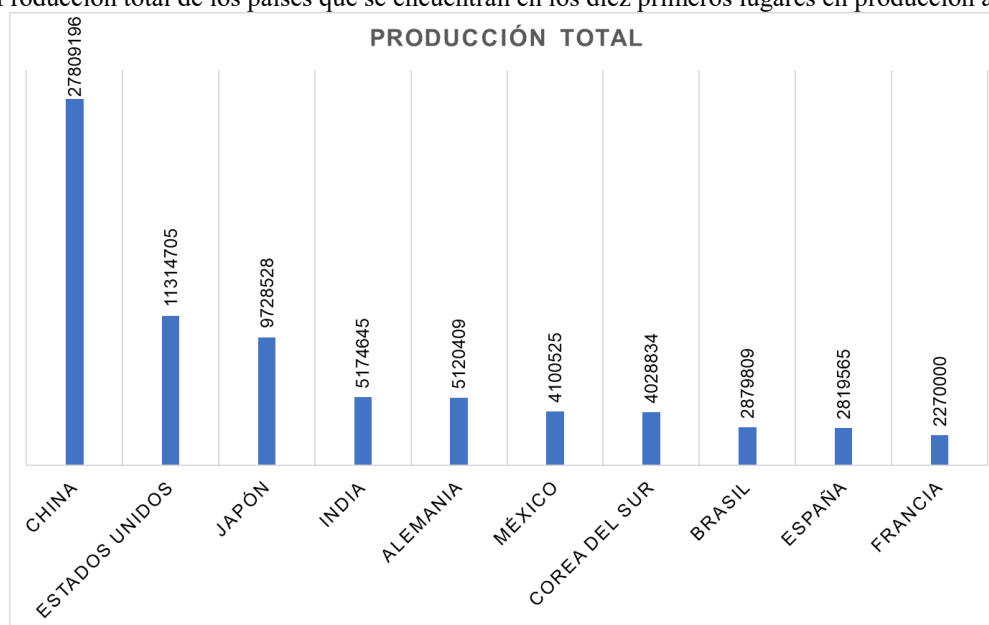
#### **La industria automotriz mundial**

La producción ampliamente especializada en diversos sectores constituye la base para el desarrollo de la economía global moderna. Los sectores económicos de alta tecnología y de capital intensivo, que presentan los últimos logros del progreso tecnológico en el mundo y satisfacen las necesidades humanas esenciales, parecen ser los más dinámicos. La industria automotriz global es un ejemplo perfecto del sector económico global, ya que las características definitorias por un lado, los principios de su organización, por el otro: la escala de actividades y el papel clave que desempeña

en ambas economías de algunos estados y en la economía global en general. Por lo tanto, la investigación científica sobre los factores del desarrollo del sector automotriz se considera altamente relevante (Agethen, Gaisbauer, Otto, & Rukzio, 2018).

Los cambios en la demanda de vehículos motorizados se deben, en primer lugar, a la transición del ciclo de vida de la industria en los países desarrollados a la etapa de saturación, cuando la oferta comienza a superar la demanda; En segundo lugar, por el éxito económico de los países en desarrollo, donde la enorme necesidad insatisfecha de automóviles de pasajeros se convierte en una demanda efectiva, a medida que las economías nacionales crecen y los ingresos aumentan. La producción total de los 10 países que son los mayores productores de la industria automotriz a nivel mundial se puede observar en la figura 1, la misma evidencia que China en el 2018 obtuvo el primer lugar, mientras que México se encuentra en el sexto (OICA, 2018).

**Figura 1:** Producción total de los países que se encuentran en los diez primeros lugares en producción automotriz



Fuente: Elaboración propia (OICA, 2018)

### La industria automotriz mexicana

La producción automotriz en México posee una larga historia. En 1925 Ford abrió su primera fábrica. Posteriormente en la década de 1960 la compañía europea Volkswagen trasladó su producción a México. En los años 1960 y 1970, el sector automotriz se concentró en el centro del país. El gobierno mexicano reglamentó la inversión extranjera directa [FDI] mediante la implementación de la industrialización por sustitución de importaciones. El Gobierno tenía un control con el que supervisaban la cantidad de fábricas que los inversionistas extranjeros abrían en el país, ya que estaba limitado el número de fábricas así como el volumen de producción que se podía exportar. Las empresas transnacionales estaban obligadas a comprar las piezas de repuestos y los servicios a empresas mexicanas. Sin embargo, en la década de 1980, las fábricas automotrices comenzaron a reubicar la producción hacia la frontera norte para aprovechar el Programa de Maquila. La mayoría de estas instalaciones recientemente reubicadas se mudaron de los Estados

Unidos. Las inversiones más importantes fueron de Ford en Sonora y General Motors en Tamaulipas y Coahuila. Una de las principales diferencias en estas nuevas maquiladoras fue la restricción al ensamblaje en lugar de la producción (Quintero, C. & Marinero, 2019).

## **Productividad**

La productividad es uno de los factores más importantes que afectan a cualquier empresa. Para mejorar la productividad, la producción en el sitio debe medirse regularmente y luego compararse con los puntos de referencia estándar aceptables. En su forma más simple, la productividad laboral podría definirse como las unidades de trabajo realizadas por las horas de trabajo divididas. Sin embargo, en realidad, la productividad laboral es un fenómeno mucho más complejo que depende en gran medida de factores muy diversos, como las condiciones del sitio, la competencia de los trabajadores, la disponibilidad de materiales, el clima, la motivación, la supervisión, por nombrar solo algunos. La gestión también afecta la productividad laboral (Enshassi, Mohamed, Mayer, & Abed, 2007).

El origen de la palabra productividad se remonta a 1766 cuando se mencionó por primera vez en un artículo de Quesnay. Más de un siglo después, en 1883, se definió la productividad como la "capacidad de producir", es decir, el deseo de producir. A principios del siglo XX, se desarrolló una definición más precisa que planteaba que era la relación entre el producto y los medios empleados para producir ese producto. En 1950, la Organización para la Cooperación Económica Europea (OECE) introdujo una definición formal de productividad que decía que era un cociente obtenido al dividir la producción por uno de los factores de producción. En consecuencia, se hizo posible hablar de la productividad del capital, la inversión o las materias primas de acuerdo con si la producción se está considerando en relación con el capital, la inversión o las materias primas (Jarkas & Bitar, 2011).

## **Recursos humanos**

A medida que el entorno empresarial se vuelve más competitivo, los recursos humanos de las empresas se vuelven más importantes para el éxito empresarial. La gestión estratégica de recursos humanos es el patrón del recurso humano donde se planifican implementaciones y actividades destinadas a permitir que la empresa logre sus objetivos. El dominio de la gestión de recursos humanos estratégica consiste en encontrar los determinantes de las decisiones sobre las prácticas de recursos humanos, la composición del grupo de recursos de capital humano, la especificación de los comportamientos de recursos humanos requeridos y la efectividad de estas decisiones utilizando diversas estrategias comerciales y / o situaciones competitivas (Wright & McMahan, 2011).

Con el propósito de demostrar la realización entre los recursos humanos y la productividad Koch & Mcgrath (1996) realizaron una investigación en la que utilizaron estadísticas descriptivas y correlaciones de primer orden entre las variables. Probaron el modelo utilizando análisis de regresión OLS y luego lo probaron con la corrección de sesgo de selección de muestra. Los resultados del Modelo respaldan la hipótesis que postulaba un efecto positivo sobre la productividad laboral de las inversiones en planificación y evaluación de recursos humanos e inversiones en reclutamiento y selección. Dos índices de política de gestión de recursos humanos

tuvieron efectos positivos y significativos al nivel de 5% o mejor, pero el índice de planificación de recursos humanos tuvo el mayor efecto (0.27) en la productividad laboral.

Por otro lado se analizó una investigación donde tratan de probar que un sistema de prácticas de recursos humanos utilizado ampliamente para dotar a todos los empleados de una fuerza laboral con mayor habilidad y compromiso debería ofrecer mayores ventajas en las industrias intensivas en mano de obra que en las intensivas en capital. Utilizaron análisis jerárquicos de regresión de mínimos cuadrados ordinarios [MCO]. El modelo 1, que incluía las variables de control y características de la industria, explicaba casi el 42% de la variación en la productividad laboral. Los resultados del modelo 2 indicaron una asociación positiva entre el uso más extenso de prácticas de sistemas de trabajo de alto rendimiento y la productividad ( $p < 0.05$ ). La introducción de la variable de sistemas de trabajo de alto rendimiento explicó un 1.6% adicional de la variación en la productividad de la fuerza laboral (Datta et al., 2005).

Chadwick, Way, Kerr, & Thacker (2013) desarrollaron un proyecto donde utilizaron una muestra de pequeñas empresas canadienses con fines de lucro, del sector privado, con menos de 100 empleados para examinar las condiciones límite de la relación entre los sistemas de recursos humanos de alta inversión a nivel de empresa y la productividad. Realizaron estadísticas descriptivas y correlaciones. Usaron análisis de regresión múltiple moderada por mínimos cuadrados ordinarios [OLSMMR] para probar la hipótesis. Ingresaron las variables en tres pasos y realizaron 6 modelos. Como resultados obtuvieron que la estrategia de diferenciación y relación entre los sistemas de recursos humanos de alta inversión [HIHRS] están significativamente relacionados con la productividad laboral ( $\beta = -0.99$ ;  $p < 0.01$ ). Por lo tanto, la hipótesis está respaldada por los resultados.

También como parte de la investigación se revisó un estudio cuyo propósito era presentar evidencia sólida sobre los efectos de los sistemas de gestión de recursos humanos [HRM] en la productividad. El propósito del estudio se logra a través de un sistema de ecuaciones simultáneas que se estimó y se simuló, basado en una función de producción de Cobb-Douglas aumentada, que de forma innovadora se transformó de estática a dinámica. El estudio respalda la opinión de que HRM tiene un impacto positivo en la productividad, a través de las habilidades, actitudes y comportamiento de los empleados. Además se encuentra que un aumento del 10% en el alcance del uso sistemático de las prácticas de recursos humanos conducirá a un aumento del 3,27% de la productividad, y que la compensación e incentivos de los empleados juegan el papel más importante en la mejora de la eficiencia de la producción. Además por cada año adicional de uso sistemático de las prácticas de recursos humanos, la productividad aumentará en un 0.07 % (Katou & Budhwar, 2015).

Birdi et al. (2008) investigaron los méritos relativos de las prácticas del empoderamiento, la capacitación extensiva, el trabajo en equipo, la fabricación integrada y la producción ajustada, dentro de la perspectiva de la gestión estratégica de recursos humanos [SHRM], a través de un estudio de la productividad de 308 empresas durante 22 años, tiempo durante el cual implementaron algunas o todas estas prácticas. La hipótesis utilizada declara que cada una de las prácticas de gestión conduciría a una productividad mejorada de la empresa. Para probar esto en el proceso de modelado, agregamos la medida dicotómica de cada uso de práctica por separado al modelo de referencia como un efecto fijo, y permitieron pendientes aleatorias para estos efectos.

Como resultado obtuvieron que el empoderamiento ( $\beta = 0.068$ ,  $p < 0.01$ ) y la capacitación extensiva ( $\beta = 0.063$ ,  $p < 0.01$ ) tienen un efecto principal positivo significativo sobre la productividad. Los efectos fijos de las otras prácticas restantes no son estadísticamente significativos.

## **Tecnología**

La tecnología ha estado en el centro de la evolución de la economía mundial y el crecimiento de los negocios internacionales durante los últimos cincuenta años. La tecnología son las herramientas y máquinas que se usan para resolver problemas del mundo real, además es el resultado tangible de las ideas y la creatividad. En el desarrollo global los ciclos tecnológicos son cada vez más rápidos y la imitación se está volviendo más rápida, lo que obliga a las empresas a centrarse más en el conocimiento de nivel superior y las capacidades para crear valor (Andersson et al., 2016).

En la revisión de literatura se encontró una investigación que tenía como propósito estudiar las características de los trabajadores en la economía informal y explorar las razones por las cuales los trabajadores migran del área rural a la urbana. A partir de datos empíricos recopilados a través de entrevistas, el estudio presenta los resultados de una encuesta realizada en 2017. Los datos fueron recolectados mediante la realización de encuestas de campo utilizando un cuestionario estructurado. A los datos recopilados se le aplicó productividad estándar y técnicas de contabilidad de crecimiento. Entre los resultados obtenidos se destaca que los clientes diariamente utilizan unidades informales, las cuales son proveedores de servicios que ofrecen servicio en la puerta. La mayoría son menos educados y carecen de habilidades técnicas. Debido al aumento de la competencia y la tecnología, estas empresas están rezagadas, y sus ganancias se han visto afectadas y su productividad es casi insignificante. El 43.6 % de los encuestados cree que mantenerse al día con la tecnología es esencial para ellos (Jha & Bag, 2019).

Las compensaciones tecnológicas relacionadas con las mejoras continuas e incrementales generalmente brindan aumentos de un solo dígito en la productividad. Se revisó un estudio que evalúa el impacto de las nuevas tecnologías en la productividad del sector del cobre, a través de los cambios en el consumo de energía y la recuperación de metales. Este estudio compara los cambios de productividad tanto en los regímenes tecnológicos antiguos como en los nuevos. En el estudio se encontró que la intensidad de la energía aumenta a un ritmo creciente, mientras que la recuperación de recursos disminuye a un ritmo creciente con la degradación, siempre que la tecnología sea constante. La recuperación cae en 0,74 puntos porcentuales para una caída de 0,05 puntos porcentuales en la calificación de 0,7 a 0,65%, pero disminuye en 1,49 puntos porcentuales cuando la calificación cae de 0,50 a 0,45%. La intensidad de energía sube significativamente (aproximadamente dos veces) a medida que el valor de la calificación cae por debajo del 0,50%. Esto, junto con una caída significativamente mayor en la recuperación puede conducir a una caída dramática en la productividad al incumplir este valor de grado de 0.50% (Mitra, 2019).

Yamamura & Shin (2007) realizaron una investigación y entre sus objetivos tenían el de estudiar la relación de la productividad con la tecnología, para esto consideraron una muestra de 57 países durante el período 1965–1990. Después de utilizar modelos matemáticos y análisis estadísticos obtuvieron como resultado que los promedios generales proporcionan evidencia sorprendente de que la mayor parte de la mejora de la productividad mundial durante este período fue atribuible a la acumulación de capital, con el progreso tecnológico y los cambios de eficiencia



(recuperación tecnológica) que representan menos del 15% y 10%, respectivamente, del crecimiento. Por otro lado utilizando pruebas estadísticas lograron probar que en el caso de las diferencias entre la distribución de 1990 y las distribuciones contractuales que incorporan los efectos de los cambios de eficiencia, la acumulación de capital, del cambio tecnológico y la acumulación de capital; no es posible rechazar la hipótesis de distribuciones idénticas en ninguno de los casos al nivel del 10 %.

En Australia Topp et. al (2008) analizaron los cambios de productividad en el sector del cobre australiano, durante un período de 33 años, 1974 - 1975 a 2006 - 2007, en comparación con los cambios tecnológicos durante subperíodos específicos. Durante este período de estudio, la producción australiana de cobre aumentó casi cuatro veces, de aproximadamente 250,000 a aproximadamente 900,000 toneladas / año, mientras que su participación en la producción mundial se duplicó del 3 al 6%. Los productores de este país rico en minerales invirtieron constantemente en expansiones y en la mejora tecnológica de las minas y plantas de cobre. Varias plantas implementaron la mejor tecnología para contrarrestar los impactos de agotamiento y la industria fue testigo de notables cambios estructurales y mejoras en la productividad. En el estudio se realizaron análisis estadísticos y determinaron que el coeficiente de correlación de la productividad con la tecnología llegó a + 0.173. Es decir la tecnología impactó positivamente a la productividad. Por otro lado durante el desarrollo de una mina en 1999–2000 y 2003–2004, el espectacular aumento de la productividad atestigua el éxito de la utilización de nuevas tecnologías. La productividad aumentó de 30.3 en el período de 1990–1991 a 190 en el de 2005–2006, coincidiendo con el aumento constante de la inversión en nuevas tecnologías en grandes proyectos nuevos y expansiones.

### **Flexibilidad laboral – fabricación**

La flexibilidad es una capacidad en sí misma, es como un habilitador, que proporciona al sistema de fabricación propiedades en las que se desarrollan otras capacidades competitivas. La flexibilidad actúa como un criterio competitivo de segundo orden. Por otro lado también se plantea que la misma es como un habilitador que proporciona al sistema de fabricación propiedades sobre las que se desarrollan otras capacidades (Hallgren & Olhager, 2009).

En la revisión de estudios se encontró el trabajo de Yaduma et. al, (2013) en el que relacionan las variaciones de la demanda, la productividad y la flexibilidad en la industria del turismo. Utilizaron datos de 43 hoteles medianos propiedad de dos cadenas en el Reino Unido, durante un período de 8 años desde 2005-2013. Se emplean métodos estadísticos descriptivos e inferenciales para evaluar los cambios. Las estadísticas descriptivas resumidas son seguidas por modelos econométricos escalonados y de panel para investigar las relaciones. Las estimaciones comienzan con un modelo escalonado en el que el procedimiento de regresión agrega con éxito variables explicativas cuyos valores p son estadísticamente significativos al nivel del 0.5%. Obtuvieron como resultado que según lo que indica el  $R^2$  en el primer paso, la variable de ingresos por habitación solo representa aproximadamente el 68% de la variación en la productividad. Además, un aumento del 1% en la flexibilidad, se asocia con incrementos del 0.04% en la productividad, respectivamente. El conjunto completo de regresores representa el 89% de la variación en la productividad. La estadística F denota que los regresores son conjuntamente significativos.

En el caso de Wang & Heyes (2017) realizaron una investigación en la que examinaron la relación entre la flexibilidad, el empleo de trabajadores por contrato de duración determinada y la productividad en 27 países de la Unión Europea. El estudio utiliza datos de 2009 de una encuesta a gran escala de empresas de toda Europa. Se empleó un método de muestreo aleatorio estratificado para garantizar la representación en diferentes sectores y tamaños de establecimientos. Utilizaron STATA 13 para estimar un modelo de productividad laboral relacionado con el desempeño comparativo y otro relacionado con el desempeño en comparación con la situación tres años antes de la encuesta. Los resultados muestran que diversas medidas de flexibilidad están positivamente correlacionadas con la productividad laboral, la media de la variable es de 0,31 y la desviación estándar es de 0,40. Mientras que el coeficiente de correlación es  $r = 0,06$  el cuál es significativos con  $p < 0,01$ .

En la revisión de literatura también se encontró una investigación que tenía como objetivo examinar el impacto de los factores demográficos, tecnológicos, individuales y organizacionales en la productividad percibida de los teletrabajadores egipcios. Utilizaron los datos de 199 cuestionarios utilizables que recopilaron y posteriormente los analizaron utilizando análisis factorial y análisis de regresión lineal por pasos. La flexibilidad se evaluó a través de una escala de cinco ítems. La escala revela un coeficiente de fiabilidad aceptado de 0,75 en esta investigación. Los resultados destacan el papel crucial de los factores individuales y organizacionales para influir en la productividad percibida de los teletrabajadores egipcios. Entre los resultados que se obtuvieron estaba que la flexibilidad influye positivamente en la productividad con ( $b = 0,17$ ,  $p < 0:01$ ) (Gamal & Mohamed, 2012)

Por su parte Sánchez et. al (2007) realizaron una investigación cuyo objetivo planteaba explorar la relación entre la flexibilidad en el lugar de trabajo y la productividad de la empresa. Aplicaron una encuesta empírica de una muestra representativa de 479 empresas pequeñas y medianas. Recopilaron datos a través de entrevistas con gerentes de empresas utilizando un cuestionario estructurado. Utilizaron una prueba t para analizar las diferencias medias de las dimensiones de flexibilidad entre las empresas, y un análisis de regresión para estudiar el impacto de las prácticas flexibles en la productividad de la empresa. Entre todos los resultados de las regresiones podemos encontrar que el desempeño de la empresa está positivamente relacionado con la flexibilidad impacto significativo en el desempeño de la empresa. El tamaño de la empresa (variable de control) no es significativo ( $r = 0,269$ ;  $p < 0,01$ ).

## **Proveedores**

Los proveedores constituyen un papel fundamental en el éxito de una empresa al proporcionar productos intermedios, materiales o productos finales. Cuando una empresa toma la decisión de externalizar sus materias primas o productos finales, ya sea a nivel nacional o internacional, busca los mejores proveedores y socios basados en un conjunto de criterios. El objetivo de la selección de proveedores es determinar proveedores que pueden entregar productos y servicios al precio correcto junto con niveles aceptables de calidad (Uluskan et al., 2016).

En la revisión de literatura se encontró el estudio de Phusavat, et. al (2009) que tenía como objetivo identificar el conjunto de circunstancias que requieren información de productividad, abordado mediante la vinculación con las estrategias de fabricación y selección de proveedores. Desarrollaron una encuesta para obtener información sobre tres áreas: estrategias de fabricación,

estrategias de selección de proveedores para servicios de mantenimiento (MS) y productividad. Para esto 40 empresas completaron la encuesta. Se analizaron las opiniones de los altos ejecutivos.

Para la identificación de posibles circunstancias derivadas de las interrelaciones entre la fabricación y las estrategias de selección de proveedores, se adopta el análisis de correlación. Una correlación positiva implica la complementariedad percibida por los altos ejecutivos entre estas estrategias. Debido a los datos ordinales, se utiliza la correlación de rango de Spearman. Debido al hecho de que las respuestas se basaron en opiniones y percepción, se utilizó el nivel significativo de 0.05, lo que refleja un área de aceptación más amplia que el nivel de 0.01. En total se detectaron nueve circunstancias que se relacionan con la productividad de la empresa, entre ellas se encuentra la selección de proveedores con  $R = 0,342$  y las 9 tienen una fuerte correlación con la productividad (Phusavat et al., 2009).

## **Innovación**

Con respecto a la innovación, Schumpeter (1939) fue el primero en destacar la importancia de los fenómenos tecnológicos en el crecimiento económico. Este conceptualizó la innovación en un sentido más general que el de las innovaciones que son solamente tecnológicas. Según él, la innovación abarcaría los cinco casos siguientes:

- Inserción en el mercado de un nuevo bien o una nueva clase de bienes, con los cuales los consumidores no estén familiarizados.
- Entrada de un nuevo método de producción en la rama de la industria afectada, que requiere fundamentarse en un nuevo descubrimiento científico.
- Apertura de un nuevo mercado en un país.
- Conquista de una nueva fuente de suministro de materias primas o de productos semielaborados, nuevamente sin tener en cuenta si esta fuente ya existe, o bien ha de ser creada de nuevo.
- La implantación de una nueva estructura en un mercado como, por ejemplo, la creación de una posición de monopolio.

Por su parte Kogan et al. (2017) realizaron un estudio en el que plantean que la innovación es un motor clave del crecimiento económico, proponen una nueva medida de la importancia económica de las innovaciones. Sus medidas utilizan datos recopilados sobre patentes emitidas a empresas estadounidenses en el período de 1926 a 2010. Los modelos de crecimiento endógeno implican que el crecimiento de la empresa está relacionado con la innovación, generalmente medida por el número de variedades de productos o la calidad de los productos que produce la empresa. Utilizaron modelos matemáticos y entre los resultados que obtuvieron se puede observar que un aumento de una desviación estándar en la innovación está asociado con un aumento del 2.4% de la productividad. Por el contrario, un aumento de una desviación estándar en la innovación es seguido por una caída del 1.7% en la productividad durante cinco años.

Por otro lado, se encontró otra investigación que analiza empíricamente la relación entre innovación y productividad en el sector de servicios chileno. Para el estudio se utilizó una gran cantidad de encuestas de innovaciones, que se han llevado a cabo en la última década. En total se revisaron 7 encuestas de innovación, pero solo las últimas cuatro encuestas cubren el sector de servicios. También proporcionan estimaciones utilizando la Encuesta Longitudinal de Empresas

[ELE]. En su metodología utilizaron el modelo de múltiples ecuaciones que abarca todo el proceso de innovación, teniendo en cuenta las decisiones de las empresas de participar en actividades de innovación, los resultados de estos esfuerzos y su impacto en la productividad. Los resultados que se obtuvieron basados en la correlación fueron que las empresas innovadoras tienen un efecto muy significativo en la productividad laboral ( $R = 0,591$ ;  $p < 0,01$ ) (Alvarez et al., 2015).

Morris (2018) realizó una investigación donde examinaron los vínculos entre la innovación de la empresa y la productividad utilizando el mayor conjunto de datos reunidos entre países para este propósito hasta la fecha. Utilizaron datos armonizados y comparables sobre un total de 40,577 empresas pequeñas, medianas y grandes encuestadas con las Encuestas de Empresas del Banco Mundial [WBES]. Utilizaron el modelo MDL, el cual se basa en un marco de múltiples ecuaciones que tienen en cuenta todo el proceso de innovación, teniendo en cuenta las decisiones de las empresas de participar en actividades de innovación, los resultados de estos esfuerzos y su impacto en la productividad. Los resultados indican que la innovación tiene un efecto fuerte y económicamente significativo sobre la productividad. Según sus resultados de referencia, las empresas son un 13% (30%) más productivas en comparación con otras empresas si emprendieron una innovación de proceso (innovación de producto) en los últimos tres años. La implicación de este resultado es que la innovación de productos es más del doble de beneficiosa para las empresas de la muestra.

También se revisó otro artículo que utiliza una técnica de cambio endógeno que les permite utilizar datos microeconómicos para construir escenarios contrafácticos de la relación innovación-productividad en empresas irlandesas. Los datos empleados en este estudio provienen de la Encuesta de entorno empresarial y rendimiento empresarial [BEEPS]. En 2005 se realizó en 28 países diferentes y participaron aproximadamente 9,500 empresas, se eligieron cinco países de referencia de la Unión Europea que incluían Portugal, Grecia, Alemania, España e Irlanda. En este artículo se emplea un modelo de conmutación endógeno dentro de un marco de función de producción. El modelo se ha utilizado para examinar preguntas en muchas áreas diferentes y el impacto de la innovación en la productividad. Entre los resultados se encontró una relación endógena entre la innovación de procesos y la productividad y una relación exógena entre el producto, el servicio e innovación y la productividad organizacional con un  $R = 0,772$  y  $p < 0,01$  (Crowley & Mccann, 2014).

Se encontró otro estudio que tiene como objetivo utilizar un modelo estructural revisado de Crépon-Duguet-Mairesse (MDL) para analizar los datos de una encuesta de innovación única de 501 empresas manufactureras en Ghana y determinar su relación con la productividad. En el estudio aplicaron un modelo estructural que reconoció la endogeneidad de la innovación, es decir, que una empresa innova basándose en ciertas características del empresario y la empresa, y el papel de la actividad de innovación como determinante de la productividad. Para este estudio se llevó a cabo con el apoyo del Instituto de Investigación de Políticas de Ciencia y Tecnología [STEPRI] una encuesta de innovación de 501 empresas manufactureras en Ghana. Los datos incluyen información detallada sobre las actividades de innovación realizadas por las empresas durante el período de tres años 2010-2013 (Fu et al., 2018).

El conjunto de datos es de naturaleza transversal, pero se registraron algunos datos de forma retrospectiva. En las estadísticas descriptivas de las empresas de la muestra se puede

observar cómo la innovación es un fenómeno generalizado en el sector privado en Ghana, donde entre 2010 y 2013 la mayoría de las empresas (78%) estuvieron activas en algunos países, la mayoría de las empresas (70%) están involucradas en alguna innovación tecnológica, que incluye innovaciones en procesos o productos. Las innovaciones no tecnológicas, incluidas las innovaciones de gestión y comercialización, fueron implementadas por el 40% de las empresas. Los modelos predicen una relación positiva entre la innovación y productividad de las empresas. Por ejemplo, las empresas que aumentan las actividades de innovación desde la mediana hasta el tercer cuartil están asociadas con un aumento de la productividad laboral en un 11,7% (Fu et al., 2018).

## **Cooperación**

Algunos autores definen la cooperación como la acción o proceso de trabajar juntos para el mismo fin. Aunque no siempre la cooperación se lleva a cabo hacia un objetivo común. Además, la idea de 'trabajar juntos' puede sugerir simultaneidad y similitud de acción, mientras que existen ejemplos de comportamiento cooperativo que pueden involucrar diferentes formas de acción, junto con acciones que están separadas en el tiempo pero que permanecen conectadas por una expectativa de reciprocidad (Emery, Forney, & Wynne-Jones, 2017).

Giovannetti & Piga (2017) estudiaron los efectos contrastantes sobre las innovaciones y la productividad que surgen de la cooperación en actividades de innovación entre competidores. Las estimaciones obtenidas en el estudio muestran que la productividad está relacionada positiva y significativamente con las tres probabilidades de introducir una innovación (producto, proceso y organización) estimada en la segunda etapa del modelo. Esta evidencia confirma la hipótesis específica que plantea que el impacto en la productividad de la cooperación pasiva en actividades de innovación entre empresas es indirecto y positivo. Este impacto se debe a los efectos positivos de los efectos indirectos de los sectores en las innovaciones de procesos y su consiguiente impacto positivo en la productividad un ejemplo de los resultados obtenidos es  $R = 0,233$  con  $p < 0,01$ .

Por otro lado se analizó la investigación de FitzRoy & Kraft (1987) que plantean que existen muy pocos estudios teóricos o empíricos que vinculen la "cooperación" con la productividad. Se presentan estimaciones simultáneas de WLS y Tobit para la productividad de los factores y la cooperación, y revelan un efecto robusto de la participación en los beneficios y la propiedad del capital de los trabajadores sobre la productividad. Investigaron la relación entre la cooperación y la productividad en un conjunto de datos no publicados que se obtuvieron de 65 empresas de la industria metalúrgica de Alemania Occidental en entrevistas extendidas. Estimamos una ecuación combinada de Cobb-Douglas con dos años de datos. Como resultados se obtuvo que en su muestra de empresas medianas, la cooperación tiene fuertes efectos en la productividad, con un coeficiente altamente significativo de PROSH de 1,26.

Dale (1949) por su parte realizó una investigación que tenía como propósito examinar lo que se podía lograr prácticamente mediante la cooperación entre la mano de obra y la gerencia para mejorar la eficiencia y la productividad. Se envió un cuestionario a través de la Asociación Americana de Gestión a 1,000 compañías manufactureras que se creía que participan en algún tipo de cooperación. De estas 263 respuestas, 226 declararon que habían estado practicando algún tipo de cooperación entre 1941 y 1947. Se encontró que la cooperación estaba más extendida de lo que generalmente se creía. La mayoría de los participantes declaró que la cooperación había hecho

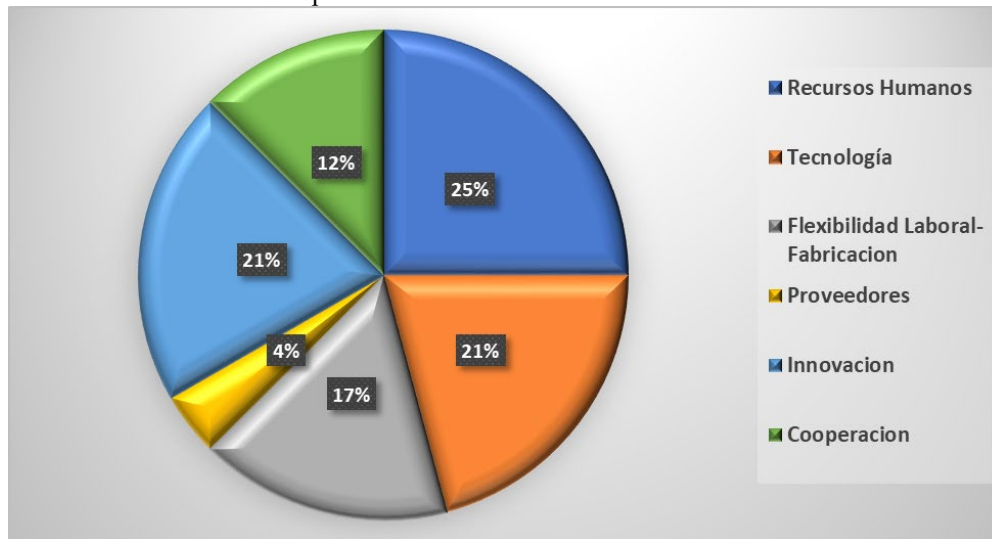
contribuciones directas y tangibles para aumentar la productividad. El esfuerzo de cooperación ha gozado de una considerable longevidad, de los 226 comités de gestión laboral en funcionamiento examinados en el estudio, casi la mitad había durado cinco años o más (Dale, 1949).

### III. MÉTODO

El estudio se realiza mediante un análisis cualitativo, se analizaron estudios empíricos sobre los factores que influyen en la productividad. Se realizó la búsqueda en la base de datos "Web of Science" en inglés, se utilizaron palabras claves para la búsqueda, entre las cuáles estaba: productividad, automotriz, factores, entre otros. Se revisaron todos los artículos que estudiaban los factores que en una investigación previa se determinaron que según la mayoría de los autores, influyen en la productividad. Solo se estudiaron a fondo los artículos que contenían estudios empíricos. A lo largo del estudio se clasificaron los estudios para cada factor y también se encontraron ítems que pueden influir en cada uno de los factores, para finalmente poder arribar a conclusiones sobre lo que se había obtenido de la revisión de la literatura.

### IV. RESULTADOS

**Figura 2:** Resultados de los factores de productividad mencionados en la literatura



*Fuente:* Elaboración propia

Después de revisada y analizada la literatura, se obtuvo como resultado que del total de 34 artículos revisados, 6 fueron de recursos humanos, estos representan el 25% del total, en estos artículos se realizaban estudios empíricos que demostraban la relación entre los recursos humanos y la productividad, en los mismos se analizaban varios ítems vinculados con los recursos humanos, que también influyen en la productividad, entre los que se destacan: la planificación, la evaluación, inversiones en reclutamiento y selección, política de gestión de recursos humanos, sistema de prácticas de recursos humanos, prácticas del empoderamiento, la capacitación extensiva, el trabajo en equipo, la fabricación integrada y la producción ajustada.

Por otro lado se encontraron 5 artículos que analizan estudios empíricos sobre la relación entre la tecnología y la productividad, los mismos constituyen un 21% del total. En este caso los ítems vinculados fueron: habilidades técnicas, compensaciones tecnológicas, nuevas tecnologías, cambios en el consumo de energía, la recuperación de metales y el progreso tecnológico. En la investigación se encontraron también 4 artículos de trabajos empíricos que investigan la relación existente entre la productividad y la flexibilidad laboral-fabricación, estos representan el 17% del total. Los ítems relacionados con la flexibilidad laboral-fabricación que se detectaron en las investigaciones son: flexibilidad en la industria, factores individuales y organizacionales y la flexibilidad en el lugar de trabajo.

**Tabla 1:** Relación entre los factores que influyen en la productividad, autores de estudios empíricos e ítems mencionados en los estudios

<b>Factores</b>	<b>Autores</b>	<b>Ítems</b>
Recursos Humanos	Wright & McMahan (2011) Koch & Mcgrath (1996) Datta et al. (2005) Chadwick, Way, Kerr, & Thacker (2013)  Katou & Budhwar (2015) Birdi et al. (2008)	<ul style="list-style-type: none"> <li>• Planificación</li> <li>• Evaluación</li> <li>• Inversiones en reclutamiento y selección</li> <li>• Política de gestión de recursos humanos</li> <li>• Sistema de prácticas de recursos humanos</li> <li>• Prácticas del empoderamiento</li> <li>• Capacitación extensiva,</li> <li>• Trabajo en equipo</li> <li>• Fabricación integrada</li> <li>• Producción ajustada.</li> <li>• Habilidades técnicas</li> </ul>
Tecnología	Andersson et al. (2016) Yaduma et al. (2013) Wang & Heyes (2017) Gamal & Mohamed (2012) Sánchez et al. (2007)	<ul style="list-style-type: none"> <li>• Compensaciones tecnológicas</li> <li>• Nuevas tecnologías</li> <li>• Cambios en el consumo de energía</li> <li>• Recuperación de metales</li> <li>• Progreso tecnológico</li> </ul>
Flexibilidad laboral-fabricación	Yaduma et al. (2013) Wang & Heyes (2017) Gamal & Mohamed (2012) Sánchez et al. (2007)	<ul style="list-style-type: none"> <li>• Flexibilidad en la industria</li> <li>• Factores individuales y organizacionales</li> <li>• Flexibilidad en el lugar de trabajo</li> </ul>
Proveedores	Phusavat et al. (2009) Kogan et al. (2017)	<ul style="list-style-type: none"> <li>• Selección de proveedores</li> </ul>
Innovación	Alvarez et al. (2015) Morris (2018) Crowley & Mccann (2014) Fu et al. (2018)	<ul style="list-style-type: none"> <li>• Innovación de la empresa</li> <li>• Endogeneidad de la innovación</li> </ul>
Cooperación	Giovannetti & Piga (2017) FitzRoy & Kraft (1987) Dale (1949)	<ul style="list-style-type: none"> <li>• Cooperación en actividades de innovación entre competidores</li> <li>• Participación en los beneficios y la propiedad del capital de los trabajadores</li> <li>• Cooperación entre la mano de obra y la gerencia</li> </ul>

Como parte de la revisión de literatura realizada solamente se encontró solo un artículo que abordara un estudio empírico demostrando la relación entre la productividad y los proveedores, lo cual representa un 4% del total. El ítem que abordo el estudio fue la estrategia de selección de proveedores. También se encontraron 5 estudios empíricos que analizan la relación entre la

productividad y la innovación, lo cual representa el 21% del total. En los mismos analizan la innovación de la empresa y la endogeneidad de la innovación que fueron ítems que se analizaron como importantes para el efecto que provoca la innovación en la productividad. Finalmente se encontraron 3 artículos que estudian empíricamente la relación entre la cooperación y la productividad, los cuales constituyen el 12% del total. Los ítems que analizan en los estudios empíricos son la cooperación en actividades de innovación entre competidores, la participación en los beneficios y la propiedad del capital de los trabajadores, cooperación entre la mano de obra y la gerencia. Los datos mencionados anteriormente se pueden observar en la tabla 1 y en la figura 2. Como se puede observar en la figura 2, el factor del que más estudios empíricos se analizaron fueron los recursos humanos con un 25%, seguido de la tecnología y la innovación con un 21%.

## V. CONCLUSIONES

En la actualidad, los mercados nacionales e internacionales, así como los clientes, requieren que a las empresas que utilizaron como proveedores de algún producto o servicio tengan diseños con calidad, adecuados y que su entrega se realice en el tiempo estipulado. En el mercado hay gran competencia entre las empresas, debido a esto los clientes confían en que las empresas les proporcionen costos bajos, también esperan que las mismas posean un sistema de procesos flexibles, de manera que pueda adecuarse a cambios que se surjan dentro del proceso de producción. Debido a lo anteriormente mencionado las empresas requieren ser cada vez más competitivas, ya que necesitan estar situados dentro de las primeras opciones a ser contratados por los clientes. A lo largo de los años se ha investigado mucho acerca de la productividad, existen estudios generales, estudios por sectores incluyendo el sector automotriz. De las recomendaciones que existen para aumentar la productividad se destaca que las empresas deben conocer los factores que influyen en la misma y para de esta forma poder trabajar en ellos para mejorarlos. Acerca de la industria automotriz en México son muy pocas las investigaciones que existen de los factores que influyen en su productividad. En la revisión de literatura realizada en este estudio se revisan algunos de ellos. La gran conclusión de este trabajo es que estudios empíricos indican que de las 6 variables bajo estudio, los recursos humanos, la tecnología y la innovación son las más importantes. La recomendación final derivada de todo lo analizado en esta investigación es realizar una investigación de campo en el clúster automotriz para determinar las variables claves que influyen en la productividad del sector automotriz.

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# México y las empresas IMMEX: Conocimiento y transición al 2019

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*La crisis financieras cíclicas denotan la importancia del capital intelectual dentro de la industria, fomentarlo fortalece la economía de todos los directamente involucrados en la empresa y su entorno circundante. Aporta una perspectiva innovadora de un sector productivo prioritario para la economía de México. Las empresas maquiladoras (en la actualidad definidas empresas IMMEX por el gobierno Federal, a partir de nov. 2006), no sólo proveen trabajo, también generan conocimiento, así como inducen a desarrollar y fomentar las habilidades en el personal. Estas competencias adquiridas por los empleados, les otorga fortaleza, contribuye al desarrollo del personal y del sector productivo ahora analizado.*

*Para ello, se establece una comparación entre el inicio del 2016 y hasta el final del 2019, periodo de turbulencias económicas y presiones externas a la industria mexicana.*

*PALABRAS CLAVES competitividad, conocimiento, estrategia, fortaleza, industria maquiladora*

*The cyclical financial crises denote the importance of intellectual capital within industry, encouraging it strengthens the economy of all those directly involved in the company and its surrounding environment. It provides an innovative perspective of a priority productive sector for the economy of Mexico.*

*The maquiladora companies (currently defined as IMMEX companies by the Federal government, as of Nov. 2006), not only provide work, they also generate knowledge as well as induce the*

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*development and promotion of personnel skills. These skills acquired by employees gives them strength, contributes to personal development and that of the productive sector now analyzed.*

*For this, a comparison is established between the beginning of 2016 and until the end of 2019, a period of economic turbulence and external pressures on the Mexican industry.*

*KEYWORDS competitiveness, knowledge, strategy, strength, maquiladora industry*

# Impacto de las PYMEs en la economía de México

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*Las PYMEs son “una unidad de decisiones económicas y productivas que toman decisiones mediante la coordinación y organización del capital y trabajo, son usualmente propiedad de recién egresados o personas sin estudios profesionales, cuentan con una administración familiar joven e independiente, sus dueños suelen ser los mismos administradores de la empresa, así como inversionistas principales, la finalidad de las PYMEs es el autoempleo e independencia económica.*

*En Canadá y EE.UU las PYMEs constituyen el 97% de todos los negocios, en México son muy significativas para el crecimiento y desarrollo del país, son responsables del 51% de los empleos crean 7 de cada 10 empleos y la mitad del P.I.B del país, las exportaciones de México alcanzaron casi 160 millones de dólares y el 95% de los negociantes fueron PYMEs.*

*Es importante para el impulso de las PYMEs en México considerar la implementación de cambios internos en la administración y operación de estas empresas, así como la creación de asociaciones que propicien su crecimiento. También es necesario crear una mayor competitividad de las PYMEs lo cual puede lograrse a través de la cooperación con dependencias de gobierno e instituciones educativas.*

**PALABRAS CLAVE** PYMEs, Economía en México, Empleo

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# Uso de máquinas de aprendizaje en las micro, pequeñas y medianas empresas

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*¿Cómo podría una pequeña empresa aprovechar los avances tecnológicos en tecnologías de la información para sobrevivir y crecer en un mercado cada vez más competitivo?*

*¿Es posible aterrizar y usar los avances más importantes en los últimos años como la inteligencia artificial, más específicamente el aprendizaje de máquina como palanca para hacer que las pequeñas empresas logren alguna ventaja competitiva y/o mayor rentabilidad?*

*El presente artículo trata los conceptos con claridad para dar respuestas a ambos cuestionamientos. Los autores realizan una breve descripción histórica de los conceptos de aprendizaje de máquina (Machine Learning del idioma inglés) y como han ayudado y siguen ayudando a las micro, pequeñas y medianas empresas (MiPYMEs) a realizar procesos mas eficientes y en la optimización de recursos.*

*PALABRAS CLAVE* *Aprendizaje de máquina, MiPYMEs*

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## **Use of Learning Machines in Micro, Small, and Medium Enterprises**

*How could a small business take advantage of technological advances in information technologies to survive and grow in an increasingly competitive market?*

*Is it possible to land and use the most important advances in recent years, such as artificial intelligence and more specifically machine learning, as an advantage to make small businesses achieve some competitive advantage and/or greater profitability?*

*This article deals with the concepts clearly answering both questions. The authors make a brief historical description of the concepts of machine learning and how they have helped, and still are helping, micro, small, and medium-sized enterprises (MSMEs) to perform more efficient processes and in the optimization of resources.*

**KEYWORDS** *Machine learning, MSMEs*

# **Impacto en el desarrollo económico de los municipios: La evasión fiscal de los contribuyentes: MiPYMEs, Nuevo Laredo**

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*El propósito de esta investigación es identificar el Impacto que tiene la Evasión Fiscal de los contribuyentes, en la salud financiera de los municipios y a la vez en el país y las causas por las que lo realizan, Rodríguez (2018).*

*Se contestarán las siguientes preguntas: ¿Cuáles son las causas que llevan a los contribuyentes evadir al Fisco y como afecta esto a la economía?*

*¿Cuál es la relación de la Evasión Fiscal con la corrupción?*

*Actualmente algunos contribuyentes buscan un beneficio personal mal entendido, presentando declaraciones con menores ingresos buscando pagar menos impuestos, otros incluso no presentan declaraciones por la falta de educación fiscal suficiente para saber cuándo, cómo y dónde hay que declarar estos impuestos, Aquino M. (2008).*

*En esta investigación se muestran algunos de los factores negativos que afectan a la zona de Nuevo Laredo, específicamente las MiPYMEs.*

*Por otro lado la corrupción es otro grave problema que está estrechamente relacionado con la evasión fiscal. Los aumentos de impuestos aumentan la evasión fiscal. Son un incentivo para que los contribuyentes produzcan en el sector sombra menos productivo, lo que implica una mayor producción y pérdidas de empleos. La corrupción amplifica aún más estas pérdidas al requerir mayores aumentos en los impuestos para reducir la deuda. Pérdidas significativas de producción y bienestar, que podrían reducirse sustancialmente al combatir la evasión fiscal y la corrupción. Evi Pappa, Rana Sajedi, Eugenia Vella, 2015*

*La Evasión Fiscal imposibilita económicamente a los estados para cumplir con las obligaciones que se tienen con la población; pues mucho de los impuestos que son pagados, se utilizan para construir hospitales, escuelas, bibliotecas y dar apoyos económicos a entidades públicas, Del Valle E. (2011)*

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*PALABRAS CLAVE Evasión Fiscal, Desarrollo Económico, Corrupción, Conciencia tributaria*

*The purpose of this research is to identify the Impact of Tax Evasion of taxpayers on the financial health of municipalities, and at the same time on the country and the causes for which they perform it, Rodríguez (2018).*

*The following questions will be answered: What are the causes that lead taxpayers to evade the Treasury and how does this affect the economy?*

*What is the relationship of Tax Evasion with corruption?*

*Currently, some taxpayers seek a misunderstood personal benefit, filing statements with lower income seeking to pay less taxes, others do not even file declarations due to the lack of sufficient tax education to know when, how, and where to file these taxes, Aquino M. (2008).*

*This research shows some of the negative factors that affect the Nuevo Laredo area, specifically MSMEs.*

*On the other hand, corruption is another serious problem that is closely related to tax evasion. Tax increases increase tax evasion. They are an incentive for taxpayers to produce in the less productive shadow sector, which implies greater production and job losses. Corruption further amplifies these losses by requiring greater tax increases to reduce debt. Significant production and welfare losses, which could be substantially reduced by combating tax evasion and corruption. Evi Pappa, Rana Sajedi, Eugenia Vella, 2015*

*Economically, Tax Evasion makes it impossible for the states to comply with the obligations they have with the population; because much of the taxes that are paid are used to build hospitals, schools, libraries, and provide financial support to public entities, Del Valle E. (2011)*

*KEYWORDS Tax Evasion, Economic Development, Corruption, Tax awareness*

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# La aplicación del marketing en los negocios

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*The information presented in this study has the purpose of explaining and understanding the importance of marketing as an essential tool in business, as well as its application, scope, and impact as a strategy to respond to a demanding public formed by real and potential consumers looking to fulfill a unique need.*

*Marketing is recognized as a special management function, such as organizing, hiring, financing, and producing. It was created to maintain the standard of living of society. However, many have not understood the significance of marketing as a vital function. In fact, the marketing function is closely related to the basic objective of business.*

*Marketing management is a business discipline that is focused on the practical application of marketing techniques, and the management of a firm's marketing resources and activities.*

**KEYWORDS** *Marketing, Business, consumers, Strategy.*

*La información planteada en este trabajo es presentada con la finalidad de explicar y comprender el uso importante sobre el marketing como herramienta esencial en los negocios, su aplicación, su alcance y su impacto como una estrategia para responder a un público demandante conformado por consumidores reales y potenciales que buscan satisfacer una necesidad única.*

*El marketing es reconocido como una función de gestión especial, como organizar, contratar personal, financiar y producir. Fue creado para mantener el nivel de vida de la sociedad. Pero la importancia del marketing como una función vital no ha sido entendida por muchos. De hecho, la función de marketing está estrechamente relacionada con el objetivo básico de los negocios.*

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*La gestión de marketing es una disciplina empresarial que se centra en la aplicación práctica de técnicas de marketing y la gestión de los recursos y actividades de marketing de una empresa.*

*PALABRAS CLAVE Marketing, Negocios, consumidores, Estrategia.*

# **Análisis de la mezcla de mercadotecnia de empresas familiares exportadoras en Nuevo Laredo, Tamaulipas**

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*La finalidad del estudio es contar con una serie de evidencias para que los organismos o autoridades gubernamentales de México diseñen políticas sociales y laborales para que este sector se fortalezca motivando el desarrollo económico de la región, desde luego que es importante impulsar la cultura de internacionalización, así como la creación de modelos de negocios de exportación de productos hispanos y artesanales. Es necesario desarrollar estrategias que fomenten que familias y sus generaciones participen en el emprendimiento de negocios internacionales en la frontera como respuesta a las necesidades de atender problemáticas como lo es el desempleo de personas con un nivel de estudios, experiencia, edad y habilidades que no requieren empleadores actuales. También como solución a la economía familiar y la distribución del ingreso. Nuevo Laredo es una ciudad con mezcla de diversa población proveniente de diferentes estados de México, desde principio del siglo pasado los nuevos pobladores iniciaron empresas como manera de sostén económico y en algunos casos combinados con otros empleos por los cuales fueron motivados a cambiar su residencia para un mejor nivel de vida. Nuevo Laredo representa una atractiva oportunidad de establecer un negocio por su posición geográfica y cercanía a la unión americana, mucho de estas personas tienen relaciones familiares con migrantes que envían remesas de dinero para apoyo a sus familias y estas están ubicadas en esta frontera para facilitar su contacto continuo. Existen factores clave de la mercadotecnia que es importante analizar para identificar y así establecer estrategias efectivas para el éxito de estos tipos de empresas en el mercado estadounidense.*

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# **Análisis de la estrategia comercial aplicada por supermercados H.E.B. para ingresar y mantenerse exitoso en el mercado mexicano**

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*El trabajo desarrollado contiene el análisis de los principales conceptos en el campo de la mercadotecnia como lo son el Mercado, el Cliente, y las Estrategias de mercadeo. Exponiendo su importancia, y concatenando dicha conceptualización con las estrategias y propuesta de valor que aplica la empresa Howard Edward Grocery Company, abreviada y conocida comercialmente como H-E-B, la cual es una cadena estadounidense de supermercados fundada en 1905, con oficinas centrales en San Antonio, Texas. Actualmente cuenta con más de 300 tiendas y más de 110,000 empleados (Forbes, 2020). En el año 1997 decidió incursionar en el mercado mexicano, abriendo su primera tienda en el área metropolitana de Monterrey, Nuevo León. Desde entonces ha manteniendo un crecimiento sostenido y hoy en día cuenta con 65 establecimientos en México, en diferentes localidades del noreste y bajío, con una plantilla aproximada de 13,500 empleados.*

*En base a una investigación cualitativa por medio de entrevistas a colaboradores, observación en visitas físicas a establecimientos, y fuentes secundarias como artículos publicados, reportes y la página web de la empresa, se obtuvo información que permite exponer la estrategia comercial y de mercadotecnia que utiliza para tener éxito fuera de su lugar de origen.*

*La declaración de su visión es ser reconocido como el mejor lugar para realizar compras de víveres en el país. Teniendo a los mejores colaboradores, ofreciendo el mejor servicio y los productos más frescos y seguros, a precios bajos y con el mejor valor. Sus valores institucionales son: Frescura, Calidad, Servicio, Variedad, y Precios Bajos. Si lo pensamos, en productos no perecederos como abarrotes, farmacia, y mercancía general, todos los supermercados competidores ofrecen prácticamente las mismas marcas líderes a precios similares. Entonces, ¿Qué lo hace diferente?, ¿Por qué es una empresa en crecimiento en el mercado mexicano?*

*Su propuesta de valor incluye:*

- *Calidad insuperable en el manejo y oferta de alimentos perecederos*
- *Productos importados de Europa, Norte y Sudamérica y el plus de su marca propia (Marca HEB calidad Premium, Marca Hill Country Fare, compitiendo con marcas líderes nacionales, pero a menor precio, y Marca Economax, con el precio más bajo del mercado. Todas con garantía del 100% de satisfacción, o la devolución inmediata de su dinero).*
- *El servicio excepcional que brinda su personal minuciosamente seleccionado y altamente capacitado.*

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- *Tiendas siempre impecables. Ambiente fresco, limpio y ordenado de las instalaciones y exhibiciones*
- *Tropicalización de su oferta de productos según la zona geográfica a donde se ha ido extendiendo*
- *Sus políticas de devoluciones y cambios, facturación y horarios.*
- *Las alianzas estratégicas con proveedores exclusivos de todo el mundo, asegurando abasto y gran calidad, a precios muy competentes*
- *Tiene sus propias plantas de leche, pan, nieve, huertos, criaderos y un centro de distribución estratégico*
- *Es una empresa socialmente responsable y comprometida con la población más vulnerable y desde su llegada a México, realiza distintos programas en apoyo a las comunidades en los rubros principales de su enfoque, que son: Alimentación, Educación y Salud.*

*Adicionalmente, el trabajo final presenta el resultado de una encuesta aplicada para determinar la percepción y posicionamiento que el consumidor neolaredense tiene de la empresa H.E.B frente a su competencia en términos de precio, servicio, calidad y confianza.*

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# **Impacto que tiene el perfil del consumidor en la precalificación en los programas de comercialización de bienes raíces: Caso de estudio Nuevo Laredo, Tamaulipas**

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*Determinar mediante el análisis de bases de datos existente de clientes, a los que se les vendió o no, propiedades. La información obtenida servirá para realizar un análisis estadístico adecuado, que genere un algoritmo que pueda servir de información para anticipar a los promotores, los posibles nuevos prospectos viables, antes de que estos, ingresen en el trámite extendido de la adquisición de un inmueble, implicando información de sus créditos en bancos o sistemas de crédito oficiales, obteniendo de esta forma la optimización de tiempo y dinero, así como también evitando la cancelación de créditos.*

*PALABRAS CLAVES Ingresos, Precio de Adquisición, Vivienda, Consumidor, Sector*

*We determine through the analysis of existing customer databases, those properties that were sold or not. The information obtained will serve to perform an adequate statistical analysis. This will generate an algorithm that can give developers information in order to anticipate new viable prospects before they enter the extended process of acquiring a property, which involves*

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*information about their loans to banks or official credit systems; thus, optimizing the use of time and money, as well as avoiding the cancellation of loans.*

*KEYWORDS* Revenue, Acquisition Price, Housing, Consumer, Sector

## **PROBLEMA DE INVESTIGACIÓN**

Determinar el perfil del consumidor, sus necesidades y deseos de comercializar exitosamente, bienes raíces en Nuevo Laredo, Tamaulipas.

## **OBJETIVOS DE LA INVESTIGACIÓN**

El objetivo de esta investigación es la de definir e investigar de forma sencilla los motivos por los que los habitantes de la ciudad de Nuevo Laredo invierten su capital para obtener una casa habitación que probablemente deberá pagar hasta por un periodo de 30 años.

También poder identificar o definir, quiénes, por qué, o cómo es que pueden, los candidatos, invertir sus ahorros con el fin de convertirlos en un patrimonio familiar, determinando y comparando una vivienda de cierta magnitud o costo, situaciones que les permitirá definir el tipo de edificación que requieren del mercado inmobiliario y poder así explicar los motivos de sus preferencias, y por qué resultan en algunas ocasiones al final, en la cancelación de sus objetivos, en diversos periodos de tiempo de su total adquisición.

## **OBJETIVOS ESPECÍFICOS**

Determinar mediante el análisis de bases de datos existente de clientes, a los que se les vendió o no, propiedades, la información que sirva para realizar un análisis estadístico adecuado, que genere un algoritmo que pueda servir de información para anticipar a los promotores, los posibles nuevos prospectos viables, antes de que estos, ingresen en el trámite tedioso y complicado que requieren para lograr sus créditos de los bancos o de los sistemas de crédito oficiales, teniendo con esto ahorro de tiempo y dinero, así como evitar también la cancelación de créditos durante el proceso de pago, situación que, se transforma en pérdida de los patrimonios de los prospectos y acumulación de propiedades abandonadas en los sectores residenciales de la ciudad.

## **JUSTIFICACIÓN DE LA INVESTIGACIÓN**

Para lograr los objetivos, se deberá analizar las bases de datos de las ventas realizadas en el contexto de Nuevo Laredo en los últimos años, en sectores específicos, desglosando de ellos las características cualitativas y cuantitativas de los candidatos y las viviendas.

Dado que la ciudad de Nuevo Laredo es una ciudad fronteriza con el país más grande económicamente de la región, y que constantemente llega a la ciudad nuevos habitantes con necesidades de vivienda, se hace oportuno saber cuáles son las características de los nuevos vecinos, para poder tener para ellos el mercado adecuado que cumpla sus necesidades.

En ese orden de ideas, la creación de empleo es multivariado y por tanto los ingresos que se obtienen de la remuneración de sus trabajos son modificados, en este análisis se concentra de forma principal a los candidatos locales y foráneos que preferentemente son profesionales por algún estudio o con una carrera especializada que les permite tener ingresos mayores.

Es por tanto el interés de esta investigación, el lograr obtener a través de la administración del conocimiento, de la información de las bases de datos administrada y capturada de clientes, a los que se les vendió o no, propiedades, la información que analizada. Permitirá, tener los márgenes medibles de los posibles futuros habitantes de cada vivienda propuesta para su comercialización.

Esta investigación es de tipo exploratorio, lo que permite definir en un análisis discriminante y en un análisis de regresión logística binaria, las Betas de las variables independientes que definen las cualidades propias específicas de cada uno de los candidatos a las viviendas que serán comercializada, que probabilísticamente cumplen con ciertos factores que en una primer análisis nos darán a ver las características principales que los consumidores, y de forma continuada saber quiénes son los candidatos a las viviendas y los sectores que cumplen la necesidad social requerida y no convertir la edificación de vivienda mal comercializada en un mayor problema social.

## **HIPÓTESIS DE TRABAJO (EN PROCESO DE COMPLEMENTAR LA DESCRIPCIÓN.)**

Analizados los atributos de cada uno de los posibles consumidores de vivienda que se ofertan, mediante el modelo de adquisición diseñado, el comprador podrá determinar si es capaz de adquirir una propiedad ajustada a sus necesidades.

## **PREGUNTA DE INVESTIGACIÓN**

¿Es posible en base a la administración del conocimiento y de los análisis estadísticos generar una función que se reutilice en los nuevos casos que se presenten para la calificación de posibles consumidores en la adquisición de vivienda?

## **MARCO DE REFERENCIA**

El índice de las Ciudades Prosperas (CPI) es una medida diseñada por ONU-Habitad para entender, analizar, planificar, tomar acciones y observar los efectos de las políticas públicas en el bienestar ciudadano. Mediante indicadores obtenidos a partir de información confiable, presenta una radiografía de la complejidad urbana: identifica áreas prioritarias para las políticas públicas,

traduce el bienestar en una métrica medible, comparable y accionable, mide la eficiencia de la ciudad y el efecto de las políticas públicas en el tiempo. En este sentido, el CPI no solo proporciona índices y mediciones, sino que también permite identificar oportunidades y áreas potenciales de intervención para los gobiernos y grupos locales, para que las ciudades sean más prosperas. Fuente. ONU-Hábitat.

## MARCO TEÓRICO

Determinar el perfil de consumidor y sus necesidades y deseos en la comercialización de bienes raíces en NLD

Capacidad de compra + Perfil del consumidor = Diseño de producto + Perfil del consumidor

Variables explicativas de estudio: Estado Civil, Familia (número y características de los mismos), Edad del comprador, Educación (nivel educativo), Ingresos (individual / combinado o conjunto), Genero, Origen (lugar de nacimiento), Precio de adquisición, Plan de Pago, Plazo del crédito. Se propone crear una hoja calculo para precalificación en redes sociales.

Es importante para que las ciudades logren un adecuado desarrollo urbano que se consoliden las políticas públicas en las siguientes dimensiones:

Infraestructura de Desarrollo. El resultado de la medición de algunos activos físicos, servicios y redes urbanas en el municipio, indica que el desarrollo de infraestructura es relativamente sólido. Valores altos en esta dimensión sugieren que el municipio proporciona infraestructura y servicios necesarios para sostener la población y la economía, y mejorar la calidad de vida de sus habitantes.

Equidad e Inclusión Social. Los resultados de la dimensión, que mide equidad económica, inclusión social y equidad de género, son relativamente sólidos. Esta medición es un referente básico sobre el nivel de equidad e inclusión social en el municipio. Sin embargo, existen otras mediciones nacionales y locales sobre las condiciones estructurales de equidad de género, pobreza y educación, que requieren ser analizadas para contribuir al diseño de políticas públicas. Con el objetivo de comprender con mayor profundidad el comportamiento del municipio, sus mayores desafíos y fortalezas, se presentan los indicadores del CPI con valores más débiles y más sólidos. Los primeros requieren ser priorizados y los segundos, consolidados.

Los indicadores con los valores más bajos que representan factores muy débiles para la prosperidad urbana son:

Producto urbano per cápita. Mide el nivel de bienestar económico de los habitantes. Su débil resultado indica que, a pesar de que el municipio cuenta con gran cantidad y diversidad de actividades económicas, éstas podrían estar generando un valor productivo muy bajo, o ser de carácter informal. Aunque el bajo valor del producto urbano per cápita no es un indicador de calidad de vida, es posible que impacte de manera negativa en los ingresos de los habitantes.

Densidad poblacional. Resulta de dividir el número de habitantes del municipio entre su área urbana total.

(Indicé de ciudad prospera (CPI), ONU-Hábitat 2018)

## ADMINISTRACIÓN DEL CONOCIMIENTO

Base de Datos venta de casa clase media alta, en Nuevo Laredo, considerando, la Y como categoría de Variable Dependiente, cuatro variables Independientes Cuantitativas y siete variables cuantitativas dicotómicas.

### Base de datos

Base de datos de venta de vivienda												
Cliente	1=Compró, 0=NO Compr					1=Profesion, 0=No	1=Casado, 0=No	1=Hijos, 0=No	1=Masculino, 0=Femenino	1=Local, 0=No	1=Creditot, 0=Co ntado	1=Trabajo, 0 =No
No	Categoría	Ingresos	\$ Venta	Edad	Plazo ( años)	Profesion	E Civil	Hijos	Sexo	Originario	Plan	Trabajo
1	1	\$40,000.00	\$1,300,000.00	30	20	1	1	1	1	1	1	1
2	1	\$27,343.00	\$1,300,000.00	34	20	1	1	0	1	1	1	1
3	1	\$17,833.00	\$1,300,000.00	39	20	1	1	1	1	0	1	1
4	1	\$64,000.00	\$1,350,000.00	53	30	1	0	1	0	1	1	1
5	1	\$30,000.00	\$1,358,000.00	64	20	1	1	1	1	1	1	1
6	1	\$30,000.00	\$1,400,000.00	58	30	1	0	1	0	1	1	1
7	1	\$30,000.00	\$1,400,000.00	52	20	1	1	1	0	0	1	1
8	1	\$40,000.00	\$1,440,000.00	39	30	1	1	1	1	0	1	1
9	1	\$40,000.00	\$1,406,000.00	42	1	1	1	1	1	0	1	1
10	1	\$5,000.00	\$1,400,000.00	45	1	1	0	0	0	1	0	1
11	1	\$100,000.00	\$1,450,000.00	44	1	0	1	1	0	1	0	0
12	1	\$30,000.00	\$1,400,000.00	30	1	1	0	1	1	1	0	1
13	1	\$30,000.00	\$1,400,000.00	42	30	1	1	1	1	1	0	1
14	1	\$30,000.00	\$1,450,000.00	31	30	0	1	1	1	1	1	1
15	1	\$50,000.00	\$1,550,000.00	42	20	1	1	0	1	1	1	1
16	0	\$20,000.00	\$1,550,000.00	39	30	1	1	0	1	1	1	1
17	0	\$25,000.00	\$1,550,000.00	48	30	1	0	1	1	1	1	0
18	1	\$40,000.00	\$1,550,000.00	52	20	0	1	1	1	0	1	1
19	0	\$35,000.00	\$1,550,000.00	35	25	1	1	1	1	0	1	1
20	0	\$40,000.00	\$1,550,000.00	49	20	0	0	0	0	1	1	0
21	0	\$40,000.00	\$1,550,000.00	45	25	1	1	1	1	0	1	1
22	1	\$45,000.00	\$1,550,000.00	35	30	0	1	1	1	1	0	1
23	1	\$55,000.00	\$1,550,000.00	51	25	1	1	1	1	0	1	1
24	1	\$60,000.00	\$1,550,000.00	48	20	1	1	1	1	1	1	1
25	1	\$30,000.00	\$1,550,000.00	33	25	0	0	1	1	1	1	1
26	1	\$50,000.00	\$1,472,000.00	47	NO	1	1	1	1	0	1	1
27	1	\$40,000.00	\$1,550,000.00	27	30	0	0	1	0	1	0	0
28	1	\$40,000.00	\$1,595,000.00	40	15	1	1	0	1	0	1	1
29	1	\$50,000.00	\$1,670,000.00	47	20	0	1	1	1	1	1	1
30	1	\$50,000.00	\$1,595,000.00	34	20	1	1	1	1	1	1	1
31	1	\$35,000.00	\$1,589,394.00	45	20	1	1	0	1	0	1	1
32	0	\$30,000.00	\$1,641,512.00	37	30	1	1	1	1	0	1	1
33	0	\$20,000.00	\$1,648,154.00	50	30	1	1	1	1	0	1	0
34	1	\$40,000.00	\$1,648,154.00	50	20	1	0	1	1	1	1	1
35	1	\$40,000.00	\$1,676,522.00	26	20	0	1	1	1	1	1	1
36	1	\$50,000.00	\$1,704,890.00	34	20	1	1	0	1	1	1	1
37	1	\$60,000.00	\$1,754,876.00	28	30	1	1	1	1	0	1	1
38	1	\$50,000.00	\$1,478,200.00	57	1	1	1	1	1	0	1	1
39	1	\$45,000.00	\$1,377,500.00	31	1	0	1	0	1	0	0	1
40	1	\$50,000.00	\$1,450,000.00	47	20	0	1	1	0	1	0	0
41	1	\$50,000.00	\$1,450,000.00	45	20	1	1	1	1	0	1	1
42	1	\$40,000.00	\$1,450,000.00	48	20	0	1	1	0	1	1	1
43	1	\$60,000.00	\$1,450,000.00	66	10	1	0	1	0	1	1	1
44	0	\$35,000.00	\$1,450,000.00	40	30	1	0	0	0	0	1	1
45	1	\$40,000.00	\$1,350,000.00	70	1	0	0	0	1	0	1	1
46	1	\$60,000.00	\$1,400,000.00	70	17	0	1	1	0	1	0	0
47	1	\$30,000.00	\$1,350,000.00	34	30	1	1	1	1	0	1	1
48	1	\$30,000.00	\$1,150,000.00	29	30	1	1	0	1	1	1	1
49	0	\$40,000.00	\$1,676,522.00	50	30	0	1	0	0	1	1	1

Ecuación lineal de la regresión logística múltiple en la compra de vivienda de nivel clase media alta.

$$D = .008 \text{ INGRESOS} - .001 \text{ ADQUISICION} - 3.823 \text{ EDAD} - 12.34 \text{ PLAZO} - \\ 11.987 \text{ PROFESION} - 4.660 \text{ ECIVIL} - 34.318 \text{ HIJOS} + 23.096 \text{ SEXO} + \\ 140.804 \text{ ORIGINARIO} - 110.030 \text{ PLAN} + 218.949 \text{ TRABAJO} + 1091.113$$

## **CONCLUSIONES**

Se encuentra en proceso la adición de citas, así como ampliar la información de los casos de estudio que cumplan con el tamaño de la muestra, marco teórico más amplio, que justifique las variables designadas, las hipótesis de estudio, así, como la descripción de los pasos y pruebas realizadas con el programa estadístico utilizado.

# **Utilización de métodos de cobranza como estrategia para un aumento en ventas en las agencias automotrices**

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*Competitiva, alta inversión en tecnología, productos de calidad, etc., así considerada la industria automotriz en México en el mundo, abarca proveedores, fabricantes, ensambladoras llegando al último eslabón con las distribuidoras de autos llamadas agencias de autos las cuales se encargan de comercializar y dar mantenimiento a los vehículos. Esta investigación tiene como objeto de estudio a las agencias de autos en la ciudad de Tlaxcala, con una muestra de 12 agencias, las cuales están utilizando como estrategia los métodos de cobranza para el aumento de ingresos, la metodología utilizada: mixta, transversal, documental, de campo. Utilizando programa software SPSS versión 25, que proporciono una fiabilidad del .819, determinación de hipótesis con la gráfica de Pearson.*

*PALABRAS CLAVES cobranza, crédito, ventas*

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*The automotive industry in Mexico is considered by the world, among other things, to be competitive, have high investments in technology and produce quality products. It includes suppliers, manufacturers, and assemblers, reaching the last link with the car distributors called car dealerships, which are responsible for vehicle marketing and maintenance. The purpose of this research is to study car dealerships in the city of Tlaxcala, with a sample of 12 dealerships, which are using collection methods as a strategy to increase revenue. The methodology used: mixed, transversal, documentary, and field study. The study utilized SPSS software, version 25, which provided a reliability of .819, along with a determination of the hypothesis with the Pearson graph.*

**KEYWORDS** *collection, credit, sales*

## **PLANTEAMIENTO DEL PROBLEMA**

La industria automotriz es un propulsor en la economía del país, fortaleciendo a toda la industria representa un sector estratégico para el desarrollo del país, su participación en las exportaciones lo coloca como la industria más importante incluso arriba de la del sector petrolero, en 2011 cuatro de cada cinco vehículos producidos en México se exportaron lo que posiciona a nuestro país en el número 6 entre los principales países que exportan vehículos automotores.

Precursora de la competitividad, con una alta tasa de empleos, su recurso humano mejor calificado, y mejor remunerado, este sector es considerado el que mayor inversión tiene, una alta derrama en tecnología, en México tienes instalaciones productivas 18 de las más importantes fabricantes de vehículos, dos fabricantes en motores de diésel, y más de 300 proveedores de la más alta nivel de calidad en la industria terminal.

Es por ello la importancia del mercado de los automotores dentro de esta investigación y uno de los medios que se encarga de comercializar y dar mantenimiento a los vehículos automotores. Distribuidas en todo el país, acercando al consumidor su producto. Último eslabón en la cadena, de suministro del sector automotriz de las ensambladoras pasan a los distribuidores reconocidos hacia el mercado nacional.

Reconociendo en este eslabón las grandes estrategias que tienen este sector para distribuir sus productos, uno de sus problemas de estas agencias es el desplazo de sus productos por resultar de un monto considerable, y a la vez la economía del país, que en promedio se considera que el ingreso promedio para un profesionista es de \$ 6,000.00 a \$ 12,000.00 mensuales, por lo tanto, estas distribuidoras deben planear estrategias de comercialización para la venta de su producto.

Los métodos de cobranza se definen como (MORALES & MORALES, 2014) Los créditos siempre han sido otorgados a los diferentes actores de la sociedad para adquirir diferentes productos: a los campesinos para la adquisición de aperos de labranza y pagar sus deudas; a los industriales para incrementar sus capacidad para la fabricación; a los comerciantes para la adquisición de productos y equipos de distribución que faciliten sus actividades; a los señores feudales con el fin de adquirir armamento y contratar a los soldados necesarios para lidiar con otros feudos; y a los gobiernos, quienes necesitan saldar sus deudas.

Como nos podemos dar cuenta el crédito se ha usado a lo largo de la historia como una herramienta diversa la cual ha permitido a los diferentes sectores de la economía evolucionar, mejorar y satisfacer las necesidades que surgen con motivo del desarrollo de su actividad.

(ROMERO, 2005) La importancia de los métodos de cobranza dentro de una empresa radica en que una venta no está completa sino hasta realizarse el cobro: sentencia tan conocida como cierta. El cobro de una cuenta pendiente lleva la transacción a una conclusión adecuada. Una empresa comercial pronto se quedaría sin capital de trabajo si no se resarciera continuamente merced a la liquidación de sus ventas, originando un movimiento de efectivo por parte de sus clientes.

Toda vez que la gran mayoría del comercio y la industria en el mundo entero utiliza hoy el crédito, la cobranza es una labor de gran importancia en la administración de las empresas y más en las empresas dedicadas a la comercialización de unidades automotrices, porque el costo de los productos que ofrece es elevado y los ingresos que perciben la mayoría de los ciudadanos del estado de Tlaxcala y sus alrededores no les permite cubrir la totalidad de la unidad.

## **PREGUNTA DE INVESTIGACIÓN**

¿Cuáles son los métodos de cobranza que utilizan las agencias automotrices en el municipio de Apizaco y Yauhquemehcan, Tlaxcala?

## **OBJETIVO GENERAL**

Correlacionar la importancia de los métodos de cobranza que utilizan las agencias automotrices en el municipio de Apizaco y Yauhquemehcan, Tlaxcala con el aumento en ventas.

## **OBJETIVOS ESPECÍFICOS**

- Describir las ventajas y desventajas de los métodos de cobranza que las agencias automotrices utilizan al proporcionar sus productos a través de estos.
- Especificar si todas las operaciones contables de las agencias automotrices se realizan de acuerdo a la normatividad que establece las NIF.
- Analizar los métodos de cobranza que prefieren los clientes de las agencias automotrices y la relación entre los plazos y formas de pago.

## **HIPÓTESIS DE INVESTIGACIÓN**

Hi: Los métodos de cobranza influyen de manera positiva en el crecimiento económico de las agencias automotrices.

- Variable Dependiente: Agencias Automotrices.
- Variable Independiente: Métodos de Cobranza.



## Hipótesis Nula

H0: Los métodos de cobranza no influyen de manera positiva en el crecimiento económico de las agencias automotrices.

- Variable Dependiente: Agencias Automotrices.
- Variable Independiente: Métodos de Cobranza.

## DETERMINACIÓN DE MUESTRA

$$n = \frac{N * Z^2 * p * q}{d^2 * (N - 1) + Z^2 * p * q}$$

N= Total de la población

Z" $\alpha$  2" = 1.96 al cuadrado (si la seguridad es del 95%)

P= Proporción esperada (en este caso 5%=0.05)

Q= 1-p (en este caso (1-0.05= 0.95)

D= Precisión (use 5%)

$$n = \frac{12^2 * 1.96^2 * 0.05 * 0.95}{0.05^2 * (12 - 1) + 1.96^2 * 0.05 * 0.95}$$

$$n = \frac{2.189712}{0.209976} = 10.42839182 = 10 \text{ es el tamaño de la muestra.}$$

N:	12
k:	1.96
e:	5%
p:	0.05
q:	.95
<b>Calcular muestra</b>	
n:	10 es el tamaño de la muestra

## PRUEBA DE VALIDEZ Y FIABILIDAD

(HERNANDEZ & FERNANDEZ COLLADO, 2014) Hay diversos procedimientos para calcular la confiabilidad de un instrumento de medición. Todos utilizan procedimientos y fórmulas que producen coeficientes de fiabilidad. La mayoría oscilan entre cero y uno, donde un coeficiente de cero significa nula confiabilidad y uno representa un máximo de confiabilidad (fiabilidad total, perfecta). Cuanto más se acerque el coeficiente a cero, mayor error habrá en la medición.

De acuerdo a lo mencionado anteriormente, se realizó la prueba de validez y confiabilidad a través del "Programa IBM SPSS Statistics 25" obteniendo un "Coeficiente alfa Cronbach de

.819, como se muestra a continuación en la Tabla 3.0 “Resumen de procesamiento de casos”, por lo cual se determina que el instrumento de medición utilizado si es confiable ya que el resultado es muy cercano a la unidad para obtener una fiabilidad total perfecta.

**Tabla 3:** Resumen de procesamiento de casos

<b>Resumen de procesamiento de casos</b>			
		N	%
Casos	Válido	12	100,0
	Excluido	0	,0
	Total	12	100,0

a. La eliminación por lista se basa en todas las variables del procedimiento.

<b>Estadísticas de fiabilidad</b>	
Alfa de Cronbach	N de elementos
,819	20

Fuente: Elaboración propia (Programa IBM SPSS Statistics 25)

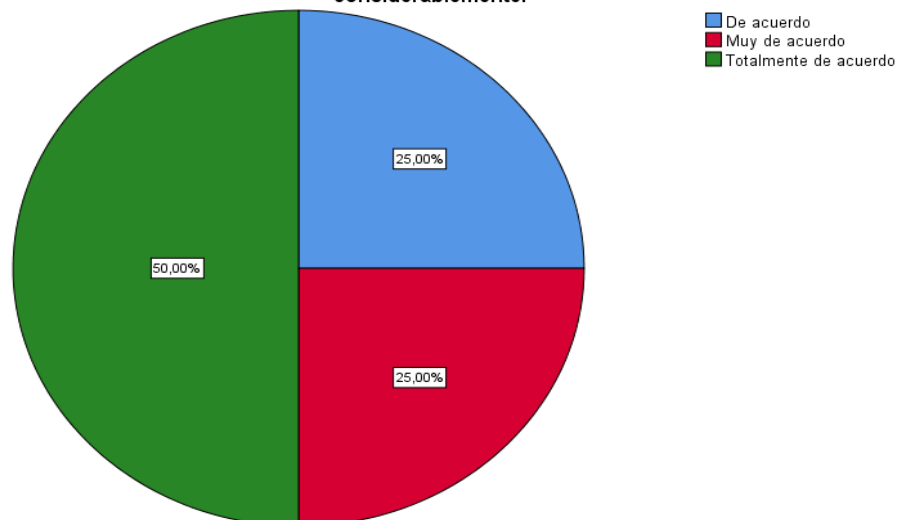
## RESULTADOS

### Ítem Numero 1:

<b>Los diversos métodos de cobranza que utiliza la agencia automotriz permiten aumentar el volumen de ventas considerablemente.</b>					
		Frecuencia	Porcentaje	Porcentaje válido	Porcentaje acumulado
Válido	De acuerdo	3	25,0	25,0	25,0
	Muy de acuerdo	3	25,0	25,0	50,0
	Totalmente de acuerdo	6	50,0	50,0	100,0
	Total	12	100,0	100,0	

Fuente: Elaboración propia (Programa IBM SPSS Statistics 25)

**Los diversos métodos de cobranza que utiliza la agencia automotriz permiten aumentar el volumen de ventas considerablemente.**



Fuente: Elaboración propia (Programa IBM SPSS Statistics 25)

### **Interpretación:**

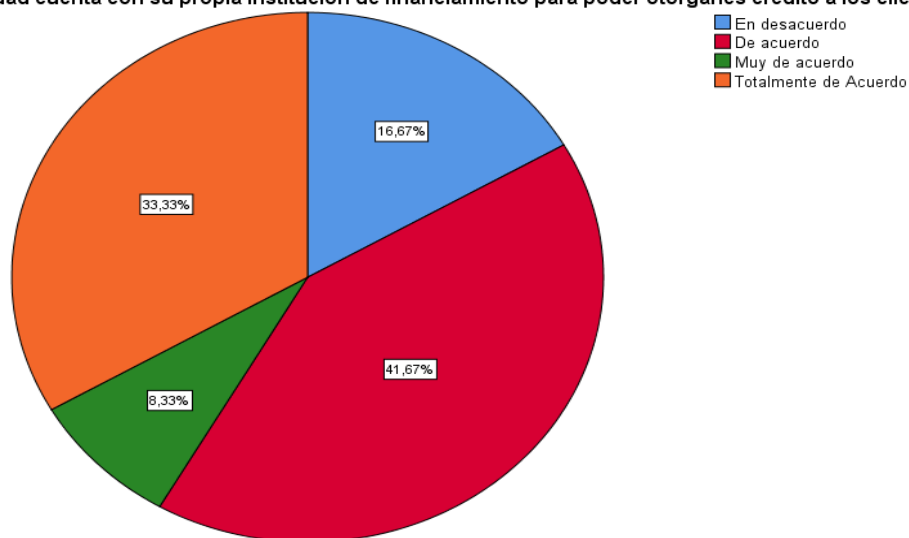
De acuerdo a las encuestas, el 50% del total de las entidades consideran que los diversos métodos de cobranza permiten aumentar el volumen de ventas.

#### **Ítem Número 2:**

<b>La entidad cuenta con su propia institución de financiamiento para poder otorgarles crédito a los clientes</b>		Frecuencia	Porcentaje	Porcentaje válido	Porcentaje acumulado
Válido	En desacuerdo	2	16,7	16,7	16,7
	De acuerdo	5	41,7	41,7	58,3
	Muy de acuerdo	1	8,3	8,3	66,7
	Totalmente de Acuerdo	4	33,3	33,3	100,0
	Total	12	100,0	100,0	

Fuente: Elaboración propia (Programa IBM SPSS Statistics 25)

La entidad cuenta con su propia institución de financiamiento para poder otorgarles crédito a los clientes



Fuente: Elaboración propia (Programa IBM SPSS Statistics 25)

### **Interpretación:**

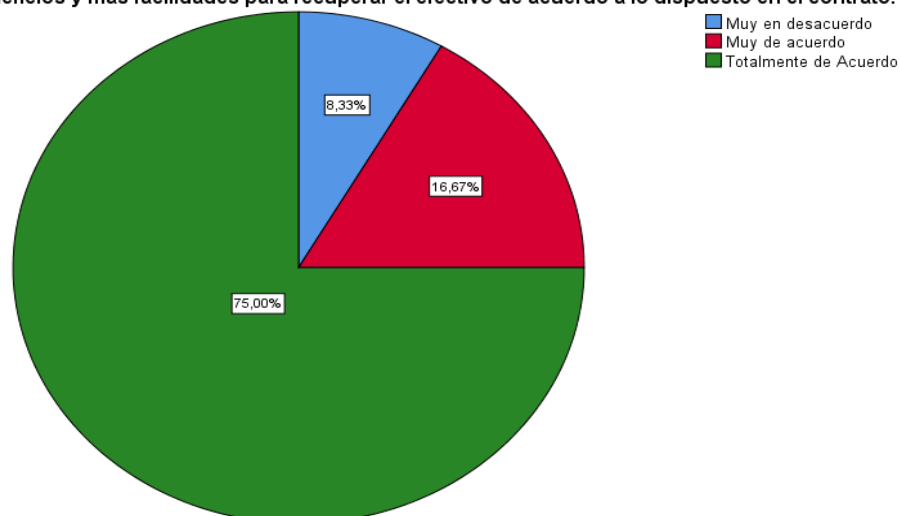
En esta grafica se muestra que el 33.33% están totalmente de acuerdo que las entidades tienen una institución de financiamiento interna.

#### **Ítem Número 3:**

<b>La entidad maneja convenios con instituciones de financiamiento externas, que permiten que obtenga mejores beneficios y más facilidades para recuperar el efectivo de acuerdo a lo dispuesto en el contrato.</b>		Frecuencia	Porcentaje	Porcentaje válido	Porcentaje acumulado
Válido	Muy en desacuerdo	1	8,3	8,3	8,3
	Muy de acuerdo	2	16,7	16,7	25,0
	Totalmente de Acuerdo	9	75,0	75,0	100,0
	Total	12	100,0	100,0	

Fuente: Elaboración propia (Programa IBM SPSS Statistics 25)

La entidad maneja convenios con instituciones de financiamiento externas, que permiten que obtenga mejores beneficios y más facilidades para recuperar el efectivo de acuerdo a lo dispuesto en el contrato.



Fuente: Elaboración propia (Programa IBM SPSS Statistics 25)

### **Interpretación:**

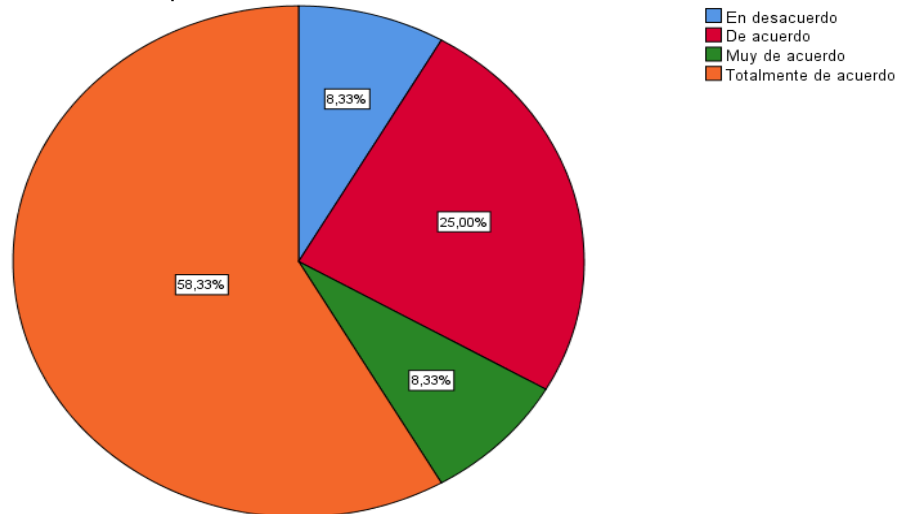
De acuerdo a las encuestas el 75% de las entidades automotrices están totalmente de acuerdo en que al tener un convenio con instituciones de financiamiento externas les permite obtener mejores beneficios y más facilidades para obtener el efectivo.

### **Ítem Número 4:**

<b>Las políticas de cobranza se cumplen en los términos establecidos en el manual de políticas y procedimientos de la entidad independientemente si la institución de financiamiento es interna o externa.</b>					
		Frecuencia	Porcentaje	Porcentaje válido	Porcentaje acumulado
Válido	En desacuerdo	1	8,3	8,3	8,3
	De acuerdo	3	25,0	25,0	33,3
	Muy de acuerdo	1	8,3	8,3	41,7
	Totalmente de acuerdo	7	58,3	58,3	100,0
	Total	12	100,0	100,0	

Fuente: Elaboración propia (Programa IBM SPSS Statistics 25)

Las políticas de cobranza se cumplen en los términos establecidos en el manual de políticas y procedimientos de la entidad independientemente si la institución de financiamiento es interna o externa.



Fuente: Elaboración propia (Programa IBM SPSS Statistics 25)

### **Interpretación:**

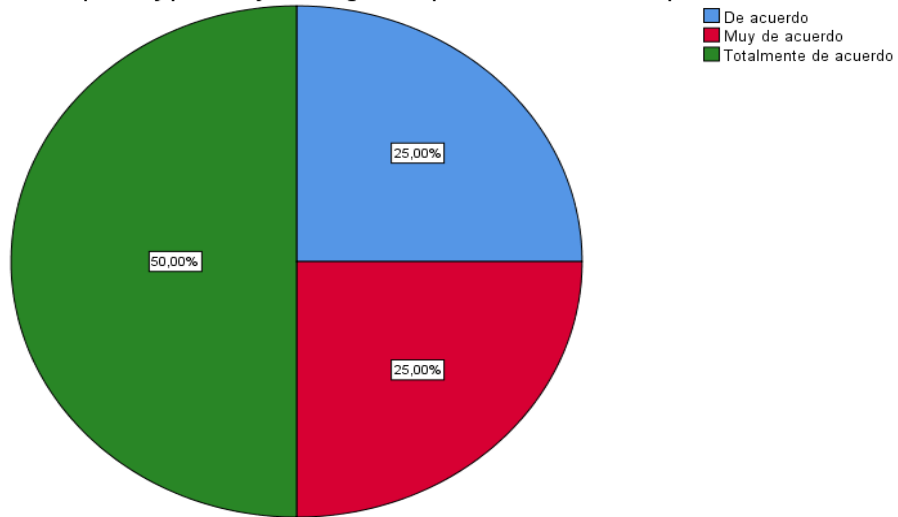
Observamos que el 58.33% de las agencias automotrices consideran totalmente de acuerdo, que las políticas de cobranza se cumplen en los términos establecidos en el manual de políticas y procedimientos de la entidad sin importar que la institución de financiamiento sea interna o externa.

### **Ítem Número 5:**

<b>La entidad al tener una institución financiera interna le permite adoptar mejores estrategias de venta, en relación a los plazos y porcentajes de enganche que sean más atractivos para los futuros clientes.</b>					
		Frecuencia	Porcentaje	Porcentaje válido	Porcentaje acumulado
Válido	De acuerdo	3	25,0	25,0	25,0
	Muy de acuerdo	3	25,0	25,0	50,0
	Totalmente de acuerdo	6	50,0	50,0	100,0
	Total	12	100,0	100,0	

Fuente: Elaboración propia (Programa IBM SPSS Statistics 25)

La entidad al tener una institución financiera interna le permite adoptar mejores estrategias de venta, en relación a los plazos y porcentajes de enganche que sean más atractivos para los futuros clientes.



Fuente: Elaboración propia (Programa IBM SPSS Statistics 25)

### **Interpretación:**

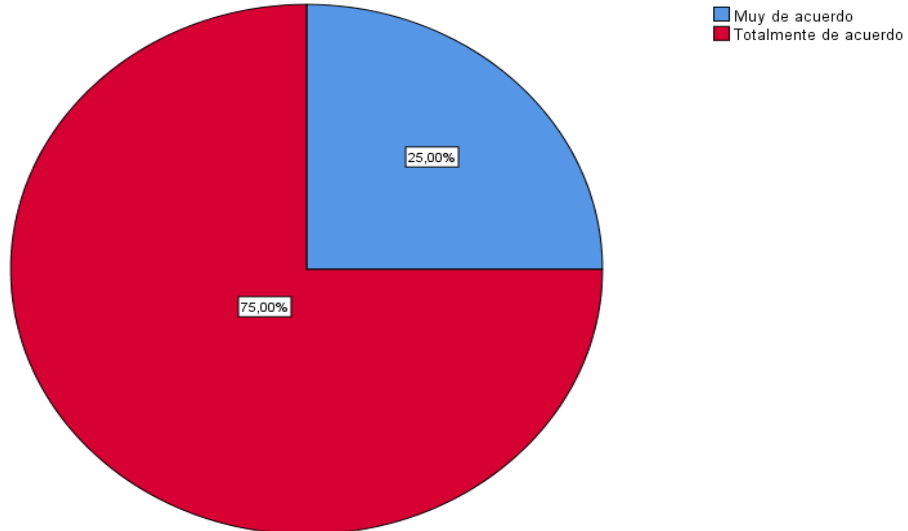
Observamos en esta grafica que las diferentes agencias automotrices con diferentes grados de aceptabilidad, pero la mayoría de forma positiva, porque el 50% eligió la opción totalmente de acuerdo.

### **Ítem Número 6:**

<b>Considera que el financiamiento automotriz representa una oportunidad de crecimiento para la entidad.</b>					
		Frecuencia	Porcentaje	Porcentaje válido	Porcentaje acumulado
Válido	Muy de acuerdo	3	25,0	25,0	25,0
	Totalmente de acuerdo	9	75,0	75,0	100,0
	Total	12	100,0	100,0	

Fuente: Elaboración propia (Programa IBM SPSS Statistics 25)

Considera que el financiamiento automotriz representa una oportunidad de crecimiento para la entidad.



Fuente: Elaboración propia (Programa IBM SPSS Statistics 25)

### **Interpretación:**

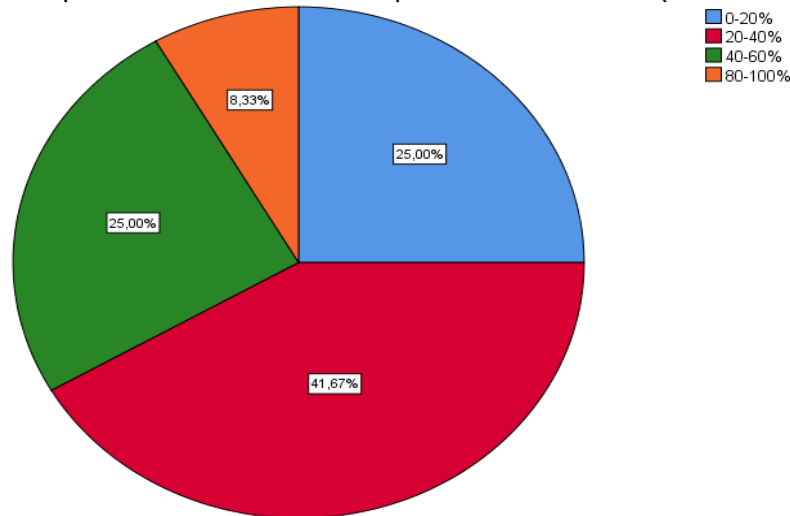
En esta grafica podemos observar que el 75% de los encuestados encuentra de manera muy positiva ante el financiamiento automotriz ya que estos consideran que sí es una gran oportunidad de crecimiento para cada una de las entidades. Esto demuestra que el crecimiento de las agencias automotrices está ligado a que cuentan con un financiamiento para concretar las ventas de manera más rápida.

### **Ítem Número 7:**

<b>Del total de las ventas mensuales que realiza la agencia automotriz ¿Qué porcentaje representa la proporción en que se utiliza el método de cobro aplazado fraccionadamente (Mensualidades)?</b>					
		Frecuencia	Porcentaje	Porcentaje válido	Porcentaje acumulado
Válido	0-20	3	25,0	25,0	25,0
	20-40	5	41,7	41,7	66,7
	40-60	3	25,0	25,0	91,7
	80-100	1	8,3	8,3	100,0
	Total	12	100,0	100,0	

*Fuente:* Elaboración propia (Programa IBM SPSS Statistics 25)

**Del total de las ventas mensuales que realiza la agencia automotriz ¿Qué porcentaje representa la proporción en que se utiliza el método de cobro aplazado fraccionadamente (Mensualidades)?**



*Fuente:* Elaboración propia (Programa IBM SPSS Statistics 25)

### **Interpretación:**

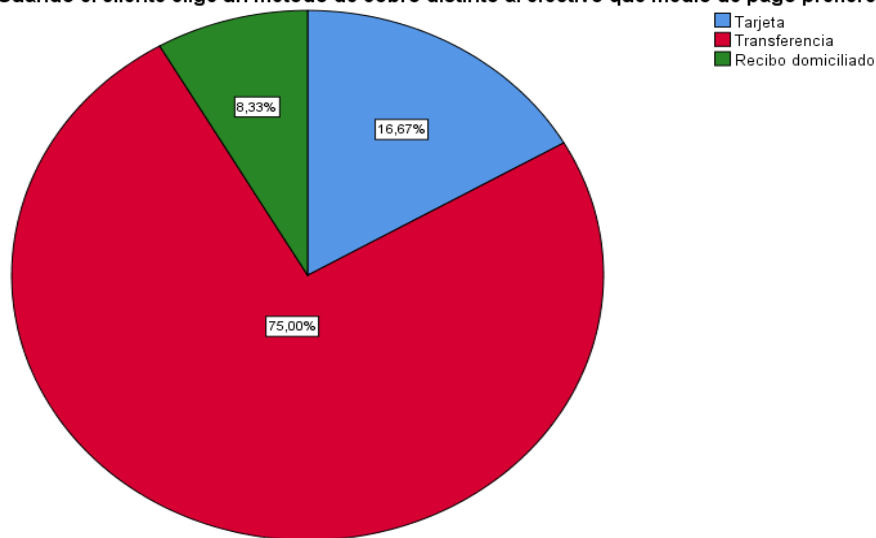
En esta grafica podemos observar que gran mayoría de los compradores prefiere este método de cobro, ya que pagar de esta forma para ellos es de más comodidad y facilidad en el momento que se adquieren nuevas unidades.

**Ítem Número 8:**

Cuando el cliente elige un método de cobro distinto al efectivo que medio de pago prefiere.					
		Frecuencia	Porcentaje	Porcentaje válido	Porcentaje acumulado
Válido	Tarjeta	2	16,7	16,7	16,7
	Transferencia	9	75,0	75,0	91,7
	Recibo domiciliado	1	8,3	8,3	100,0
	Total	12	100,0	100,0	

Fuente: Elaboración propia (Programa IBM SPSS Statistics 25)

Quando el cliente elige un método de cobro distinto al efectivo que medio de pago prefiere.



Fuente: Elaboración propia (Programa IBM SPSS Statistics 25)

**Interpretación:**

La gráfica nos muestra que actualmente los compradores cuando adquieren una unidad prefieren utilizar la transferencia bancaria siendo un 75% de los clientes quienes eligen este método de cobro el cual les resulta el más cómodo.

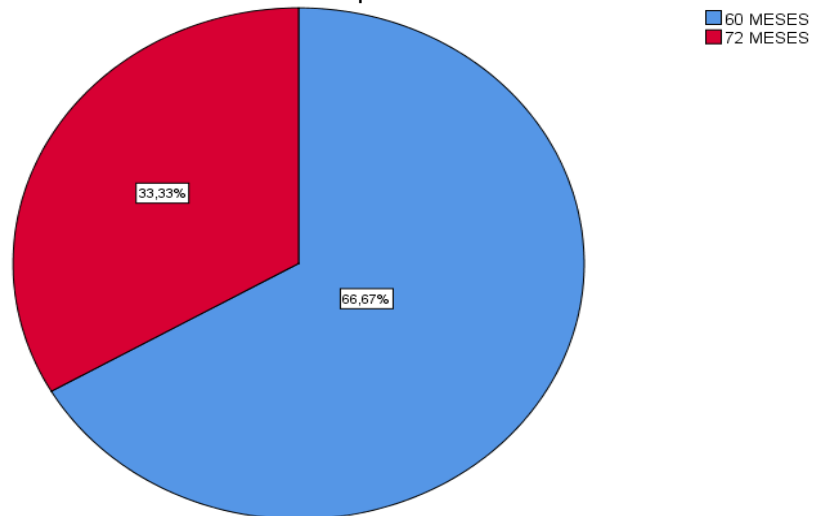
**Ítem Número 9:**

¿Cuál es el plazo de tiempo que tiene mayor demanda por los clientes cuando solicitan financiamiento para adquirir un vehículo?					
		Frecuencia	Porcentaje	Porcentaje válido	Porcentaje acumulado
Válido	60	8	66,7	66,7	66,7
	72	4	33,3	33,3	100,0
	Total	12	100,0	100,0	

Fuente: Elaboración propia (Programa IBM SPSS Statistics 25)



¿Cuál es el plazo de tiempo que tiene mayor demanda por los clientes cuando solicitan financiamiento para adquirir un vehículo?



Fuente: Elaboración propia (Programa IBM SPSS Statistics 25)

### **Interpretación:**

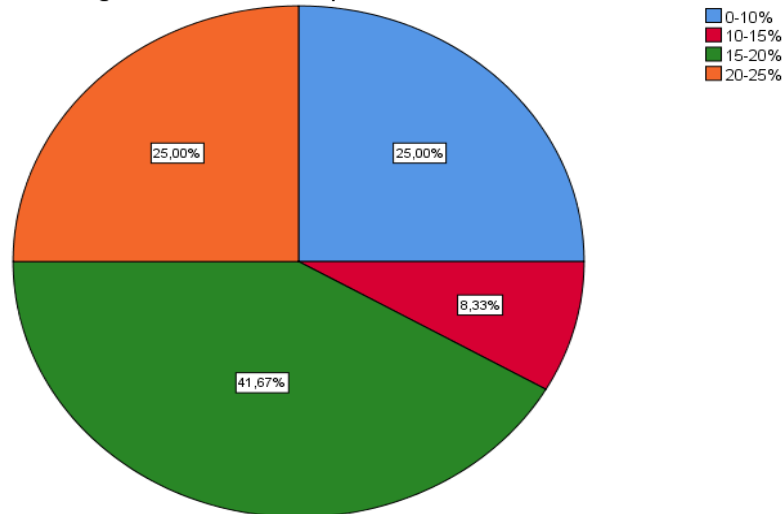
Al momento de adquirir un vehículo el 66.6% de los compradores eligen un plazo de pago de 60 meses, sin embargo, un 33.3% prefiere un plazo de 70 meses al pago de su vehículo, ya que para ellos es un plazo más flexible de acuerdo a sus necesidades y al monto de la unidad que estos están adquiriendo. Como resultado podemos notar que el financiamiento a 60 meses tiene más popularidad entre las agencias automotrices siendo este el más demandado.

### **Ítem Número 10:**

¿Cuándo el método de cobro no es en efectivo que porcentaje de enganche se le solicita al cliente para poder otorgarle el financiamiento que se acomode de acuerdo a sus necesidades?					
		Frecuencia	Porcentaje	Porcentaje válido	Porcentaje acumulado
Válido	0-10	3	25,0	25,0	25,0
	10-15	1	8,3	8,3	33,3
	15-20	5	41,7	41,7	75,0
	20-25	3	25,0	25,0	100,0
	Total	12	100,0	100,0	

Fuente: Elaboración propia (Programa IBM SPSS Statistics 25)

¿Cuándo el método de cobro no es en efectivo que porcentaje de enganche se le solicita al cliente para poder otorgarle el financiamiento que se acomode de acuerdo a sus necesidades?



Fuente: Elaboración propia (Programa IBM SPSS Statistics 25)

### **Interpretación:**

En la gráfica se muestra que en mayoría las agencias automotrices piden un enganche de 15% a 20% esto depende de la situación financiera del comprador y el precio de la unidad que se eligió, es por esa razón que las tasas de enganche varían de entidad en entidad o estas se fijan de acuerdo a sus políticas. En menor parte las agencias deciden cobrar de 10 a 15% el enganche puede ser mayor o menor.

## **DETERMINACIÓN DE HIPÓTESIS**

(HERNANDEZ & FERNANDEZ COLLADO, 2014) Hay dos tipos de análisis estadísticos que pueden realizarse para probar hipótesis: los análisis paramétricos y los no paramétricos.

Existen diversas pruebas paramétricas, pero la que se utilizara para esta investigación es el Coeficiente de correlación de Pearson y regresión lineal.

- Interpretación: El coeficiente  $r$  de Pearson puede variar de  $-1.00$  a  $+1.00$ , donde:  $-1.00 =$  correlación negativa perfecta. (“A mayor X, menor Y”, de manera proporcional. Es decir, cada vez que X aumenta una unidad, Y disminuye siempre una cantidad constante). Esto también se aplica “a menor X, mayor Y”.

La hipótesis que se planteó al iniciar esta investigación es:  $H_i$ : Los métodos de cobranza influyen de manera positiva en el aumento en ventas de las agencias automotrices fue aceptada esto debido a que los resultados que se obtuvieron al estimar la relación de la cantidad de métodos de cobranza y el crecimiento económico confirman estadísticamente que al tener más diversidad de métodos, la probabilidad de que aumenten las ventas es posible y esto se demuestra a continuación en la Tabla 7.0 ya que se obtuvo un coeficiente de  $+1.00$  que es igual a una correlación positiva perfecta.

## **APORTES Y HALLAZGOS**

- La base de datos del Directorio Estadístico Nacional de Unidades Económicas (DENUE) no se encuentre actualizada ya que únicamente tienen registradas 7 agencias automotrices de un total de 12 entidades.
- En esta misma base de datos (DENUE) otro hallazgo fue que no se encuentran registradas las agencias automotrices por su nombre comercial si no están dadas de alta de acuerdo, a la razón social.
- Otro de los hallazgos encontrados durante la realización de esta investigación fue que las agencias que se encuentran en los municipios de Apizaco y Yauhquemehcan solo son puntos de ventas, y su casa matriz se encuentra ubicada en el Estado de Puebla.
- Dentro del levantamiento de nuestras encuestas otro dato importante fue que ninguna de las agencias automotrices cuenta con un sello que las distinga de las demás entidades.

## **CONCLUSIONES Y RECOMENDACIONES**

Los métodos de cobranza en las agencias automotrices de Apizaco y Yauhquemehcan Tlaxcala, han sido de gran ayuda para incrementar las ventas de cada una de estas entidades ya que la mayoría de clientes en la actualidad no tienen el 100% del monto total de la unidad que desean adquirir, sino solamente un porcentaje, y es aquí donde los métodos de cobranza cobran importancia en la vida diaria de las personas, ya que gracias a estos las agencias automotrices pueden concretar la venta y los clientes adquirir su unidad automotriz.

Cada entidad automotriz cuenta con los mismos métodos de cobranza (efectivo, cobro anticipado, aplazado parcialmente o fraccionadamente), sin importar que tengan su propia institución de financiamiento o manejen convenios con instituciones financieras externas.

Para finalizar se puede establecer que los clientes de las agencias automotrices eligen un tiempo de duración del contrato de financiamiento a largo plazo y esto se da porque a ellos se le facilita a razón de que el pago es menor y ellos pueden solventar sus demás gastos y al mismo tiempo adquirir el vehículo.

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# **La intención de compra de productos orgánicos: Un análisis basado en la teoría del comportamiento planeado (TCP)**

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*El objetivo de esta investigación es analizar los factores que influyen en la intención de compra de productos orgánicos. Utilizando el modelo de la Teoría del Comportamiento Planeado (TCP) el cual considera tres criterios la actitud, las normas subjetivas y el control conductual percibido de los consumidores. La recolección de los datos se realizó a través de entrevistas a 348 estudiantes universitarios, los datos fueron sometidos a un análisis de regresión lineal. Los resultados obtenidos indican que los tres criterios de la TCP, es decir, la actitud hacia los productos orgánicos, las normas subjetivas y el control conductual percibido influye de manera positiva y significativa en la intención de compra de productos orgánicos.*

*PALABRAS CLAVE* *actitud, control conductual, intención de compra, producto orgánico, TCP*

*The objective of this research is to analyze the factors that influence the intention of buying organic products. Using the model of the Theory of Planned Behavior (TPB), which considers three criteria: the attitude, subjective norms, and perceived behavioral control of the consumers. The data was collected by interviewing 348 university students, and subjected to a linear regression analysis. The results obtained indicate that the three criteria of the TPB that is, the attitude towards organic products, subjective norms, and perceived behavioral control, have a positive and significant influence on the intention to purchase organic products.*

*KEYWORDS* *attitude, behavioral control, purchase intention, organic product, TPB*

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# Ética profesional en el reclutamiento de personal

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*Se sabe que existen problemas por la falta de ética profesional, se presenta muy seguido en diferentes estados y países. De acuerdo a un estudio que se realizó en una universidad de Chile por psicólogos reconocidos analizaron los problemas éticos que se presentan al momento de reclutar personal. En este estudio nos referimos a una empresa maquiladora de la ciudad de Nuevo Laredo Tamaulipas donde se pretende identificar si existen problemas relacionados con la discriminación, ya que en ocasiones se favorecen a candidatos que tienen alguna relación familiar o de amistad con personal de altos mandos.*

*Este estudio impactara, además, a otras empresas que realizan contratación y promoción de puestos. Además, será de beneficio principalmente para nosotros los estudiantes, que al momento de egresar y estar trabajando, realicemos nuestro trabajo con ética; además será de gran utilidad a los responsables de reclutamiento del capital humano, tanto a empresas locales, estatales, nacionales e internacionales.*

*En la presente investigación se pretende detectar ¿Qué estrategia se puede aplicar al momento de reclutar el personal, para que se realice con ética?, nuestra Hipótesis a estudiar es: “El reclutamiento influye de manera constante en la ética laboral para que los empleados trabajen de manera eficaz en la empresa”. El objetivo principal es identificar factores antiéticos que existen dentro de una organización que afectan a los empleados y a la propia empresa que sucede al momento de reclutar personal.*

*Se ha estudiado e investigado a profundidad los dilemas éticos que surgen a partir del proceso de selección de personal en una empresa, debe constituir premisa para los líderes de los procesos de gestión humana dentro de la organización. Se realizó un análisis de la población universitaria que trabaja y de las personas que desempeñan su labor dentro de la empresa maquiladora.*

*Se realizó un estudio bibliográfico, exploratorio, se realizaron entrevistas y se aplicaron encuestas, el tamaño de la muestra fue de 100 trabajadores encuestados, el 39% hombres y 61 % mujeres. Los resultados más significativos de la encuesta que se aplicó a los trabajadores de la empresa fueron los siguientes: la mayoría de los empleados conocen el código de ética de su empresa, consideran que no existe discriminación de sexo, pero como controversia la mayoría*

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*considera que algunas veces ha existido falta de ética y se ha favorecido a algunas personas para promoción laboral.*

*La ética constituye un aspecto indispensable para el ejercicio competente de cualquier profesión, el tema de selección de personal lleva implícito un gran compromiso ético con la profesión y con la institución en que se labora. Como estrategia para el reclutamiento de empleados se recomienda: tener varios filtros desde el aviso de un nuevo trabajo, así como los requisitos en donde se especifique ampliamente, tanto el perfil del empleado como sus funciones que deberá de comprometerse a realizar, además para evitar favoritismos y que se realice una convocatoria abierta, lo más transparente posible.*

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# Estrés laboral en agencias aduanales en Nuevo Laredo

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*El tema que tomaremos a continuación será el estrés laboral en el área de agencias aduanales en Nuevo Laredo, Tamaulipas, México, teniendo como objetivo principal el conocer las más frecuentes causas del estrés laboral que se viven cotidianamente, así como también conocer si realmente las empresas toman medidas para prevenir el estrés dentro del área laboral, dar a conocer de como los trabajadores por si mismos disminuyen el estrés o lo previenen, que hacen dichas empresas para prevenirlo o si tienen alguna forma de afrontarlo uno de los factores principales del estrés es el tiempo de las jornadas laborales que pueden ser desde 8 hasta las 12 horas incluso pudiendo doblar la jornada laboral, afectando la salud física y mental, así como su rendimiento dentro de sus actividades laborales, adentrando nos a continuación detalladamente sobre el tema basándonos en la Norma la Nom-035-Stps-2018. en el Instituto Mexicano del Seguro Social (IMSS) lo cual son de gran fuente de información para lograr hacer una encuesta en donde se logra percibir cual es el mayor índice de la problemática, tomando como muestra 100 trabajadores de agencias aduanales de diferentes puestos. Por lo que una de las propuestas es no tomar a la ligera el estrés, que haya una constante comunicación con todos los empleados para que en caso de que se empiecen a sentir abrumados o alguno de los síntomas que por lo regular conlleva el estrés se distribuir el trabajo con todos sin que haya una sobre carga para una sola persona.*

*PALABRAS CLAVE Estrés, Agencias Aduanales*

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# La gestión del talento humano en la empresa supermercados H.E.B. México: Sus mejores prácticas

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*Se analiza a la cadena estadounidense de supermercados H.E.B con sede en San Antonio, Texas, en su gestión del talento humano implementada en México, mercado donde incursionó desde 1997 contando actualmente con 65 establecimientos y alrededor de 13,500 empleados. El trabajo completo desglosa algunas de sus prácticas y programas más notables aplicados en esta disciplina y que la mantienen tan competitiva, pues en base a la prestigiada revista de negocios y finanzas FORBES (2020), la ubica en la posición no. 11 de las empresas privadas más grandes de América, el lugar no.23 como mejor empleador de recién egresados y no.32 de su ranking de los mejores empleadores de mujeres en América del 2019.*

*La gestión de recursos humanos es un elemento de extrema importancia en la estrategia de un negocio. Y actualmente debe estar integrada por actividades que generen sinergia y capitalicen efectos tanto para las organizaciones como para quienes en ellas colaboran. Para tal efecto, Chiavenato (2009) propone considerar lo siguiente:*

- **Las personas como individuos y no como sólo recursos de la organización.** *En la empresa estudiada se practica un respeto total a la individualidad de los colaboradores, y se les reafirma que forman parte de ella por sus valiosas capacidades y por sus valores como personas.*
- **Las personas como fuente de impulso.** *En todos los niveles de la organización, desde los operativos hasta los puestos ejecutivos, se tienen sesiones de lluvia de ideas semanales para mejorar procesos, y todas las opciones son escuchadas y consideradas. Hay una política de puertas abiertas.*
- **Las personas como asociados activos de la organización.** *Desde la premisa que involucra al Recurso Humano y reza en su visión: Tener los mejores colaboradores. Y que dentro de su misión se expresa: Mejorar su calidad de vida. Se ejemplifica siendo la empresa de supermercados con el programa de compensación más atractivo en su industria en México. Además de un fuerte compromiso con el desarrollo de sus colaboradores, a quien llaman socios.*
- **Las personas como proveedores talentos y competencias.** *Ofrece un crecimiento profesional dando capacitación y desarrollo constante tanto en su universidad interna como en planes externos de estudio. Su crecimiento en el mercado y la apertura de nuevos establecimientos también permite que su personal escale rápidamente a nuevas posiciones.*

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- *Las personas como el capital humano de la organización. Maneja un marcado enfoque en su principal activo, sus socios. Y dentro de sus promesas a ellos está el atraerlos, desarrollarlos y retenerlos. Así como transformar sus ideas en acciones y maximizar su potencial.*

*La empresa vive una filosofía de satisfacción al usuario interno y externo, con visión, y creadora de valor. Incentiva a la integración, con una cultura organizacional de participación y compromiso, de espíritu de equipo. Teniendo mecanismos de retroalimentación efectiva. Delega y atribuye facultades. Propicia un ambiente interno de desarrollo del talento.*

*Para complementar la investigación, se aplicó una encuesta a 234 personas de las ciudades de Nuevo Laredo y Monterrey, donde debían elegir entre las cinco principales cadenas de autoservicio establecidas en la región la que consideran sería un mejor lugar para trabajar. El 70% de los participantes seleccionaron a HEB, seguido de Wal-Mart con el 16%.*

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## **Tecnología y educación superior**

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*La tecnología educativa utiliza las herramientas tecnológicas que se aplican en la educación, el docente tiene que diseñar nuevas estrategias de enseñanza y aprendizaje para que los estudiantes sean capaces de desarrollar sus habilidades de razonamiento para el uso y manejo correcto de las tecnologías de información.*

*Para conocer en qué grado se logra esto, se llevó a cabo una investigación utilizando una muestra de 220 estudiantes de una población de 1500 –alumnos del turno matutino de la Facultad de Comercio, Administración y Ciencias Sociales de la Universidad Autónoma de Tamaulipas-. La cual tuvo como objetivo conocer si los estudiantes hacen buen uso de las tecnologías y si los procesos de enseñanza-aprendizaje se ven beneficiados con su utilización, así mismo obtener resultados de en qué medida los alumnos obtienen mejores calificaciones trabajando con la tecnología o herramientas multimedia, que con el método tradicional. Hecho esto, hemos confirmando que los alumnos si se ven favorecidos gracias a los recursos tecnológicos y plataformas digitales en la Facultad de Comercio facilitado la comprensión de contenidos de programas, ilustrando el tema con imágenes fijas o interactivas, así como presentaciones electrónicas que permitan motivar a los alumnos para que sean autónomos y construyan sus conocimientos. La información se procesó en el paquete estadístico SPSS versión 23.*

*PALABRAS CLAVE Tecnología, Estudiantes, Universidad*

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# **El impacto de las TICs en el aprendizaje de los alumnos de educación superior de la Facultad de Comercio, Administración y Ciencias Sociales**

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*En la actualidad las TICs desempeñan un papel importante en las redes de conocimiento alrededor del mundo. Por esa razón se analizarán las variables las TICs que puedan llegar a impactar en el aprendizaje de los alumnos de educación superior de la Facultad de Comercio, Administración y Ciencias Sociales.*

*La investigación que se abordará será de carácter cualitativo, con la finalidad de determinar por medio de una encuesta las variables que podrían llegar a impactar la enseñanza. Como resultado se pretende encontrar variables que pudieran a llegar a ser significativas para el aprendizaje. Pretendiendo con esto continuar con una segunda etapa de medición del impacto de esas variables en la enseñanza por medio de modelos no paramétricos. Contribuyendo a la aportación de variables de tecnologías de información y comunicación que potencialicen la enseñanza.*

*PALABRAS CLAVES TICs, Aprendizaje, Educación Superior*

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# **Las tecnologías de la información y la comunicación como medio de profesionalización educativa y empresarial**

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*En el presente se comparten los desarrollos tecnológicos más novedosos del área educativa, abarcando desde las tecnologías de educación a distancia y herramientas móviles hasta los desarrollos de hardware educativo, con el objetivo de que los profesores habiliten, diseñen, construyan y administren modernos entornos de aprendizaje tecnológicos; por medio de un enfoque basado en Competencias, logro de los aprendizajes esperados, certificación de las competencias genéricas /disciplinares y aprendizaje significativo de los alumnos que un futuro se convertirán en exitosos profesionistas.*

*Por ello se recomienda la utilización de herramientas tecnológicas educativa, tales como:*

## *Plataformas Educativas*

- *Classroom*
- *Canvas*
- *Moodle*
- *Edmodo*
- *Progrentis*

## *Metodología Educativa*

- *Flipped Classroom*

## *APPS Educativas*

- *GeoGebra*
- *Quix Tablas de multiplicar*
- *Poowton*
- *LEGO*

## *Apple Teacher*

*Enseñando a utilizar las apps y herramientas tecnológicas a los Docentes y Alumnos, se desarrollará el aprendizaje b-learning y flipped classroom.*

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*En resumen la experiencia docente más el uso de las TICs, Apps y herramientas tecnológicas garantizan un éxito educativo y empresarial.*

*Propósito: Brindar los conocimientos necesarios sobre software y apps educativos de tendencia, para la mejora de las competencias docentes y el proceso enseñanza-aprendizaje mediante, la utilización de contenido creativo e interactivo de calidad que certifiquen las competencias genéricas-disciplinares y el aprendizaje significativo.*

## **INTRODUCCION**

Actualmente en un mundo cada vez más globalizado y competitivo, las tendencias curriculares internacionales coadyuvan a los retos de la educación en México, en ello, la aplicación de la Reforma Educativa brinda la oportunidad de incluir el Mejoramiento de la Calidad en la Educación; por medio de un enfoque basado en Competencias, el cual es considerado altamente apropiado para la formación profesional docente y directiva.

La presente ponencia tiene como finalidad declarar un sólido sustento teórico y práctico en temas educativos prioritarios en el uso de las TIC (Tecnologías de Información y Comunicaciones) que por su naturaleza puedan servir de apoyo en las labores docentes; de forma paralela se presentan y analizan los desarrollos tecnológicos más novedosos del área educativa, abarcando desde las tecnologías de educación a distancia y herramientas móviles hasta los desarrollos de hardware educativo, todo esto con el objetivo de que los profesores adquieran los conocimientos necesarios que los habiliten para diseñar, construir y administrar modernos entornos de aprendizaje tecnológicos.

## **DESARROLLO**

Los retos de la educación se basan en el aprendizaje significativo enfocado a la resolución de problemas, ya que nuestros estudiantes se enfrentan a una sociedad de constantes cambios, revoluciones tecnológicas y problemáticas únicas; el papel del Docente como guía e ingeniero de las directrices con las cuales el alumno construya su propio aprendizaje es de vital importancia para el desarrollo y bienestar social, académico, científico y tecnológico de una región o país, particularmente de la transformación positiva de los estudiantes en ambientes emocionalmente seguros e inclusivos que permitan el desarrollo de las competencias tecnológicas de forma accesible, sencilla, gratuita, confiable, imparcial, eficiente y efectiva al momento de evaluar-retroalimentar el aprendizaje.

A continuación se procede a describir cada una de las herramientas tecnológicas educativas y de innovación, que se recomiendan para la labor docente:

## **PLATAFORMAS EDUCATIVAS**

### **Classroom**

Herramienta gratuita de Google Apps for Education que ayuda a los profesores a crear y organizar tareas rápidamente, además ofrece una plataforma de comunicación eficiente con los alumnos utilizando distintas apps de Google.

### **Moodle**

Plataforma de aprendizaje diseñada gratuitamente para proporcionar a educadores y estudiantes un sistema integrado único, robusto y seguro para crear ambientes de aprendizaje personalizados.

### **Edmodo**

Es una plataforma tecnológica, social, educativa y gratuita que permite la comunicación entre los alumnos y los profesores, proporciona al docente un espacio virtual privado en el que se pueden compartir mensajes, archivos, exámenes, enlaces, calendario de aula, así como proponer tareas y actividades para gestionarlas dentro y fuera del aula. Los Padres de Familia también tienen acceso a esta plataforma como observadores del proceso de enseñanza-aprendizaje.

### **Canvas**

Es la plataforma educativa más utilizada a nivel internacional aunque esta plataforma se adquiere por la compra y venta de licencias estudiantiles y docentes, prestigias escuelas del mundo por ejemplo Harvard y Texas A & M, confían sus saberes a esta plataforma educativa por su administración y sencillez en el proceso de aula inversa.

### **Progentis**

Plataforma tecnológica de destrezas digitales para el desarrollo del pensamiento creativo. Progentis parte de elevar la destreza lectora en términos de comprensión y fluidez para luego, a través de las destrezas digitales, llevar al alumno a la aplicación de estas destrezas en la solución de PBLs.

Las plataformas educativas como Progentis, Moodle, Edmodo, Canvas y Google Classroom permiten administrar la entrega recepción de tareas, las calificaciones y la administración de las evidencias, de una manera digital, ordenada y segura, así como diseñar exámenes en forma convergente y divergente, dando la oportunidad de tener al instante el resultado de la evaluación, así como el tiempo de duración del examen, la hora exacta en la que iniciaron y terminaron, información de la cantidad de aciertos y una retroalimentación conjunta sobre las respuestas no idóneas, controlan que se puedan ver o continuar contestando las preguntas anteriores, etc... Los beneficios son innumerables y lo más importante, la información que presentan facilita la creación de estadísticas e informes precisos y concisos.

## **METODOLOGÍA EDUCATIVA**

### **Flipped Classroom**

El aula invertida (en inglés, flipped classroom) es una modalidad de aprendizaje semipresencial o mixto que pretende utilizar dos estrategias, la presencial y la virtual tomando en cada momento lo mejor de ellas. El aula invertida es un método de enseñanza que está cambiando el modelo tradicional de clase, planteando la necesidad de transferir parte del proceso de enseñanza y aprendizaje fuera del aula con el objetivo de utilizar el tiempo de clase para el desarrollo de actividades que favorezcan el aprendizaje significativo.

En este nuevo modelo de aula invertida se espera que los estudiantes participen activamente; se apoya en el compromiso y responsabilidad del individuo dispuesto a explorar libremente nuevos conceptos, partiendo de un tema facilitado por el docente para después trabajarlo en clase ejercitando o profundizando su contenido. Invertir una clase implica un enfoque integral por medio del cual se combina una enseñanza presencial directa con métodos que toman de referencia una perspectiva constructiva del aprendizaje y que, aplicados adecuadamente, pueden sustentar todas las fases del ciclo de aprendizaje que componen la Taxonomía de Bloom.

## **APPS EDUCATIVAS**

### **GeoGebra**

Software de matemáticas dinámicas para todos los niveles educativos que reúne geometría, álgebra, hoja de cálculo, gráficos, estadística y cálculo en un solo programa fácil de usar. GeoGebra es también una comunidad en rápida expansión, con millones de usuarios en casi todos los países. Esta herramienta se ha convertido en el proveedor líder de software de matemática dinámica, apoyando la educación en ciencias, tecnología, ingeniería y matemáticas (STEM: Science Technology Engineering & Mathematics) y la innovación en la enseñanza y el aprendizaje en todo el mundo.

### **Quix Tablas de multiplicar**

Es una App para niños para estudiar y repasar las tablas.

Ayuda a

- Verificar el nivel de conocimiento de las tablas por medio juegos que pueden ser divertidos para los estudiantes..
- Partidas rápidas para aprender y repasar las tablas para niños. Estadísticas completas para descubrir junto al niño cuales son las tablas y las operaciones en las cuales tiene mayor dificultad y cuales conoce mejor.

### **Poowton**

Software en línea que tiene como función crear vídeos y presentaciones animadas e interpretar lo que el usuario introduce, reproduciéndose como una caricatura, de una persona hablando



mostrando cuadros de diálogo que el usuario haya escrito. Es muy usado en el ámbito escolar y también por cibernautas que con vídeos caricaturizados, comunican una idea.

## LEGO

Empresa y marca de juguetes reconocida principalmente por sus bloques de plástico interconectables. Una de las divisiones de esta empresa es LEGO Educación en la cual se desarrollan soluciones y recursos educativos que son utilizados en el salón de clases para apoyar los temas de clase y crear experiencias de aprendizaje divertidas.

- *LEGO WeDo* es la propuesta para los más jóvenes. Los niños pueden construir modelos con sensores simples y motores que se conectan a sus computadoras, y programan comportamientos con herramientas simples para iniciarse en la robótica.
- *LEGO LearnToLearn* se basa en la teoría de la educación del construccionismo, que tiene sus raíces en la creencia de que los niños aprenden mejor cuando experimentan cosas de primera mano y dentro de un contexto significativo.
- *LEGO MoreToMath* es una herramienta para propuesta por lego para enseñar matemáticas por medio de la resolución de problemas. La principal característica de esta herramienta es el poder llevar las matemáticas abstractas a un ambiente tangible.
- *LEGO Machines & Mechanisms* trata de conectar a los estudiantes jóvenes con el mundo que los rodea, motivándolo a explorar y comprender cómo funcionan las cosas a través de ejercicios que muestran los principios del funcionamiento de máquinas simples y mecanismos.
- *LEGO Mindstorm* consiste en una completa solución de enseñanza desarrollada con educadores para involucrar de manera activa a los alumnos en procesos construcción, programación y pruebas para solucionar problemas reales a través de la robótica.

## Apple Teacher

Este programa los profesores pueden utilizar dentro del aula la magia del iPad, la Mac y las apps integradas. Al registrarte, obtienen acceso a desarrollar habilidades, obtener distintivos y recibir reconocimiento como Apple Teacher. El programa está abierto a todos los maestros y es una plataforma para que las escuelas puedan ofrecer a su personal un aprendizaje profesional gratuito.

- *Keynote* es una app de apple que es parecida a power point, sirve para hacer presentaciones para exposiciones de forma dinámica y atractiva.
- *Imovie* es una app que se utiliza para realizar videos y tráilers de forma sencilla y con efectos creativos puedes editar, incluir música y efectos a cada video o fotografía y el resultado es por demás atractivo y estético.
- *Garageband* app que orquesta las mejores notas y sonidos para confeccionar canciones con los sonidos de instrumentos musicales de la aplicación en una misma sintonía y con un resultado muy favorecedor para los sentidos.

## **BENEFICIOS DE USAR TIC'S EDUCATIVAS**

Aplicar las apps y herramientas de TICs educativas en las aulas traerá consigo innumerables beneficios, algunos de los cuales menciono a continuación:

- Estrategias de enseñanza y aprendizaje, efectivas, creativas e innovadoras.
- Garantiza el aprendizaje de contenidos curriculares: declarativos, procedimentales y actitudinales en los alumnos.
- Estimular al aprendizaje autodidacta y constructivismo.
- Práctica de trabajo colaborativo en estudiantes.
- Actitud proactiva de toma de decisiones y resolución de conflictos.
- Propicia el trabajo colegiado y la comunicación de experiencias entre pares docentes.
- Actividades de aprendizaje que fortalezcan la adquisición de habilidades, actitudes y competencias genéricas, disciplinares y docentes.
- Practicar y adquirir habilidades tecnológicas y de comunicación para el proceso de enseñanza-aprendizaje.

## **JUSTIFICACIÓN DE LA ESTRATEGIA DE TIC'S EDUCATIVAS EN EL AULA**

- Principios pedagógicos de: Paulo Freire, Howard Garner, Ausubel, Piaget, Vygotsky, Pimentel, Tobón y Díaz Barriga.
- Estrategias de aprendizaje: Aprendizaje autodidacta, Aprendizaje basado en proyectos, Inteligencias múltiples, Aprendizaje lúdico, Aprendizaje colaborativo, Aprendizaje basado en problemas, Aprendizaje utilizando las Tic's y Proyecto Transversal, Normas de Trabajo y Declaración de los Derechos de los niños.

## **APRENDIZAJES ESPERADOS DE CONTENIDOS CURRICULARES:**

- Contenidos declarativos. (saber conocer) Conocimientos factuales y conceptos de escritura e investigación propios para cada disciplina.
- Contenidos procedimentales. (saber hacer) Se encuentran en las actividades y estrategias de aprendizaje y buscan que el alumno aprenda a organizar, procesar, investigar, redactar, leer, etc..
- Contenidos actitudinales: (saber ser) se busca que los alumnos sean más leales, estudiosos, estén al uso de las tecnologías y se solidaricen con sus semejantes, colaboren en la sociedad, etc..

## **CONCLUSION**

Trabajar por competencias es cumplir con la RIEMS y los estatutos de un Marco Curricular Común, que favorece las competencias y el aprendizaje significativo para el alumno y su vínculo con el contexto social y educativo.

En base a mi experiencia con la aplicación de Apps y herramientas tecnológicas en el aula, recomiendo ampliamente su utilización en la maximización de las competencias y en la evaluación o retroalimentación del quehacer educativo.

Como docente que cumple con las competencias establecidas en el artículo 447, una persona capaz de hacer cumplir el acuerdo 442 del marco curricular común en sus alumnos, un profesionalista fiel y comprometido con las nuevas reformas de servicio profesional docente y la Reforma Integral de la Educación Media Superior y Superior, diseño planeaciones por competencias, al realizar secuencias didácticas creativas centradas en el aprendizaje colaborativo, con actividades que incluyen: proyectos, investigaciones y trabajos colaborativos; fuera del salón de clases, por lo cual me es de vital importancia que mis alumnos cuentan con un aula invertida, además que buscan bibliografía, hemerografía y fuentes de investigación audiovisual; ya que utilizo estrategias didácticas y evaluativas poniendo en práctica el aprendizaje b-learning que significa que el aprendizaje es semipresencial y electrónico.

Apoyada en aprendizaje significativo de Ausubel y la metacognición de Vigotsky; IECA's basadas en proyectos, Aprendizaje Lúdico y Aprendizaje Colaborativo, entre otros. De esta manera se logra complementar una educación holística inclusiva en base al desarrollo de competencias genéricas y climas áulicos emocionalmente seguros que protegen y garantizan los derechos, en resumen tu experiencia docente más el uso de las TICs, Apps y herramientas tecnológicas garantizan un éxito educativo lo que se verá reflejado en futuros profesionistas exitosos.

LAS TECNOLOGÍAS DE LA INFORMACIÓN Y LA COMUNICACIÓN COMO MEDIO DE  
PROFESIONALIZACIÓN EDUCATIVA Y EMPRESARIAL.

## METODOLOGÍA EDUCATIVA AULA INVERTIDA

El aula invertida (en inglés, flipped classroom) es una modalidad de aprendizaje semipresencial o mixto que pretende utilizar dos estrategias, la presencial y la virtual tomando en cada momento lo mejor de ellas.

### APPS EDUCATIVAS



### APPLE TEACHER



### POWTOON



Software para crear videos y presentaciones tipo caricatura.

### GEOGEBRA

Software matemático que reúne geometría, álgebra, estadística y cálculo.



### QUIX Tablas de Multiplicar



App gratuita para estudiar y repasar las tablas de multiplicar

### LEGO EDUCATIVO

Desarrolla soluciones y recursos educativos creando experiencias de aprendizaje divertidas.



# **Análisis del impacto de las plataformas digitales (LMS) en el rendimiento universitario**

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*En estos tiempos de la era digital las plataformas educativas (LMS, Learning mangement system) son herramientas innovadoras en la gestión del conocimiento. En esta investigación se propone el uso de las Plataformas LMS con la finalidad de generar mayor éxito en la vida estudiantil. En la siguiente investigación se evaluará el impacto de las plataformas LMS en el rendimiento de los estudiantes universitarios. Teniendo como resultado el impacto positivo que las plataformas digitales tienen en la gestión del conocimiento. Asumiendo que es importante la implementación de estrategias digitales en la gestión del conocimiento en el ámbito universitario.*

*PALABRAS CLAVES Plataformas Digitales, Rendimiento, Gestión del conocimiento*

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# **La seguridad informática en los estudiantes universitarios de Tecnologías de la Información, Contaduría Pública y Administración: El caso de la Facultad de Comercio, Administración y Ciencias Sociales de Nuevo Laredo, México**

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*La seguridad informática es un tema relevante para los usuarios de sistemas de información por el alto número de incidentes que recientemente han vulnerado la privacidad de personas y empresas. Es bien conocido que a pesar de que un software ofrezca sofisticadas características de seguridad, estas serían de poca utilidad si sus usuarios no cuentan con las actitudes y la formación apropiadas. Hoy en día las contraseñas representan un medio fundamental para proteger accesos y datos. Una contraseña débil o mal utilizada es una potencial vulnerabilidad para cualquier sistema informático. Esta investigación tuvo como objetivos caracterizar y comparar el nivel de seguridad informática de los estudiantes de licenciatura de Tecnologías de la Información, Contaduría Pública y Administración de la Universidad Autónoma de Tamaulipas (Facultad de Comercio, Administración y Ciencias Sociales de Nuevo Laredo), a través del uso que les dan a sus contraseñas. Se utilizó un diseño de investigación cuantitativo de corte transversal y de alcance descriptivo-comparativo. Se contó con una muestra estadísticamente representativa de la población de cada carrera profesional. Se encuestó a 299 estudiantes, de los cuales, 44 fueron de Tecnologías de la Información, 111 de Contador Público y 144 de Administración. Se les plantearon preguntas sobre aspectos relacionados con sus contraseñas. Las respuestas recabadas se analizaron con el software SPSS versión 25, en donde se obtuvieron estadísticos descriptivos, se realizaron pruebas de normalidad y se condujeron pruebas no*

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*paramétricas de Kruskal-Wallis. Los resultados indicaron que existen áreas de oportunidad para mejorar la seguridad y el uso de contraseñas en los estudiantes de las tres carreras profesionales. Sin embargo, los alumnos más vulnerables fueron de Administración y los menos vulnerables, de Tecnologías de la Información. Estos hallazgos permiten plantear programas formativos con énfasis diferenciados para las tres carreras estudiadas con el objetivo de fortalecer los niveles de seguridad informática ente los futuros profesionistas.*

*PALABRAS CLAVE Seguridad Informática, Contraseñas, Capacitación, Educación Superior*

*Cyber security is a relevant issue for users of information systems due to the high number of incidents that have recently violated the privacy of individuals and companies. It is well known that even if software implements sophisticated security features, they will be useless if its users do not have the right attitude and training. Nowadays, passwords represent a fundamental means to protect data and its access. A weak or misused password is a potential threat to any computer system. This research aimed at characterizing and comparing the cyber security level of undergraduate students of Information Technology, Public Accounting and Business Administration of the Autonomous University of Tamaulipas (School of Commerce, Business Administration, and Social Sciences of Nuevo Laredo), through their password-use culture. A quantitative cross-sectional research design with descriptive-comparative scope was used. There was a statistically representative sample of the population of each professional program. 299 students were surveyed, of which 44 were from Information Technology, 111 from Public Accounting, and 144 from Business Administration. They were asked questions about their passwords. The responses collected were analyzed with the SPSS 25 software, where descriptive statistics were obtained, normality tests were performed, and non-parametric Kruskal-Wallis tests were carried out. The results indicated that there are areas of opportunity to improve the security and use of passwords in the students of the three undergraduate programs. However, the most vulnerable students were from Business Administration and the least vulnerable, from Information Technology. These findings allow us to propose training plans with differentiated emphasis for the three undergraduate programs in order to strengthen the levels of cyber security among future professionals.*

*KEYWORDS Cyber security, Passwords, Training, Higher Education*

# **El desarrollo de la inteligencia emocional como posible factor determinante para concluir el bachillerato en Nuevo Laredo**

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*La presente investigación fundamenta que la inteligencia emocional es un factor para que los estudiantes de educación media superior concluyan su bachillerato. Se aborda una serie de aspectos relacionados con los estudiantes que van desde la identificación de las razones por las cuales dejaron de estudiar, hasta sus aspiraciones o plan de vida; con el fin de obtener información que permita observar una tendencia en el comportamiento. El propósito de esta investigación es descubrir y definir aquellos factores que intervienen los estudiantes de bachillerato para graduarse, para implementar un programa educativo que en base a los resultados obtenidos, pueda modificar la conducta del estudiante a través de inteligencia emocional de tal manera que lo lleve a encontrar una motivación interna que evite su deserción escolar y de esa manera incrementar el índice de egresados del nivel medio superior en Nuevo Laredo y en consecuencia el índice de competitividad global del país.*

*La investigación tiene un enfoque mixto con un diseño de investigación no experimental, transeccional descriptivo y se divide en tres etapas en donde se utiliza la encuesta como técnica de recopilación de datos, cuestionarios electrónicos como instrumentos se obtienen resultados sobre las causas de deserción, situación socioeconómica, información cualitativa, y la vinculación de la eficiencia terminal y la inteligencia emocional.*

*PALABRAS CLAVE* *Inteligencia Emocional, deserción escolar, Bachillerato, estudiantes*

## **The Development of Emotional Intelligence as a Possible Determining Factor to Complete High School in Nuevo Laredo**

*The following research underpins that emotional intelligence is a necessary factor in order for students to graduate from high school. It addresses a series of aspects related to students that range from the identification of the reasons for which they stopped studying, to their aspirations or life plan. It does this with the goal of obtaining information that allows for the observation of a trend in behavior. The purpose of this research is to discover and define those factors that prevent students from graduating. This is in order to implement an education program that, based on the results obtained, can modify the student's conduct through emotional intelligence in a way that*

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*will allow them to find the internal motivation that prevents his desertion of education. Thus, increasing the rate of graduates of the upper middle level in Nuevo Laredo and, consequently, the rate of global competitiveness of the country.*

*The research has a mixed approach with a non-experimental, descriptive transectional research design and it is divided into three stages. In which the survey is utilized as a data collection technique and the electronic questionnaires as instruments. Results are obtained pertaining to the causes for desertion, socioeconomic status, qualitative information, and the relationship between terminal efficiency and emotional intelligence.*

**KEYWORDS** *Emotional Intelligence, Dropouts, High School, Students*

# **Estudio de los factores generadores de estrés y perfiles del alumnado que lo padece en la Facultad de Comercio, Administración y Ciencias Sociales**

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*La Organización Mundial de la Salud define el estrés como el conjunto de reacciones fisiológicas que prepara al organismo para la acción. Esta perspectiva hace ver al estrés como un factor natural y en cierta manera, necesario. Cazabat y Costa, con sus propias palabras lo definen como los procesos fisiológicos y psicológicos que se desarrollan cuando existe un exceso percibido de demandas ambientales sobre las capacidades percibidas del sujeto para poder satisfacerlas y cuando el fracaso en lograrla tiene consecuencias. Este enfoque es más acorde al ámbito que se busca desarrollar a lo largo de este trabajo.*

*Las investigaciones sobre el estrés han aumentado a la par de las personas que lo padecen. México no es la excepción, siendo catalogado como uno de los países con niveles de estrés más elevados en sus trabajadores. Pero ¿Qué realidad viven los estudiantes mexicanos? El interés específico de investigación a lo largo de este proyecto se centró en los estudiantes de la Facultad de Comercio, Administración y Ciencias Sociales de Nuevo Laredo, Tamaulipas, pues actualmente no se conoce cuántos estudiantes padecen estrés en sus vidas ni cuál es su perfil escolar dentro de la Facultad.*

*Las preguntas de investigación abordadas en este trabajo son las siguientes: ¿De qué turno, género y carrera son los alumnos que presentan un mayor grado de estrés en sus vidas? y ¿Cuáles son los factores que tienen una mayor incidencia en su grado de estrés?, dentro de esta investigación se incluyó la población de todas las carreras, grados y grupos de la facultad. Algunos de los factores analizados fueron: Falta de tiempo para terminar trabajos de*

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*investigación, presión laboral para quienes dijeron trabajar y estudiar al mismo tiempo, falta de apoyo familiar, falta de tiempo para dormir y descansar mejor, pérdida de apetito, exceso en consumo de alimentos, falta de apoyo familiar, enfermedades a causa del estrés, entre otros. El análisis de datos consistió en la obtención de valores de estadísticas descriptivas y se realizó en SPSS versión 23. Los resultados indicaron que la carrera que presenta mayor grado de estrés es la de Licenciatura en Derecho, que el género masculino presentó mayor inclinación hacia el estrés y que los alumnos del turno vespertino fueron los más estresados.*

*PALABRAS CLAVE Estrés, trabajo, estudiantes*

# **La gestión de calidad en la era de la globalización: La experiencia de la FCACS**

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*La Universidad Autónoma de Tamaulipas (UAT) preocupada por brindar a la comunidad estudiantil del estado una educación de calidad, implementa un Sistema de Gestión de Calidad (SGC) basado en la Norma ISO 9001:2008, la cual cuenta con un enfoque basado en procesos, lo que facilita a la institución planificar sus procesos e interacciones, esto permite la identificación de oportunidades de mejora y la toma de decisiones para lograrlo.*

*Actualmente la UAT, sus facultades y unidades académicas se encuentran certificadas en el uso e implementación de la Norma ISO 9001:2015. La Facultad de Comercio, Administración y Ciencias Sociales (FCACS) cuenta con un total de treinta y dos procedimientos vigentes y veintiún responsables de los mismos, los cuales reciben constantemente capacitación en el uso de la norma así como generación de información documentada; si bien es posible observar los beneficios del uso de un SGC constantemente se identifican oportunidades de mejora para su aplicación.*

*La presente investigación tiene como objetivo analizar la eficacia y efectos del SGC en la FCACS, así como su impacto en responsables y usuarios de procedimientos. Además brindara una serie de propuestas encaminadas a lograr la eficacia de la implementación de este sistema.*

**PALABRAS CLAVE** ISO, Gestión de Calidad, FCACS

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# **Análisis de los retos de los agentes aduanales ante el desafío de la renovación de los tratados de comercio internacional entre México, Canadá y Estados Unidos**

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*El Tratado de Libre Comercio con América del Norte (TLCAN) es uno de los motores de fortalecimiento del crecimiento y desarrollo del comercio de la industria mexicana. Es preponderante analizar los retos que representará para los agentes aduanales, la renovación del TLCAN.*

*Se realizará una investigación cualitativa, de tipo descriptiva que se abordará el contexto de los retos desde una perspectiva analítica situacional, logrando predecir las tendencias de los diferentes escenarios derivados de la renovación del tratado, resultando la generación de estrategias que generen el crecimiento económico.*

*Esta investigación puede sugerir la generación de nuevas líneas de investigación que lleguen a influir en la homologación de criterios.*

*PALABRAS CLAVES Libre Comercio, Agentes Aduanales, Crecimiento Económico*

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## **La inversión extranjera directa en México de 2008-2018: ¿Cuáles son los sectores que han atraído más flujos de inversión?**

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*El objetivo de esta investigación es determinar el comportamiento de la Inversión Extranjera Directa (IED) en la economía de México durante una serie de tiempo de 11 años. México es un país que, desde finales de los años 90, recibe flujos considerables y estables de capital extranjero con base en sus oportunidades y facilidades de inversión dentro del país. Esta inversión se ve materializada principalmente en el sector secundario, dejando con un bajo porcentaje al sector terciario y el sector primario. La IED es una variable fundamental para la negociación de Tratados de Libre Comercio (TLC), tanto a corto como largo plazo. Para realizar el análisis, se diseñó una base de datos del periodo 2008-2018 dónde se incluyó información de los flujos de IED por sector y entidad federativa, para conocer el comportamiento de ésta en los múltiples sectores económicos y así mismo, conocer cuál zona, cuál sector y en cuál año se captó el mayor flujo de capital extranjero. Para esta investigación, se consideró la clasificación que hace el INEGI de las siguientes zonas económicas de México: **Zona Noroeste** (Baja California, Baja California Sur, Sonora, Sinaloa y Nayarit), **Zona Norte** (Chihuahua, Coahuila, Durango, Zacatecas y San Luis Potosí), **Zona Noreste** (Nuevo León y Tamaulipas), **Zona Centro-Occidente** (Aguascalientes, Jalisco, Guanajuato, Colima y Michoacán), **Zona Centro-Sur** (Querétaro, Hidalgo, Estado de México, Tlaxcala, Puebla, Morelos y Ciudad de México), **Zona Golfo de México** (Veracruz y Tabasco), **Zona Pacífico Sur** (Guerrero, Oaxaca y Chiapas) y **Zona Península de Yucatán** (Campeche, Quintana Roo y Yucatán). Los hallazgos obtenidos son que la IED ha tenido un flujo constante y con un efecto benéfico para la economía de México, sobre todo en la Zona Centro-Sur, no obstante, la balanza muestra un gran favoritismo hacia el sector secundario, sin dejar atrás al sector terciario.*

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# **El emprendedurismo en economías emergentes: Estudio comparativo entre Venezuela y México**

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*El emprendedurismo en economías emergentes es considerado como una potencial solución para su desarrollo económico e incluso puede llegar a considerarse como una forma de retener a las personas que buscan emigrar hacia otras economías desarrolladas. Factores como la idiosincrasia, apoyos gubernamentales, educación financiera y hasta tecnología juegan un papel importante en el desarrollo de emprendedurismo en las economías emergentes. El objetivo de esta investigación documental, es mostrar las diferencias de impacto positivo y negativo que tienen dichos factores en economías consideradas como emergentes, y analiza las potenciales ventajas que puede ofrecer, así como establecer una diferencia comparativa entre las condiciones y apoyos que encuentra el emprendedurismo entre México y Venezuela.*

*PALABRAS CLAVES* Emprendedores, gobiernos, educación, potencial

## **Entrepreneurship in Emerging Economies: Comparative Study between Mexico and Venezuela**

*Entrepreneurship in emerging economies is considered a potential solution for their economic development and can be a way of retaining people looking to emigrate to other developed economies. Factors such as idiosyncrasy, government support, financial education, and even technology play an important role in the development of entrepreneurship in emerging economies. The objective of this research is to show the positive and negative impacts that these factors have*

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*in emerging economies and analyze the potential advantages that it can offer. These impacts serve to establish a comparative difference between the conditions and support that entrepreneurship faces between Mexico and Venezuela.*

**KEYWORDS** *Entrepreneurs, governments, education, potential*

## **INTRODUCCIÓN**

Actualmente los países buscan crear condiciones necesarias para la introducción de pequeñas empresas en los mercados, ya que cada una de estas aportaría directamente a un mayor empleo, producción y crecimiento económico. Como sabemos el efecto de una PYME (Pequeña y Mediana Empresa), en la economía de un país, genera prosperidad, es por eso que se deben de crear condiciones óptimas que permitan a los emprendedores, no solo crear una idea con potencial, sino ponerla en marcha. Para ello se necesitan ciertos estímulos que fomenten una actitud emprendedora entre la población.

Es primordial que los emprendedores generen a través de sus estudios y experiencias, un alto conocimiento para poder manejar un negocio, se necesita un buen conocimiento del mercado, pero aún más importante una buena habilidad en la gestión administrativa, la mayoría de las microempresas fallan por no poseer una buena administración y controles internos.

En esta investigación se busca conocer las razones por las que el emprendimiento en Venezuela tiene un alto nivel de mortalidad, ya que los emprendedores no logran mantener las microempresas en el mercado por mucho tiempo, diversos factores afectan el seguimiento de las empresas. También se busca realizar una comparación entre las condiciones de emprendimiento entre México y Venezuela.

## **EMPRENDIMIENTO EN MÉXICO**

En una escala global, México según datos del índice TEA, en términos de actividad empresarial, ocupa un lugar destacado, con un porcentaje de crecimiento del 25% en 2015 (Kelley, Singer y Harrington, 2016). Un dato interesante según este estudio es que la generación emprendedora en México es principalmente de los 16 a los 24 años, siendo el 30% del total de empresarios de 33 años de promedio de edad (Bosma, et al 2007). Esta es tal vez la razón de que México es dinámico en la creación de empresas. Las cifras del INEGI entre el 2004 y 2019, mostraron un aumento en número de empresas del 21.1% (INEGI, 2009) aumentando así también el número de empleos. Cabe mencionar que las políticas del gobierno se han acreditado por estar como respaldo de este crecimiento económico, y de dar una un fuerte apoyo publicitario a la actividad emprendedora, incluso, en algunos comerciales de automóviles, como Nissan, se identifica que la compra de una automóvil se compara con la actividad emprendedora con el slogan “*emprende tus sueños y cambia de carril* (aludiendo a una autopista saturada)”. Estas políticas económicas, están orientadas hacia la mayor competencia, productividad y el libre comercio con Canadá y Estados Unidos. De esta forma, el emprendimiento en México van consolidando cada vez con el paso del tiempo, a que



también las universidades, establezcan dentro de sus programas, que nos solo egresan recursos humanos para las empresas, sino también para ser emprendedores. Ejemplo de ello, es que la Universidad Autónoma de Nuevo León, cuenta con una Centro de Educación Digital y Emprendimiento, como muestra de esa consolidación hacia el emprendimiento dentro de sus egresados.

Por lo descrito anteriormente, es posible afirmar que la actividad emprendedora en México, tiene un sólido respaldo a través del gobierno, academia y competitividad empresarial.

## **EMPRENDIMIENTO EN VENEZUELA**

En base a diferentes definiciones del término “emprendimiento”, se puede concluir que es el desarrollo de las habilidades y actitudes que trabajan en conjunto con el fin de crear una empresa, siempre buscando la constante mejora y superación. Constantemente un emprendedor busca generar nuevas ideas y adaptarse a los nuevos mercados, el hecho de un fracaso se debe mayormente a la falta de conocimiento, no tomar riesgos, no identificar oportunidades y del no ser dinámicos.

Partiendo de la premisa que no necesariamente un emprendedor nace, sino que también se hace, se puede decir que todo emprendedor debe de obtener ciertos conocimientos que lo harán crecer en su búsqueda de crear una empresa, el emprendedor debe tener experiencia en el área donde planea desarrollarse.

Como lo dice (Castillo et al., 2014), se deben desarrollar ciertas habilidades que nos permitan ser mejores emprendedores, como:

- Compromiso: ser emprendedor desencadena una serie de compromisos, los más importantes son con los nuevos colaboradores y clientes, pero también se crea un compromiso consigo mismo.
- Vocación: en realidad sentir plenitud con el trabajo diario.
- Constancia: ir paso a paso construyendo tu empresa sin parar, proceso lento.
- Empuje: sacar adelante cualquier idea y ponerla en marcha.
- Asociación: el secreto de poder realizar un proyecto ambicioso es saber colaborar con otras personas que tengan tus mismos pensamientos, o si no, saber vender la idea para conseguir personas que quieran invertir.
- Mando: saber ser líder, mostrar tus propias decisiones.
- Visión: siempre buscar nuevos horizontes, crear nuevos objetivos.
- Ideas: generar ideas innovadoras, pero aplicando cada una de ellas.
- Riesgos: saber tomar riesgos inteligentemente, analizar cualquier situación que nos pueda generar un impacto negativo para obtener mayores rendimientos sin afectarnos.
- Toma de decisión: siendo un emprendedor, se debe tener conocimiento que tus decisiones van a tener peso y traerán consecuencias, positivas o negativas.

Un emprendimiento no está relacionado solo con la búsqueda de generar ganancias, también existen proyectos muy ambiciosos que buscan el bienestar de la sociedad y el crecimiento personal de aquellos que lo necesitan, el emprendimiento puede ser con fines de lucro o sin fines de lucro.

## **PROCESO DE EMPRENDIMIENTO**

Sánchez, 2017, nos muestra el proceso de emprendimiento en tres etapas, las cuales son:

- **Concepción.** Se identifica una necesidad u oportunidad de negocio, se conceptualiza el producto o servicio que se quiere ofrecer. Se genera una visión de lo que se quiere lograr.
- **Desarrollo.** Se genera un plan de negocios que nos ayudará en la investigación del mercado donde nos queremos adentrar, de los insumos que necesitamos, costos que nos genera, fortalezas y debilidades que poseemos frente al mercado, el tipo de financiamiento al que voy a recurrir. Se buscan colaboradores con ganas de invertir dinero si es que no se cuenta con lo suficiente o se busca el tipo de financiamiento que más convenga. Para esta instancia ya se generó un prototipo del producto o del servicio a ofrecer.
- **Persistencia.** Una vez empezado el negocio, se busca una mejora continua en procesos y productos, innovar, buscar nuevos mercados, crear productos que me lleven a más gente, buscar nueva cartera de clientes y proveedores que me ofrezcan mejores oportunidades de negocio.

## **CASO VENEZUELA**

El emprendimiento en Venezuela no es impulsado por la ambición de generar oportunidades de negocio, trabajos, producción, etcétera; sino que surge más por la necesidad de sobrevivir y por la falta de empleo, ya que la mayoría de los emprendedores son auto empleados debido a que las empresas donde laboraban fueron cerradas o simplemente los despidieron. Sin embargo, los venezolanos tienen la concepción de emprendimiento, como una carrera deseable y que genera alto estatus social, básicamente piensan que al emprender un nuevo negocio los altos niveles de ganancias serán asequibles para ellos.

Según un reporte realizado por el GEM (Global Entrepreneurship Monitor), Venezuela 2009-2010, el 19.7% de los negocios emprendidos, sus actividades son relacionadas con la venta de comida rápida, restaurantes, heladerías; después le sigue con el 12.8% la repostería, dulces, venta de alimentos víveres; con 5.5% la venta de cosméticos y farmacias.

El perfil de un emprendedor venezolano, de acuerdo con (Castillo et al., 2014), nos dice que el 35% de emprendedores tienen entre 25-34 años, el 25% de 35-44 años, el 17% 18-24 años, posteriormente el restante se divide en población con más edad. El factor de la juventud es el que más se hace presente en el emprendimiento en este caso, siendo los jóvenes los que, sin tener nada que perder, buscan generar ingresos por su propia cuenta.

De acuerdo con (Veintimilla & Velásquez, 2017), el 43.10% de emprendedores venezolanos tienen como nivel más alto de educación el de secundaria, el restante se divide entre bachillerato y licenciatura, ningún posgrado. Esto nos lleva a una de las principales problemáticas, la alta mortalidad de las nuevas empresas, muchos venezolanos tienen la valentía para empezar un nuevo negocio, desgraciadamente gran parte de los negocios no pasan de 3 a 5 años de vida, podemos afirmar que está estrictamente relacionado con la falta de conocimiento en la administración de una empresa. En Venezuela, aquellos que poseen un menor grado de educación y conocimientos básicos, son los que se ven más impulsados a emprender.

Adentrándonos al emprendimiento venezolano, desde el año 2010 se ha observado un descenso en los niveles de emprendimiento. Dándonos entender la existencia de diversos problemas que orillan a los nuevos emprendedores a no querer descubrir este nuevo camino de los negocios, los cuales serán analizados más adelante.

Año	Nivel de emprendimiento
2003	27%
2005	25%
2007	20%
2009	18%
2015	15%

(Actividad emprendedora, Castillo et al., 2014)

## PROBLEMAS DE EMPRENDIMIENTO VENEZOLANO

En Venezuela las condiciones para el emprendimiento no son las óptimas, es difícil por las grandes barreras existentes, los problemas más comunes que enfrentan los emprendedores son:

- **Financiamiento:** los empresarios han señalado que las oportunidades de financiamiento no están en las mejores condiciones, las tasas de interés son muy elevadas. Teniendo para abril del 2019 una tasa de referencia del 28.31%.
- **Escasez de recurso humano:** la mayoría de las empresas son familiares, esto significa que el recurso humano que es utilizado son los mismos integrantes de la familia.
- **Tecnología:** la cultura emprendedora en este país no tiene como prioridad la innovación, el emprendedor venezolano ofrece el mismo tipo de productos que hay en el mercado, no buscan innovar en procesos ni generar nuevas ideas de productos. Son poco dados a la adquisición de nuevo equipo de trabajo que pueda ayudar a aumentar la producción y ponerse al día con las nuevas necesidades del mercado. Los equipos necesarios para la creación de productos suelen ser viejos, los emprendedores se les dificulta la adquisición de nuevas herramientas de trabajo.
- **Internacionalización:** escasos tratados comerciales no estimulan la búsqueda de clientes extranjeros.
- **Formalidad:** la mayoría de las PYMES no logran formalizar el negocio, por consiguiente, no hay formalidad en los procesos de administración y no hay un control interno.
- **Economía:** la alta inflación que presenta Venezuela nos muestra que hay una alta inestabilidad económica en el país, la cual ha obligado a varias empresas a finalizar sus

actividades económicas. Los precios no son estables, para una empresa pequeña que desea empezar, es difícil controlar este tipo de problemas económicos.

Se puede apreciar que existen dificultades para los emprendedores venezolanos en el proceso de creación de una empresa, no reciben un buen asesoramiento ni estímulos que los ayuden a crecer como microempresas. Es por esto que la tasa de emprendimiento ha ido a la baja durante estos años, las condiciones económicas hacen aún más difícil el emprendimiento en este país, el desempleo sigue al alza, lo cual podría aumentar los niveles de emprendimiento por necesidad de sobrevivir, más no aseguran una baja tasa de mortalidad en las pequeñas empresas.

**Tabla de comparación entre México y Venezuela**

México	Venezuela
<b>Tratados de Comercio Internacional</b>	
<ul style="list-style-type: none"> <li>● México cuenta con una red de 12 Tratados de Libre Comercio con 46 países (TLCs).</li> <li>● 32 Acuerdos para la Promoción y Protección Recíproca de las Inversiones (APPRI) con 33 países.</li> <li>● 9 acuerdos de alcance limitado (Acuerdos de Complementación Económica y Acuerdos de Alcance Parcial) en el marco de la Asociación Latinoamericana de Integración (ALADI).</li> <li>● México participa activamente en organismos y foros multilaterales y regionales como la Organización Mundial del Comercio (OMC), el Mecanismo de Cooperación Económica Asia-Pacífico (APEC), la Organización para la Cooperación y Desarrollo Económicos (OCDE) y la ALADI.</li> </ul> <p>Secretaría de economía 10 de mayo del 2015</p>	<ul style="list-style-type: none"> <li>● Miembros de la OMC (Organización Mundial de Comercio).</li> <li>● MERCOSUR (Mercado Común del Sur; Actualmente suspendido)</li> <li>● Acuerdos Comerciales Preferenciales con: Colombia, Ecuador, Trinidad y Tobago, Nicaragua, Guayana, Costa Rica, Salvador, Honduras, Guatemala.</li> </ul>
<b>Apoyo gubernamental</b>	
<ul style="list-style-type: none"> <li>● Secretaría de economía, Instituto Nacional del Emprendedor, Programa Fondo Nacional Emprendedor. Según el catálogo de programas federales del 2019 el objetivo es aumentar la productividad en las PYMES principalmente las ubicadas en sectores prioritarios y se puede apoyar con subsidios a la inversión favoreciendo el financiamiento, el desarrollo de capital humano así como el fortalecimiento de capacidades productivas, tecnológicas y de innovación.</li> <li>● La Asociación de Emprendedores de México (ASEM) es una asociación civil sin fines de lucro que trabaja para hacer de México el mejor lugar para emprender. Promueven y defienden el emprendimiento con acciones como: acceso a información, vinculación a redes, formación, defensa, políticas públicas y beneficios comerciales.</li> </ul>	<p>Según el portal IDaccion.com en Venezuela podemos encontrar los siguientes organismos:</p> <ul style="list-style-type: none"> <li>● INAPYMI, Instituto Nacional de Desarrollo de la Pequeña y Mediana Industria: brinda servicios de fomento, preparación, formación, desarrollo y asistencia técnica para PyMIs y UPs.</li> <li>● FONPYME, Fondo Nacional de Garantías Recíprocas: brinda fianzas a cooperativas, micro y PyMEs para promover su inserción en el sistema bancario y facilitar el acceso a licitaciones públicas y privadas.</li> <li>● BANCOEX, Banco de Comercio Exterior: ofrece información sobre trámites presenciales, listados de tasas aduaneras, financiamiento de actividades de comercio exterior, financiamiento al desarrollo de exportadores y un listado nutrido de documentos y manuales accesibles entre los que destaca el manual de exportación.</li> <li>● BANDES, Banco de Desarrollo Económico y</li> </ul>

	<p>Social: dispone de Programas de Financiamiento nacional e internacional.</p> <ul style="list-style-type: none"> <li>● CONAPRI, Consejo Nacional de Promoción de Inversiones: realiza la publicación on-line de áreas para la focalización de inversiones.</li> </ul>
<b>Inflación</b>	
De acuerdo con el Banco de México se espera una tasa del 4.41% anual	De acuerdo con el portal transparencia.org.ve y según los cálculos de la Asamblea Nacional, la tasa de inflación anualizada (entre febrero de 2019 y febrero de 2018) fue de 2.295.981,8%
<b>Actividades de los negocios emprendidos</b>	
Tal como es mencionado en el reporte realizado por el GEM (Global Entrepreneurship Monitor) México 2014, aproximadamente un 80% de los emprendedores se dedican a una actividad de servicios orientados al consumo, un 16.6% de los emprendedores en etapa temprana realizan actividades en el sector de transformación y un 4% se dedican a ofrecer servicios a otros negocios	Según un reporte realizado por el GEM (Global Entrepreneurship Monitor), Venezuela 2009-2010, el 19.7% de los negocios emprendidos, sus actividades son relacionadas con la venta de comida rápida, restaurantes, heladerías; después le sigue con el 12.8% la repostería, dulces, venta de alimentos víveres; con 5.5% la venta de cosméticos y farmacias.
<b>Edades de los emprendedores</b>	
Según un reporte realizado por el GEM (Global Entrepreneurship Monitor) México 2014 la tasa de emprendimiento temprano por grupo de edad se encuentra de la siguiente manera: <ul style="list-style-type: none"> <li>● Entre 18 y 24 años de edad un 12.6% emprendió.</li> <li>● Entre 24 y 34 años de edad un 22.8%</li> <li>● Entre 35 y 44 un 23.3%</li> <li>● Entre 45 y 54 un 19.7%</li> <li>● Entre 55 y 64 un 11.4%</li> </ul>	<p>El perfil de un emprendedor venezolano, de acuerdo con (Castillo et al., 2014), nos dice que:</p> <ul style="list-style-type: none"> <li>● 35% de emprendedores tienen entre 25-34 años</li> <li>● 25% de 35-44 años</li> <li>● 17% 18-24 años</li> </ul> <p>Posteriormente el restante se divide en población con más edad</p>
<b>Nivel de educación de los emprendedores</b>	
De acuerdo con el reporte realizado por el GEM (Global Entrepreneurship Monitor) México 2014, el total de emprendedores en etapa temprana según su nivel educativo mantiene la siguiente distribución: <ul style="list-style-type: none"> <li>● 10.8% tiene sólo educación básica primaria.</li> <li>● 37% preparatoria incompleta.</li> <li>● 40.5% preparatoria completa.</li> <li>● 10.8% algún grado de educación profesional</li> <li>● 0.8% tiene educación de posgrado</li> </ul>	De acuerdo con (Veintimilla & Velásquez, 2017), el 43.10% de emprendedores venezolanos tienen como nivel más alto de educación el de secundaria, el restante se divide entre bachillerato y licenciatura, ningún posgrado.
<b>Tasa de emprendimiento</b>	
Como se menciona en el reporte realizado por el GEM (Global Entrepreneurship Monitor) México 2014, el total de actividad emprendedora temprana es de un 19% mostrando un incremento comparado con el 14.8% que	En el año 2015 el nivel de emprendimiento en Venezuela se encontraba en un 15%

se obtuvo en el 2013.	
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## REFLEXIONES FINALES

No cabe duda que la actividad emprendedora es uno de los pilares de las economías emergentes, ya que permite el crecimiento de una unidad económica de negocios, cuando esa se planea mediante investigaciones de mercados, análisis y comprensión de la información obtenida, y sobre todo y fundamentalmente, que el emprendedor comprenda la importancia no radica en solo ofrecer un producto o servicio, como inicio o emprendimiento sino que ofrezca una verdadera y honesta “*propuesta de valor*” basada en una detección profunda de necesidades y definitivamente con innovación. Cuando el emprendedor en una economía emergente pueda comprender esta ecuación:

**Posicionamiento - Propuesta de Valor = Segmento meta + Innovación + Identidad de Marca**

Puede derivarse una estrategia de colocación y crecimiento en economías emergentes que tienes características y necesidades específicas.

De conformidad a lo expuesto en este documento, en las economías de México como Venezuela, es posible detectar riesgos que se puede convertir en oportunidades.

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# **Trata de personas con fines de explotación sexual: Un problema de actitud en la sociedad**

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## **INTRODUCCIÓN**

El presente aborda un tema de interés mundial, la trata de personas, delito el cual ocupa el tercer lugar a nivel mundial. Esta problemática requiere ser analizada para que la sociedad conozca sus alcances e implicaciones. Es importante conocer los conceptos básicos de la trata para conocer las modalidades o maneras en que ésta se manifiesta en nuestro entorno. Este artículo en particular aborda y dará un énfasis especial en la trata de personas con fines de explotación sexual.

El objetivo es analizar la información disponible con el propósito de conocer porqué el delito va en aumento a pesar de todas las acciones que se realizan contra la trata. Se analizan artículos sobre el tema desde un punto de vista científico, económico, religioso, de derechos humanos, desarrollo sostenible, geopolítica, culturales, nuevas tecnologías, a fin de ofrecer posibles planteamientos que propongan alternativas de solución o de desarrollo sostenible y crear las bases de un escenario más alentador al actual.

Es importante conocer las acciones que organizaciones no gubernamentales o gubernamentales están llevando a cabo a fin de erradicar o disminuir los efectos de la trata de personas e identificar los factores propician el crecimiento de este problema y las posibles alternativas para disminuirla.

## **1. ELEMENTOS BÁSICOS EN LA TRATA DE PERSONAS**

Para comprender con claridad el delito de la trata de personas, es importante identificar sus elementos. Estos elementos son: 1) La trata de personas; 2) Los tratantes; 3) Las víctimas; 4) Las organizaciones; y, 5) Las acciones.

### **1.1 Trata de Personas**

La trata de personas se definió en 2000 en el “Protocolo de las Naciones Unidas para Prevenir, Reprimir y Sancionar la Trata de Personas, Especialmente Mujeres y Niños” (Protocolo de Palermo). El artículo 3 del Protocolo define a la trata de personas como:

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- a) Por “trata de personas” se entenderá la captación, el transporte, el traslado, la acogida o la recepción de personas, recurriendo a la amenaza o al uso de la fuerza u otras formas de coacción, al rapto, al engaño, al abuso de poder o de una situación de vulnerabilidad o a la concesión o recepción de pagos o beneficios para obtener el consentimiento de una persona que tenga autoridad sobre otra, con fines de explotación. Esa explotación incluirá, como mínimo, la explotación de la prostitución ajena u otras formas de explotación sexual, los trabajos o servicios forzados, la esclavitud o las prácticas análogas a la esclavitud, la servidumbre o la extracción de órganos;
- b) El consentimiento dado por la víctima de la trata de personas a toda forma de explotación que se tenga la intención de realizar descrita en el apartado a) del presente artículo no se tendrá en cuenta cuando se haya recurrido a cualquiera de los medios enunciados en dicho apartado;
- c) La captación, el transporte, el traslado, la acogida o la recepción de un niño con fines de explotación se considerará “trata de personas” incluso cuando no se recurra a ninguno de los medios enunciados en el apartado a) del presente artículo.

Como se observa, la trata de personas es la actividad entendida por la captación, transporte, traslado, acogida o recepción de personas, recurriendo a amenazas o al uso de la fuerza u otras formas de coacción como el rapto, el engaño, el abuso de poder o de una situación vulnerable o conceder o recibir pagos o beneficios para obtener el consentimiento de una persona que tenga autoridad sobre otra, con fines de explotación. Incluye la explotación de la prostitución ajena u otras formas de explotación sexual, trabajos o servicios forzados, la esclavitud, la servidumbre o la extracción de órganos.

De la definición se identifican tres elementos relacionados que son la acción o el acto, los medios y el propósito o fin. 1) Por la acción o acto se integra por la captación, transporte, traslado, acogida o recepción de personas. 2) Por los medios se entiende la amenaza o uso de la fuerza, coacción, rapto, fraude, engaño, abuso de poder, vulnerabilidad, la concesión o recepción de pagos o beneficios para obtener el consentimiento de una persona que tenga autoridad sobre otra con fines de explotación y, 3) el propósito o fin de esta actividad es la explotación de la prostitución ajena u otras formas de explotación sexual, trabajos o servicios forzados, esclavitud, servidumbre o extracción de órganos.

## 1.2 Los tratantes

El Diccionario de la Real Academia de la Lengua Española define *tratante* como la: “*Persona que se dedica a comprar géneros para revenderlos o comercializar con ellos*”. De igual manera, la Organización Internacional de Policía Criminal (INTERPOL) define el concepto de delincuencia organizada en función a la práctica de actividades que son tipificadas como delitos y señala:

*“las definiciones de delincuencia organizada varían ampliamente de un país a otro. Las redes organizadas suelen participar en distinto tipo de actividades delictivas que afectan a varios países. Entre ellas se pueden contar la trata de personas, el*

*tráfico de armas y drogas, los robos a mano armada, la falsificación y blanqueo de capitales.”<sup>2</sup>*

Como se observa, la INTERPOL relaciona la trata de personas con la delincuencia organizada, pues es necesario captar a la víctima, amenazarla y explotarla. Por esa razón, la delincuencia organizada tiene los medios para cometer estos delitos a grandes escalas. La Convención de Naciones Unidas contra el Crimen Organizado Transnacional define en el artículo 2, inciso a) a un grupo delictivo organizado como:

*“un grupo estructurado de tres o más personas que exista durante cierto tiempo y que actúe concertadamente con el propósito de cometer uno o más delitos graves o delitos tipificados con miras a obtener, directa o indirectamente, un beneficio económico u otro beneficio de orden material”.*

Las grandes ganancias por esta actividad, así como el riesgo mínimo de detección y castigo, motivan a las mafias internacionales como la china, la rusa o la japonesa a realizar estas actividades o incluso grupos pequeños y aislados, redes de delincuencia o estructuras familiares organizadas como amigos, conocidos o parientes cercanos a la víctima, por lo que su combate se convierte en peligroso y riesgoso.

La delincuencia organizada no actúa aisladamente, sino que establece vínculos con otras formas de delincuencia organizada como el tráfico de armas y drogas, creando redes que actúan a menor o mayor escala como polleros, taxistas, empresarios, funcionarios públicos, agentes de seguridad e incluso la sociedad civil consintiendo estas prácticas.<sup>3</sup>

El consentimiento de la víctima no exime al tratante de su culpabilidad. Frecuentemente la víctima está cegada por falsas ilusiones del tratante, que son expertos en manipular y explotar las necesidades económicas y afectivas de las personas. Incluso, la víctima pierde su autonomía y su dignidad como ser humano, por los abusos y amenazas recibidas.<sup>4</sup>

### **1.3 Las víctimas**

La Organización de las Naciones Unidas en la Resolución 40/34, del 29 de noviembre de 1985, sobre la “Declaración sobre los Principios Fundamentales de Justicia para las Víctimas de los Delitos y del Abuso de Poder”, define víctima como:

“A. Las víctimas de delitos:

1. Se entenderá por "víctimas" las personas que, individual o colectivamente, hayan sufrido daños, inclusive lesiones físicas o mentales, sufrimiento emocional, pérdida financiera o menoscabo sustancial de los derechos fundamentales,

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<sup>2</sup> Organizacional Internacional de Policía Criminal (INTERPOL). *Delincuencia organizada*. INTERPOL, Francia, 2018. <https://www.interpol.int/es/Criminalidad/Delincuencia-organizada/Delincuencia-organizada>

<sup>3</sup> Ezeta, Fernanda. *Trata de personas. Aspectos Básicos*. Organización Internacional Para las Migraciones, México, 2006. <https://www.oas.org/atip/reports/trata.aspectos.basicos.pdf>

<sup>4</sup> Organización Internacional para las Migraciones. *Conceptos Generales, ¿Quién puede ser víctima de la trata de personas*. Organización Internacional para las Migraciones, Colombia 2018. [www.oim.org.co/comceptostrata.html](http://www.oim.org.co/comceptostrata.html)

2. Podrá considerarse "víctima" a una persona, con arreglo a la presente Declaración, independientemente de que se identifique, aprehenda, enjuicie o condene al perpetrador e independientemente de la relación familiar entre el perpetrador y la víctima. En la expresión "víctima" se incluye además, en su caso, a los familiares o personas a cargo que tengan relación inmediata con la víctima directa y a las personas que hayan sufrido daños al intervenir para asistir a la víctima en peligro o para prevenir la victimización.

La finalidad de la trata es la explotación del ser humano. Para lograrlo, las víctimas son retenidas mediante amenazas, falsas deudas, mentiras, coacción, violencia, sometidas a condiciones de esclavitud o explotación, por lo tanto, quienes son explotados debieran reconocerse como "víctimas de trata".

Cualquiera puede ser víctima de trata y los grupos más vulnerables son las mujeres, las y los niños en la parte de explotación sexual. Existen evidencias de mayor uso de niños y niñas cada vez más pequeños con fines de explotación sexual, pornografía y trabajos forzados. La venta o el secuestro de menores de edad cada vez más preocupantes.

Esto es el reflejo de una creciente demanda de abusadores basada en estereotipos y culturas. Según la INTERPOL, en África más niñas son objeto de explotación sexual por los "consumidores" que creen que tener relaciones sexuales con infantas vírgenes curan del SIDA.

#### **1.4 Organizaciones que luchan contra la trata de personas**

Diversas organizaciones se han formado para erradicar la trata de personas. Son organizaciones no gubernamentales, sin fines de lucro para luchar contra la violencia, trata y explotación sexual de niños y adolescentes, restituyendo a niños y adolescente sobrevivientes de trata y violencia sexual, atendiéndolos de manera integral, brindando apoyo psicológico, espiritual, legal, de refugio y fortaleciendo vínculos familiares". Una de ellas es "Proyecto Perla" en España que busca combatir la trata de personas con estrategias de solución integral, uniendo fuerzas con la sociedad civil organizada, sector privado y público con un enfoque en la prevención, la reintegración de las víctimas.

Otra organización es United Nations International Children's Emergency Fund (UNICEF) que se define como una "organización dedicada a velar por la seguridad integral de la niñez (alimentación, educación, atención sanitaria, seguridad física, etc.).<sup>5</sup>

#### **1.5 Acciones para combatir la trata de personas**

Algunas de las acciones para combatir la trata de personas son:

- Estrategias para combatir la trata mediante planes de atención enfocados a mujeres, niñas y niños.
- Políticas que brinden seguridad jurídica a migrantes que permitan estándares de trabajo y protección para los trabajadores.

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<sup>5</sup> Palomo, Laysa. *¿Qué organizaciones luchan contra la trata de personas?*, Brújula, México, 2013.  
<http://brujula.com.gt/que-organizaciones-luchan-contra-la-trata-de-personas/>

- Campañas de educación y sensibilización sobre la trata de personas.
- Unidades de apoyo con carácter multidisciplinario.
- Reducción de la vulnerabilidad a la trata, mediante políticas orientadas hacia un mejor desarrollo socioeconómico, generación de empleos, equidad de género y combate a la discriminación.<sup>6</sup>

## 2. VÍCTIMAS DE LA TRATA

### 2.1 ¿Quiénes son las víctimas de trata de personas?

Niños y niñas, mujeres, mayores de edad, europeas, latinas, este es el perfil de las víctimas de trata de personas del siglo XXI.

*"Se calcula que en el resto del mundo después de Europa, 3 millones son víctimas anualmente con base engaños y falsas promesas que las llevan a la esclavitud a cambio de una vida mejor."* (UNODC)<sup>5</sup>

La mitad de las víctimas (mujeres migrantes) son engañadas y obligadas a la prostitución y trabajos domésticos. La ONU señaló que "el 65% de las víctimas mujeres son europeas, 20 de cada 100 son rumanas, 10 de 100 búlgaras, 4% de Nigeria, 2% brasileñas y chinas."<sup>7</sup>

La RETP (Red Española contra la Trata de Personas) manifestó que el 48% de las víctimas son obligadas a dedicarse completamente a la prostitución, y estos negocios ilícitos generan unos 1,825,000 euros anuales convirtiéndose en el segundo negocio clandestino en el mundo, después del tráfico de drogas y armas."<sup>8</sup>

Las evidencias indican que las víctimas son mujeres de entre 18 y 25 años con niveles de ingreso nulos o deficientes, baja educación, desempleadas o con condiciones precarias de empleo y en situación de vulnerabilidad social: desplazados, refugiados, en la calle, víctimas de violencia familiar o abuso sexual doméstico, etc. También, adolescentes y jóvenes de clase media y con cierto nivel educativo son reclutadas con falsas promesas de empleo como edecanes o modelos.

### 2.2 Mecanismos utilizados por el tratante para controlar a las víctimas

Cuando las víctimas son reclutadas, son explotadas en lugares abiertos y pueden tener contacto con la sociedad como bares, salones de masaje, restaurantes, burdeles. A pesar de que las víctimas se relacionan con más personas, no piden ayuda y no tratan de escapar pues están bajo amenazas que van desde la violencia física, psicología y sexual para mantenerlas sometidas y son golpeadas en parte no visibles como el vientre o las piernas para no levantar sospechas. Las víctimas son amenazadas de ser enviadas a la cárcel o deportadas o de aislamiento sin ser extranjeras. Reciben

<sup>6</sup> Ezeta, Fernanda. *Trata de personas. Aspectos Básicos*. Organización Internacional Para las Migraciones, México, 2006. <https://www.oas.org/atip/reports/trata.aspectos.basicos.pdf>

<sup>7</sup> U.S. StateDepartment. "Trafficking in Persons Report". Washington, D.C., June 2005 <https://www.state.gov/documents/organization/47255.pdf>

<sup>8</sup> APRAMP (Asociación para la Prevención, Reinserción y Atención de la Mujer Prostituida) C/ Jardines, 17 bajo - 28013 Madrid [http://redconlatrata.org/IMG/pdf/guia\\_completa\\_2008\\_TRATA.pdf](http://redconlatrata.org/IMG/pdf/guia_completa_2008_TRATA.pdf)

amenazas de represalias a sus familiares. Los tratantes someten a sus víctimas incluso exponiéndolas a infecciones como el VIH/SIDA, a abortos y a ser drogadas o asesinadas.

### 2.3 ¿Cómo identificar a una víctima de la trata?

Las víctimas de la trata tienden a tener una serie de necesidades psicológicas, físicas y de seguridad que requieren de una atención médica debido a todo lo que han sido sometidas y los grupos donde estas han sido vinculadas.

## 3. EL NEGOCIO REDITUABLE DE LOS TRATANTES

La esclavitud surgió como consecuencia de la conquista bélica o la colonización, constituyéndolos como modo de dominación sobre el pueblo conquistado, sometiéndolos como una manera de organización económica ligada a la producción de bienes.

Las edificaciones de antiguas civilizaciones (Mesopotamia, India, China, Egipto, Grecia, Roma o imperios precolombinos de América) se construyeron con la mano de obra esclava. El Imperio Otomano en la época Medieval fue el principal captador de esclavos negros del Sur del Sahara.<sup>9</sup>

Ralph Austen estima que 17 millones de africanos fueron capturados y esclavizados entre los siglos VII a XIX.<sup>10</sup> Por otro lado, el tráfico de esclavos de África Oriental hacia Asia (India/China), en cuyo puerto de Cantón se asentaron comerciantes árabes.<sup>11</sup> El tráfico de esclavos desde la fundación de la Regencia de Argel en 1541, bajo el dominio Otomano, lo convirtió en una potencia militar marítima que controló el comercio del Mediterráneo.<sup>12</sup> A fin de satisfacer la explotación minera y agrícola de los países europeos en América, se comercializaron esclavos africanos al Caribe y Brasil. Resultó en un gran negocio con licencias otorgadas por autoridades de las colonias.<sup>13</sup> La población sometida a esclavitud desde África Occidental se estima entre 15 y 20 millones.<sup>14</sup>

Con el auge abolicionista a finales del siglo XVIII surgieron en Inglaterra iglesias evangélicas disidentes del anglicanismo y luchadores abolicionistas desacreditando la esclavitud. Los países latinoamericanos se independizaron durante el siglo XIX y se aprobaron leyes contra la esclavitud. Por otro lado, la revolución industrial influyó en la decadencia del esclavismo como sistema económicamente rentable, encaminándolo hacia un régimen de patrón-asalariado que resultaba más eficaz. Esta tendencia se fortaleció con legislaciones internacionales a finales de

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<sup>9</sup> Villalpando, Waldo. *La esclavitud, el crimen que nunca desapareció. La trata de personas en la legislación internacional*. Invenio, vol. 14, núm. 27, noviembre, 2011, pp. 13-26, Universidad del Centro Educativo Latinoamericano. Rosario, Argentina

<sup>10</sup> Austen, Ralph. *The trans-Saharan slave trade, a tentative census*, Jeremy Arcons, *The uncommon market*, 23-76. Austen, Ralph. *African Economic History*, James Currey, 1997, pp.275 y ss.

<sup>11</sup> Heers, Jacques, *Les négriers en terres de l'Islam (vi – xvi siècle)*, Perrin, París, 2003, p. 117 y ss.

<sup>12</sup> Touchard, Jean, *Historia de las ideas políticas*, Tecnos, Madrid, 1964, p. 132.

<sup>13</sup> Lalouf, A., Santos, G. y Buch, A. "Los depósitos de los esclavos como artefactos de funcionamiento múltiple", ponencia para las VII Jornadas Latinoamericanas de Estudios Sociales y Técnicos, 2008.

<sup>14</sup> Becker, Charles. "Les effets démogra-phiques de la traite des esclaves en Senegambie", de "De la traite de l'esclavage", *acts du Coloque de Nantes*, tomo 2, CRHMA y SFHOM, Nantes, París, 1988.

1800 y principios de 1900 a través de acuerdos y convenciones condenando y estableciendo reglas para castigar la esclavitud y la trata.<sup>15</sup>

En la actualidad, la trata de personas ha aumentado con la aparición del crimen organizado. La Organización Internacional del Trabajo estima que en 2016 la trata de personas involucró 40.3 millones de víctimas, de los cuales 15.4 fueron matrimonios forzados y 24.9 millones son víctimas de trabajos forzados. De éstos últimos, 4.8 son con fines de explotación sexual. Las ganancias ilícitas, según la UNODC, se estiman en 32 mil millones de dólares sólo en 2005. El objeto de la trata de personas es la explotación sexual. Dos tercios de las personas traficadas son mujeres y un 79% destinadas a la prostitución.

Independientemente de las motivaciones de los antiguos imperios conquistadores y ahora del crimen organizado, el beneficio económico es una fuerte motivación. Antiguamente era demostrar una superioridad militar e intelectual, el reclutar y someter a los conquistados para obtener una mano de obra barata para lograr beneficios económicos. El dominio militar traía consigo un dominio comercial y económico sobre ciertas regiones como el Imperio Otomano que controló el comercio marítimo del Mediterráneo e impuso impuestos sobre los pueblos conquistados.

### **3.1 Una invitación a tratar a los demás de la misma manera**

La sociedad y las culturas han sido permisivas y permiten en ciertos casos las relaciones extramaritales, buscando satisfacer sus necesidades. Esta situación es aprovechada por otros grupos delictivos organizados, sometiendo así a mujeres que son amenazadas y forzadas para ofrecerlas y así satisfacer estas supuestas necesidades.

Desde una visión occidental, la Biblia enseña claramente que ninguna persona es un producto que otros puede usar. Partiendo de ese contexto, se presenta una clara invitación a actuar y dignificar el trato con las demás personas. A no sentirnos superiores a ellos, por lo tanto, no hay cabida a la trata de personas. El libro de Filipenses señala que:

*“Nada hagáis por contienda o por vanagloria; antes bien con humildad, estimando cada uno a los demás como superiores a él mismo;” Filipenses 3:2*

En este sentido, varias religiones en las reuniones en Abuja, Nigeria en la Conferencia Internacional sobre Trata de Seres Humanos, teniendo como objetivo común detener el tráfico de personas. Se acordó contribuir activamente en establecer objetivos de desarrollo sostenible para desarrollar políticas humanitarias de migración e integración social, comprometiéndose a educar a las familias sobre los peligros de la trata a fin de erradicar la esclavitud moderna.<sup>16</sup>

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<sup>15</sup> Villalpando, Waldo. *La esclavitud, el crimen que nunca desapareció. La trata de personas en la legislación internacional*. Invenio, vol. 14, núm. 27, noviembre, 2011, pp. 13-26, Universidad del Centro Educativo Latinoamericano. Rosario, Argentina

<sup>16</sup> Cáritas. *Organizaciones religiosas de todo el mundo deciden actuar juntas para frenar el tráfico de persona*. Cáritas. España. 2016. <http://noticias.universia.net.mx/actualidad/noticia/2012/09/25/969004/sociedad-consumo-es-complice-trata-personas.html>

### 3.2 El tratante como violador de los derechos humanos de las personas

Desde la perspectiva de derechos humanos, la trata de personas implica la negación de dichos derechos, pues la víctima se convierte en objeto comerciable y explotable, por lo que, se le vulnera su esfera de derechos y se entiende la trata de personas como esclavitud. La trata de personas es un delito multiofensivo que vulnera por lo menos, los bienes jurídicos tales como:<sup>17</sup> la vida, la libertad, la integridad, la honra y la dignidad.

Los Estados tienen la obligación de proteger los derechos humanos universales de todas las personas que se encuentran bajo su jurisdicción, independientemente de su nacionalidad y condición migratoria, por lo que, el Estado debe proporcionar la seguridad y una justicia rápida y expedita para no dejar indefensas a las víctimas y evitar ser parte de la cadena de corrupción motivada por el crimen organizado y aunque existan protocolos y leyes, si estos no son aplicados por Estados, se violentan los derechos humanos por el mismo gobierno, por lo que es necesario evitar un estado de impunidad, pues el criminal podrá delinquir con mayor facilidad porque no hay castigo al infractor y las víctimas no denunciar por miedo a que la autoridad actué en contra de ellas.

Por eso la sociedad debe impulsar a las autoridades para alcanzar un estado de derecho que facilite la seguridad y la trata realmente sea erradicada mediante el cumplimiento de las leyes.

La Convención sobre los Derechos del Niño y la referencia a la trata de personas en la Convención sobre la Eliminación de Todas las Formas de Discriminación contra la Mujer reconoce una prohibición al delito de la trata de personas.

Toda acción relacionada con la prevención y persecución del delito de trata de personas, así como la atención y protección a las víctimas, debe estar sustentada en los derechos humanos en un entorno político y social. *El tratante de personas* opera un negocio muy redituable, porque busca al satisfacer una necesidad de la sociedad. Esto es así porque lucra con la necesidad de las personas obligándolas a realizar actividades en contra de la voluntad y por otro lado, el tratante busca un beneficio de este delito y al conocer que la sociedad busca este tipo de “servicios”, la sociedad se convierte junto con el tratante en la principal causante del incremento de este delito.

Por consecuencia, nos podemos preguntar ¿cómo es que la sociedad es la principal culpable?, y la respuesta es tan sencilla como ver cuántos table dance y casas de cista existen y como la sociedad, por un lado, proclama que está mal la explotación sexual, pero siguen estos lugares repletos de personas que consumen estos “servicios”. Otro gran problema es que la sociedad carece de conocimiento de la manera de operar y por lo tanto, es ignorante o inconsciente de la problemática.

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<sup>17</sup> La trata de personas como violación a los derechos humanos: el caso mexicano, 2016, Hector Alberto Pérez Rivera.

### **3.3 La guerra como impulsora del comercio sexual, el fracaso de la sociedad ante la ausencia de la ley**

Laura Delle Femmine. (2017)<sup>18</sup>, señala que la ONU reporta que alrededor de 6.3 millones (una cuarta parte) de personas han tenido que desplazarse de Siria para buscar seguridad, de los cuales 3 millones se fueron a Turquía, un millón a Egipto, Irak o Jordania, y Libano a otro millón, el resto se ha dirigido a Europa. Los países receptores, no se encuentran preparados para recibir grandes cantidades de personas y, por lo tanto, se presenta inseguridad, la falta de alimentos, el rechazo por la cultura.

Según Solange Marquez Espinoza. (2016)<sup>19</sup>, mujeres y niñas han sido secuestradas por crimen organizado de Turquía y Líbano para el comercio sexual. Las mujeres son vendidas a millonarios, obligadas a trabajar en clubes nocturnos o como esclavas sexuales.

### **3.4 Objetivos de desarrollo sostenible, base para un mejor futuro**

En septiembre de 2015, se celebró la Cumbre para el Desarrollo Sostenible como parte del Programa de las Naciones Unidas para el Desarrollo (PNUD), fijando 17 Objetivos de Desarrollo Sostenible para contrarrestar la pobreza, la desigualdad, la injusticia y hacer frente al cambio climático.

El presente documento se enfoca en el objetivo cinco que trata de la Igualdad de Género y que elemental para combatir la trata de personas<sup>20</sup>. El objetivo general del PNUD, es poner fin a todas las formas de discriminación y violencia en contra las mujeres y niñas.

Buscar el desarrollo de la mujer en ámbitos de la vida política, económica y pública, en un ámbito de respeto e igualdad, dentro de los países miembros de la ONU y fortalecer las políticas para promover la igualdad y el empoderamiento de las mujeres, reduciría sin duda la práctica de delitos como la trata.

Por otro lado, la Organización para la Cooperación y el Desarrollo Económico (OCDE) en su documento “La búsqueda de la igualdad de género: una batalla cuesta arriba”, se advierte que la igualdad de género debe de ser una “prioridad para lograr un crecimiento sostenible”<sup>21</sup>.

El informe señala que no existen excusas para que las mujeres sigan por debajo de los hombres en temas sociales, económicos y políticos y aunque se advierte que la brecha entre hombres y mujeres también precisa que en México se han dado grandes pasos reducir el margen de diferencia de género, al impulsar reformas educativas que facilitan las becas para los estudiantes y aumentado la tasa de inversión en estancias infantiles en las escuelas, acciones que facilitan que las mujeres puedan dedicarse a trabajar y desarrollarse económicamente en la sociedad.

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<sup>18</sup> Laura Delle Femmine. (2017). El número de refugiados sirios supera los cinco millones, según la ONU. 2018, de El País Sitio web: [https://elpais.com/internacional/2017/03/30/actualidad/1490868402\\_178024.html](https://elpais.com/internacional/2017/03/30/actualidad/1490868402_178024.html)

<sup>19</sup> Solange Marquez Espinoza. (2016). Terrorismo y tráfico sexual: mujeres sirias en la soledad. 2018, de El Universal Sitio web: <http://www.eluniversal.com.mx/blogs/solange-marquez-espinoza/2016/04/14/terrorismo-y-trafico-sexual-mujeres-sirias-en-la-soledad>

<sup>20</sup> Programa de las Naciones Unidas para el Desarrollo Objetivos de Desarrollo Sostenible, 2015.

<sup>21</sup> Organización para la Cooperación y el Desarrollo Económicos. La búsqueda de la igualdad de género: una batalla cuesta arriba, 2012.



### 3.5 Las nuevas tecnologías y las redes sociales, herramienta poderosa de los tratantes

La tecnología está siendo utilizada por los tratantes para engañar y reclutar mujeres, situación que es preocupante. Las nuevas tecnologías se presentan como una herramienta ventajosa y eficaz para engañar y explotar mediante trabajos forzosos, servidumbre y en otros casos explotarlos sexualmente a menores de edad, mujeres y hombres. Los tratantes utilizan las redes sociales (Facebook, Twitter, Instagram, Whatsapp) ofreciendo oportunidades laborales, aplicaciones para conocer y relacionarte amorosamente con personas engañándolas, usando identidades falsas. “Tinder” es un ejemplo que ofrece conocer personas de distintas partes del mundo, pero no todas llegan a ser lo que la red ofrece, donde en un caso real, se conoció una persona con una identidad falsa y resultó que la identidad y una foto de una imagen pública, donde la persona invitó a una mujer a una fiesta en un departamento con "amigos" y al descubrir que era falsa, la mujer lo confrontó y simplemente la eliminó de los contactos. Este documento pretende también concientizar a los usuarios, colegios y padres de familia a cuidar y supervisar a los hijos, por los riesgos que implica, pues están expuestos a cualquier tipo de persona.

En rueda de prensa, Toller Serroels señaló que el 49% de los usuarios de redes sociales en el país son jóvenes de hasta 24 años y la mayoría no cree en los peligros de las redes sociales, ya que piensan que solamente se trata de historias de personas viejas.<sup>22</sup>

La directora país de Save the Children afirmó que “los tratantes se están valiendo de las facilidades del mundo digital para cometer este delito, que consiste en la captación, traslado, transporte, la acogida de una persona utilizando las amenazas, violencia, engaño con el fin de someter a explotación y lucrarse con su actividad.”<sup>23</sup>

La Secretaría de la Coalición Regional contra la Trata de Personas señala que: “los victimarios aun utilizan a allegados y hasta a familiares de las víctimas para captarlas e incluso lo hacen a través de anuncios de distintos empleos en diversos periódicos.”<sup>24</sup>

Las redes de tratantes en el afán de generar mayores ganancias y poder captar nuevas víctimas para poder explotarlas, han ido evolucionando en sus modos de operación, creando mejores estrategias de manipulación y control sobre las personas que sin saberlo son engañadas. El uso de internet no sólo lleva al enganche de las víctimas, sino también a la oferta de estas, como la venta de la virginidad, el cuerpo de una joven es máspreciado que el de una adulta, por la cual se paga un mayor precio por entrar en contacto con él.<sup>25</sup>

Los turistas sexuales y pederastas usan internet y las redes sociales planear encuentros sexuales con víctimas. Otro método de captación son los medios de comunicación como televisión, radio y prensa, donde los tratantes publican anuncios. Un ejemplo es la sección de personal en periódico, donde los tratantes ofrecen servicios o solicitan mujeres para reclutarla como empleadas del hogar, meseras, modelos dentro y fuera del país, ofreciendo sueldos atractivos sin experiencia.

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22 Vera Samuel-Intolerancia Diario © 2003 - 2017- Editorial Periodística SA de CV.

23 El Nuevo Diario, 2018 <https://www.elnuevodiario.com.ni/nacionales/386170-internet-facilita-trata-personas/>

24 Centro Democrático, 2015 | Mano Firme Corazón Grande

<http://www.centrodemocratico.com/?q=articulo/columna-la-tecnologia-y-la-trata-de-personas>

25 Gómez Tagle López E. (2007). La explotación sexual comercial de niñas, niños y adolescentes. México: INACIPE, p. 138.

## **4. DESAYUNANDO CON ARUN KUMAR**

El sábado 24 de marzo de 2018 nos reunimos con Arun Kumar, un investigador originario de la India para desayunar y platicar sobre la trata de personas con fines de explotación sexual, tema que Arun Kumar ha estudiado por muchos años y ha influenciado y sensibilizado sobre la problemática en diferentes foros a la sociedad, al gobierno para reforzar esfuerzos a nivel internacional para contrarrestar este grave problema.

### **4.1 El trabajo de Arun Kumar y su equipo de trabajo**

El rol de Arun Kumar tiene propósitos de investigación y el estudio de casos. Parte de su proceso de investigación consiste en entrevistar a mujeres que pudieran estar sujetas a trata de personas y en el hecho de identificar a las víctimas de la trata actuando como “cliente”, obteniendo información valiosa que enriquece su investigación y actuar a la par con universidades y en su caso con el gobierno.

Un equipo consolidado de investigadores y estudiantes realizan trabajo de campo. La CEMMTRAP (Central de Estudios Mexicanos de Migración y Trata de Personas) trabaja en coordinación con CONACYT. El trabajo de Arun se limita a la investigación, pero requiere mayores alcances para rescatar a las mujeres, pues en México estos casos se denuncian en el DIF “Desarrollo Integral de la Familia” o en “Alternativas Pacíficas, A.C.”, asociación civil que da apoyo en aspectos psicológicos, asesoría legal, trabajo social, gestiones sociales, atención a la salud y la paz para mujeres que se encuentran en situación de violencia familiar y sexual. La organización cuenta con centros de refugio, para brindar protección y atención integral a las familias que están en alto riesgo.

### **4.2 La labor de los tratantes o padrotes, así como la de los novios**

Las redes de tratantes operan en diferentes ciudades e interactúan entre sí, requiriendo una mujer joven con ciertas características y un miembro joven (reclutador) inicia una búsqueda de una mujer joven para relacionarse personalmente por meses hasta enamorarla, formalizar una relación y hacerle promesas falsas de ofertas de trabajo y enganarla hasta trasladarla a otra ciudad donde las someten.

Arun Kumar entrevistó a 50 mujeres víctimas, de las cuales 38 fueron traídas por su novio y entregadas a los padrotes, el resto entregadas por el cuñado, padrastro, etc. Hay una codependencia entre el tratante con las víctimas y explotan a las víctimas desde los 16 años y los “clientes” pueden pagar entre \$50,000 a \$70,000 pesos, sometiéndolas durante varios años hasta liberarlas alrededor de los 22 a 22 años por considerarlas “vacas viejas” y dejan que se relaciones, incluso emocionalmente con otras personas para liberarse de esa carga o dejarlas como meseras en bares.

Las redes de tratantes se rotan de bar en bar o son asignados a otras ciudades para que los “clientes” no vean las mismas chicas. Cuando las chicas se resisten a trabajar son sometidas, amenazadas, maltratadas y torturadas.

### **4.3 Siempre hay alguien atrás de las mujeres que son víctimas de la trata**

Las mujeres están vigiladas y están sometidas y amenazadas para cumplir las instrucciones de los tratantes. Por ejemplo, si una chica ofrece sus “servicios” y si la conversación con un “cliente” se prolonga más allá de preguntas básicas como ¿qué servicio?, ¿cómo lo ofrece, en dónde y cuánto? Un padrote se acerca, interviene en la conversación y ahuyenta al “cliente”.

### **4.4 Los tratantes usan tus sueños para engañarte**

Arun Kumar señala que a los tratantes usan tus sueños para engañarte y manipularte, pues hacen promesas falsas, incluso a la esposa de Arun intentaron engañarla para enseñar en NY el idioma indi, cuando en realidad la buscaban para explotarla sexualmente.

### **4.5 Formando redes de influencia contra la trata de personas**

Arun Kumar ha formado grupo de interés sobre el tema de trata para sensibilizar a más personas, para dar a conocer la problemática e invitar a otros a conocer y participar y poder contrarrestar este mal. Arun y su equipo realizan congresos para sensibilizar sobre la trata de personas. Recientemente, Arun Kumar ha participado en Washington, D.C. impartiendo conferencias organizadas por el con el Banco Mundial para abordar sobre el tema de la trata de personas. En Nuevo León participé con Arun Kumar y Berenice Salce de “Proyecto Perla” para tratar la problemática de la trata de personas y cómo Berenice trabaja en España para rescatar a chicas que se encuentran sometidas por tratantes.

### **4.6 Sin clientes no hay trata**

Desde la perspectiva de Arun Kumar “hay que atacar a los clientes”, porque muchos desconocen que las chicas son víctimas de trata y son amenazas de muerte. Cuando el cliente esté consciente y haya una transformación en la sociedad, no se permitirá que las mujeres sean expuestas. También es importante que las leyes sanciones no solo al tratante, sino al consumidor “cliente” quién es el que demanda los “servicios”.

### **4.7 Acciones que realizan para que el gobierno pueda trabajar con leyes o en coordinación con la policía**

Las organizaciones como “Proyecto Perla” con Berenice Salce o Arun Kumar trabajan para sensibilizar a las autoridades y distinguir entre el tráfico de personas con la trata de personas para no limitarlo a un problema migratorio y es necesario impulsar que las leyes actuales sean aplicada y ampliadas para sancionar a los consumidores y a sensibilizar a la sociedad.

### **4.8 Capacitación a la policía, la línea de la trata y campañas de concientización dirigida a la sociedad**

Las autoridades hacer campañas en medios tradicionales o redes sociales para sensibilizar a la sociedad y también capacitar todos los niveles de la policía. Además, es necesario desarrollar albergues para a las víctimas, apoyadas con una línea de atención como un 911 para reportar casos.

## 5. CONEXIÓN ENTRE LAS DIFERENTES ORGANIZACIONES QUE COMBATEN LA TRATA DE PERSONAS CON FINES DE EXPLOTACIÓN SEXUAL

Existen organizaciones que han actuado en contra de la esclavitud moderna, tales como las organizaciones gubernamentales, organizaciones no gubernamentales (ONG's) y organizaciones filantrópicas.

### 5.1 Las Organizaciones gubernamentales

Estas organizaciones son gestionadas por el gobierno que puede operar nacional o internacionalmente con presencia en varios países. Existen organizaciones gubernamentales que atiendan la trata de personas como la Secretaría de Gobernación, la Secretaría de Salud, el Instituto Nacional de Migración, la Fiscalía General de la República, el Instituto Nacional de las Mujeres, etc., proporcionando asistencia a las víctimas y buscando justicia,<sup>26</sup> sin embargo, los doctores Gómez Tagle<sup>27</sup> y Villalpando<sup>28</sup> señalan que la corrupción de las autoridades juega un papel permisivo en la trata de personas, donde el gobierno se envuelve indirectamente en el turismo sexual.

Las organizaciones intergubernamentales generan acuerdos entre países para crear leyes y acciones para atacar la trata de personas, trabajando en países donde se consume el turismo sexual y los países origen donde se toman las víctimas.

### 5.2 Las Organizaciones no gubernamentales. (ONG's)

Las ONG's están integradas por ciudadanos, voluntarios, empresarios etc., local, nacional e internacionalmente con el fin de solucionar la problemática, monitorear el cumplimiento de leyes, proteger los derechos humanos, etc.

N. Lainez<sup>29</sup> señala que se debe cuidar los recursos obtenidos sin desviar la atención de su propósito final, pues se pueden presentar casos de desvío de recursos. Las acciones deben estar enfocadas al combate de la trata de personas y al rescate de víctimas y analizar que las acciones de la organización sean adecuadas.

### 5.3 Organizaciones filantrópicas

Estas pueden ser organizaciones sociales y se refiere a la relación entre al menos una persona que se suma al combate en contra de la trata, aportando información, análisis, investigación y recursos

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<sup>26</sup> Secretaría de Gobernación. *Instituciones públicas y organización de la sociedad civil que brindan atención a personas víctimas de trata*. Secretaría de Gobernación (SEGOB). 2014, SEGOB [www.gobernacion.gob.mx/work/models/SEGOB/comision/pdf/INSTITUCIONES%20PUBLICAS%20Y%20ORGANIZACION%20DE%20LA%20SOCIEDAD%20CIVIL%20QUE%20BRINDAN%20ATENCION%20A%20PERSONAS%20VICTIMAS%20DE%20TRATA.pdf](http://www.gobernacion.gob.mx/work/models/SEGOB/comision/pdf/INSTITUCIONES%20PUBLICAS%20Y%20ORGANIZACION%20DE%20LA%20SOCIEDAD%20CIVIL%20QUE%20BRINDAN%20ATENCION%20A%20PERSONAS%20VICTIMAS%20DE%20TRATA.pdf)

<sup>27</sup> Gómez Tagle, López, E. *Migración internacional, explotación laboral y trata de blancas en el siglo XXI*. Revista Venezolana de Ciencias Sociales, 2004. 8 (2), 193-212.

<sup>28</sup> Villalpando, W. *La esclavitud, el crimen que nunca desapareció. La trata de personas en la legislación internacional*. Invenio, 2011.

<sup>29</sup> Lainez, N. *¿Representar la explotación sexual? La víctima puesta en escena*. Revista de Antropología Social, 2009. 18, 297-316.

poniendo en riesgo su integridad física. Un buen ejemplo es el artículo publicado por Arun Kumar<sup>30</sup> en contra de la trata de personas, quien exhibe una sociedad gris e indiferente al turismo sexual y a una sociedad oculta, integrada por las mujeres tratadas que son víctimas del crimen organizado y excluidas por la sociedad por practicar actos inmorales. Aquí comienza la iniciativa de cambio en la sociedad y erradicar la trata de personas.

#### 5.4 Conexión entre las organizaciones

Es muy importante una conexión entre los tres tipos de organizaciones para que haya una solución integral para lograr un cambio cultural en la sociedad como señala Diego Beltrand<sup>31</sup> y enfrentar el problema en conjunto y proponer un plan para que los gobiernos promulguen leyes con base en los acuerdos internacionales y adaptarlas al contexto de país, incluyendo acciones enfocadas al rescate de las víctimas y su inclusión a la sociedad. Las ONG's juegan un papel importante, pues son la conexión con las organizaciones gubernamentales.

### 6. FACTORES DE RIESGO

Los principales factores de riesgo que sufren las víctimas son la pobreza y la falta de educación. El Centro de Estudios e Investigación en Desarrollo y Asistencia Social (CEIDAS) señaló que la trata de personas aumentó en México en los últimos años por las condiciones de pobreza y de falta de oportunidades<sup>32</sup>. María Grazia Giammarinaro, relatora de la ONU, advirtió que

*“las personas que huyen de conflictos y situaciones de emergencia y pobreza están obligadas a emigrar en condiciones de inseguridad y vulnerabilidad”, y que “Estas personas pueden ser objeto de explotación y tráfico durante el viaje o al llegar a su destino, debido a su situación de vulnerabilidad social”<sup>33</sup>.*

El Informe Anual del Departamento de Estado de los Estados Unidos de Norte América del año 2014, señaló que las víctimas de trata son reclutadas en zonas rurales sin oportunidades económicas para ser explotadas sexualmente, incluso los familiares de las víctimas son cómplices de su explotación<sup>34</sup>.

La Oficina de las Naciones Unidas contra la Droga y el Delito, precisó en el Informe Anual Sobre la Trata de Personas de 2014 que las víctimas son captadas en países pobres y trasladadas a países ricos. Seis de cada diez víctimas captadas y entregadas han cruzado al menos una frontera.<sup>35</sup>

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<sup>30</sup> Kumar Acharya, A. *Mujeres invisibles y victimización sexual en México. El caso de la trata de mujeres en Monterrey*. Estudios Sociales. 2013. 21 (42), 233-258.

<sup>31</sup> Beltrand, Diego. *Trata de personas: Un desafío regional*. 2003, CEPAL  
<https://www.cepal.org/celade/noticias/paginas/2/11302/DBeltrand.pdf>

<sup>32</sup> Pobreza Causa Alza en Trata de Personas, Expansión CNN, julio 2010.  
<https://expansion.mx/economia/2010/07/27/pobreza-causa-alza-en-trata-de-personas>

<sup>33</sup> El Peligro de la Trata de Personas en el Contexto Migratorio, Naciones Unidas Derechos Humanos, Oficina del Alto Comisionado, septiembre 2016. <http://www.ohchr.org/SP/NewsEvents/Pages/MigrationHumanTrafficking.aspx>

<sup>34</sup> Córdoba, Matilde. *La Trata, un Delito con Rostro de Pobreza*. El Nuevo Diario, julio 2015.  
<https://www.elnuevodiario.com.ni/nacionales/366010-trata-delito-rostro-pobreza/>

<sup>35</sup> *Informe Mundial Sobre la Trata de Personas, Resumen Ejecutivo*. Oficina de las Naciones Unidas Contra la Droga y el Delito, 2014. [https://www.unodc.org/documents/data-and-analysis/glotip/GLOTIP14\\_ExSum\\_spanish.pdf](https://www.unodc.org/documents/data-and-analysis/glotip/GLOTIP14_ExSum_spanish.pdf)

Por otro lado, es importante advertir que además de la pobreza y la falta de oportunidades laborales, en México la *cultura* también es un factor que promueve la trata de personas. Luis Raúl González Pérez, presidente de la Comisión Nacional de los Derechos Humanos, señaló que se deben modificar los patrones culturales *abusivos y misóginos que existen, a través de estrategias de intervención sociológica y educativa para la construcción de identidad de género, con fundamento en los valores de respeto e igualdad de las personas*<sup>36</sup>. Algunos periodistas han precisado que la trata de personas es un elemento folclórico de la cultura mexicana, en los que cabarets, visitas a Sullivan en la Ciudad de México, el turismo sexual e incluso que los padres lleven a sus hijos para hacerse “*hombrecitos*” promueven la práctica de este delito<sup>37</sup>. La cultura mexicana *machista* advierte Héctor de Mauleon en su artículo “Esclavas de la calle Sullivan”, una mujer en este lugar llega a tener hasta 60 encuentros sexuales en una sola noche. Como ciudadanos, debemos procurar tener un pensamiento de igualdad entre géneros, denunciar este delito y como sociedad sumar y no restar en el combate contra esta práctica.

## 7. ACCIONES CONTRA LA TRATA DE PERSONAS A NIVEL MUNDIAL

La trata de personas como un problema social mundial, requiere de acciones de prevención-sanción, concientización, información, de normativas y evaluaciones con el fin de reducir los índices delictivos. Este delito ocupa el tercer lugar en crímenes transnacionales y es considerada como “la esclavitud moderna o del siglo XXI” que genera millones de dólares anuales y se relaciona con el tráfico de drogas y armas<sup>38</sup>.

Según la Organización Internacional para las Migraciones (OIM), anualmente 2 millones de personas son víctimas de la trata, 80% son mujeres y niñas y 50% menores. En 2000, se crea la Convención de las Naciones Unidas contra la Delincuencia Organizada Transnacional para Prevenir, Reprimir y Sancionar la Trata de Personas, especialmente Mujeres y Niños (Protocolo de Palermo) buscando castigar a los tratantes y se definió la “trata de personas”.

## CONCLUSIÓN

Atacar la trata de personas no es un problema de una legislación adecuada o aplicada por las autoridades, también es una problema de la sociedad, pues esta justifica las razones porque las mujeres realizan estas actividades, cuando en realidad son inconscientes o coparticipes, pues la sociedad con una doble moral es consumidora, permitiendo actuar a las organizaciones delictivas que aprovechan su estructura operativa para obtener mayores ganancias, no solamente del tráfico de armas o drogas, sino también de la violación de los derechos de las mujeres a través de la trata

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<sup>36</sup> México tiene 20 zonas con alta incidencia en trata de personas, Proceso, julio 2015.

<http://www.proceso.com.mx/411900/mexico-tiene-20-zonas-con-alta-incidencia-en-trata-de-personas>

<sup>37</sup> Suárez, César. Explotación y trata de mujeres en México: Una historia de machismo y misoginia, Tercera Vía, septiembre 2015. <http://terceravia.mx/2015/09/explotacion-y-trata-de-mujeres-en-mexico-una-historia-de-machismo-y-misoginia/>

<sup>38</sup> Delito conectado con otros delitos, como el secuestro, las desapariciones, la falsificación de documentos, la violencia y el abuso físico y sexual, la corrupción, el tráfico y el abuso de drogas.

de mujeres, siendo violentadas en sus derechos básicos, amenazadas incluso de muerte con el temor de denunciar y que las autoridades estén confabuladas.

Considerando los argumentos expuestos, la razón del aumento en la trata de personas, no se debe sólo a la capacidad de aplicación de la ley por el estado, si también a un problema cultural de actitud social que fomenta, aprueba y que es consumidor de la trata de personas, por eso por lo que, divulgar la realidad del problema permitirá concientizar, tanto al gobierno y como a la sociedad para que sean sensibles y participes de manera activa en contra de la trata de personas y haya una transformación moral para erradicar esta problemática.

Es importante homologar la legislación a los Protocolos y se aplique la ley para combatir incluso culturas regionales junto con una supervisión internacional que propicie un ambiente favorable para que dichas prácticas disminuyan.

Los gobiernos deben adoptar los 17 objetivos de desarrollo sustentable de las Naciones Unidas para mitigar la desigualdad, particularmente el objetivo 5 (IGUALDAD DE GÉNERO) para empoderar a las mujeres y niñas. La igualdad entre los géneros no es sólo un derecho humano fundamental, sino la base para tener un mundo pacífico, próspero y sostenible. Además, considerar el objetivo 8 (TRABAJO DECENTE Y CRECIMIENTO ECONOMICO) para estimular el crecimiento económico sostenible mediante el aumento de los niveles de productividad y la innovación tecnológica, fomentando políticas que estimulen el espíritu empresarial y la creación de empleo y erradicar el trabajo forzoso, la esclavitud y el tráfico humano para así lograr un empleo pleno, productivo y decente para todos los hombres y mujeres. Es importante implementar programas de concientización en los sistemas educativos para concientizar a las generaciones más jóvenes para ir erradicando esta problemática generacional.

# What Has Been Moving the Price of Bitcoin since Early 2019? An Analysis Employing WarpPLS

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*This presentation will discuss a student project conducted as part of a data analytics course, where data was gathered from financial databases with the goal of answering the question: What has been moving the price of bitcoin since early 2019? The project employed the software WarpPLS to assess whether hypothesized predictors of a main dependent variable, namely a variable storing the price of bitcoin, in a multiple regression model were statistically significant predictors. The causal relationships among predictors and dependent variable were hypothesized based on knowledge obtained from the financial literature. The path coefficients among predictors and dependent variable were used to prioritize options for trading employing statistical arbitrage. Additional tests were conducted to ensure confidence on the results of the analyses, including multicollinearity tests.*

*KEYWORDS Data Analytics, WarpPLS, Multiple Regression, Partial Least Squares, Structural Equation Modeling, Multicollinearity*

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# **Innovation Capacity in the Cold Chain 3PL Industry: The Role of Organizational Innovativeness**

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*The cold chain third party logistics industry is comprised of 250 companies in the US., representing a \$5.7 billion market. The cold chain 3PLs manage the storage of the food products the manufacturers produce and the logistics activities on behalf of the shipper. Currently, it's reported that over 94 billion pounds of food are stored in cold chain 3PL warehouses, with a projected growth to \$2 trillion of goods and services tracked annually by 2023. Given industry growth and regulatory pressures, and serious disintermediation in the chain due to changing business models and alternative channels of distribution, the need for innovation driven value from these traditionally conservative, slow-to-change 3PLs is urgent. Therefore, this study's research questions are: (1) To what extent does organizational innovativeness of a firm influence its capacity to innovate? and (2) How are cold chain 3PLs responding to disruptions in the cold chain? The first author is imbedded in a cold chain 3PL and her firm has a vested interest in understanding where to focus their efforts to effect change and create high levels of innovation capacity. One hundred ninety-three participants representing all levels in the organization responded to a survey. The tested model represents Organizational Innovativeness as a 2nd-order latent construct comprised of five dimensions based on prior work, and its influence on a firm's capacity to innovate. The model was evaluated using WarpPLS 6.0. The findings suggest that all five dimensions had a strong, positive influence on Organizational Innovativeness, which validated prior research. In turn, Organizational Innovativeness, as a 2nd order construct, was a significant predictor of Innovation Capacity. Size was a control. Open-ended questions were asked to allow open commentary on innovation in the respective organization and for the industry at-large.*

**KEYWORDS** *Organizational Innovation, Innovation Capacity, Third Party Logistics, Field Research, Structural Equation Modeling*

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# Mindfulness and Meaningfulness at Work

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*Mindfulness is an “awareness and attention to the present events and experience” and has been associated with numerous beneficial outcomes, including stress reduction, happiness, and emotional well-being. Meaningful work is work that signifies and work that serves an important purpose. While research has been written about both constructs, it has tied the constructs to work engagement, not each other. This research ties the two constructs together by analyzing mindfulness as a precursor to meaningfulness at work using WarpPLS.*

*KEYWORDS Mindfulness, Meaningfulness, WarpPLS, Structural Equation Modeling*

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# The Effect of Mobile Diffusion on Government Honesty

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*This study examines the associations among mobile diffusion, GDP, FDI, transparency, and government honesty. It does so based on the data from 121 countries, collected from 2006 to 2012. We find that greater levels of mobile diffusion are associated with greater levels of GDP and FDI. We also find that greater levels of GDP and FDI are associated with increased transparency; and that increased transparency is associated with increased government honesty. This study builds on modernization theory. It implements a path analysis, through the structural equation modeling software WarpPLS. We hope that this study will provide a framework for researchers to understand how mobile diffusion is related with government honesty via transparency.*

**KEYWORDS** *WarpPLS, Multiple Regression, Partial Least Squares, Structural Equation Modeling*

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# **The Effects and Mobile Phone and Internet Access on Government Corruption**

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*This study examines the relationships among mobile phone and Internet use and their effect on government corruption. The results suggest that greater levels of Internet use and access via mobile devices are associated with greater levels of transparency, and that greater levels of transparency are associated with greater levels of government corruption. We observed an overall relationship between Internet use and government corruption which is mediated by transparency. Government policy makers in developing countries may consider increasing Internet use and transparency with the goal of reducing government corruption.*

*KEYWORDS WarpPLS, Multiple Regression, Partial Least Squares, Structural Equation Modeling*

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# Using SEM to Extend the Motivating Language Construct

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*This study builds upon the leadership, leadership communication, and organizational behavior literature to examine the effects of peer motivating language on employee outcomes. Despite the increasing interest in examining the relationships between leader motivating language and employee attitudes and behaviors, the effects of peer motivating language on such remain unexplored. Researchers Mayfield and Mayfield are calling for moving beyond ML as a dyadic, leader communication model to research on peer-to-peer motivating language. Moreover, leadership studies started placing greater emphasis on followers to avoid a possible unproductive overemphasis on the leader in an organization. In line with this move is the substitutes for leadership theory. Researchers are calling for the theorizing of further substitutes. Given these existing research needs, SEM was employed to validate a scale for, and test a new construct called peer motivating language. Second, SEM was used to test a model that highlights the comprehensive nature of both leader and peer motivating language and employee outcomes, incorporating peer motivating language as a possible new substitute for leadership variable. Third, this model was examined by testing it in two different countries: the USA and India. Findings show that peer motivating language may indeed serve as a substitute for leader motivating language to some degree. However, its results vary between the U.S. and Indian sample. Several contributions, and both practical and theoretical implications are discussed.*

*KEYWORDS* Multivariate Statistics, Partial Least Squares, Structural Equation Modeling, Leader Motivating Language, Peer Motivating Language, Substitutes for Leadership

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# **Firm Size, Funding Source, and Access to Financing: Does Culture Matter?**

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*Small and medium enterprises (SMEs), despite their economic importance, continue to face credit accessibility constraints. Recent accounting and finance literature suggest that culture is a critical player in SME financing. In this presentation, we examine how culture moderates the relationship between SME size and access to credit. We also examine the role culture plays in moderating the relationship between SME funding source and access to credit. Specifically, we hypothesize that high individualism, low uncertainty avoidance, and high-power distance cultural dimensions will positively moderate the relationship between SME size and access to financing and SME funding source and access to financing. Results, directions for future research, and implications of the study are discussed in detail.*

**KEYWORDS** *Small and Medium Enterprises, Partial Least Squares, Structural Equation Modeling*

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