Texas A&M International University’s (TAMIU) 15th Annual Conference, *Western Hemisphere and Global Recovery: Trade and Investment*, will take place April 14-16, 2010 in Laredo, Texas. The conference is sponsored by TAMIU’s A.R. Sanchez, Jr. School of Business, Center for the Study of Western Hemispheric Trade, and the School of Business, Universidad Regiomontana, Monterrey, N.L., México.

The format for the three day conference includes receptions, dinners, keynote addresses, panel discussions, and academic sessions. Normally, the conference attracts 125-150 attendees, including academics, policy analysts, CEOs, and leaders from the Americas, as well as Europe and Asia. The 2010 conference will take place on the campus of TAMIU.


For more information, please visit [http://freetrade.tamiu.edu](http://freetrade.tamiu.edu), call (956) 326-2820 or e-mail cswht@tamiu.edu.
You are cordially invited to submit papers for presentation at this conference, which brings together academic researchers, practitioners, and policy makers to discuss an array of topics affecting the western hemisphere as we face further integration of the Americas in the 21st century. The conference is sponsored by Texas A&M International University’s A.R. Sanchez, Jr. School of Business, Center for the Study of Western Hemispheric Trade (http://freetrade.tamiu.edu), and the School of Business, Universidad Regiomontana, Monterrey, México. The 2010 conference will take place on the campus of Texas A&M International University in Laredo, Texas, USA.

Special Features:

• Panel Presentations
• Concurrent Academic Sessions
• Special Sessions for Ph.D. Students
• Papers on the Western Hemisphere and Global Recovery

Benefits of Participation:

• Distinguished papers will be considered for publication in Texas A&M International University’s International Trade Journal, a leading peer-reviewed academic journal now in its 23rd year.
• Opportunity to interact with peers from various countries and gain insight into emerging topics related to economics, finance, marketing, information technology and international business.

Submission Guidelines:

• Papers are invited on any topic related to the general theme of the Western Hemisphere and Global Recovery: Trade and Investment. All participants must submit their work electronically to cswht@tamiu.edu.
• Graduate students and non-academic affiliates are welcome. Submissions imply that at least one author will register for the conference and be present at the time designated in the conference program. Research-in-progress will be accepted.
• Please send a MS Word or WordPerfect file of either the complete paper or abstract (200 words maximum) by February 26, 2010 for inclusion in the conference. Complete papers will be considered for inclusion in the electronic proceedings. Each submission must include a cover page containing only the title of the research with information about the author(s).

For more information, please contact the Center for the Study of Western Hemispheric Trade at Texas A&M International University, 5201 University Blvd. - Suite WHTC 222E, Laredo, Texas 78041, or cswht@tamiu.edu or 956.326.2820.

DEADLINE: FINAL PAPER MUST BE RECEIVED BY FEBRUARY 26, 2010
REGISTRATION FORM

(Please type or print)

Date: __________________________
Name: __________________________
Affiliation/Institution: __________________________
Address: __________________________
Phone: __________________________ Fax: __________________________
E-mail: __________________________

PAYMENT

Registration fees can be paid by check, money order or credit Card (VISA, MC, AMEX or DISCOVER). Checks and money orders should be made payable to Texas A&M International University.

□ $215 U.S. Dollars - Early Registration: On or before February 19, 2010
□ $250 U.S. Dollars - Registration: February 20 - March 31, 2010
□ $300 U.S. Dollars - Late Registration: After March 31, 2010
□ Other - Code _________ Amount $__________

Method of Payment:
□ Cash □ Credit Card (Instructions for credit card payments will be sent upon receipt of registration form.)
□ Check # __________

SUBMIT FORM TO:

Texas A&M International University
Center for the Study of Western Hemispheric Trade
5201 University Boulevard, WHTC 222E
Laredo, Texas, USA 78041-1900
Phone: (956) 326-2820
Fax: (956) 326-2544
E-Mail: cswht@tamiu.edu

CO-SPONSORS:

Texas A&M International University
Center for the Study of Western Hemispheric Trade
5201 University Boulevard, WHTC 222E
Laredo, Texas, USA 78041-1900
Phone: (956) 326-2820
Fax: (956) 326-2544
E-Mail: cswht@tamiu.edu
# CONFERENCE AGENDA

Texas A&M International University  
A.R. Sanchez, Jr. School of Business  
Center for the Study of Western Hemispheric Trade  
in conjunction with  
Universidad Regiomontana  
School of Business  
Present:  
15th Annual Conference  
*Western Hemisphere and Global Recovery: Trade and Investment*  
April 14-16, 2010

## Wednesday, April 14, 2010

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>7:00 - 7:30 p.m.</td>
<td>Cocktail Reception</td>
<td>Student Center, 2nd Floor</td>
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<tr>
<td></td>
<td>Sponsored by International Bank of Commerce</td>
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</tr>
<tr>
<td>7:30 - 9:00 p.m.</td>
<td>Keynote Address</td>
<td>Student Center Ballroom (SC 203 A&amp;B)</td>
</tr>
</tbody>
</table>
|              | *The Immigration Deadlock: Is there a way out?*  
Edward Alden  
Bernard L. Schwartz Senior Fellow  
Council on Foreign Relations, Washington, D.C. |                                    |

## Thursday, April 15, 2010

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>7:30 a.m.</td>
<td>Shuttle Pick-Up</td>
<td>Staybridge Suites</td>
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<tr>
<td></td>
<td>To TAMIU</td>
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<tr>
<td>8:00 a.m.</td>
<td>Registration</td>
<td>WHTC Foyer</td>
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<tr>
<td></td>
<td><em>Breakfast Keynote Address</em></td>
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<tr>
<td></td>
<td>Welcoming Remarks</td>
<td></td>
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</tbody>
</table>
|              | Juan J. Castillo, VP for Finance & Administration  
Texas A&M International University |                                    |
|              | Steve Sears, Ph.D.  
Dean, A.R. Sanchez, Jr. School of Business  
Texas A&M International University |                                    |
|              | Tagi Sagafi-nejad, Ph.D.  
Director, Center for the Study of Western Hemispheric Trade  
Texas A&M International University |                                    |
| 8:15 - 9:45 a.m. | *Gigaton Problems Need Gigaton Solutions:*  
*Understanding and Engineering the Complexity of Urban Systems*  
John C. Crittenden, Ph.D.  
Director, Brook Byers Institute for Sustainable Systems  
Georgia Institute of Technology | WHTC 111 |

Page 1 of 3
<table>
<thead>
<tr>
<th>Time</th>
<th>Concurrent Academic Sessions</th>
<th>Location</th>
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</thead>
</table>
| 9:45 - 11:45 a.m.   | Session I: Leadership and Entrepreneurship  
                      Session II: Economic Issues in Latin America and China  
                      Session III: Trade, Investment, and Development                             | WHTC 103, WHTC 104, WHTC 106 |
| 11:45 - 12:00 p.m.  | **Break**                                                                                   | WHTC Foyer     |
| 12:00 - 1:30 p.m.   | **Luncheon Keynote Address**                                                                 | WHTC 111       |
|                     | Welcoming Remarks  
                      Ray M. Keck, Ph.D.  
                      President, Texas A&M International University  
                      **U.S., Europe, or China?**  
                      Stephen P. Magee, Ph.D.  
                      James L. Bayless/Enstar Professor of Finance  
                      University of Texas at Austin                     |                |
| 1:30 - 2:45 p.m.    | **Panel Presentation**  
                      Financial Institutions and the Financial Crisis  
                      Alejandro Cabezut, Chairman of the Board,  
                      Laredo Chamber of Commerce  
                      George R. Clarke, Ph.D., Texas A&M International University  
                      William C. Gruben, Ph.D., Texas A&M International University  
                      Moderator: Steve Sears, Ph.D., Texas A&M International University | WHTC 116       |
| 2:45 - 3:00 p.m.    | **Break & Refreshments**                                                                     | WHTC Foyer     |
| 3:00 - 5:00 p.m.    | **Concurrent Academic Sessions**                                                             | WHTC 103, WHTC 104 |
|                     | Session IV: International Accounting and Taxation Issues  
                      Session V: Knowledge and Regulation                                                   |                |
| 5:00 p.m.           | **Shuttle Pick-Up**  
                      To Staybridge Suites                                                                     | TAMIU          |
| 7:00 p.m.           | **Shuttle Pick-Up**  
                      To Casa Ortiz                                                                             | Staybridge Suites |
| 7:30 - 10:00 p.m.   | **Reception & Dinner**  
                      Performances by:  
                      TAMIU’s Mariachi Internacional  
                      TAMIU’s Ballet Folklorico                                                               | Casa Ortiz     |
| 10:00 p.m.          | **Shuttle Pick-Up**  
                      To Staybridge Suites                                                                     | Casa Ortiz     |

**Thursday, April 15, 2010 (continued)**
<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
<th>Location</th>
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<tbody>
<tr>
<td>8:15 a.m.</td>
<td>Shuttle Pick-Up</td>
<td>Staybridge Suites</td>
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<td></td>
<td>To TAMU</td>
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<tr>
<td>8:30 a.m.</td>
<td>Registration &amp; Continental Breakfast</td>
<td>WHTC Foyer</td>
</tr>
<tr>
<td>9:00 - 11:00 a.m.</td>
<td>Concurrent Academic Sessions</td>
<td>WHTC 103, 104, 106</td>
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<tr>
<td></td>
<td>Session VI: Education, Leadership, and Development</td>
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<td></td>
<td>Session VII: Technology and Development</td>
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<td></td>
<td>Session VIII: Issues in Human and Financial Investment</td>
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<tr>
<td>11:00 - 11:15 a.m.</td>
<td>Break &amp; Refreshments</td>
<td>WHTC Foyer</td>
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<tr>
<td>11:15- 1:00 p.m.</td>
<td>Panel Presentation</td>
<td>WHTC 116</td>
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<tr>
<td></td>
<td><em>International Trade in the Region</em></td>
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<td></td>
<td>Pablo Camacho, Ph.D., Texas A&amp;M International University</td>
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<td></td>
<td>Javier Garza, President, Logistics and Manufacturing Association, Port Laredo</td>
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<td></td>
<td>Ing. Carlos Gómez Unda Allende, Administrador de la Aduana de Nuevo Laredo <em>(Invited)</em></td>
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<td></td>
<td>Balaji Janamanchi, Ph.D., Texas A&amp;M International University</td>
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<td></td>
<td>Moderator: Richard Perez, SBDC, Texas A&amp;M International University</td>
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</tr>
<tr>
<td>1:00 - 3:00 p.m.</td>
<td>Luncheon Keynote Address &amp; Concluding Ceremonies</td>
<td>WHTC 111</td>
</tr>
<tr>
<td></td>
<td><em>Globalization and Growth</em></td>
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<tr>
<td></td>
<td>W. Michael Cox, Ph.D.</td>
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<tr>
<td></td>
<td>Director, William J. O’Neil Center for Global Markets and Freedom</td>
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<td></td>
<td>Southern Methodist University</td>
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<tr>
<td></td>
<td>Senior Fellow</td>
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<td></td>
<td>Federal Reserve Bank of Dallas</td>
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<td></td>
<td><em>Closing Remarks</em></td>
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<td></td>
<td>Pablo Arenaz, Ph.D.</td>
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<td></td>
<td>Provost, Texas A&amp;M International University</td>
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<td></td>
<td>Tagi Sagafi-nejad, Ph.D.</td>
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<tr>
<td></td>
<td>Director, Ph.D. Program in International Business Administration</td>
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<tr>
<td></td>
<td>Texas A&amp;M International University</td>
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<tr>
<td>3:00 p.m.</td>
<td>Shuttle Pick-Up</td>
<td>TAMIU</td>
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<td>To Staybridge Suites</td>
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</table>
15th Annual Conference
Western Hemisphere and Global Recovery:
Trade and Investment

Texas A&M International University’s A.R. Sanchez, Jr. School of Business, Center for the Study of Western Hemispheric Trade, and Universidad Regiomontana’s School of Business are pleased to invite you to an

**Evening Reception & Dinner**

Thursday, April 15
7:30 - 10:00 p.m.

Texas A&M International University
5201 University Blvd.
Student Center Rotunda
Laredo, TX

Featuring performances by TAMIU’s Mariachi Internacional and Ballet Folklórico.

**RSVP:**
Call 956-326-2820 or e-mail cswht@tamiu.edu
Thursday, April 15, 2010
9:45 am - 11:45 am

<table>
<thead>
<tr>
<th>Session I: Leadership and Entrepreneurship</th>
<th>WHTC 103</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chair: Leonel Prieto, <em>Texas A&amp;M International University</em></td>
<td></td>
</tr>
<tr>
<td>Assessment, Antecedents, and Development of Intellectually Stimulating, Inspirationally Motivating, Individually Considerating, Contingently Rewarding, Leading by Exception (Active), Idealized Influence (Attributed), Idealized Influence (Behavioral), Satisfactory, and Effective Leadership Performances</td>
<td></td>
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<tr>
<td>Chaudhary Imran Sarwar</td>
<td><em>University of the Punjab, Lahore, Pakistan</em></td>
</tr>
</tbody>
</table>

| Competencies of Leaders in Complex Organizations in Monterrey Mexico |          |
| Edgar Iván Noé Hernández-Romero | *Universidad Regiomontana* |

| Mapping the Propensity for Self-Employment |          |
| Leonel Prieto | *Texas A&M International University* |
Thursday, April 15, 2010
9:45 am - 11:45 am

Session II: Economic Issues in Latin America and China
Chair: Andres E. Rivas-Chavez, Texas A&M International University
WHTC 104

<table>
<thead>
<tr>
<th>Title</th>
<th>Authors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Is There a Difference in Investment Opportunities of the Greater China Area?</td>
<td>Chin W. Yang, Clarion University, Ken Hung, Texas A&amp;M International University, Tianzhong Yang, Shanghai Jiao Tong University, Yu Chen, National Chung Chen University</td>
</tr>
<tr>
<td>The Mexican Economy: Two Different Crisis (1995, 2009), and an Economic Forecasting (2010-2012)</td>
<td>Eduardo Loria, National Autonomous University of Mexico, Center for the Study of Public Finance, House of Representatives</td>
</tr>
<tr>
<td>Are Chinese Exports to the U.S. Displacing Mexico’s?</td>
<td>Pablo Camacho-Gutierrez, Texas A&amp;M International University, Vanessa M. González Cantú, Universidad Autónoma de Tamaulipas</td>
</tr>
<tr>
<td>The Increasing Impact of the Chinese Stock Market on the Latin American Stock Market</td>
<td>Andres E. Rivas-Chavez, Texas A&amp;M International University, Ahmed Elkassabgi, Texas A&amp;M International University, KuoHao Lee, Texas A&amp;M International University, Sean Byrne, Texas A&amp;M International University</td>
</tr>
</tbody>
</table>
15th Annual Conference  
*Western Hemisphere and Global Recovery: Trade and Investment*  
Concurrent Academic Sessions

**Thursday, April 15, 2010**  
9:45 am - 11:45 am

| Session III: Trade, Investment, and Development  
Chair: George E. Heilman, *Winston-Salem State University*  
WHTC 106 |
|---|
| Oranges and Apples: differences on the impact of FDI in Western-Hemisphere  
Nacasius U. Ujah  
*Texas A&M International University*  
Collins Okafor  
*Texas A&M International University* |
| The Potential Impact of the WTO Ruling on US Cotton Subsidies on the Economic Recovery of Apparel Dependent Economies in the Western Hemisphere  
Robert D. Morrison  
*University of Texas Pan American*  
Claudia P. Dole  
*University of Texas Pan American*  
Juan A. Chavarria  
*Morehead State University* |
| Regional Trade Agreement and Spill over Benefits in the border region: Evidence from NAFTA  
Anand Jha  
*Texas A&M International University*  
Wei-Chih Chiang  
*Texas A&M International University* |
Thursday, April 15, 2010
3:00 pm - 5:00 pm

### Session IV: International Accounting and Taxation Issues

**Chair:** Farhang Niroomand, *University of Houston - Victoria*

**WHTC 103**

<table>
<thead>
<tr>
<th>Title</th>
<th>Presenters</th>
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<tbody>
<tr>
<td>Income Tax Implications for USA Teachers Working Overseas</td>
<td>Inam Hussain, <em>University of Texas Arlington</em></td>
</tr>
<tr>
<td>Taxation Theories in Symmetric Kinked Demand Model</td>
<td>Chin-wei Yang, <em>Clarion University of PA and National Chung Chen University</em></td>
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<tr>
<td></td>
<td>Ken Hung, <em>Texas A&amp;M International University</em></td>
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<td>Ying-Yi Lan, <em>National Chung Chen University</em></td>
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<tr>
<td>Effect of New International Accounting Standards on Entrepreneurs and Educators in the Americas</td>
<td>Vance Etnyre, <em>University of Houston-Clear Lake</em></td>
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<td></td>
<td>Carlos Mata, <em>University of Houston-Clear Lake</em></td>
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<td></td>
<td>Elena Guardado, <em>Universidad de Sonsonate – El Salvador</em></td>
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</tbody>
</table>
Thursday, April 15, 2010  
3:00 pm - 5:00 pm

**Session V: Knowledge and Regulation**  
Chair: Ananda Mukherji, Texas A&M International University  
WHTC 104

<table>
<thead>
<tr>
<th>Topic</th>
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<tbody>
<tr>
<td><strong>Sharing Knowledge in Times of Crisis: Knowledge Hub Search Engine</strong></td>
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<tr>
<td>and Open Educational Resources on Business Education</td>
</tr>
<tr>
<td>- Gabriela María Farias Martínez</td>
</tr>
<tr>
<td>Instituto Tecnológico y de Estudios Superiores de Monterrey</td>
</tr>
<tr>
<td>- Fernando J. Mortera-Gutierrez</td>
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<tr>
<td>Instituto Tecnológico y de Estudios Superiores de Monterrey</td>
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<th>Topic</th>
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<tr>
<td><strong>Is It Possible to Create Knowledge Cities in Latin America? The</strong></td>
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<tr>
<td><strong>Monterrey Experiment</strong></td>
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<tr>
<td>- John Sargent</td>
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<tr>
<td>University of Texas Pan American</td>
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<tr>
<td>- Linda Matthews</td>
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<td>University of Texas Pan American</td>
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<tr>
<td><strong>Regulatory Capture, Telecommunications, Universal Service and</strong></td>
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<tr>
<td><strong>Poverty in Mexico (1990-2008)</strong></td>
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<tr>
<td>- Cristina Casanueva-Reguart</td>
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<tr>
<td>Universidad Iberoamericana, Ciudad de México</td>
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<tr>
<td>Session VI: Education, Leadership, and Development</td>
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<tr>
<td>Chair: Tagi Sagafi-nejad, Texas A&amp;M International University</td>
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<tr>
<td>WHTC 103</td>
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<tr>
<td>A New Paradigm in Educational Leadership – Emotional Intelligences</td>
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<tr>
<td>George Potter</td>
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<tr>
<td>Texas A&amp;M International University</td>
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<tr>
<td>Resources Distribution in Texas School Districts: An Examination of Expenditure Allocation Patterns in Two Major Urban School Districts with Diverging Enrollment</td>
</tr>
<tr>
<td>Rene Barajas</td>
</tr>
<tr>
<td>Garland Independent School District</td>
</tr>
<tr>
<td>Alfredo Ramirez, Jr.</td>
</tr>
<tr>
<td>Texas A&amp;M International University</td>
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<tr>
<td>Impacto Que Tiene la Inversion en Educacion Superior en el Desarrollo Economico: Factor Critico de Progreso Economico</td>
</tr>
<tr>
<td>José Barragán-Codina</td>
</tr>
<tr>
<td>Universidad Regiomontana</td>
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<td>Miguel Omar Zambada-Cerda</td>
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<td>Universidad Regiomontana</td>
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</table>
**Session VII: Technology and Development**  
**Chair: Jyotsna Mukherji, Texas A&M International University**

**WHTC 104**

<table>
<thead>
<tr>
<th>Title</th>
<th>Authors/Institutes</th>
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</table>
| Assessing a Spanish Translation of the End-User Computing Satisfaction Instrument Targeting Mexican Internet Users | George E. Heilman  
  *Winston-Salem State University*  
  Jorge O. Brusa  
  *Texas A&M International University* |
| Feasibility Assessment System on National Research and Development (R&D) Programs in Korea | JiHo Hwang  
  *Korea Institute of Science and Technology Evaluation and Planning*  
  Yoon Been Lee  
  *Korea Institute of Science and Technology Evaluation and Planning*  
  JangJae Lee  
  *Korea Institute of Science and Technology Evaluation and Planning*  
  YoungJun Kim  
  *Texas A&M International University* |
| Socialization and Technology in the Workplace                       | Paul E. Madlock  
  *Texas A&M International University* |
### Session VIII: Issues in Human and Financial Investment

**Chair: Wei-Chih Chiang, Texas A&M International University**

**WHTC 106**

<table>
<thead>
<tr>
<th>Title</th>
<th>Authors</th>
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</table>
| A Share-maximizing Marketing Strategy Model of the Distribution       | Chin-wei Yang, Clarion University of PA and National Chung Chen University  
|                                                                       | Ken Hung, Texas A&M International University  
|                                                                       | Chien Chih Chen, National Chung Chen University                        |
| Perspective of the American Labor Market by Type of Origin           | Ernesto Peralta, Tecnológico de Monterrey                               |
| Offshore Financial Centers: Recent Evolution and Likely Future Trends | Roberto Santillán, Instituto Tecnológico y de Estudios Superiores de Monterrey |
| The Impact of Drug Cartel Related Violence on the Mexican Stock Market | Sean Byrne, Texas A&M International University  
|                                                                       | Andres E. Rivas-Chavez, Texas A&M International University             |
W. Michael Cox, Ph.D.
Director, Center for Global Markets and Freedom
Cox School of Business
Southern Methodist University

Senior Fellow
Federal Reserve Bank of Dallas

W. Michael Cox is Director of the O’Neil Center for Global Markets and Freedom at Southern Methodist University's Cox School of Business. The focus of the O’Neil Center is the study of the impact of competitive market forces on freedom and prosperity in the global economy.

Dr. Cox is formerly Chief Economist and Senior Vice President of the Federal Reserve Bank of Dallas, where he served for 25 years advising the President on monetary and other economic policies. He holds the unique distinction of being the Federal Reserve System's only Chief Economist in history.


Dr. Cox co-authored the Fed's acclaimed series of annual report essays on capitalism, globalization and American living standards. He has contributed to a number of public policy issues, and his research is frequently designated as required reading for Congress.

Dr. Cox has comprehensively documented American progress and its delivery mechanism-free markets. Looking at multiple aspects of living standards, he proves that capitalism is far and away the economic system that best provides for the progress of nations. He battles economic doomsayers and capitalism's enemies with his book, Myths of Rich and Poor, nominated for a Pulitzer Prize.

The media rely on Dr. Cox’s ability to make plain sense out of difficult economic issues. He is a frequent guest on national radio, television and Internet programs, including ABC's John Stossel program, CNN, Fox News, ReasonTV, Voice of America, National Public Radio and BizRadio.

He is Past President of the Association of Private Enterprise Education, a CATO Institute Adjunct Scholar, Senior Fellow at the National Center for Policy Analysis, Senior Fellow at the Dallas Fed's Globalization and Monetary Policy Institute and a Distinguished Scholar of his undergraduate alma mater Hendrix College. His thirty four years of university teaching include Virginia Tech, the University of Rochester and Southern Methodist University.

Cox is President and CEO of W. Michael Cox and Associates, LLP, a Dallas-based private consulting group. He lives in Dallas with his wife Maria and daughter McKenna.
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Dr. Crittenden is an accomplished expert in sustainability, pollution prevention, physical-chemical treatment processes, nanotechnology, air and water treatment, mass transfer, numerical methods, and modeling of air, wastewater and water treatment processes. He has been involved as a principal and co-principal investigator in more than fifty-two funded research projects in these areas, totaling more than $25 million dollars in funding. He has received multiple awards for his research in the treatment and removal of hazardous materials from drinking water and groundwater. He also has four copyrighted software products and three patents in the areas of pollution prevention, stripping, ion exchange, advanced oxidation/catalysis, adsorption and groundwater transport. The American Institute of Chemical Engineers’ (AIChE) Centennial Celebration Committee recently named Crittenden as one of the top 100 Chemical Engineers of the Modern Era at their 100th annual meeting held earlier this year. This recognition is based, in part, on his leadership as director of the National Center for Clean Industrial and Treatment Technologies, one of four exploratory environmental research centers funded primarily by the U.S. Environmental Protection Agency.

Currently, Dr. Crittenden is working with a group of academic institutions on Sustainable Urban Engineering. The goal of this effort is to connect social decision making, regional development, material flows, energy use and the local, regional and global environmental impacts of various urban development scenarios. He has acted as a consultant to more than 150 utilities, companies, and universities, worldwide on air and water treatment, sustainability science and engineering, and pollution prevention since 1975.

Crittenden is active in an array of national organizations. He serves on the Environment Protection Agencies’ Science Advisory Board as well as the Engineering Advisory Board for the National Science Foundation. He is a member of the National Academy of Engineering and has received the AEESP Landmark Achievement Award and the ASCE Huber Research Prize. He is also an associate editor for the Environmental Science and Technology journal. He has authored more than 120 publications in refereed journals, 135 reports or contributions to proceedings, and has garnering more than 2,300 citations. In 2005, he coauthored Water Treatment Principles and Design, a book recognized as the most authoritative text on theory and practice of water treatment.
Dr. Stephen P. Magee is the James L. Bayless/Enstar Professor of Finance and the former chairman of the Department of Finance at the University of Texas at Austin. He earned his PhD in economics from MIT and has been a professor at the University of California, Berkeley, and the University of Chicago in the 1970s, most recently as a Visiting Professor in 1990, 1991 and 1997. He has been an Associate Editor for 5 academic journals and has worked on the White House staff, the National Science Foundation Committee for Economics and the U.S. Secretary of Commerce’s Economic Advisory Board.

In 2003 Federal Reserve Chairman Alan Greenspan quoted Magee’s 1969 research explaining the decline in the US trade balance for the last 35 years. In 2004, NY Times columnist Paul Krugman said that this “Houthakker-Magee trade-balance effect is one of the most important empirical regularities in all of economics.” In 2003, he presented an academic paper on the virtues of capitalist economic development before Fidel Castro and over 1000 international economists in Havana, Cuba and then met with Castro for over an hour.

He has published over 80 academic articles and three books. His 1989 Black Hole Tariffs book was endorsed by two Nobel laureates in economics and the Chairman at the time of the Nobel Committee, Assar Lindbeck. He has won three awards in the Graduate School of Business at the Univ. of Texas: in both 1980 and 2000, he was selected the best professor teaching in the first year of the MBA Program and in 1990, he won the award for the top researcher in the Graduate School of Business. In six different years, he was the co-captain and a player on the U.S. National Soccer Championship team for men over 50 (1999, 2000 and 2001) and for men over 60 (2005, 2006, 2007).
Assessment, Antecedents, and Development of Intellectually Stimulating, Inspirationally Motivating, Individually Considerating, Contingently Rewarding, Leading By Exception (Active), Idealized Influence (Attributed), Idealized Influence (Behavioral), Satisfactory, and Effective Leadership Performances

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Leadership development is essential for global recovery. This research introduces theory on triads of typical, maximal, and ideal (a) intellectually stimulating, (b) inspirationally motivating, (c) individually considering, (d) contingently rewarding, (e) leading by exception (active), (f) idealized influence (attributed), (g) idealized influence (behavioral), (h) satisfactory, and (i) effective leadership performances (for example via triad of typical, maximal, and ideal effective leadership performances) adding diversification and precision to leadership assessment. It explores the proposition that within each triad - each of typical, maximal, and ideal leadership performances is theoretically and conceptually distinct and supports this distinction through databased empirical analyses by using mean difference via one sample t-test and one way analysis of variance. Thereafter, it uses each triad of the distinct typical, maximal, and ideal leadership performances to introduce and empirically test the mechanism to quantify respondents’ intrinsic desire and inherent potential to enhance their respective leadership performances. Finally, it suggests precedents of each leadership performance and presents implications for leadership development training on the basis of correlations and multiple regression analyses.
Leadership has always been an important factor for human life. In Latin America, leadership is an important issue to consider in the development of Mexican’s education and training. There is a need in emerging economies for leaders that could address the realities found in Latin America. This exploratory study describe certain behavioral characteristics of leaders who work in complex organizations (COs) in Monterrey, Mexico through the perceptions of Human Resource Executives (HREs). Data was captured through in-depth interviews with HREs who work with the leaders and are in a position to closely observe their behaviors over time. This Qualitative study focused and attempted to locate evidence of five specific competencies: Strategic Decision Making; Teamwork; Learning Practices; Vision and Personal Values. The results of this study could be used as a basis for educational and professional development programs that would include orientation and leadership coaching. The current study serves as a foundation that might even culminate in the elaboration of a training and development leadership model for leaders that would enable them to address current and future challenges in COs.
Introduction:
Throughout their lives, most people have been exposed to a variety of leadership styles. In addition, during the course of their lives, people must take leadership roles and participate in leadership processes as leaders or followers. This is done in order to carry out their commitment to larger social entities. It is through effective leadership processes that productive pursuits are accomplished in organizations where people work, whether it is in the social or volunteer groups they belong to, in the neighborhoods where they live, or in the educational arena (Livingston, 2002).

Authors such as Bennis (1997); and Gardner (1990) have contributed a great deal to our understanding of leadership’s competencies. However, most of their work has been based on the Western-European/ U.S. approach to leadership. As such, little is known about leadership characteristics, assumptions and approaches in other cultures, in particular, the Mexican culture.

Significance, purpose of the study and research question:
This study, attempts to respond to an observation expressed by Benioff and Adler (2006) which states to, “study non-U.S. management systems on their own terms and develop thick descriptions of organizational phenomena and the contexts in which they are embedded” (p.101).

The purpose of this exploratory study was to identify behavioral characteristics of the CO leader at Summer, 2009 and was performed in Monterrey, Nuevo León.

Elements emerge for understanding the ways in which CO’s are important for the training and education of their own leaders. This study was devoted to investigate the following research question: What behavioral characteristics does the Complex Organization’s Leader (COL) possess?

In order to obtain some responses to the research question, the interview protocol integrates concepts from: Bennis, 1997; Bolman and Deal, 1995; Clifford, 1985; Kotter, 1988; Kouzes an Posner, 1987; Maccoby, 1981; Peters, 1985; Tessman and Wellins, 2008; and Vaill, 1982, and explores five main domains: (1) Making strategic decisions, (2) Teamwork for organizational purposes, (3) Learning agility, (4) Driving execution, (5) Balancing personal values and beliefs.

With the increasing need for educate and train people, it is important to explore characteristics of leaders and leadership theory capable of both leading and tracking the new means of human organizing and social relationships. For this reason, it is primarily necessary to define the main characteristics that a COL possesses that coincide with the new forms of organization that will evolve and require serious reforms in current organizational structures and leadership thinking.

For the objectives of this study, a Complex Organization represents certain characteristics such as the following: (1) It operates with forces of 10,000 or more; (2) have sophisticated manpower and capital structures; (3) virtually all workers are literate and skilled technicians and clerical personnel are common; (4) managers also tend to be better educated than the average Mexican citizen; (5) often focus on international export markets; (6) employs
refined production, marketing, and finance problems systems; (7) the managerial functions always plays a vital role in operations and administration.

The forces that requires a CO to keep changing and improving constantly are on a dramatic increase, it includes leader’s development (Bass, 1990).

According to the objectives presented in this work, a very important role is observed that falls back on the development and training of the leaders beginning with its inclusion in CO. Within the CO’s one of those responsible in the process of the Development and Training of Leaders is clearly identified. This presents itself in the person of the (HRE).

Methods:
As stated, within the descriptive methodology, the exploratory research is most appropriate for the purposes of this work. The objective of exploratory research is to methodically gather data in order to acquire a description and gain meaning of an experience that will lead to new knowledge (Giorgi, 1986; Moustakas, 1994).

From a type of information sought through research activity the present study is qualitative as the purpose is to describe a specific situation in the search for the characteristics of the MCOL (Kumar, 1996). In this vein, Creswell (1994) notes the following compelling reasons to undertake a qualitative study, “… chose a qualitative study because the topic needs to be explored… variables cannot be easily identified, theories are not available to explain behavior of participants or their population of study, and theories need to be developed” (p.17).

The phenomenon called “leadership behavioral characteristics” was studied by focusing exclusively on a select group of Complex Organizations’ (CO) Human Resources Executives (HRE) in order to identify similar or dissimilar elements in their respective interview narratives. The sample of HREs was interviewed and the resulting data was analyzed through a reduction process that synthesized a snapshot of the behavioral characteristics of leaders across the COs in this study.

Population and Sample:
Qualitative inquiry typically focuses in-depth on relatively small samples, “even single cases (N=1) selected purposefully” (Patton, 2002, p.232). For the purpose of this study, Human Resources Executive (HRE) is defined as the person who conducts/leads the whole Human Resources management, including organizational effectiveness and performance issues. This position provides advice and support aimed at building organizational cohesion, health and flexibility (Caudron, 1994).

The sample consisted of twenty nine participants that were selected purposefully based on criteria described below, and which represent “Maximum Variation Sampling” method characterized as having, “Diverse variations and identifies important common patterns” (Miles & Huberman, 1994, p.28; Patton, 2002,p.244): (1) Hold the title of officer, president, director, general manager, vice-president or a like title at the CO, (2) Have retained his/her position within the same organization, or a subsidiary of same, for a minimum of three years.
Method of Data Capture and Data Analysis:

According to Berg (1998) the interview is an especially effective method of collecting information for certain types of research questions and, for addressing certain types of assumptions. Particularly when investigators are interested in understanding the perceptions of participants or learning how participants come to attach certain meanings to phenomena or events, interviewing provides a useful means of access.

To more fully capture the lived experience of the HREs sampled for this study, the semi-standardized interview was used. In this study, I asked five open-ended questions of each executive, supported by follow-up questions as appropriate.

For the purposes of this study, the open-ended questions are based on Tessman and Wellins (2008) research on global leaders. Due to similarities that these characteristics presented and due to the common literature that discusses leader characteristics, it was synthesized in a reduction analysis process those ten characteristics on five main themes and reoriented it for the goal of this study. The following are the five main themes: (1) Making strategic decisions, (2) Teamwork for organizational purposes, (3) Learning practices, (4) Vision, (5) Personal values. On this basis, it was adapted and developed an Interview Protocol (See: Appendix A) it contains the specific open ended questions crafted to be used during the interviews.

Data analysis broke down the interview transcripts into segments. It was intended to look for meaningful units and categorizations related to Leadership Behavioral Characteristics. Lord, Foti, and De Vader (1984) posited that people use categorization processes when forming leadership perceptions. People match a target person against a cognitive prototype that contains characteristic leader attributes (Phillips & Lord, 1981).

Based on the previous arguments, it is possible to say that the superordinate level of the cognitive prototype of leaders that HRE possess include the behavior expectations HRE hold about CO’s leaders. The idea of a HRE’s cognitive set of ideal behavior expectations can define leadership was very important for this study, because, this study used an instrument designed to explore leadership behavioral characteristics from HRE’s perceptions. Those characteristics were explored by asking HRE their perceptions about a set of leadership behaviors.

Validity, Reliability, and Protection of Human Subjects:
Creswell (1994) suggests the use of at least two verification techniques that increase the internal validity and reliability of a study. The following procedures employed in this study helped to minimize bias and to assure a superior level of internal validity. Member checking was the method that was selected to ensure the internal validity of this study (Creswell, 1994). In order to increase both reliability and validity of this study, a Panel of Experts participated in the design of the interview protocol. Two pilot tests were performed.

This study abided by all United States Federal regulations that aim to protect people who participate in research projects from harm. Consequently, according to the U.S. Federal Guidelines for Human Subjects Considerations, this study poses minimal risk of harm to participants. Participation in this study was at all times voluntary and the subjects could
withdraw their participation at any time they wished. The identity of the participants and their personal information was protected at all times including the panel of experts. Participants were informed that all results will be reported only in aggregate and that their personal identities would not be revealed under any circumstance.

Demographics and Data analysis:

The age range of the participants is from 30 to 69 years and 100% of the sample is male. Likewise, regarding their professional career, participant tenure in their respective company spans 5 to 12 years. Related to their educational level, 22% of the participants have a Bachelor’s degree, 56% have a Master’s, and 22% have their Doctorate. In regard to their business firms, the number of employees employed by these corporations runs from 9,000 up to 52,200 employees.

The data analysis procedure included: (1) Reviewing the transcriptions and determining a criterion for text unit identification; (2) organizing the information into meaningful categories, for example, “Components that enable making strategic decisions”; (3) creating a system that eases the identification of the categories; (4) recognizing important quotations from the participants; and (5) integrating the theory and empirical results from this study (Richards & Richards: 1997).

The HRE’s responses related to the research question were analyzed. Basing his analysis on the respondents’ answers--emphasis and frequent use of certain terms or phrases--the study was able to sort the data into several categories that matched each interview question. In this way, the five questions posed to the respondents provided the framework for identifying five dominant themes and 14 sub-themes.

Results: Themes and subthemes.

For the objective of the study it was organized the information according to the answers to the five questions from executives from the “Interview Protocol for Human Resources Executives within Mexican Complex Organizations.” (See: Appendix A).

As it was discussed previously, the themes existed before the analysis, and the final results were the subthemes. In the Categorization process, each question from the “Interview protocol” was broken down into several themes.

The first theme is “Designing and Implementing Strategic Decisions”, four main subthemes emerged from the participant HRE: (1) Setting standards for performance; (2) Global explorer; (3) Dealing with complexity and ambiguity); and (4) Driving profitability.

Some of the HRE study participants perceived that setting standards for performance constitute key components in the behavior of an effective leader. This notion is also consistent with concepts based on Clifford and Cavanagh, 1986; Vaill, 1982; Peters, 1985.

As noted in the literature, dealing with complexity and ambiguity is strategic for a leader’s effective behavior. This element was common and essential for all participants and it’s congruent with the behavioral perspective of this study.
Shartle (1956) indicates that leadership is rooted toward the attainment of specified aims or goals. Driving profitability, he says, is used to focus on subordinate effort, as well as on modeling appropriate behaviors.

The second theme is “Teamwork for Organizational Purposes”. Two subthemes emerged from the participant HRE: (1) Recruiting people and (2) Collaboration.

Bass (1990) use it as an effect of interaction that involves recruiting people for such activities as working in a team. Weber (1947) states that leaders inspire people to voluntarily enroll in a vision of the future. They motivate people by bringing them to collaborate with the task at hand and the goal.

The third theme is “Learning Practices”. Three subthemes emerged from the participant HRE. They are (1) Foster Coaching relationships; (2) Techniques to train leaders; and (3) Succession.

Tannenbaum, Wechsler and Massarik (1961) stated that leaders make a difference and that leadership is a critical factor in the effectiveness of an organization. These authors believe that interpersonal influence directed and exercised in a situation, must provide the good effects of leadership. One characteristic that continues being imperative in all areas of leadership is that of coaching. Bass (1990) believes that leadership implies influencing change in the conduct of people through learning processes.

Another author, Ketter (2009), argues that leadership development programs come in many different forms. There are many different ways to create an effective development program for high potentials. Leadership development, they maintain, is a process not a series of events.

The fourth theme is “Vision”. Two subthemes emerged from the participant HRE: (1) Communicating Vision and (2) Sustaining a Vision.

Kouzes & Posner (1987) defined the term as inspiring a shared vision; focusing it as envisioning an uplifting and ennobling future; and enlisting others in a shared vision by appealing to their values, interests, hopes, and dreams. Related characteristics are implicit in studies performed by Mobley (2001). He discusses the importance represented by the ability to communicate a vision effectively.

Sustaining a vision in an organization and setting/attaining goals is even more of a challenge.

The fifth theme is “Personal values”. Three subthemes emerged from the participant HRE: (1) Moral Integrity; a (2) Sense of Community and Belonging; and (3) Fairness.

According to Bennis and Thomas (2002), leaders who succeed in the 21st Century have four essential skills or competencies. These include attributes such as (1) Adaptative capacity and the ability to transcend adversity and rebuild strength. Also important is (2) the ability to engage others in shared meaning. There must be 3) a distinctive and compelling voice; and finally (4) there is the need for a sense of integrity including a strong set of values. These features seem to best indicate that what leaders do is inspire people through the manifestation of their own personal values.

Krishnan (2001) provided evidence to support beliefs that leadership behavior is a manifestation of personal values (not simply business-related values). Therefore, he concludes, personal values may be related to leadership behavior.
Fair processes, procedures and interactions have been associated with a number of important outcomes including trust in leaders (Alexander & Ruderman, 1987; Folger & Konovsky, 1980), attachment to the group (Korsgaard, Schweiger, & Sapienza, 1985; Philips, Douthitt, & Hyland, 2001) and commitment to the organization (Moorman, Neihoff, & Organ, 1993). Fairness refers to individual perceptions of fair treatment. Leaders are the most important and powerful influence on the performance of an organization and are responsibility for create internal and external fairness.

**Suggestions for future research and perspectives emerged:**

Due to the fact that the sample of HRE’s interviewed for this study are only Mexican-based organizations, the next step should be to attempt to internationalize the sample. Also, broadening the population would provide further support for the generalizability of the findings and trends noted, especially in regard to themes and sub-themes coming from the leader’s behavior in Complex Organizations.

It is important to mention that the availability of the leader to enhance their own learning practices and the capacity to constantly maintain change and development is crucial.

Based on the data obtained from the HRE’s it can be implied what it is the leaders of the CO new generation have (or will have) in common. This would include: A comprehensive education; unlimited curiosity; great enthusiasm; faith in people and teamwork; a willingness to take risks; as well as dedication to long-term growth over short-term goals. This means that, in retrospect, the leaders of the future will be those who were able to modify the culture of the present. Based on the themes that emerged from the study, it is intended to look for some ways that universities and companies can encourage that will stimulate learning—which are believed to be essential—are: (1) Promoting self-training through business systems that are didactic and dynamic in order to facilitate the development of high-potential people. This might mean, for instance, creating a culture of empowerment in an organization. Another way is: (2) by promoting globalization of the executive leader with motivating contacts with overseas companies. Companies can also (3) promote innovation through effective communication mechanisms and development of talent. And there is also (4) granting freedom of action and training for executives so they can develop their best leadership skills.

**Appendix A**

“Interview Protocol for Human Resources Executives within Mexican Complex Organizations.”

1. What behaviors/activities/actions have you observed being used by the leaders of your company in the design and implementation of strategic decisions for the organization that involve personal and economic resources for a project that lasts for at least one year and in your judgment characterize the leaders?

2. What behavior/activities/actions have you observed being used by the leaders of your company in order to reach company objectives by means of working in teams that in your judgment really characterize their leadership?
3. What actions that are not obligatory or imposed by the company have you observed the leaders doing for this organization in order to maintain themselves up-to-date / prepared /educated in terms of achieving organizational objectives and what in your judgment are the characteristics of these leaders?

4. What behaviors, activities and/or actions have you observed in your company’s leaders that transmit their vision to the work team and what in your opinion should characterize them?

5. In your judgment, what are the forms of behavior with which the leaders of your organization manifest their own personal values?
Appendix B
References List:


Mapping the Propensity for Self-Employment

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Is There a Difference in Investment Opportunities of the Greater China Area?

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I. Introduction

Nearly one hundred years have passed since the demise of Ching dynasty, the last dynasty in Chinese history. Since then, China has undergone a metamorphosis from turmoil to communism, from poor to poorer. On the contrary, Hong Kong was one of the British colonies that enjoyed the fruit of capitalism. Fate of Taiwan has taken quite a few sharp turns; she was ruled by Japan before President Chiang's takeover. As far as market economy is concerned, Hong Kong has the longest history of having market economy, followed by Taiwan. The late boomer is China who opened herself to market economy starting from early 1980s. Recently, however, the emerging economies are prospering especially in the Southeast Asia where Confucianism-related economies witness the quantum leap in economic growth. Financial markets in the Greater China (GC) - China, Taiwan and Hong Kong - are gathering momentum especially with the entry of China into the World Trade Organization. Although China represents a vibrant the fastest growing market economy, mounting problems in her inefficient state-run enterprises along with ill-functioning banking system cannot be ignored. Polarizing income inequality during the “economic miracle” will eventually backfire and thus perturb her financial stability. On the other hand, Taiwan is ranked 6th of the 50 counties as one of world's least risky investment regions by the Environment Risk Intelligence in 2007. In addition, according to the Economist Intelligence Unit (EIU) Taiwan ranked 19th globally out of 82 countries and 3rd in Asia behind Singapore and Hong Kong for its macroeconomic environment, market opportunities and friendly investment atmosphere. Hong Kong, being the earliest to have access to market economy in Greater China, has the best investment environment. It comes as no surprise that Hong Kong ranked 7th among the 82 participating countries and regions. However, the concept of Greater China has its hidden cost: unimpeded capital movement can lead to the hollowing out of Taiwan's industry in spite of a net gain on the aggregate. Political freedom in Hong Kong seems to have suffered setbacks since China's takeover. Will these changing economic and political scenarios affect investors' strategy in the equity markets? How do we evaluate investment opportunity with observable data? We propose a framework constructed by two Nobel Laureates: Harry Markowitz and William Sharpe. The purpose of this paper is to provide an answer to this problem with actual data. The next section presents the model and data used. Section III offers the comparative evaluations for the three members in the GC region. A conclusion is given in section IV.
II. Data and the Sharpe’s Tangent Angle

We randomly select 10 stocks from each of the GC’s members: 3 from high tech sector, 3 from the banking section and 4 from the tradition sector (see Table A). By doing so, we attempt to reduce the portfolio variations emanated from picking stock from different industries. Monthly prices are randomly chosen from January 2006 to June 2009. Stocks with negative mean (arithmetic) returns are discarded for the reason that holding cash even during the time of very low interest rate is better than suffering losses. We opt for domestic-owned A share type for it reflects investors’ risk return attitude of Chinese, Chinese in Taiwan and Hong Kong. The reason we compare the three GC markets is that they share similar culture and language and heavily influenced by the Confucianism. One characteristic is higher marginal propensity to save. In addition, we take samples from the Shenzhen stock exchange for it has longer history than that of Shanghai. The unit of measurement is stock returns: 

\[ \frac{P_t - P_{t-1}}{P_{t-1}} \approx \ln P_t - \ln P_{t-1} \]  

Descriptive statistics of mean returns, variance-covariance of stock returns and coefficient of skewedness (monthly data) are readily available (annualized) from Excel as show in Table B.

To calculate Sharpe’s tangent angle, we need to first trace out the efficient frontier via solving the augmented Markowitz quadratic programming portfolio selection model as shown below:

\[ \text{Minimize} \quad v = \sum_i x_i^2 \sigma_i^2 + \sum_{i,j} x_i x_j \sigma_{ij} \quad (1) \]

Subject to

\[ \sum_i x_i \bar{R}_i \geq k \quad (2) \]

\[ \sum_i x_i = 1 \quad (3) \]

\[ X1 \times S1 + X2 \times S2 + X3 \times S3 + \ldots > WS \quad (4) \]

\[ x_i \geq 0 \quad (5) \]
Where \[ x_i \] = the weight or proportion of investment in stock \( i \)

\[ \sigma^2_i \] = variance of returns in stock \( i \)

\[ \sigma_{ij} \] = covariance of return between stock \( i \) and \( j \)

\[ R_i \] = expected or average rate of return of stock \( i \)

\( k \) = target portfolio rate of return

\( S_i \) = the coefficient of skewedness of stock \( i \)

\( WS \) = weighted skewedness for the entire portfolio

Note that the coefficient of skewedness equals zero if returns are normally distributed. For a positive coefficient or skewed to the right, investors derive utility from a few unusually large gain. On the contrary, a negative coefficient indicates investors shun away from a few unusually large losses. A plunger has the tendency to “go for big one” and as such is more likely to put all the eggs in one basket (Tobin, 1958, pp 183-185).

Our formulation is an augmented Markowitz portfolio selection model in which the coefficient of skewedness (third moment), much like mean return, enters the constraint set. If an investor has no preference or disutility for the skewed returns, constraint equation (5) drops off from the formulation.

The solution set \( (x_1^*, x_2^*, \ldots, x_n^*) \) can lead readily to the weighted total risk, which, coupled with a pre-determined \( k \) values enables us to trace out a concave efficient frontier in the return-risk space. By taking parameters from Table 1 and simulating via LINGO (2003), we obtain a set of optimum solutions. Furthermore, we calibrate values of \( k \) from 0.15% to 3.4 % (monthly return) for Taiwan, 1.5% to 4.3% for Hong Kong and 1.5% to 3.6% for China in order to trace out the efficient frontier of the Markowitz model (Table C). The availability of nonlinear programming packages provides quick solution for small and medium-sized problems. This is the advantage of using Markowitz and Sharpe type of models without resorting to problematic beta coefficients.
The solution to the optimum portfolio in the Markowitz model cannot be determined without the knowledge of investor's utility function. Sharpe (1964) introduced a risk free rate ($R_F$) into the Markowitz model in order to maximize the tangent angle emanated from $R_F$ on the efficient frontier or one can

Maximize \[\tan \theta = \frac{\sum_i x_i (R_i - R_F)}{\sum_i x_i^2 \sigma_i^2 + \sum_{i,j} x_i x_j \sigma_{ij}}\] (6)

Subject to \[\sum_i x_i = 1\] (7)

\[X1*S1 + X2*S2 + X3*S3 + \ldots > WS\] (8)

\[x_i \geq 0\] (9)

For a given $R_F$, the Sharpe angle-maximizing model corresponds to a specific $k$ value in the original Markowitz model as equation (6) is inversely related to equation (1) as proved by Yang et al. (2002). By taking different risk-free rates (monthly rate) with $R_F=0.147\%$ for Taiwan and $0.104\%$ for both Hong Kong and China, we obtain the tangency points between Markowitz solutions and the Sharpe line at the following risk return sets: $k=0.032, v=0.1068$ for Taiwan; $k=0.059, v=0.1018$ for Hong Kong and $k=0.047, v=0.1064$ for China (Table D). The values of the objective function in Sharpe’s tangent measurements are $0.2863$ for Taiwan, $0.5692$ for Hong Kong and $0.4325$ for China. They translate into tangent angles of $15.9743$, $29.6486$ and $23.3867$ degrees respectively. The tangent points are shown on the Markowitz efficient frontiers (Figure 1).

III. Evaluations on the Investment Opportunities in the GC Markets

A moment’s reflection indicates that the risk-return space in Hong Kong dominates both China and Taiwan. That is, the Hong Kong market produced greater average return than Hong Kong who had average higher return than Taiwan: $0.059>0.047>0.032$. On the risk side measured by the weighted variance and cova-
riance, we found the order has reversed. That is, the risk was highest in Taiwan followed by China and Hong Kong: 0.1068>0.1064>0.1018. This is to say, investment opportunity is the best in Hong Kong, followed by China and Taiwan if 100% on stock and 0% on bond is taken. We may offer some explanations as to the results from the GC areas.

First, an examination of price/earning (P/E) ratio suggests that its volatility in Taiwan is much greater especially during 2008-2009 (Figure 2). It is indicative of prevalence of speculative mood in Taiwan's stock market which is replete with small investors. In contrast, the P/E ratio was quite stable in the Hong Kong market where institution investors were major players. The P/E ratio in China was in between but leaning toward great volatility. China's market is young and in her developmental stage and as such volatility is not unexpected. Historically, investors in Taiwan are prone to be risk-taking due to its cultural and political background. Under the rigorous rule of Ching dynasty, for a large part, immigration to Taiwan was prohibited and as such people in Fuchian province had to risk their lives to sail across the Taiwan Strait, not a placid sea to travel on a small boat. Under the Japanese colonization, political freedom was very much inhibited as was under president Chiang Kai-Shek's era. For these reasons, people in Taiwan have tendency to make a short-run profit or make a kill in the short time. Risk-taking behavior manifests itself in lottery, sports betting and stock market. Placing most of the bet on a few stocks is equivalent to enhance the skewed return distribution. It is our belief that risk-taking attitude is prevalent in the GC area where majority of people are from coastal provinces including Shanghai and Shenzhen. For this reason, including the third moment is appropriate for the analysis.

Second, the ratio of the market value of stock to GDP in Hong Kong far exceeded those in Taiwan and China (Figure 3). It implies a well-developed stock market that plays an important role in Hong Kong's GDP. On the contrary, Taiwan's stock market has not been mature enough to attract major buyers. China's market, being in its infancy stage, is growing but remains relatively small as compared with her GDP.

Third, there is a cap on stock price change: 10% on a day in Taiwan, 7% in China and 0% in Hong Kong. Such caps on price changes would inhibit an efficient capital market via so called Le Chatelier principle applied to the Markowitz model (Yang et al. 2010). It bends the efficient frontier to the left and it is little wonder that the capital markets in both China and Taiwan are not as efficient. Unless the caps are removed, we expect the investment opportunities will be less desirable in both China and Taiwan.

IV. Conclusion

In this note we employ ten companies in each of the GC regions to investigate the investment opportunities. First, we calculate means, variances and covariance and coefficient of skewedness from 10 stocks for each region. We then apply the augmented Markowitz portfolio model to trace out efficient frontier for each region. Next, by adding risk-free rate, we obtain the tangency solution in terms of risk and return for the optimum portfolio for each region. An examination indicates the Hong
Kong market offers the best environment for investor for it is well developed and is one of the major capital markets in the world. China’s economy is bubbling as is her stock market. As such it has great potential in the future if the transparency and rules are well established. Interest rate, that is inversely related to the stock market in general, plays an important role especially in China. To combat inflation emanated from overheated economic growth, China has to raise interest rate as she does now. Taiwan’s stock market needs some changes in her structure including removing the price cap and eliminating the insider trading. How to reduce short-run volatility is the main obstacle to overcome. Our simulation results are in line with the empirical observation. Our model can be improved by increasing the sample size significantly and by incorporating the fourth moment (degree of peakedness) into the Markowitz model (Hung et al. 2009). These refinements remain interesting topics for future research.

V. Reference

- LINGO 8.0 Linear and Nonlinear Optimizer (Chicago, IL, LINGO system Inc. 2003)
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1. Mean, VAR, COVAR

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| VAR/10000 | 0.017089 | 0.013827 | 0.009992 | 0.018028 | 0.011717 | 0.011601 | 0.049988 | 0.012500 | 0.014394 | 0.015384 |
| COVAR/10000 | a | b | c | d | e | f | g | h | i | j |
| a | 0.033579 | 0.014014 | 0.012323 | 0.010863 | 0.008956 | 0.007184 | 0.011821 | 0.010902 | 0.012045 | 0.012116 |
| b | 0.014014 | 0.027169 | 0.015152 | 0.018961 | 0.018037 | 0.014504 | 0.018196 | 0.015541 | 0.011670 | 0.014476 |
| c | 0.012323 | 0.015152 | 0.019633 | 0.014632 | 0.010176 | 0.008504 | 0.021534 | 0.011773 | 0.010352 | 0.009829 |
| d | 0.010863 | 0.018961 | 0.014632 | 0.035424 | 0.014118 | 0.014794 | 0.017585 | 0.016121 | 0.016597 | 0.014476 |
| e | 0.008956 | 0.018037 | 0.010176 | 0.014118 | 0.023023 | 0.016357 | 0.012434 | 0.009977 | 0.012260 | 0.009222 |
| f | 0.007184 | 0.014504 | 0.008504 | 0.014794 | 0.016357 | 0.022795 | 0.021065 | 0.008339 | 0.009276 | 0.005375 |
| g | 0.011821 | 0.018196 | 0.021534 | 0.017585 | 0.012434 | 0.021065 | 0.021065 | 0.008339 | 0.009276 | 0.005375 |
| h | 0.010902 | 0.015152 | 0.019633 | 0.014632 | 0.010176 | 0.008504 | 0.021534 | 0.011773 | 0.010352 | 0.009829 |
| i | 0.012045 | 0.015152 | 0.010176 | 0.014118 | 0.023023 | 0.016357 | 0.012434 | 0.009977 | 0.012260 | 0.009222 |
| j | 0.012116 | 0.011670 | 0.009829 | 0.014476 | 0.009222 | 0.005375 | 0.007533 | 0.019734 | 0.019261 | 0.030229 |

2. Sharpe Angle Maximization 兩種角度下的股票組合

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4. Graph

上圖為透過 Markowitz Risk Minimization 所得結果，為
(x1,y1) 所組成的曲線。

上圖為透過 Sharpe Angle Maximization (RF=0.0176/12) 及
Markowitz Risk Minimization 的結果所繪圖形。為
(x1,y1)、(x2,y2) 所組成之圖。
切點為 (Risk, Return) = (0.1068, 0.032)。
左图为透过Sharpe Angle Maximization (RF=0.00125)及Markowitz Risk Minimization的结果所绘图形。图中的点(x1,y1)，(x3,y3)所组成之图。切点为 (Risk,Return) = (0.1068,0.032)。

左图为透过Sharpe Angle Maximization (RF=0.0176/12，RF=0.00125)及Markowitz Risk Minimization的结果所绘图形。图中的点(x1,y1)，(x2,y2)，(x3,y3)所组成之图。切点为 (Risk,Return) = (0.1068,0.032)。
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1. Mean, VAR, COVAR

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2. Sharpe Angle Maximization 兩種角度下的股票組合

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### Hong Kong Markowitz Risk Minimization, Sharpe Angle Maximization

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左圖為透過 Markowitz Risk Minimization 所得結果，為$(x_1,y_1)$所組成的曲線。

左圖為透過 Sharpe Angle Maximization ($RF=0.0125/12$)及Markowitz Risk Minimization 的結果所繪圖形，為$(x_1,y_1)$、$(x_2,y_2)$所組成之圖。切點為$(Risk,Return)=(0.1018,0.059) \times 10^3$。
左圖為透過 Sharpe Angle Maximization (RF=0.00125) 及 Markowitz Risk Minimization 的結果所繪圖形。為(x1,y1)、(x3,y3)所組成之圖。切點為(Risk,Return)=(0.1018,0.059)。

左圖為透過 Sharpe Angle Maximization (RF=0.0125/12、RF=0.00125) 及 Markowitz Risk Minimization 的結果所繪圖形。為(x1,y1)、(x2,y2) (x3,y3)所組成之圖。切點為(Risk,Return)=(0.1018,0.059)。
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1. **Mean,VAR,COVAR**

| AVERAGE/100 | 0.033596 | 0.039671 | 0.026103 | 0.045935 | 0.055529 | 0.014542 | 0.035879 | 0.038210 | 0.026207 | 0.038714 |
| VAR/10000 | 0.034539 | 0.044864 | 0.033533 | 0.015142 | 0.036051 | 0.020948 | 0.035280 | 0.024390 | 0.041591 | 0.035182 |
| COVAR/10000 | a | 0.067866 | 0.060467 | 0.044428 | 0.007412 | 0.038350 | 0.037700 | 0.029120 | 0.051865 | 0.037669 |
| b | 0.060467 | 0.088155 | 0.052840 | 0.000570 | 0.038101 | 0.046087 | 0.051192 | 0.029235 | 0.055548 | 0.041081 |
| c | 0.044428 | 0.052840 | 0.065889 | 0.005495 | 0.044197 | 0.039940 | 0.040140 | 0.028652 | 0.052796 | 0.040124 |
| d | 0.007412 | 0.000570 | 0.005495 | 0.029752 | 0.009661 | 0.004386 | 0.011115 | 0.017013 | 0.012418 | 0.014799 |
| e | 0.038350 | 0.038101 | 0.044197 | 0.009661 | 0.070836 | 0.032219 | 0.040244 | 0.026717 | 0.039450 | 0.030014 |
| f | 0.039159 | 0.046087 | 0.039940 | 0.004386 | 0.032219 | 0.041160 | 0.037037 | 0.021669 | 0.036594 | 0.029343 |
| g | 0.037700 | 0.051192 | 0.040140 | 0.011115 | 0.040244 | 0.037037 | 0.069323 | 0.026324 | 0.040247 | 0.030678 |
| h | 0.029120 | 0.029235 | 0.028652 | 0.017013 | 0.026717 | 0.021669 | 0.026324 | 0.047924 | 0.030288 | 0.040874 |
| i | 0.051865 | 0.055548 | 0.052796 | 0.012418 | 0.039450 | 0.036594 | 0.040247 | 0.030288 | 0.081722 | 0.040552 |
| j | 0.037669 | 0.041081 | 0.040124 | 0.014799 | 0.030014 | 0.029343 | 0.030678 | 0.040874 | 0.040552 | 0.069130 |

2. **Sharpe Angle Maximization** 兩種角度下的股票組合

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4. Graph

左圖為透過 Markowitz Risk Minimization 所得結果，為 $(x_1, y_1)$ 所組成的曲線。

左圖為透過 Sharpe Angle Maximization ($RF=0.0125/12$) 及 Markowitz Risk Minimization 的結果所繪圖形。為 $(x_1, y_1)$、 $(x_2, y_2)$ 所組成之圖。

切點為 $(Risk, Return) = (0.1064, 0.047)$。
左圖為透過 Sharpe Angle Maximization（RF=0.00125）及 Markowitz Risk Minimization 的結果所繪圖形。為(x_1,y_1)、(x_3,y_3)所組成之圖。切點為(Risk,Return)=(0.1064,0.047)。

左圖為透過 Sharpe Angle Maximization（RF=0.0125/12，RF=0.00125）及 Markowitz Risk Minimization 的結果所繪圖形。為(x_1,y_1)、(x_2,y_2)、(x_3,y_3)所組成之圖。切點為(Risk,Return)=(0.1064,0.047)。
台灣、香港、中國比較

左圖為透過 Markowitz Risk Minimization 所得結果，分別為三個地區的
(x1, y1)所組成的曲線。

左圖為透過 Sharpe Angle Maximization 的結果所繪圖形。分別為三個地區
的(x2, y2)所組成的圖，其中台灣的 RF=0.176/12、香港與中國的
RF=0.0176/12。

三地個別的 RF

Tan 值分別為: 0.2863(台灣)、0.5692(香港)、0.4325(中國)
θ 值分別為: 15.9743(台灣)、29.6486(香港)、23.3867(中國)
左圖為透過 Sharpe Angle Maximization 的結果所繪圖形，分別為三個地區的(x3,y3)所組成的圖，其中台灣、香港與中國的 RF=0.00125(為三個地區的 RF 平均)。

Tan 值分別為: 0.2882(台灣)、0.5672(香港)、0.4305(中國)
θ 值分別為: 16.0787(台灣)、29.5603(香港)、23.2927(中國)

三地的RF平均

左圖為透過 Sharpe Angle Maximization 及 Markowitz Risk Minimization 的結果所繪圖形。分別為三個地區的(x1,y1)、(x2,y2)所組成的圖。

切點為:
台灣 (Risk,Return)=(0.1068,0.032)
香港 (Risk,Return)=(0.1018,0.059)
中國 (Risk,Return)=(0.1064,0.047)
左圖為透過 Sharpe Angle Maximization 及 Markowitz Risk Minimization 的結果所繪圖形。分別為三個地區的(x1,y1)、(x3,y3)所組成的圖。

切點為:
台灣 (Risk,Return)=(0.1068,0.032)
香港 (Risk,Return)=(0.1018,0.059)
中國 (Risk,Return)=(0.1064,0.047)

左圖為透過 Sharpe Angle Maximization 及 Markowitz Risk Minimization 的結果所繪圖形。分別為三個地區的(x1,y1)、(x2,y2)、(x3,y3)所組成的圖。

切點為:
台灣 (Risk,Return)=(0.1068,0.032)
香港 (Risk,Return)=(0.1018,0.059)
中國 (Risk,Return)=(0.1064,0.047)
兩岸三地本益比及市值占 GDP 比例數據及圖表

1.兩岸三地證券市場比較 (本益比)

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資料來源：台灣證券交易所
2009 年資料統計至 10 月份
2. 兩岸三地證券市場比較（市值總額占 GDP 比例（市值／GDP））

![圖表顯示了1998年至2010年香港、上海、深圳和台灣的市值總額占 GDP 比例。](圖表)

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資料來源：台灣證券交易所

單位：百分比

Unit：%
The Mexican Economy:  
Two Different Crisis (1995, 2009),  
And An Economic Forecasting (2010-2012)

Eduardo Loria  
National Autonomous University of Mexico

Lolbe Peraza  
Center for the Study of Public Finance, House of Representatives

Our presentation deals with two issues.

1. According to the most recent figures, in 2009 the Mexican economy suffered from the most dramatic macroeconomic slump down, worse than that of 1995. We claim that despite the huge fall in GDP, there are some other indicators that suggest the existence of important differences that should smooth the insights.

2. The second issue presents an economic forecasting that results from the estimation of Eudoxio: Macroeconometric Model of the Mexican Economy for 2010-2012.
Are Chinese Exports to the U.S. Displacing Mexico’s?

Pablo Camacho-Gutierrez
Texas A&M International University

Vanessa M. González Cantú
Universidad Autónoma de Tamaulipas
Oranges and Apples: differences on the impact of FDI in Western-Hemisphere

Nacasius U. Ujah  
Texas A&M International University

Collins Okafor  
Texas A&M International University

For a country, its attractiveness and ability to generate maximum output productivity that draw Foreign Direct Investments inflow are based on various foundations. Mainly such notions hinges on the focal of the Multinational Corporations stake within such country. As such, while extant of papers have been written on the impact of FDI in countries as well as regions, this paper explores to posit reasons why some countries are preferred than others for investment, and to put forth if similar infrastructures are lacking among close proxy countries: hence shared factors among countries. By running analyses using the fifteen largest economies in Latin America based on GDP, our data suggests that different factors impact a Multinational Corporation’s decision process to invest in a specific country, also the paper advocates to address changes within each country that can lead to an increase in investment flow.
The Potential Impact of the WTO Ruling on US Cotton Subsidies on the Economic Recovery of Apparel Dependent Economies in the Western Hemisphere

Robert D. Morrison
University of Texas Pan American

Claudia P. Dole
University of Texas Pan American

Juan A. Chavarria
Morehead State University

This paper discusses how the 2009 ruling on WTO dispute D267 regarding US cotton policy may impact the apparel and textile industries in the NAFTA and CAFTA countries. We argue that while the short term effects of the elimination of US agricultural subsidies and export credit guarantees for cotton producers will be a rise in global cotton prices, the longer term effects could result in a reduction in US cotton production that significantly impacts the supply chain in the Americas. If not offset by increased cotton production in Mexico and Central America, apparel production could exit the region for low wage cotton producing Asian and African nations. Since one of the goals of both NAFTA and CAFTA was to provide employment to address one of the main drivers of immigration, action needs to be taken to mitigate the impact. Given the time needed to develop the infrastructure to process raw cotton into yarn, national governments and supranational organizations like the Organization of American States, Inter-American Development Bank, and Central American Development Bank need to begin addressing this situation.
US Cotton Policy and World Trade

In 2009 Brazil, and the 17 third party nations, prevailed in the World Trade Organization dispute D267. Initiated in 2002, D267 challenged US cotton subsidies and argued that they had damaged cotton farmers in developing nations by reducing global cotton prices. Specifically:

Key findings included (1) U.S. domestic cotton subsidies exceeded WTO commitments of the 1992 benchmark year, thereby losing the protection afforded by the “Peace Clause,” which had previously shielded them from substantive challenges; (2) the two major types of direct payments made under U.S. farm programs—Production Flexibility Contract payments of the 1996 Farm Act and the Direct Payments of the 2002 Farm Act—do not qualify for WTO exemptions from reduction commitments as fully decoupled income support and should therefore count against the “Peace Clause” limits; (3) Step 2 program payments are prohibited subsidies; (4) U.S. export credit guarantees are effectively export subsidies, making them subject to previously notified export subsidy commitments; and (5) U.S. domestic support measures that are “contingent on market prices” have resulted in excess cotton production and exports that, in turn, caused low international prices and resulted in “serious prejudice” to Brazil (Schnepf, 2009, p. 1).

The fact that farmers in nations like Mexico (Hernandez & Ford, 2009) and Vietnam (Huong & Dao, 2009) have decided to reduce cotton production in recent years due to the low market prices provides empirical evidence supporting Brazil’s argument. The US is the largest exporter of cotton and the third largest producer behind China and India; the percentage of cotton exported
from the US has grown from 40% in the 1990s to 67% as domestic use in textile manufacturing decreases (Schnepf, 2009). The US accounts for 39% of world cotton trade. Although the US has yet to comply with the WTO ruling, with retaliatory measures now authorized adjustments in US policy should logically follow. Given the dominance of the US in world cotton markets, the impact will be significant.

Apparel Jobs as Development Initiatives

As the General Agreement on Tariffs and Trade (GATT) formed it was clear that the low skilled textile and apparel industries would migrate from the industrialized nations to lower wage nations and the US and Western Europe pressed for voluntary limits from Japan, China, India, and Pakistan as far back as the 1950s to control the pace of job loss in the industry. In 1961 and 1962 agreements regarding international trade in cotton textiles formed under the General Agreement on Tariffs and Trade (GATT). The Multi-Fiber Agreement (MFA) went into effect in 1974 and it governed the world trade in textiles and apparel from 1974 to January 1, 2005 using a quota system with gradual increases (Nordas, 2004).

Beginning with the Border Industrialization Program (BIP) for Mexico and expanding into Central America with the 1983 Caribbean Basin Initiative (CBI), the US accelerated the exodus of the apparel industry using section 806.3 and 807 of the US Tariff Schedules. These became 9802.00.6 and 9802.00.80 in the Harmonized Tariff Schedule. Under these programs, finished goods processed or assembled from US made materials paid duty only on the foreign value added and the inbound freight. This policy combined with agricultural subsidies on cotton provided over one million apparel jobs in Mexico and Central America while protecting US cotton farmers and textile workers. As BIP became NAFTA and CBI became CAFTA the
agreements allowed duty free US entry using regional yarn and fabric; however, with limited cotton production and even less yarn and fabric production in Mexico and Central America the US remained the main supplier of yarn and fabric for the apparel produced in the region. After all, the US yarn and textile industry was well established and the labor component was much lower than in the apparel segment. Given the capital intensity of yarn and textile production and the impact of US subsidies on cotton prices combined with export credit guarantees, there was little incentive to develop cotton and yarn production in the region. Despite this, while the MFA quota system was in place, Mexico and Central America had a significant comparative advantage and supplied most of the apparel imported into the US.

Competitive Environment Change in a Post-Quota World

Western hemisphere textile and apparel production and exports have generally declined since the end of the Multi-Fiber Agreement quota system in 2005; however, China, India, Pakistan, and Vietnam have increased market share. Figure 1, courtesy of the Central American Development Bank, tracks the change in US imports from CAFTA countries since 2005. China has been a net importer of cotton since 2002 and India’s increasing exports of textiles and apparel consume increasing amounts of domestic production; however, India is increasing productivity by implementing modern techniques. Production in many African nations continues to exceed domestic demand but with apparel production expanding as a result of the African Growth and Opportunity Act this may change in the near future. Other low wage cotton producing countries like Vietnam have become net importers of cotton as their exports of apparel increased dramatically after the elimination of the Multi-Fiber Agreement quota system in 2005 and admission to the WTO (Huong & Dao, 2009).
While at first glance it would appear that the WTO ruling would simply result in an increase of global cotton prices of 6% to 14% (Oxfam, 2009), we argue that the longer term effects may result in a dramatic reduction in the comparative advantage that location provides for the apparel producing countries in the Americas; particularly Mexico and Central America. According to the Jassin O’Rourke Group that tracks global apparel wages, Mexico’s wages are approximately $2.54/hr while Central America is around $1.80/hr. When compared to wages of $0.33/hr in Vietnam and Pakistan, $0.51/hr in India, and $0.55/hr to $1.08/hr in China it would appear that there is little hope for the survival of the apparel industry in the Americas. While this may be true for many garments, labor is not as significant in some garments like t-shirts with only about one minute of labor each due to automation and time is a major factor in higher margin style garments. These are the areas where the region can remain competitive, but they are dependent on cotton, yarn, and cloth being readily available in the hemisphere. Ground and ocean shipping within the NAFTA/CAFTA countries is days not weeks, but if the cloth and yarn must come from Asia, the garment might as well be manufactured there from a time to market standpoint. Air shipment is not feasible on low-margin apparel.
Arguably, the elimination of US subsidies and export credit guarantees will reduce the competitiveness of US cotton in the world market. The most likely effect is that US farmers will reduce production over time. As prices rise in the global cotton market, farmers in cotton producing nations will increase output. While automation has greatly reduced the labor component in cotton growing, ginning, and conversion to yarn, it is still a factor and most cotton producing nations are also low wage nations. China, India, Pakistan, and Vietnam produce almost 60% of the world’s cotton and consume almost 70%. With each of these countries also being apparel producers focused on providing jobs by increasing global market share it is likely that they will seek to become self-dependent by increasing cotton production and conversion capacity. As apparel manufacturing in Asian and African nations increasingly absorb the cotton produced in those regions and US cotton production declines, the apparel industry in the Americas may find itself without the raw materials it needs to supply itself.
Conclusion

We are not arguing that the apparel and textile industry in the NAFTA and CAFTA countries will disappear completely the moment that US subsidies stop; however, complying with the WTO ruling will certainly have some impact on the apparel supply chain structure that developed over four decades largely due to US policy. The industry is already feeling the impact as lower wage Asian countries in the post-MFA environment. UK based Clothesource estimates that 60% of the loss seen in apparel exports by many developing countries is attributable to the growth of China and Vietnam and not the global economic crisis. This indicates that the jobs lost in the region in 2008-09 are unlikely to return as the global economy recovers. This only underlines the need for further research and policy development to mitigate the impacts of the impending change in the global cotton market as these economies grapple with the challenges imposed by the global economic crisis. Given the time needed to develop the infrastructure needed to process raw cotton into yarn, national governments and supranational organizations like the Organization of American States, Inter-American Development Bank, and Central American Development Bank need to begin addressing this situation before it is too late. Although it will be politically difficult in the US to implement policies that shift cotton and yarn production south of the border; without subsidies the choice is likely not how to retain US jobs, but whether to watch those jobs go to Latin America or to Asia. Given the underlying principles of BIP, CBI, NAFTA, and CAFTA keeping them in the hemisphere should be favored. A possible framework would be to increase cotton production in Mexico and Central America for processing in US facilities until the output was sufficient to justify the shift in processing and yarn spinning infrastructure.
References


Regional Trade Agreement and Spill over Benefits in the border region: Evidence from NAFTA

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There is extensive literature, both theoretical and empirical, on the impact of Regional Trade Agreement (RTA) on trade. These studies show that RTAs result in increased trade between the partners. While the impact on trade because of RTA is well examined, the impact that RTA can have on border region, to our knowledge, has not been examined. It is this relationship that we examine in your study. Specifically, we examine if there is any spill over benefit to the border region. To answer this question, we use a unique hand collected data on the sales tax of the border region of Texas. We examine the relationship between North American Free Trade Agreement (NAFTA), and the changes in sales tax collected in the region. We expect to find a positive relationship between growth in trade and the growth in sales tax, in the border region compared to counties that are further away from the border. This would provide evidence that there are spill-over benefits of RTA for the border region.
Many teachers are working aboard in the new universities in Eastern Europe, Singapore, China and the Middle East. USA tax laws and IRS code require that all US citizens and Alien Residents pay Income Tax on any worldwide income. Non US residents are required to pay income tax on their income they earned in the USA. About 44 percent of the taxes collected by IRS can be attributed to the individual income tax. Taxation regulations when teaching abroad are reviewed in this study.
INTRODUCTION

USA tax laws and the IRS code require that all US citizens and Alien residents pay Income Tax on their worldwide income. This income tax is important revenue for the US government. Of taxes collected by the IRS about 44 percent can be attributed to the individual income tax. Taxation when teaching abroad is reviewed in this study, specifically the exclusion of earned income. Also studied are the Earned Income Exclusion and strategies to avoid the State Income Tax.

Teaching Aboard

Teaching abroad offer unique opportunities for in-depth cross-cultural experience. You are exposed to new cultures and languages. Personal development is achieved with this exposure. One can expand knowledge of a foreign language by being exposed to native speakers. A foreign language as spoken can be quite different than what is learned in a classroom.

This exposure prepares you for a future in a global society, which is daily becoming more global. Even accounting and auditing standards are becoming global today. US teachers often work teaching English as a Second Language, teaching Business Administration and Physical Sciences, all taught in English. There is a big demand in Eastern Europe, the Middle East, China and other countries for such teachers.

If you are teaching abroad, what are the income tax consequences of doing so? That is what is covered in this paper. You must file a return for 2009 and every year that your work either in the US or abroad. Failure to file can result in penalties and interest which can be large.

When to file:

Form 1040 has to be filed by April 15 of each year. There is an automatic extension of filing a return by June 15th if you live and work outside the United States and Puerto Rico. You must attach a statement stating that you meet the requirement of this automatic 2 months extension. If you are still unable to file in this 2 month extension, you must apply for an additional extension of 4 months by filing Form 4868. The extensions do not increase the time to pay taxes, taxes if any must be paid by April 15th, or interest will be accessed.

The usual situation of when to file a tax return is given in table 1 on the next page. This usual situation does not apply if you live and work overseas. Even if you have no taxable income (due to exclusion) and have to pay no taxes, a return still has to be filed to claim the exclusion. Returns also have to be filed to claim any refund of taxes paid and to claim refundable credits. Refundable credits among others are Earned Income credit, Additional Child Tax credit, Refundable Education credit and First-time Homebuyer credit. Additional Credits are being passed into law and should be availed off

Table 1.
Usually Form 1040 is filed according to the following information

<table>
<thead>
<tr>
<th>If your filing status is …</th>
<th>And at the end of 2009 are …</th>
<th>Then file a return if your gross income was at least …</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single</td>
<td>Under 65</td>
<td>$9,350</td>
</tr>
<tr>
<td></td>
<td>65 or older</td>
<td>10,750</td>
</tr>
<tr>
<td>Married filing jointly</td>
<td>Under 65</td>
<td>$18,700</td>
</tr>
<tr>
<td></td>
<td>65 and older (one spouse)</td>
<td>19,800</td>
</tr>
<tr>
<td></td>
<td>65 and older (both spouse)</td>
<td>20,900</td>
</tr>
<tr>
<td>Married filing separately</td>
<td>Any age</td>
<td>$3,650</td>
</tr>
<tr>
<td>Head of household</td>
<td>Under 65</td>
<td>$12,000</td>
</tr>
<tr>
<td></td>
<td>65 and older</td>
<td>13,400</td>
</tr>
</tbody>
</table>
Qualifying Widow(er) with depended Child

<table>
<thead>
<tr>
<th>Under 65</th>
<th>65 and older</th>
</tr>
</thead>
<tbody>
<tr>
<td>$15,050</td>
<td>$16,150</td>
</tr>
</tbody>
</table>

There are CPA firms who specialize in filing of tax returns for people working outside US and Puerto Rico. The ULR address of some of these firms is listed below.

www.expatcpa.com
www.harveycpa.com
www.globaltaxhelp.com
www.taxmeless.com

**On What Is Income Tax Paid?**

- Tax must be paid on Worldwide Income attained from any source
- Tax is paid on earned income as well as passive income
- Tax on self-employment income is also paid.

Taxable earned income includes:
- Wages, salaries, and tips;
- Alimony
- Child support.
- Interest and dividends
- Social Security
- Unemployment benefits
- Union strike benefits;
- Long-term disability benefits received prior to the minimum retirement age;
- Net earnings from self-employment.

You can elect to have your nontaxable combat pay included in earned income to qualify for the earned income credit.

Net earnings from self-employment include the income earned both in a foreign country and in the United States. You must pay self-employment tax on your self-employment income even if it is earned in a foreign country and is excludable as foreign earned income in figuring your income tax.

Some examples of Income that is not taxed include:
- Combat pay.
- Life insurance payments
- Stimulus earnings, that is income tax refund given by US government to stimulate the economy.

Passive Income is income received on a regular basis, with no work effort required to maintain it. IRS defines passive income as income from trade or business activities in which you do not materially participate.

Passive income is usually taxable.

Examples of passive income include:
- Earnings from a business that does not require direct involvement from the owner or merchant.
- Rental income from property.
- Royalties from publishing a book or licensing a patent or other form of intellectual property.
- Earnings from internet advertisement on websites.
Interest on bank deposit.

Dividend and interest income from securities, such as stocks and bonds, is usually referred to as portfolio income. It may or may not be considered a form of passive income. In the USA portfolio income is considered as a different type of income than passive income and is reported on schedule D.

Tax Implications

If you are working abroad Tax must be paid on all income, which also includes salary plus housing and other allowances, Tax must also be paid on passive income. Earned Income up to $90,400 per qualifying person can be excluded. If married and both individuals are working abroad and both meet either the bona fide residence test or the physical presence test, each party can choose the foreign earned income exclusion. Earned income is excludable up to $90,400 per person, if certain conditions are met.

There is also a Nonrefundable tax credit for any taxes paid to the foreign country. Earned income is pay for personal services performed, such as wages, salaries, or professional fees. Foreign earned income is income you receive for services you perform in a foreign country during a period when your tax home is in a foreign country and during that time you meet either the bona fide residence test or the physical presence test.

It does not matter whether the earned income is paid by a U.S. employer or a foreign employer.

Conditions Under Which Income May Be Excluded

Residency

Foreign Residency
Earned Income

Exclusion of Meals and Lodging

You do not include in your income the value of meals and lodging provided to you and your family by your employer at no charge if the following conditions are met.
1. The meals are furnished:
   a. On the business premises of your employer and
   b. for the convenience of the employer.
2. The lodging is furnished:
   a. On the business premises of your employer,
   b. For the convenience of your employer, and
   c. As a condition of your employment.

Tax home. Your tax home is the general area of your main place of business, employment, or post of duty where you are permanently or indefinitely engaged to work. You are not considered to have a tax home in a foreign country for any period during which your abode is in the United States. However, being temporarily present in the United States, or maintaining a dwelling there, does not necessarily mean that your abode is in the United States.
**Tax Returns in US Dollars**

Make all income tax determinations in your functional currency. If your functional currency is the U.S. dollar, you must immediately translate into dollars all items of income, expense, etc. (including taxes), that you receive, pay, or accrue in a foreign currency and that will affect computation of your income tax.

Use the exchange rate prevailing when you receive, pay, or accrue the item. If there is more than one exchange rate, use the one that most properly reflects your income. This process must be completed every time you receive any income, not just at the end of the year.

You can generally get current exchange rates from banks and U.S. Embassies.

**Form 2555**

Form 2555 is used to report Foreign Earned Income.

Maximum Earned Income Exclusion is $90,400.

Amount is reduced and prorated for days not spend in Foreign country

The foreign income and the exclusion is shown on Line 21 of Form 1040

**TDF 90-22.1**

Any United States person who has a financial interest in or signature authority, or other authority over any financial account in a foreign country, (if the aggregate value of these accounts exceeds $10,000 at any time during the calendar year) must also file form TDF 90-22.1 by 6/30/10 or you will incur a $10,000 penalty. Other civil and criminal penalties and jail time might also apply. No Extensions are granted for filing this special reporting form. This form is not to be filed with the tax return, but separately to the US Department of Treasury as stated on the form.

A “financial account” includes any bank, securities, securities derivatives or other financial instruments accounts. The term includes any savings, demand, checking, deposit, or any other account maintained with a financial institution. A person has signature authority over an account if such person can control the disposition of money or other property in it by delivery of a document containing his or her signature to the bank or other person with whom the account is maintained. Other authority exists in a person who can exercise comparable power over an account by direct communication to the bank or other person with whom the account is maintained, either orally or by some other means.

**Countries with No Earned Income**

Some countries have no earned income tax e.g. Persian Gulf countries. They do have a tax on businesses.

Countries with No Earned Income Tax are usually the oil rich countries:

- Bahrain
- Kuwait
- Saudi Arabia
- Sultanate of Oman
- United Arab Emirates and others.

These countries know the US tax laws and thus salaries are adjusted for tax breaks, and contracts are written so as to make lodging excludable.

**Tax Treaties**

The US has bilateral tax treaties with over 65 countries; some countries tax the income, but under current tax treaties, a person may decide to have the income taxed in the USA. Tax treaties vary from country to country. A person can elect to be taxed under US laws and have income excluded on his income tax return. Usually Income from teaching can be excluded (at least for two years). In some cases the exclusion by the other state is only on earned income but in some cases applies to interest on bank accounts also.
Treaties also generally provide U.S. students, teachers, and trainees with special exemptions from the foreign treaty country's income tax.

Some Countries with Tax Treaties are:
Canada
China
India
Spain and others (full list in appendix a).

**Travel restrictions.**

If you violate U.S. travel restrictions, you will not be treated as being a bona fide resident of, or physically present in, a foreign country for any day during which you are present in a country in violation of the restrictions. (These restrictions generally prohibit U.S. citizens and residents from engaging in transactions related to travel to, from, or within certain countries.) Also, income that you earn from sources within such a country for services performed during a period of travel restrictions does not qualify as foreign earned income. Housing expenses that you incur within that country (or outside that country for housing your spouse or dependents) while you are in violation of travel restrictions cannot be included in figuring your foreign housing amount.

As of April 15, 2003, these travel restrictions apply to Cuba, Libya, and Iraq.

**Estimated tax.**

If you are working abroad for a foreign employer, you may have to pay estimated tax, since foreign employers generally do not withhold U.S. tax from your wages. Your estimated tax is the total of your estimated income tax and self-employment tax for the year minus your expected withholding for the year.

When you estimate your gross income, do not include the income that you expect to exclude. You can also subtract from income your estimated housing deduction in figuring your estimated tax liability. However, if the actual exclusion or deduction is less than you expected, you may be subject to a penalty on the underpayment.

**State Income Tax**

If prior to leaving the U.S., you lived in a No State Income Tax state, such as Nevada, Washington, Texas, or Florida, no state tax return is required.

**TABLE 2**

7 States With No State Income Tax on Individuals

| Alaska, |
| Florida, |
| Nevada, |
| South Dakota, |
| Texas, |
| Washington |
| Wyoming |

Two state tax only dividends and interest.
Table 3

Two states tax ONLY dividend and interest income:

<table>
<thead>
<tr>
<th>State</th>
<th>Tax Rate</th>
<th>Income Threshold</th>
<th>Joint Return Threshold</th>
</tr>
</thead>
<tbody>
<tr>
<td>New Hampshire</td>
<td>5%</td>
<td>$2,400 per year</td>
<td>$4,800</td>
</tr>
<tr>
<td>Tennessee</td>
<td>6%</td>
<td>$1,250 per year</td>
<td>$2,500</td>
</tr>
</tbody>
</table>

Other states, such as Virginia, South Carolina, New Mexico, and California, look at whether you still have a “tax domicile” in the state and if so require you to file a state tax return and tax you (for all your years of absence) even though you have been gone for years. These states look at your intent to return to that state after your stay abroad, and use various indices that may indicate you never planned on giving up your “tax domicile” such as you still maintain a state driver’s license; state voter registration; library card; bank accounts; real property; license plates for a vehicle; or if your children still attend school in that state.

If you want to avoid tax problems with your previous home state and “tax domicile laws” who many years down the line may demand you file state income tax returns for the entire period you lived abroad and demand you pay all of taxes, interest and penalties due for that lengthy period, you should not move back to that state when you return permanently to the U.S. You must also, upon moving abroad, give up all state driver’s licenses, bank accounts, real property, voter registration, etc. Not all states are this tough, but some like Virginia, New Mexico, South Carolina, and California do impose very tough rules.

Investigate the tax law in your state of residency prior to your departure to avoid having to file state tax returns. And determine with some certainty that those state taxes will not later be assessed while you are still abroad or upon your return.

File tax returns every year to start the Statute of Limitation (usually three years). An example of the use of FORM1040 AND FORM 2555 is given in IRS Publication 54.

CONCLUSIONS

Taxes must be paid every year. If you are entitled to the foreign earned income exclusion, Form 1040 and Form 2555 must be filed to take advantage of this exclusion. It is a good idea to file Form TDF 90-22.1 every year also, even if the limit does not apply.

When taking vacations and visiting the US, care must also be taken in order to maintain the 330 full days abroad. Many persons who work abroad take part of the vacation in other countries to maintain this physical test of residency.
REFERENCES

All were accessed in January 2009 to confirm the data.

IRS Publication and Forms
IRS Publication 54
IRS Form 2555 & instructions
1040 Instructions 2009
IRS Form 1040

Other sources
1040 Quickfinder handbook-2007 tax year
RIA Federal Tax Handbook-2008 (AICPA)

URL of CPA firms specializing in taxation for people aboard.
www.expatcpa.com
www.harveycpa.com
www.globaltaxhelp.com
www.taxmeless.com

Appendix A
Countries with a tax treaty

<table>
<thead>
<tr>
<th></th>
<th>Armenia</th>
<th>24</th>
<th>India</th>
<th>47</th>
<th>Romania</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>Australia</td>
<td>25</td>
<td>Indonesia</td>
<td>48</td>
<td>Russia</td>
</tr>
<tr>
<td>3</td>
<td>Austria</td>
<td>26</td>
<td>Ireland</td>
<td>49</td>
<td>Slovak Republic</td>
</tr>
<tr>
<td>4</td>
<td>Azerbaijan</td>
<td>27</td>
<td>Israel</td>
<td>50</td>
<td>Slovenia</td>
</tr>
<tr>
<td>5</td>
<td>Bangladesh</td>
<td>28</td>
<td>Italy</td>
<td>51</td>
<td>South Africa</td>
</tr>
<tr>
<td>6</td>
<td>Barbados</td>
<td>29</td>
<td>Jamaica</td>
<td>52</td>
<td>Spain</td>
</tr>
<tr>
<td>7</td>
<td>Belarus</td>
<td>30</td>
<td>Japan</td>
<td>53</td>
<td>Sri Lanka</td>
</tr>
<tr>
<td>8</td>
<td>Belgium</td>
<td>31</td>
<td>Kazakhstan</td>
<td>54</td>
<td>Sweden</td>
</tr>
<tr>
<td>9</td>
<td>Bulgaria</td>
<td>32</td>
<td>Korea</td>
<td>55</td>
<td>Switzerland</td>
</tr>
<tr>
<td>10</td>
<td>Canada</td>
<td>33</td>
<td>Kyrgyzstan</td>
<td>56</td>
<td>Tajikistan</td>
</tr>
<tr>
<td>11</td>
<td>China</td>
<td>34</td>
<td>Latvia</td>
<td>57</td>
<td>Thailand</td>
</tr>
<tr>
<td>12</td>
<td>Cyprus</td>
<td>35</td>
<td>Lithuania</td>
<td>58</td>
<td>Trinidad</td>
</tr>
<tr>
<td>13</td>
<td>Czech Republic</td>
<td>36</td>
<td>Luxembourg</td>
<td>59</td>
<td>Tunisia</td>
</tr>
<tr>
<td>14</td>
<td>Denmark</td>
<td>37</td>
<td>Mexico</td>
<td>60</td>
<td>Turkey</td>
</tr>
<tr>
<td>15</td>
<td>Egypt</td>
<td>38</td>
<td>Moldova</td>
<td>61</td>
<td>Turkmenistan</td>
</tr>
<tr>
<td>16</td>
<td>Estonia</td>
<td>39</td>
<td>Morocco</td>
<td>62</td>
<td>Ukraine</td>
</tr>
<tr>
<td>17</td>
<td>Finland</td>
<td>40</td>
<td>Netherlands</td>
<td>63</td>
<td>Union of Soviet Socialist Republics (USSR)</td>
</tr>
<tr>
<td>18</td>
<td>France</td>
<td>41</td>
<td>New Zealand</td>
<td>64</td>
<td>United Kingdom</td>
</tr>
<tr>
<td>19</td>
<td>Georgia</td>
<td>42</td>
<td>Norway</td>
<td>65</td>
<td>United States Model</td>
</tr>
<tr>
<td>20</td>
<td>Germany</td>
<td>43</td>
<td>Pakistan</td>
<td>66</td>
<td>Uzbekistan</td>
</tr>
<tr>
<td>21</td>
<td>Greece</td>
<td>44</td>
<td>Philippines</td>
<td>67</td>
<td>Venezuela</td>
</tr>
<tr>
<td>22</td>
<td>Hungary</td>
<td>45</td>
<td>Poland</td>
<td></td>
<td></td>
</tr>
<tr>
<td>23</td>
<td>Iceland</td>
<td>46</td>
<td>Portugal</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Of these number 63 USSR is abrogated. And number 65 is an example.
In this note, we prove that an ad valorem tax \( u \) on gross price in the kinked demand model produces the same prices and quantities as that of the corresponding cost ad valorem tax \( v \) with \( v = \frac{u}{1-u} \). In addition, we show that for a given output, but not necessarily for the same price, the tax revenue under a demand ad valorem tax for the firm exceeds that under the corresponding unit tax, a revised Suits-Musgrave theorem. However, the same cannot be claimed for the rival firms.
I. Introduction

Perhaps one of the known oligopolistic competition models is the kinked demand model developed before World War II by Hall and Hitch (1939) and Sweezy (1939). Stigler (1947) who showed the empirical evidence reveals neither price experiences that would lead oligopolists to believe in the existence of a kink nor the pattern of changes of price quotations that the theory leads us to expect. Streeten (1950-1951) studied that similar causes underlie the prevalence of constant costs and rigid prices, and that an explanation can be given if certain static assumptions about the behavior of the firm are abandoned. Fabio (1977) demonstrated the concept of elasticity of demand is a crucial instrument for the analysis of oligopolistic behavior during economic expansion and contraction at the level of comparative statics. Bhaskar et al. (1991) analyzed survey data on the responses firms expect from their competitors when they change prices. There is evidence of an asymmetry in expected responses, which provides some support for modified versions of the kinked demand curve. In the absence of substantial detection lags and asymmetries in cost and product differentiation between firms, the kinked demand model explains well why equilibrium or focal price and quantity are infrequently changed despite its limitation (Tirole, 2002). The taxation effects of the model, has eluded the literature to the best of our knowledge. Two sets of taxation effects are to be discussed in this paper. First, does an ad valorem tax \( u \) on gross price that consumers pay produce the same price and quantity as that in the corresponding cost payment ad valorem tax \( v \)? Second, will the tax revenue under a demand ad valorem tax be greater than that under the corresponding unit (specific) tax at a given output and price as is the case in monopoly (Suits and Musgrave, 1953)?

For the first part, the mathematical relation between \( u \) and \( v \) (\( v = u/(1-u) \)) or Musgravian transformation (Musgrave, 1959) holds true in both perfect competition (identical price, quantity demand and tax revenue) and monopoly (identical price and quantity demanded). Whether property is preserved in the kinked demand model is the first issue this paper addresses. Does the Suits-Musgravian theorem hold in the kinked demand model is the second issue this paper attempts to tackle. The superiority in terms of tax revenue of an ad valorem tax in a monopoly market can date back to Cournot (1960 translated from the work published in 1838) and Wicksell (1959 translated from the paper of 1896). Suits and Musgrave proved it in the case of a monopoly market (1955). Outside the perfect competition and monopoly, the Musgravian transformation and the Suits and Musgravian theorem received scant attention with the exception of the works by (i) Delipalla and Keen (1942), who expanded the Suits- Musgrave results to generalized Cournot model for a given conjectural variation \( \lambda \), and (ii) Yang (1933) and Yang and Stitt (1995) who proved the existence of the Musgravian transformation in third-degree price discrimination and the Ramsey rule respectively, and (iii) Yang and Fox (1994)
who showed that the Suits- Musgrave theorem does not hold in the rate of return- regulated monopoly. The taxation effect under the kinked demand model, where the optimum solution occurs at the intersection of \( \lambda = 1 \) and \( \lambda = n \), does not belong to the class of the models by Delipalla and Keen (1992).

The purpose of this note is to fill a void: expanding the taxation theorems developed by Musgrave (1959), and Suits and Musgrave (1953) from the standard monopoly model to the kinked demand model. The rest of the note is as follows. The next section introduces the transformation between demand ad valorem and cost payment ad valorem taxes. Section III analyzes the Suits-Musgrave theorem. Section IV illustrates the taxation effects by using a numerical example from Henderson and Quandt (1980). Section V contains a conclusion.

II. **Ad Valorem Taxes in the Kinked Demand Model**

II.A. **Kinked Demand Model**

Consider \( n \) (typically a small number) firms who initially engage in the Cournot competition with following inverse demand and cost functions:

\[
P_i = f(q_i, \ldots, q_n) \quad \forall i \in N  \tag{1}
\]

\[
C_i = g(q_i) \quad \forall i \in N  \tag{2}
\]

where \( P_i \) and \( q_i \) denote price, quantity demanded for firm \( i \); \( N \) is a set of \( n \) positive integers.

The profit function of firm \( i \) can thus be expressed as

\[
\pi_i = f_i(q_i, \ldots, q_n) \cdot q_i - C_i(q_i) \quad \forall i \in N  \tag{3}
\]

The first-order condition of maximizing (3) for the \( i \)th and \( j \)th firms are

\[
\frac{\partial \pi_i}{\partial q_i} = f_i(\cdot) + q_i f_i'(\cdot) - C'_i(q_i) = 0  \tag{4}
\]

\[
\frac{\partial \pi_j}{\partial q_j} = f_j(\cdot) + q_j f_j'(\cdot) - C'_j(q_j) = 0  \tag{5}
\]

Generally speaking, we can obtain \( q_i^* \) (hence \( P_i^* \)) from solving \( n \) equations like (4) and (5). With no loss of generality, we limit the analysis to 2 firms that produce positive outputs. Well known from a standard microeconomics text, the top flatter part of a kinked demand curve pertains to the situation where rivals or rival does not match the price increase of firm \( #1 \) \( (\Delta P_1 > 0) \). In this case, we substitute \( P_j^* \) \( (j = 2) \) into the demand function of firm \( #2 \) to solve for its reaction function \( q_2^* = h(q_1) \)
Substituting (6) into the demand function of firm #1 or equation (1) gives rise to the top part of the kinked demand and its corresponding marginal revenue functions

$$\begin{align*}
P_{1}^{NM} &= f_{1}^{NM}(q_{1}^{*}, q_{2}^{*} = h(q_{1})) \\
MR_{1}^{NM} &= f_{1}^{NM}(q_{1}, q_{2}^{*} = h(q_{1})) + q_{1}f_{1}^{NM}(q_{1}, q_{2}^{*} = h(q_{1}))
\end{align*}$$

where the superscript NM denote rival does not match the price increase. At the other end of the spectrum, firm #2 may well want to maintain the original market share $q_{1}^{*} = kq_{2}^{*}$ ($k > 0$) if firm #1 decreases its price ($\Delta P_{1} < 0$) from the original Cournot competition. It is to be pointed out that $k = 1$ indicates both firms split the market equally. Substituting $q_{2}^{*} = q_{1}^{*}/k$ into equation (1) yields the lower part of the kinked demand and its corresponding marginal revenue functions

$$\begin{align*}
P_{1}^{M} &= f_{1}^{M}(q_{1}, q_{2}^{*} = q_{1}^{*}/k)
\end{align*}$$

III. The Kinked Demand Model with a Symmetrical Demand Structure

In this section, we define a symmetrical inverse demand function as

$$\begin{align*}
P_{i} f(q_{1}, \cdots, q_{n}) \quad \text{for} \quad i = 1, \cdots, n
\end{align*}$$

in which all cross product coefficients are symmetric. In the linear case, we have

$$\begin{align*}
P_{1} &= a_{10} + a_{11}q_{1} + a_{12}q_{2} + \cdots + a_{1n}q_{n} \\
& \vdots \\
P_{i} &= a_{i0} + a_{i1}q_{1} + a_{i2}q_{2} + \cdots + a_{in}q_{n} \\
& \vdots \\
P_{n} &= a_{n0} + a_{n1}q_{1} + a_{n2}q_{2} + \cdots + a_{nn}q_{n}
\end{align*}$$

where $a_{ij} = a_{ji} = a_{hk}$ for all $i \neq j$ and $h \neq k$

$$\begin{align*}
a_{11} &= a_{22} = \cdots = a_{ii} = \cdots = a_{nn} \\
a_{10} &= a_{20} = \cdots = a_{i0} = \cdots = a_{n0}
\end{align*}$$

and $a_{ii} \neq a_{ij}$

With identical cost function for each firm, i.e., $TC_{1}(q_{1}) = TC_{2}(q_{2}) = \cdots = TC_{n}(q_{n})$, the profit function and the first-order condition for firm $i$ is
\[ \pi_i = (a_{i0} + a_{i1}q_i + \cdots + a_{in}q_i) - TC_i(q_i) \]  
\[ \frac{\partial \pi_i}{\partial q_i} = a_{i0} + a_{i1}q_i + a_{i2}q_2 + \cdots + 2a_{in}q_i - MC_i(q_i) = 0 \]  

(12)  
(13)

Without loss of generality, we assume two firms of identical cost and symmetric demand structures:

\[ \pi_1 = a_{01} - a_{11}q_1 - a_{12}q_2, \quad \pi_2 = a_{02} - a_{21}q_1 - a_{22}q_2, \quad TC_1 = c_1 + d_1(q_i), \quad TC_2 = c_2 + d_2(q_2). \]

(14)  
(15)

Subtracting (14) from (15) yields

\[ (2a_{11} - a_{21})q_1 = (-a_{12} + 2a_{22})q_2 \]

(16)

An inspection of (16) indicates that \( q_1 = q_2 \) because \( a_{11} = a_{22} \) and \( a_{12} = a_{21} \). The result can be easily extended to 3 firms and more. As in the case of the kinked demand model, we first assume the rival (firm 2) does not match the price increase or \( P_2 = P_2^* \) where \( P_2^* \) is the solution from the first-order conditions (14) and (15). Given \( P_2 = P_2^* \), we can solve for \( q_2^* \) or \( q_2^* = (a_{02} - a_{21}q_1 - P_2^*)/a_{22} \) before substituting \( q_2^* \) into the demand function for firm 1: Thus the upper half of the kinked demand function can be derived as

\[ P_1 = a_{01} - \left( \frac{a_{12}a_0 - a_{12}P_2^*}{a_{22}} \right) \left( -a_{11} + \frac{a_{12}a_{21}}{a_{22}} \right) q_1 \]

(17)

The lower half of the kinked demand curve can be derived from assuming the rival will match the price reduction to maintain the given market share \( q_1 = q_2 \) as before.

Substituting \( q_1 = q_2 \) into \( P_1 = a_{01} - a_{11}q_1 - a_{12}q_2 \) leads readily to

\[ P_1 = a_{01} - (a_{11} + a_{12})q_1 \]

(18)

In a standard case where marginal cost is up-rising or horizontal and solution of (14) and (15) occurs in the first quadrant. The solution to the kinked demand model (or equations (17)
and (18)) must be positive. We’ll present a numerical simulation to illustrate the taxation effects.

IV. The Musgravian Transformation of the Kinked Demand Model with the Symmetrical Demand Structures

Again, for simplicity and without loss of generality, a demand ad valorem tax \( u \) on both firms will reduce the profit:

\[
\pi_1 = (1-u)(a_{01} - a_{11}q_1 - a_{12}q_2)q_1 - TC_1(q_1)
\]

\[
\pi_2 = (1-u)(a_{02} - a_{21}q_1 - a_{22}q_2)q_2 - TC_2(q_2)
\]

The first-order conditions are thus

\[
\frac{\partial \pi_1}{\partial q_1} = (1-u)MR_1(q_1, q_2) - MC_1(q_1) = 0
\]

\[
\frac{\partial \pi_2}{\partial q_2} = (1-u)MR_2(q_1, q_2) - MC_2(q_2) = 0
\]

Similarly, an ad valorem tax \( v \) on cost payment is expected to reduce the profit for both firms or

\[
\pi_1 = (a_{01} - a_{11}q_1 - a_{12}q_2)q_1 - (1+v)TC_1(q_1)
\]

\[
\pi_2 = (a_{02} - a_{21}q_1 - a_{22}q_2)q_2 - (1+v)TC_2(q_2)
\]

The first-order conditions can be shown as

\[
MR_1(q_1, q_2) - (1+v)MC_1(q_1) = 0
\]

\[
MR_2(q_1, q_2) - (1+v)MC_2(q_2) = 0
\]

It can now be shown that at a given output level \( q_1^* = q_2^* \), marginal cost must be the same:

\[
MC(q_1^*) = MC(q_2^*)
\]

As such via equations (21) and (25), it can be shown that

\[
(1-u)MR_1(q_1^*, q_2) = MR_2(q_1^*, q_2)/(1+v)
\]

It follows immediately that \( (1-u) = 1/(1+v) \) or \( u = v/(1+v) \) or \( v = u/(1-u) \) or a 20% ad valorem tax \( u = 0.2 \) is equivalent to a 25% on cost payment \( v = 0.25 \) for a given output.

Note that since, \( q_1 = q_2 \) and \( P_1 = P_2 \) due to the symmetrical demand structure. The same conclusion can be drawn for the rival firm. As a consequence, we propose the following Musgravian transformation.
Proposition 1

Given an identical cost function and symmetrical demand structures in which all cross-coefficients are identical with a common intercept, a demand ad valorem tax \( u \) is equivalent to the cost ad valorem tax \( v : u = v(1 + v) \) for a given set of price and quantity for all firms.

V. The Suits-Musgrave Theorem of the Kinked Demand Model with the Symmetrical Demand Structures

The central piece of the Suits-Musgrave theorem is that at a given output (hence price), an ad valorem tax generates more tax revenue than the corresponding unit tax in the market of monopoly. The objective of this section is to investigate if the same result holds in the kinked demand model with firms of identical cost and the symmetrical demand relations. For simplicity, we assume two firms with the demand structures and cost functions. A unit tax \( t \) (\$ per unit of output) is expected to reduce profit for both firms or

\[
\pi_1 = \left[ P_1(q_1, q_2) - t \right] q_1 - TC_1(q_1) \tag{28}
\]

\[
\pi_2 = \left[ P_2(q_1, q_2) - t \right] q_2 - TC_2(q_2) \tag{29}
\]

The corresponding first-order conditions are shown below:

\[
\frac{\partial \pi_1}{\partial q_1} = MR_1(q_1, q_2) - t - MC_1(q_1) = 0 \tag{30}
\]

\[
\frac{\partial \pi_2}{\partial q_2} = MR_2(q_1, q_2) - t - MC_2(q_2) = 0 \tag{31}
\]

From equations (21) and (30), we have for a given output level of \( q_1^* \)

\[
(1-u)MR_1(q_1^*, q_2) = MR_1(q_1^*, q_2) - t
\]

and hence \( t = uMR_1(q_1^*, q_2) \). Now the difference between two tax revenues can be shown as

\[
TR_1^u - TR_1^t = uP_1(q_1^*, q_2)q_1^* - t q_1^* = uq_1^*(P_1 - MR_1) > 0 \tag{33}
\]

which must be positive as long as \( P_1 > MR_1 \). As are shown in equations (17) and (18), demand must exceed its marginal revenues. Consequently, the Suits-Musgrave theorem must hold. The same is true for the rival firm (firm 2) since \( q_1 = q_2 \) and \( P_1 = P_2 \).

Proposition 2
Given an identical cost function and symmetrical demand structures in which all cross-coefficients are identical with a common intercept, a demand ad valorem tax generates more tax revenue at a given output and price than does the corresponding unit tax.

Simulation Results of Symmetrical Demand

<table>
<thead>
<tr>
<th>model</th>
<th>( q_1 )</th>
<th>( q_2 )</th>
<th>( P_1 )</th>
<th>( P_2 )</th>
<th>( TR_1 )</th>
<th>( TR_2 )</th>
</tr>
</thead>
<tbody>
<tr>
<td>Zero tax</td>
<td>10</td>
<td>10</td>
<td>70</td>
<td>70</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Demand ad valorem tax ( u = 20% )</td>
<td>8.8889</td>
<td>8.8889</td>
<td>73.3333</td>
<td>73.3333</td>
<td>130.3705</td>
<td>130.3705</td>
</tr>
<tr>
<td>Cost ad valorem tax ( v = 25% )</td>
<td>8.8889</td>
<td>8.8889</td>
<td>73.3333</td>
<td>73.3333</td>
<td>49.3828</td>
<td>49.3828</td>
</tr>
<tr>
<td>Unit tax ( t = $5 )</td>
<td>9.5</td>
<td>9.5</td>
<td>71.5</td>
<td>71.5</td>
<td>47.5</td>
<td>47.5</td>
</tr>
<tr>
<td>Demand ad valorem tax ( u = 9.523811% )</td>
<td>9.5</td>
<td>9.5</td>
<td>71.5</td>
<td>71.5</td>
<td>64.6905</td>
<td>64.6905</td>
</tr>
<tr>
<td>Demand ad valorem tax ( u = 9.523811% )</td>
<td>9.5</td>
<td>9.5</td>
<td>71.5</td>
<td>71.5</td>
<td>64.6905</td>
<td>64.6905</td>
</tr>
</tbody>
</table>

\( TR_1 \) and \( TR_2 \) denote tax revenue for firms 1 and 2.

\[ P_1 = 100 - 2q_1 - q_2, P_2 = 100 - q_1 - 2q_2, C_1 = 2.5q_1^2, C_2 = 2.5q_2^2 \]
<table>
<thead>
<tr>
<th>Variable model</th>
<th>( \pi_1 )</th>
<th>( \pi_2 )</th>
<th>( CS_1^* )</th>
<th>( CS_2^* )</th>
<th>( \pi_1 + CS_1 )</th>
<th>( \pi_2 + CS_2 )</th>
</tr>
</thead>
<tbody>
<tr>
<td>Zero tax</td>
<td>450</td>
<td>450</td>
<td>800</td>
<td>800</td>
<td>1250</td>
<td>1250</td>
</tr>
</tbody>
</table>
| Demand ad valorem tax  
\( u = 20\% \) | 323.9505 | 323.9505 | 730.865     | 730.865     | 1054.8155      | 1054.8155      |
| Cost ad valorem tax  
\( v = 25\% \)   | 323.9505 | 323.9505 | 730.865     | 730.865     | 1054.8155      | 1054.8155      |
| Unit tax  
\( t = \$5 \) | 406.125 | 406.125 | 769.5       | 769.5       | 1175.625       | 1175.625       |
| Demand ad valorem tax  
\( u = 9.523811\% \) | 388.9345 | 388.9345 | 769.5       | 769.5       | 1158.4345      | 1158.4345      |
| Demand ad valorem tax  
\( u = 9.523811\% \) | 388.9345 | 388.9345 | 769.5       | 769.5       | 1158.4345      | 1158.4345      |

<table>
<thead>
<tr>
<th>Variable model</th>
<th>( \pi_1 + CS_1 + TR_1 )</th>
<th>( \pi_2 + CS_2 + TR_2 )</th>
<th>( \pi_1 + CS_1 + TR_1 + \pi_2 + CS_2 + TR_2 )</th>
</tr>
</thead>
<tbody>
<tr>
<td>Zero tax</td>
<td>1250</td>
<td>1250</td>
<td>2500</td>
</tr>
</tbody>
</table>
| Demand ad valorem tax  
\( u = 20\% \) | 1185.186                    | 1185.186                    | 2370.372                                         |
| Cost ad valorem tax  
\( v = 25\% \)   | 1104.1983                   | 1104.1983                   | 2208.3966                                        |
| Unit tax  
\( t = \$5 \) | 1223.125                    | 1223.125                    | 2446.25                                          |
| Demand ad valorem tax  
\( u = 8.746\% \) | 1223.125                    | 1223.125                    | 2446.25                                          |
| Demand ad valorem tax  
\( u = 18.1717\% \) | 1223.125                    | 1223.125                    | 2446.25                                          |
Reference


The Effect of New International Accounting Standards on Entrepreneurs and Educators in the Americas

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As different countries try to open up their industries to foreign investment, access to capital markets must be free from unnecessary impediments. The current globalization of industries highlights the need for common bases of understanding of financial structure. Accounting systems provide information which is used by managers within the organization and by investors, business partners and regulators outside of the organization. Accounting systems deal with the monetary structure of a country which is governed by the local laws, socio-economic conditions, culture and traditions of the country. Different countries accommodate aspects of their culture, socio-economic framework and legal structures into their Generally Accepted Accounting Principles or GAAPs. Multiple GAAPs create problems of consistent reporting of financial performance by companies to their investors. To reduce the negative effects of these differences, the International Financial Reporting Standards Board has proposed a set common financial reporting standards (IFRS) with the hope that widespread adoption of these common reporting standards will increase investors’ confidence and reduce barriers to the flow of investment capital. “Converging” to a common set of international reporting standards will cause short-term problems which, hopefully, will lead to long-term net benefits. This paper will show the effects of differences between current “principle-based” accounting systems and “rule-based” accounting systems. It will examine ongoing problems and discuss efforts to converge both types of systems to a middle ground offered by the International Financial Reporting Standards. While some degree of convergence to international accounting standards
seems inevitable, the benefits from this convergence will not be realized equally. Those who are prepared to incorporate international accounting standards will gain more than those who are unprepared. This paper will focus on tools which can be used by educators to demonstrate the differences in accounting systems so that students and entrepreneurs will be better prepared to meet the challenges of international accounting standards within the emerging global economy.

U.S. trade with Latin America has been growing at a faster average rate than in the rest of the world as shown in Figure I. There is no question of the enormous opportunities of doing business for both U.S. and Latin American entrepreneurs. And, now that most countries, including the United States and most Latin American countries, are in the process of adopting a revised set common financial reporting standard (IFRS), opportunities to attract new, fresh capital will abound even more. Nonetheless, in order to take full advantage of these opportunities, entrepreneurs and investors must have a basic understanding of existing variations in so far as accounting regulations and enforcements, financial reporting, and accounting measurements that will exist long after all countries have adopted the proposed international regulations.
Before addressing these differences, it is pertinent to quickly look at where various countries in Latin America are in the IFRS conversion process:

<table>
<thead>
<tr>
<th>Country</th>
<th>IFRS required or permitted</th>
<th>IFRS not permitted</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Argentina</td>
<td>X</td>
<td>X</td>
<td>Convergence by 2011 for public companies</td>
</tr>
<tr>
<td>Brazil</td>
<td>X</td>
<td></td>
<td>Convergence by 2010 for public and insurance companies, early adoption permitted</td>
</tr>
<tr>
<td>Chile</td>
<td>X</td>
<td></td>
<td>Convergence by 2011 for all companies</td>
</tr>
<tr>
<td>Colombia</td>
<td>X</td>
<td></td>
<td>Convergence being considered</td>
</tr>
<tr>
<td>Mexico</td>
<td>X</td>
<td>X</td>
<td>Local GAAP is converging with IFRS</td>
</tr>
<tr>
<td>Peru</td>
<td>X</td>
<td></td>
<td>Already required</td>
</tr>
<tr>
<td>Venezuela</td>
<td>X</td>
<td></td>
<td>Mandatory convergence for public companies expected by 2011</td>
</tr>
</tbody>
</table>

Note: Other Latin American countries, including Panama, Costa Rica and Honduras, already have either adopted or are converging toward IFRS. Please visit our website for more detailed information on the IFRS conversion process in each country and exceptions that apply. Source: PricewaterhouseCoopers, http://www.pwc.com/us/en/ifs.html, "IFRS adoption by country."

As can be seen, many Latin American countries accounting standards will have converged to the IFRS standard by the year 2011, at least for large and public enterprises. It is worth noting that U.S. SEC’s former chairman, Chris Cox, determined the year 2016 to complete transition from US-GAAP to IFRS (SEC.GOV), and in Mexico there is a joint effort between the CINIF (Consejo Mexicano para la Investigación y Desarrollo de Normas de Identificación Financiera) and the International Accounting Standards Board to align Mexico’s US-GAAP Accounting to the IFRS (Choi, 2008). Business opportunities can be developed between the U.S. and Latin America, across continents, and also within Latin American countries. Once an international standard is in place, Latin investors can better understand each other because accounting variations will be compacted into consolidated accounting and financial instruments, thus promoting job creation, research and development, technology transfer and general economic growth.

This all sounds exciting and promising. Nevertheless, Marcelo Kozak in his article “IFRS, from the tower of Babel, to a universal language” is somewhat apprehensive of the success of the IFRS adoption despite its success so far, especially after the EU adopted it as the de-facto accounting standard. It can be inferred that the mistrust of Mr. Kozak and others is inherently related to the fact that all previous efforts of adopting an international accounting standard basically failed. That is why, despite the current efforts to embrace the IFRS worldwide, the importance to spend time understanding those accounting and financial variants innate to a particular region or country is still decisive to the success of making a sound, comprehensive, and smart investing decision.

### Accounting Regulations and Enforcements

Historically, one of the major differences between U.S. and Latin America accounting methods and practices has been that in most Latin American countries, accounting was influenced by legal systems inherited from mainland Europe since colonial days. National accounting practices are likely to be codified into law and enforced by a national or government entity. Interestingly enough, in Mexico, this is not the case. Mexico has always followed more of a US-GAAP approach in that accounting practices are minimally enforced by the Mexican Commercial Code and tax laws, and that accounting standards are issued by the CINIF (Consejo Mexicano para la Investigación y Desarrollo de Normas de Identificación Financiera) (Choi 2009).

In other parts of Latin America, particularly in Central America, accounting practices are followed very closely by a multitude of government agencies. For instance, in El Salvador, a small country of roughly 6
million inhabitants, an incorporated company (Sociedad Anónima) has to register and submit financial statements on a regular basis, among others, with:

- CNR (Centro Nacional de Registro), a government registrar office
- Ministerio de Hacienda, the treasury secretary
- Dirección General de Estadística y Censos, a government census office
- Bolsa de Valores, a local stock exchange if the company trades securities only
- Alcaldía, local town hall

In addition, every Sociedad Anónima must be audited by an external auditor and even sole proprietors (Personas Naturales) must register with all the agencies above and be audited if they are worth above certain level.

In contrast, Choi states that “corporations in the United States are formed under state law, and that each state has its own corporate statutes; in general, these contain minimal requirements for keeping accounting records and publishing periodic financial statements”. Choi also adds “many of these statutes are not rigorously enforced, and reports rendered to local agencies are often unavailable to the public”. This is not the case in El Salvador. Once a company in El Salvador has registered with CNR, all the company information is made available to the public.

In any case, the movement towards the adoption of the IFRS framework is also moving U.S. accounting practices closer to a code law system, where the requirements on corporate governance, disclosure, reporting, and auditing are significantly lengthened. The Sarbanes-Oxley Act of 2002 was one of the first steps in this path in the wake of several corporate and accounting wrongdoings, such as Enron and WorldCom (Choi 2009).

**Financial Reporting**

Perhaps two of the most important variations between U.S. and Latin America accounting practices have been the treatment of inflation, and the family-owned way of conducting business in Latin America. In Mexico and other countries, statements must be adjusted for inflation and the effects must be shown in the statement of changes in stockholder’s equity. One additional effect Choi explains is “that the resulting amounts do not represent cash flows as understood under historical cost accounting”. For the unwary investor, not understanding this treatment of inflation could undermine an otherwise promising investment venture.

Another potential mishap investors have to be aware of is the fact that many enterprises in Latin America, large and small, are family-owned. These companies traditionally protected their information and were extremely secretive in their financial exposure. In many countries, these patriarchal companies are required to fully disclose their financial statements, but it has been nearly impossible to obtain their information. In other cases, the information available might have not represent the current condition of the business.
Corruption customs in Latin American countries have played an unfortunate role in these business practices. Fortunately, this seems to be changing and many family-owned enterprises are opening up and trying to take advantage of the new opportunities a globalized market has to offer. One of the best examples of this is the fact family-owned Latin American companies, are more actively trading in the U.S. securities market and other international markets. For instance, TelMex is listed on the New York Stock Exchange and must therefore file Form 20F with the SEC (Choi 2009). Grupo Roble (a real state family-owned conglomerate in Central America) recently issued bonds in the EU market.

**Accounting Measurements**

As more countries are adopting the IFRS framework, there will be less and less room for variations in accounting measurements across continents. Nonetheless, there is a category where there will probably be some differences to keep always in mind: Intangible assets. These are defined by IAS as “identifiable non-monetary assets that cannot be seen, touched or physically measured, which are created through time and/or effort and that are identifiable as a separate asset”. These assets include trade secrets (e.g., customer lists), copyrights, patents, trademarks, and goodwill. In the U.S. goodwill is listed as a separate item in a company’s balance sheet while in Latin America it is not amortized, but subject to an annual impairment (lessen) test (Choi 2009). Another sizable difference is that in the U.S. tangible and intangible assets are valued using historical costs whereas in Mexico and other Latin American countries a general price level (based on National Consumer Price Indexes) are used. As far as amortizing intangible assets is concerned, the United States permits both an accelerated and straight-line depreciation methods determined by the economic usefulness of the intangible asset in question, while in Latin America an intangible asset is amortized over its useful life (usually no more than 20 years). If the life of the asset is indefinite, as in goodwill, that account undergoes an impairment test (Choi 2009). There is a fine line between these two approaches, and a very subjective one.

There are other subtle differences in the way tax is collected that the potential investor should be aware of that could also potentially undermine financial understanding, but these are out of the scope of this article. Nonetheless, investors should investigate how local tax laws affect IFRS. One important issue is how the IVA (sales tax) payments are approached for imports.

**Methods for Companies to deal with Global Accounting issues**

Companies whose operations or financing become globalized may not be able to ignore differences between reporting requirements at home and different reporting practices in countries where they have significant numbers of customers or investors. Methods for dealing with different reporting requirements include:

- Do nothing extra for foreign countries,
- Convenience Translations,
- Convenience Statements,
- Limited Restatements,
- Reconciliation to foreign country’s GAAP,
- Secondary Statements.
Many companies provide the same reports to foreign users that they provide to domestic users. This “Do Nothing” approach is reasonable for companies that are not particularly interested in attracting foreign investors. Such companies do not see enough additional benefits to justify the cost of taking any additional action to attract foreign investors.

**Convenience translations** represent the minimal effort on the part of companies to respond to foreign users. In a convenience translation, the preparer translates the language of the financial statements to the language of the foreign country, but the accounting principles and currency are still those of the preparer’s country. In international accounting literature, the term **Convenience Statement** means that reports are prepared in a foreign user’s language and currency, but the accounting principles remain those of the home country.

In addition to translating language and currency, **Limited Restatements** provide supplementary disclosures to reconcile financial statements to the user’s GAAP. **Reconciliation to Foreign GAAP** is similar to limited restatement, but includes more complete restatements of financial information to accommodate regulations of the countries where securities are listed. Preparation of **Secondary Statements** means translating the home country annual report into a foreign country’s language, currency, and accounting principles.

Translating home country annual report into a foreign country’s language, currency, and accounting principles can be very expensive. Companies wishing to list stock on several different exchanges worldwide can use **Universal Secondary Statements** rather than **Country-Specific Secondary Statements**. In universal secondary statements, a company could use its own currency or a major international currency such as the euro or the U.S. dollar. The language of such statements would be English and the format would be in accordance with International Financial Reporting Standards.

**Tools for Teaching Accounting Systems in a Global Environment**

Most business schools in the United States teach accounting courses with the assistance of one or more accounting packages. Peachtree Accounting and Microsoft Dynamics (formerly Microsoft Accounting) are examples of accounting systems frequently used to teach accounting. Enterprise Resource Planning (ERP) systems have tools for selecting appropriate currencies and formats, but ERP systems introduce many new sets of problems including high license fees, complicated installations and very high maintenance costs. Some schools have added a third option for teaching accounting in a global environment. The third option is software specifically designed to demonstrate differences between different accounting systems.

At the University of Houston – Clear Lake, a software package called Clear Lake Accounting is being developed to help in teaching accounting. Figure 2 (above) shows a portion of the Clear Lake Accounting
which allows the user to select data for the Mexican Telecommunications company, TeleMex. Before reaching this screen, the user would have selected the mode of data entry as Text file, spreadsheet, XML file or Database.

One feature of Clear Lake Accounting is the ability to integrate data from different sources and present that data in different formats.

Clear Lake Accounting can access data from text files, spreadsheets, XML files, or databases. In displaying financial reports, the user of this system can translate currencies and present reports in various languages and formats. A portion of this program was specifically designed to be used to compare features of different accounting systems throughout the world.

The package Clear Lake Accounting allows the user to combine different methods for converting currencies with different templates for display financial reports.

The income statement, shown in Figure 3, below, shows the result of combining the selected data with a template for an income statement. In this example, the language is Spanish and the currency units are Mexican pesos.

![Figure 3 Income statement for Telemex in Spanish.](image)

Figure 3 Income statement for Telemex in Spanish.

Figure 4, below, shows a simple process of converting pesos into U.S. dollars. This simple conversion process can be used to prepare “Convenience” statements, but may not serve the needs of foreign investors because the GAAP of the home country is maintained.
Figure 5, below, shows a “convenience statement”, a version of the Telemex income statement in English, after converting the currency to U.S. dollars.

Figure 5, a version of the Telemex income statement converted to U.S. dollars.
Simply converting language and currency units will not be sufficient to attract investment funds from the U.S. capital markets. Any company hoping to attract U.S. capital should provide audited statements showing compliance with U.S. GAAP. This could be very expensive. While a large company such as TeleMex can afford to provide such a restatement of its financial position, most companies can not afford such luxuries.

Even for large companies such as TeleMex, there are limits to the expense which can be justified in order to provide secondary financial statements. Capital markets in India, China and the European Union offer excellent opportunities for companies which can afford to provide financial information in an effective manner, but providing secondary financial statements in multiple languages to satisfy the requirements of multiple GAAPs would be prohibitive for even large firms.

As an added difficulty, companies which have a major portion of their operations in a country which uses a different currency would have to account for gains and losses due to fluctuations in the value of that currency relative to the home currency of the country. This means that foreign exchange transaction risks and foreign currency translation risks would have to be considered in preparing financial statements.

According to the rules proposed by the International Financial Standards Board, transaction risks would be accounted for on consolidated income statements and translation risks would not be accounted for on the current income statement, but would be recognized as an adjustment to owners’ equity. The difference would occur because different items would be translated using exchange rates from different time periods.

For instance, sales of merchandise, operating expenses and current liabilities would be converted at the current (reporting) date while long-term investments and long-term liabilities would be converted at historic rates. Converting items at different rates (due to different time periods) introduces translation adjustments. These adjustments are reported as part of the “Other Comprehensive Income” category which is added to increases in retained earnings in determining Stockholder Equity. Figure 6, below, shows a complex process of converting pesos into U.S. dollars for several different categories of accounts.
Figure 7, below, shows the results of calculating Stockholder Equity which includes Currency Translation Adjustment as part of Other Comprehensive Income.

Figure 7, a version of the Telemex Equity statement converted with IFRS rules.

Conclusion

Utilizing an almost universally accepted set of international standards, even small companies could reach capital markets which previously had been unavailable to them. It is extremely important that companies act in a timely manner to take advantage of new opportunities as they become available. This means that
entrepreneurs must be ready and able to use international standards as soon as they become accepted. This will not happen unless educators begin immediately to provide materials which demonstrate the effects of international financial reporting standards.

REFERENCES


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Currently Open Educational Resources (OERs) is one of the most important trends that are helping education through the Internet all over the world, and it is every day more used in many education institutions. “El Tecnológico de Monterrey” has developed an important educational initiative, named: “Knowledge Hub” (KHub). It is a search engine for OERs, which is available in the Internet for any people interested in educational resources available online all over the world, for teachers and professors of all levels, from higher education to K-12 (http://khub.itesm.mx/). Currently, it helps to set a common group of educational resources to help accomplish with the competence approach on business education among institutions.

In accounting, the International Federation of Accountants has established the International Education Standards, for setting the benchmarks for the education of members of accountancy profession. So the challenge for universities and accounting academic programs, is how to introduce the contents and abilities required to accomplish with this. Educational resources could help to share knowledge in an efficient and effective way. This paper will present how in the accounting field OER’s are used through the Knowledge Hub academic search engine to help faculty in the design and instruction of their courses.
Is It Possible to Create Knowledge Cities in Latin America?
The Monterrey Experiment

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Latin America has traditionally played a specialized role in the global economy. The region’s exports are dominated by primary products, goods manufactured or assembled by multinational companies (MNCs) employing an export processing zone production model, and a handful of goods in mature industries. In contrast, there are very few examples of Latin American companies that are market leaders in technologically intensive, highly complex industries. Latin American policy makers are well aware of the limitations of the region’s current position in the global economy and have launched focused initiatives in an effort to create and grow entrepreneurial ventures in science based fields such as nanotechnology and biotechnology. In the study detailed in this paper, we examine the efforts of public and private entities in northeastern Mexico to facilitate the evolution of the city of Monterrey towards an entrepreneurial, technology intensive development model. Our study focuses on two primary research questions. First, given existing institutions is it possible to create globally competitive knowledge cities in the region? Second, what policy lessons have emerged from the Monterrey experiment that may be useful to guide technology intensive development strategies in other locations in Latin America and in other developing regions?
The paper analyses the design and implementation of telecommunications service policies targeted at the poorest regions of Mexico (1990-2008). It begins by defining universal access and service policies, their economic and social rationale. Secondly, it discusses the scope of public policies on universal service provision designed by Mexican authorities to attain the goal of universal access, and their limited achievements of its implementation. Thirdly, the paper analyses the distributive effects of this set of policies among the poorest sectors of the population. The sources on which this research was based were two national surveys: the Household Income and Expenditure Survey (2008, latest available), and the Household Survey of the Access and use of Information Technologies (2008). The additional information on regional economic development was based on the “Poverty Indexes” by the National Population Council and economic information given by Mexico’s Census Bureau. Additional use was made of the Annual Reports prepared by Ministry of Communications, statistics published by the Federal Telecommunications Commission and official documents prepared by the government agencies. Finally, a series of in-depth interviews was conducted with the former representatives of the Office of Rural Telephony. Finally, the article discusses, in the light of available evidence, possible explanations, related with regulatory capture and corruption, for the apparent failure of the universal service policy that was implemented to bring at least basic voice services to Mexico’s neediest.
A New Paradigm in Educational Leadership – Emotional Intelligence

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Texas A&M International University

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There has been a shift in the conceptualization of leadership and needed leadership skills. Models that have been previously used to aid in the development and understanding of the role of leaders are inadequate and inappropriate given today’s climate. New concepts based largely on research are emerging. This new conceptualization is Emotional Intelligence. Based on the works of Goleman, (1998), Epstein, (1998), Sternberg, (1996), Nelson & Low, (2003), and many others the concept of Emotional Intelligence is providing a useful and practical model. This study was based on 70 randomly selected graduate Educational Administrative students and funded through a University Research Grant. The program will describe the assessment, results, and purposed training program to develop leadership skills in school administrators based on strengths and weaknesses from assessment. Additionally, the program will describe initial findings from pilot study and preliminary results from longitudinal study.
Resources Distribution in Texas School Districts: An Examination of Expenditure Allocation Patterns in Two Major Urban School Districts with Diverging Enrollment

Rene Barajas
Garland Independent School District

Alfredo Ramirez, Jr.
Texas A&M International University

This study examines expenditure allocation patterns of two Texas school districts that experienced diverging enrollments in relation to each other over eight school years. Expenditure allocations to general and specific operational areas and various student groups are examined in relation to changes in enrollment. In addition, how expenditures per student changed as a result of increasing and decreasing enrollment is explored. Ratio analysis, based on the percentage contribution to total General Fund expenditures, determined the changes in expenditure allocations to operational areas and student groups. These changes are compared to changes in enrollment. Expenditure per student calculations are made using inflation-adjusted data and regression analysis, employing Pearson’s r, determines how well enrollment changes explain changes in expenditures per student. Results indicate that increasing and decreasing enrollments had little effect on how the districts allocated general and specific resources as no significant relationships were noted. Resources allocated to basic instructional services, which served the largest number of students, were indicative of the direction of enrollment suggesting that students in districts with increasing enrollment garner more resources. Total expenditures per student showed no correlation in the decreasing enrollment district and a marginally strong positive relationship in the increasing enrollment district. The empirical findings did not support the inverse relationship between enrollment and expenditures per student referenced in the literature. The findings suggest that in addition to enrollment, there are other factors at work that dictate how resources are allocated. In addition to determining these
other factors, incorporating the district’s federal budgets into the analysis to determine if the inclusion of all available resources would significantly alter the findings of how each district allocated resources as a result of changes in enrollment is warranted.
Which you could be considered as the main contribution of university graduate to enterprises? The expectations are many, but in times of crisis, hiring of graduate university, is reduced to the increase their profits or their share of their market. This research aims to offer a quantitative and qualitative perspective of the contribution of graduates to economic development of a region and particularly of a nation.
Introducción

Si efectuamos un análisis de los factores considerados como críticos para el éxito del desarrollo económico de una entidad, seguramente la educación se sitúa en los primeros lugares sobre las prioridades de manejo que el gobierno debe mantener dentro de su administración, ya que la inversión en educación, se traduce posteriormente, en impactos económicos de alto beneficio, tales como generación de nuevas tecnologías y sistemas de producción y aprovechamiento de recursos, apoyos en la creación de empresas con mas rentabilidad y competitividad en su operación, incremento en fuentes de empleo, y un considerable incremento en el ingreso personal de los egresados universitarios. La inversión en educación debe ser considerada como el centro neurálgico de una estrategia de desarrollo económico en una entidad, ya que es al educación quien finalmente se da a un a la tarea de formar a las siguientes generaciones de profesionistas que prácticamente serán los responsables de los destinos económicos de su comunidad.

El Estado deberá comprometerse e involucrase directamente en programas de apoyo a la inversión en educación como parte de los enfoques estratégicos para el desarrollo económico que pretende llevar a la comunidad.

La economía que emerge

La economía que resulta en nuestro aquí y ahora, es conocida como economía del conocimiento, también se le llama economía basada en la información, o en el aprendizaje, y finalmente concluimos después de interminables rondas de trabajo entre intelectuales, empresarios, económicos, políticos y académicos, que el conocimiento forjado en las universidades adquiere un rol central en el proceso productivo y competitivo de la economía, debido no solo por la adquisición del conocimiento permanente, sino por la generación y aplicación de nuevas tecnologías traducidas en una habilidad más competitiva: aprender con inteligencia y desarrollar progreso accesible a toda la comunidad, como es declarado en la OECD.

Los postulados de la OECD ante la inversión en educación.

La mayoría de los países de América Latina han reconocido la necesidad de una inversión masiva a nivel de la educación secundaria. Durante las reuniones organizadas por el Gobierno del Estado de Nuevo León, llamada “El Futuro de las Américas” en Enero del 2004, se confirmó la intención de lograr una transformación de “mano-factura” a “mente-factura” y esto es obviamente mucho más factible a través de la educación universitaria en conjunto con la planta productiva del Estado.

Para tener una fuerza de trabajo calificada y adaptada a las necesidades de una economía abierta y responder a una fuerte demanda social, países como Chile y Argentina han iniciado una profunda reforma curricular con el propósito de elevar la calidad de la educación universitaria. Estas reformas los han llevado a cuestionar el funcionamiento actual del sector de la educación técnico-profesional y cuales son los cambios necesarios para un mejor desempeño económico. Entre las consideraciones más importantes están, primordialmente la adecuada selección de las disciplinas a enseñar y cómo enseñarlas, el volumen de inversión en educación universitaria, el papel que debería jugar el financiamiento público con relación a la inversión en educación universitaria, los mejores incentivos requeridos para promover la vinculación con las empresas, las reformas institucionales para adaptar las escuelas técnicas a los “clusters” estratégicos existentes, y el papel de los programas de empleo para los egresados universitarios, que dicho sea de paso, debe ser considerado como estratégico. En referencia a las economías emergentes, como México, y pertenecientes a la OCDE ofrece algunos tópicos de reflexión.
Los países de la OCDE a pesar de una disminución de la par relativa del grupo de edad de 15 a 24 años en la población, del alto nivel de escolarización de estos jóvenes y de los múltiples programas dedicados al empleo, siguen enfrentando los problemas de la transición de los jóvenes al empleo. En febrero de 1999 tuvo lugar en Washington la conferencia “La formación de los jóvenes para el siglo 21: Las lecciones de política de las últimas dos décadas” para examinar los primeros resultados de algunos estudios realizados en 14 países de la OCDE. Estos estudios trataron de responder a las siguientes tres preguntas:

1. cómo asegurar que las políticas de educación, sociales y de empleo sean más coherentes para así permitir a los jóvenes un mejor inicio de su vida;
2. cómo desarrollar políticas más eficientes para tratar los problemas específicos de los jóvenes desfavorecidos, y;
3. cómo ayudar los jóvenes a tener mejores carreras profesionales.

Este documento pretende justificar en su más amplia forma, que la inversión gubernamental en educación superior, llega a traducirse en factor relevante para el desarrollo económico del estado, tomando en cuenta escenarios similares en países latinoamericanos pertenecientes a la OECD.

**No debe considerarse que toda política educativa contribuye en desarrollo económico**

Según un estudio de López, Thomas y Wang (1999) sobre reportes del Banco Mundial, mantienen que un gran número de países que han logrado un fuerte desarrollo económico lo han acompañado de una inversión substancial en capital humano. Las principales teorías económicas confirman esta relación causal entre la educación y el crecimiento, y muchos estudios demuestran la rentabilidad de una inversión en educación. En cuanto a la medición de la contribución de la educación al desarrollo económico es realmente difícil de someterse a mesuramiento, y por tanto la evidencia empírica demuestra que la educación por sí misma no garantiza en todo caso un desarrollo exitoso y sostenible. Debe formar parte de un plan estratégico, integral y firmemente condensado y aceptado formalmente como compromiso entre gobierno, universidades y organizaciones empresariales, para que se considere que realmente como política educativa, tiene impacto en el desarrollo económico.

Un reciente análisis del Banco Mundial sobre el desarrollo de 12 países de Asia y América Latina durante el periodo 1970-1995 muestra diferencias sustanciales en indicadores tales como, crecimiento económico, dinamismo de las exportaciones, acumulación de capital humano e inequidad educativa (cuadro 1).

Los autores de este estudio, R. López, V. Thomas y Y. Wang, ponen en evidencia que la educación para ser eficiente debe acompañarse de una serie de reformas económicas que mejoren su impacto, tal como la apertura al comercio internacional y un mercado de trabajo competitivo y flexible para el uso de las competencias. A su vez, prueban la hipótesis de una relación virtuosa en la cual la apertura económica crea una demanda para la educación y el conocimiento incrementa el valor de las exportaciones y la competitividad del país. Por ejemplo, en un contexto de mercado competitivo y abierto, un crecimiento de 5% del nivel de educación de la fuerza de trabajo puede acelerar el crecimiento económico en 0.85%.

Adicionalmente, muestran que las políticas educativas no son equivalentes y que la distribución de la inversión en educación es importante: una mayor inequidad en la distribución de la educación tiene un impacto negativo sobre el crecimiento económico. En el siguiente gráfico se presenta la evolución durante el periodo 1970-95 del coeficiente de Gini de inequidad educativa para una selección de países que muestran situaciones contrastadas. Mientras más alto sea el coeficiente, mayor es la inequidad. Con
la democratización del acceso a la educación se observa una tendencia general a la reducción de la inequidad. Los casos más notables son Corea y México. Se puede verificar una excepción con Venezuela donde recién empeoró la inequidad educativa a pesar de tener una de las más largas democracias de América Latina. Esta inequidad es el resultado de la gratuidad en la educación superior que favorece una minoría. El excesivo gasto público a este nivel genera una carencia de recursos para mejorar el acceso a la educación básica. En Chile, durante la década 85-95 el nivel de inequidad se mantuvo estable, mientras que en Argentina se produjo una reducción significativa de la inequidad.

**El retorno de la inversión en educación para los estudiantes**

Una interesante perspectiva sobre el tema de la inversión en educación, es el observar a través de las estadísticas, en el caso particular de México, como se puede advertir la recuperación de la inversión que los estudiantes llevan a cabo en su propia educación.

Según la información de la Encuesta Nacional de Ingresos y gastos de los Hogares (ENIGH) que levantó el INEGI en el 2000, encontramos algunos resultados interesantes. Los $ 21.42 pesos por hora que en promedio percibieron los 26.3 millones de personas con remuneraciones por trabajo durante el periodo de referencia de la encuesta, se distribuyeron de manera claramente diferenciada según logros educativos de los egresados.

De esta manera, los perceptores ocupados sin instrucción, percibieron sólo $ 8.02 pesos por hora, en tanto que aquellos con primaria incompleta obtuvieron $10.20 pesos por hora, indicando que unos cuantos años de escolaridad básica pueden tener efectos importantes en los ingresos de las personas (+ 27% por hora).

A su vez, terminar la primaria también resulta redituable al ofrecer un ingreso laboral esperado de $14.27 pesos por hora, lo que significa una diferencia de 40% respecto de quienes tienen primaria incompleta y de 78% por encima de lo que reciben quienes no tienen ninguna instrucción.

Los datos de la ENIGH 2000 reflejan, además, que quienes iniciaron la secundaria pero no la terminaron, reciben en promedio $ 13.51 pesos por hora, lo que si se toma tal cual (es decir, suponiendo que el error promedio de la estimación para este segmento de la población no es demasiado grande) sugiere que una vez que se terminó la primaria no es redituable estudiar uno o dos años adicionales en el siguiente nivel si éste no se termina. De esta manera tener secundaria inconclusa implica un ingreso 5% inferior al que se tendría sólo con la primaria incompleta y sin estudios de secundaria.

Sin embargo, las cifras indican que la perseverancia se presenta como una virtud económicamente redituable ya que quienes terminan la secundaria reciben a cambio de su trabajo un promedio de $17.27 pesos por hora, lo que significa una diferencia positiva de 21% con respecto de quienes sólo tienen primaria completa. A diferencia de lo que ocurrió en el caso de la educación secundaria, tener estudios truncos de preparatoria resulta económicamente redituable, debido a que quienes están en esa circunstancia perciben ingresos laborales de $19.58 pesos por hora, lo que se traduce en una ventaja de 13.4% con respecto de quienes sólo tienen secundaria terminada.
Veamos el cuadro No. 1

**PERCEPCIÓEN DE OCUPADOS CON INGRESO LABORAL SEGÚN NIVEL DE INSTRUCCIÓN (MILLONES)**

TOTAL = 26.8 MILLONES

<table>
<thead>
<tr>
<th>Nivel de Instrucción</th>
<th>Población (Millones)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sin Instrucción</td>
<td>1.3</td>
</tr>
<tr>
<td>Primaria Incompleta</td>
<td>3.7</td>
</tr>
<tr>
<td>Primaria Completa</td>
<td>5.1</td>
</tr>
<tr>
<td>Secundaria Incompleta</td>
<td>1.3</td>
</tr>
<tr>
<td>Secundaria Completa</td>
<td>9.0</td>
</tr>
<tr>
<td>Preparatoria Incompleta</td>
<td>1.2</td>
</tr>
<tr>
<td>Preparatoria Completa</td>
<td>2.3</td>
</tr>
<tr>
<td>Superior Incompleta</td>
<td>1.6</td>
</tr>
<tr>
<td>Superior Completa y Posgrado</td>
<td>1.0</td>
</tr>
</tbody>
</table>

**FUENTE:** INEGI, ENIGH 2000

**INSTITUTO NACIONAL DE ESTADÍSTICA, GEOGRAFÍA E INFORMATICA**

**OCTUBRE 2002**

Similarmente, tener estudios superiores suspendidos, implica también una ventaja importante respecto de quienes se quedan sólo con la preparatoria, ya que el grupo con educación superior trunca ingreso, según la ENIGH 2000, un promedio de $32.03 pesos por hora, lo que implica una diferencia favorable de 30% con respecto al segmento de referencia.

Finalmente los que cuentan con educación superior completa (incluyendo a la población con posgrado) son los que tienen la mejor situación en cuanto a ingresos ya que reciben un promedio de $59.6 pesos por hora, lo cual es 86% mayor que la de los que cuentan con estudios superiores incompletos, 142% más alta de los que sólo estudiaron preparatoria completa, 245% más elevada que aquellos con secundaria completa, 318% más grande que la de los que terminaron la primaria y 643% por encima de los ingresos que perciben quienes no tienen instrucción formal.
Cuadro No. 2

En síntesis, la información estadística de la ENIGH 2000, representativa a nivel nacional, refleja que, efectivamente, en la mayoría de los casos la educación adicional implica ingreso adicional. Además podemos observar que al progresar en los niveles de escolaridad el ingreso aumenta en proporciones diferentes según el nivel de que se trate y, finalmente, muestra que en general terminar una carrera representa muy alta probabilidad de obtener ingresos claramente superiores de los del caso contrario. La importancia de estos datos se hace mucho más evidente cuando reconocemos que sólo el 11% de los perceptor ocupados con remuneraciones al trabajo, cuenta con estudios terminados de educación superior.

Bajo esta perspectiva, recordamos que nuestros padres nos decían: “tienes que estudiar más, si quieres ganar más”, y de conformidad a las cifras del INEGI, esta consejo – advertencia sigue teniendo validez en nuestros días, aplicable a nuestros hijos y a futuras generaciones. Al parecer, estudiar y sobre todo terminar una carrera profesional nos lleva a considerar que si hay un retorno sobre la inversión para el graduado.
Invertir en educación inicial, es hacerlo en una nueva ciudadanía: UNICEF

Invertir en educación inicial es "invertir en la construcción de la ciudadanía", pues de esta forma se estimula el desarrollo físico, social y cognitivo, que comienza a formarse en los primeros meses de vida en los niños, según el Fondo de Naciones Unidas para la Infancia (Unicef).

Por su parte, la Organización de Naciones Unidas para la Educación, la Ciencia y la Cultura (UNESCO) asegura que el aprendizaje en la primera infancia facilita el "ulterior aprovechamiento escolar", además de favorecer la permanencia en la escuela.

No obstante, asegura que en los países en desarrollo este tipo de educación es aún focalizada, aunque ha habido avances en la matrícula de educación preprimaria, que en la región ha crecido más de 60 por ciento en el último decenio.

Para contribuir a ampliar la cobertura a escala global y elaborar un documento técnico que sirva de guía a las naciones para establecer estrategias educativas, tanto en educación inicial como en prescolar, se llevó a cabo en Morelia, Michoacán, el quinto Congreso Mundial de Educación Infantil, organizado por la Asociación Mundial de Educadores Infantiles (AMEI), en coordinación con la Unesco, la Secretaría de Educación de Michoacán y la Universidad Pedagógica Nacional, en donde quedó en manifiesto la importancia de esta postulación.

Por lo anterior, podemos establecer que la inversión en educación, busca formar también una ciudadanía que no solo se preocupe de la creación y aseguramiento de sus fuentes de trabajo, sino que establezcan acciones concretas en materia de Responsabilidad Social Empresarial para de esta manera, contribuir al desarrollo sustentable de su región, y en final instancia, ese desarrollo sostenible del modelo económico en el cual se han integrado.

En pocas palabras: se invierte en educación, para formar ciudadanos con valores y para desarrollar la economía sostenible

El impacto de la educación sobre el empleo

La combinación entre las características del sistema educativo y las características del mercado de empleo hace difícil llegar a establecer la relación directa entre la inversión en educación y el desarrollo económico, pues se considera que el primero acceso de los egresados de educación superior es precisamente al mercado labora, en donde comienza su verdadera aplicación de conocimiento adquiridos en las aulas y esperan que los frutos se conviertan en fórmulas transformadoras en el mejoramiento de una modelo económico, que a la larga sea tierra fértil para la creación de empleos bien remunerados y que permitan el innovación y modernidad.

Ahora, sobre el desempleo. En el siguiente cuadro, Francia aparece en una situación mucho más favorable que Inglaterra y los Estados Unidos como un país que tiene menos jóvenes “en la calle”. Se puede decir que Francia tiene una política muy activa para aumentar las competencias de los jóvenes, reducir la deserción y limitar los problemas sociales de los jóvenes desocupados mediante sus programas universitarios. Es decir, justifican una política educativa por sus externalidades, tales como la reducción de los fenómenos de violencia o de droga. También se puede interpretar como un país que por falta de tener un mercado de trabajo suficientemente abierto y flexible que facilite la entrada de los jóvenes, debe invertir muchos recursos públicos para mantenerlos en el sistema educativo y limitar el desempleo de los mismos.
Cuadro 3  Jóvenes de 15 a 19 Años que no están en Formación y no tienen Empleo como % de la Población (1996)

<table>
<thead>
<tr>
<th>País</th>
<th>Porcentaje</th>
</tr>
</thead>
<tbody>
<tr>
<td>Francia</td>
<td>3</td>
</tr>
<tr>
<td>Alemania</td>
<td>4</td>
</tr>
<tr>
<td>Austria</td>
<td>7</td>
</tr>
<tr>
<td>Estados Unidos</td>
<td>8</td>
</tr>
<tr>
<td>Australia</td>
<td>9</td>
</tr>
<tr>
<td>Inglaterra</td>
<td>12</td>
</tr>
<tr>
<td>España</td>
<td>14</td>
</tr>
</tbody>
</table>

Fuente: OCDE Examen Thematique sur la transition de la formation initiale a la vie active; Nov. 1998

La transición de los jóvenes egresados al mercado de empleo se debe también observar en el contexto más largo de la capacidad de formación a lo largo de la vida y la equidad. Así, por ejemplo los Estados Unidos tiene un desempleo de jóvenes muy bajo, inclusive para los jóvenes que salen del sistema de educación temprano con un bajo nivel de calificación. Esto es el resultado de un mercado de empleo muy abierto y flexible. Por lo tanto, los estudios demuestran que son una minoría los jóvenes que a lo largo de su carrera profesional tendrán la posibilidad de capacitarse y modificar sustancialmente su situación de ingreso. Los Estados Unidos se caracterizan por tener la más alta proporción de jóvenes con trabajos de bajo salario y la más larga duración en esta situación.

Conclusión

La observación de estas diferencias en los países de la OCDE puede dar la impresión de que es difícil obtener recomendaciones que sean útiles para países que buscan el desarrollo de la educación y de su modelo económico. Pero no es así, las experiencias de los países de la OCDE muestran que cada país trata de salir de su modelo económico tradicional, tomando de otros las fórmulas exitosas para llegar a una oferta educativa mucho más diversificada que pueda integrarse exitosamente con sus “clusters” estratégicos de desarrollo económico. Para mejorar la empleabilidad de los jóvenes egresados de la educación superior y facilitar la transición al empleo, las políticas en marcha en los países de la OCDE tienen los siguientes puntos de convergencia:

- Elevar el nivel de formación inicial de todos los jóvenes para darles posibilidades de educación continua.
- Definir de manera clara la oferta de capacitación diversificada y consistente, incluyendo la posibilidad de transición a nivel superior que les permita elegir y progresar.
- Multiplicar las relaciones con los profesionales para abrir grandes posibilidades de formación en alternancia, de aprendizaje y de aplicación de conocimientos.
• Mediante programas de vinculación efectiva, fomentar mercados de trabajo más accesibles a los egresados.
• Organizar un currículum integrando la educación general y la formación profesional de manera que se permita la movilidad entre carreras.
• Implementar programas específicos de capacitación para jóvenes en riesgo de ser excluidos.
• Contar con sistemas de orientación para jóvenes y sistemas de información sobre el empleo.
• Desarrollar instrumentos de monitoreo e indicadores que destaquen la relación entre educación y empleo y permitan a múltiples actores interactuar para orientar los sistemas.

Aun y cuando la educación es mucho más que su dimensión económica. Es la razón por la cual la relación educación / impacto económico es compleja. Siempre hay estudiantes que eligen un camino de vida diferente para el cual fueron formados. Pero la clave está en la atención que el gobierno dedique a la inversión en educación superior, como el factor crítico para su desarrollo económico, ya podemos estar seguros que un egresado con una formación en investigación, manejo de laboratorios y plenamente convencido de aplicar las mejores prácticas de negocios, seguramente tendrá mucho que aportar para el crecimiento y modernización de su modelo económico, capaz de transformar la referencia tradicional de ser simplemente un seguidor de modelos económicos, a un verdadero innovador en tecnología y transferencia de la misma, contribuyendo directamente al fortalecimiento económico de nuestro país.

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Assessing a Spanish Translation of the End-User Computing Satisfaction Instrument Targeting Mexican Internet Users

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Jorge O. Brusa
Texas A&M International University

The End-User Computing Satisfaction (EUCS) instrument is intended to assess the relative level of satisfaction that an end-user has with some specific computing technology. This study validates a Spanish translation of the EUCS administered to Mexican Internet users. The study finds that the Spanish translation of the EUCS is a valid and reliable measure of end-user satisfaction with the Internet among Spanish speaking populations.
Introduction


Computer usage in Mexico has also been an investigative area of interest. Examples include the Torkzadeh and Gemoets (1998-1999) investigation of the impacts of the application of information technology on end-users in Mexico, the Lunce and Smith (2000) examination of information technology in maquiladora facilities located in northern Mexico, and the Heilman and Brusa. (2005, 2006) study of computing satisfaction in Mexico. The work of Heilman and Brusa (2005, 2006) and Heilman et al. (2004) has focused especially on trying to extend the use of Spanish translations of standard MIS survey instruments into Mexico.

The purpose of this study is to validate a Spanish translation of the End User Computing Satisfaction (EUCS) instrument used specifically in the context of Internet satisfaction in Mexico.

The Survey Instrument

The End-User Computing Satisfaction (EUCS) instrument merges “ease of use and product items to measure satisfaction of users who directly interact with the computer for a specific application” (Doll & Torkzadeh 1988). The instrument is intended to provide a “potentially measurable surrogate for utility in decision making” and “a surrogate measure for system success” across a “variety of applications.” A large body of prior research has established the instrument’s validity and reliability in a variety of settings and technological environments (Collins et al. 1993; Doll et al. 1994; Glorfeld & Cronan 1993; Harrison & Rainer 1996; Hendrickson et al. 1994; Kim & McHaney 2000). From a cross-cultural perspective, Chinese (Igbaria 1992; Igbaria & Zviran 1996) and Hebrew (Igbaria & Zviran 1996) translations of the EUCS instrument have been tested, as well as a Spanish version (Heilman & Brusa 2006; Heilman et al. 2004)
The instrument consists of a single second-order factor (End-User Computing Satisfaction) composed of 5 subscales (Content, Accuracy, Format, Ease of Use, Timeliness) measured by 12 questions. The Spanish translation of the survey questions used in this study is the same used by Heilman et al. (2004). The items were presented in a section of a questionnaire in which respondents were asked about their satisfaction with the Internet. Responses to the questions were measured by a five point Likert-type scale where 1 = “almost never,” 2 = “some of the time,” 3 = “about half the time,” 4 = “most of the time,” and 5 = “almost always.” In the Spanish version of the survey, 1 = “casi nunca,” 2 = “algunas veces,” 3 = “la mitad de las veces,” 4 = “muchas veces,” and 5 = “casi siempre.” Figure 1 shows the structural model of the EUCS measure used in this study.

Figure 1: Structural Model of the End-User Computing Satisfaction Measure
The Sample

Copies of the translated survey were distributed among workers in Mexico by students who attend college classes in the U.S. but live and work in Mexico. A total of 243 usable surveys were returned. 131 respondents (53.9%) were male and 112 (46.1%) were female. In terms of the organizations with which the respondents were affiliated, 132 (54.3%) worked in private companies, 16 (6.6%) worked in public companies, 2 (0.8%) worked in local government, 88 (36.2%) worked in universities, 2 (0.8%) worked in high schools and 3 (1.3%) did not specify. 147 respondents (60.5%) were between the ages of 20 and 30, 75 (30.9%) were between 31 and 40, 19 (7.8%) were between 41 and 50, and 2 (0.8%) were over the age of 50.

Lisrel 8 was used to test the fit of the model (see Figure 1) to the collected data. For purposes of scaling and statistical identification, the factor loading of one indicator in each subscale is set to 1 and the variance of the second-order End-User Computing Satisfaction factor is set to 1 (Byrne 1998 p.172). Figure 2 presents the results of this analysis. Factor loadings are shown with t-values in parentheses. The next section describes the validation process.
Construct Validation

Validity refers to the extent to which an instrument measures what it is intended to measure. Construct validation establishes that a measure appropriately operationalizes its underlying construct. In this case, confirmatory factor analysis was used to determine if the data collected using the Spanish version of the EUCS instrument supports the hypothesized factor structure of the End-User Computing Satisfaction construct. Doll and Torkzadeh (1988) originally proposed that the EUCS instrument represented a five factor structure (Content, Accuracy, Format, Ease of Use, Timeliness). However, subsequent research indicates these are actually five subscales under a single second-order factor (End User Computing Satisfaction) as shown in Figure 1. (Chin & Newstead 1995, Doll et al. 1994). The second-order model is validated here.
Reliability

Reliability refers to the degree to which scores are free from measurement errors. It is a necessary but not sufficient condition for instrument validity. One method commonly used to assess internal-consistency reliability is coefficient alpha, which is based on the notion of splitting a measure into as many parts as the number of items. Alpha, then, is the average of all possible split-half reliability coefficients for the measure (Pedhazur & Schmelkin 1991). Coefficient alphas greater than .70 indicate reliable constructs (Fornell & Larker 1981). The alphas for the EUCS subscales are: Content = .89, Accuracy = .88, Format = .82, Timeliness = .85, and Ease of Use = .83. These values indicate that all the subfactors are reliable. In addition the coefficient alpha for the overall instrument is .95, which is well above the recommended threshold and compares favorably with the .92 that Doll and Torkzadeh (1988) reported in their initial study.

Table 1: Analysis of Convergent Validity

<table>
<thead>
<tr>
<th>Construct</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Content</td>
<td>0.875</td>
<td>1.000</td>
<td>0.956</td>
<td>1.000</td>
</tr>
<tr>
<td></td>
<td>(17.95)</td>
<td>*</td>
<td>(32.23)</td>
<td>(29.22)</td>
</tr>
<tr>
<td>Accuracy</td>
<td>1.000</td>
<td>1.000</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>*</td>
<td>(30.70)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Format</td>
<td>1.000</td>
<td>0.996</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>*</td>
<td>(26.74)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Timeliness</td>
<td>0.919</td>
<td>1.000</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(35.11)</td>
<td>*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ease of Use</td>
<td>0.996</td>
<td>1.000</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(31.88)</td>
<td>*</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Convergent Validity
Convergent validity refers to the convergence among different methods designed to measure the same construct (Pehazur & Schmelkin 1991). One method for evaluating convergent validity views each item in a construct as a different approach to measuring the construct. If t-tests for the loadings of all the indicators measuring a single construct are statistically significant, all indicators are effectively measuring the same construct and the construct exhibits convergent validity (Anderson & Gerbing 1988). Table 1 shows the indicator loadings for each construct along with their corresponding t-values. Indicant loadings that were fixed during model analysis have a loading of 1. T-values greater than 3.29 are significant at the .001 level. The loadings for all freed indicants are significant at the .001 level, providing evidence of the convergent validity of the constructs.

**Discriminant Validity**

Discriminant validity implies that one construct can be empirically differentiated from other constructs that may be similar (Kerlinger 1986). Discriminability may be demonstrated with a chi-square difference test among all possible pairs of constructs, in this case the five subfactors - Content, Accuracy, Format, Timeliness, Ease of Use - that make up End-User Computing Satisfaction (Ahire et al.1996).

Two confirmatory factor analyses (CFAs) are run for each selected pair of subscales. In the first CFA, correlation is allowed between the subfactors. In the second CFA the correlation between the pair is fixed to one, creating a difference of 1 degree of freedom between the models. If the chi-squares from the two tests are statistically significantly different, the constructs exhibit discriminant validity.

The chi-square critical values for 1 degree of freedom are 3.84 at the .05 significance level, 6.63 at the .01 significance level, and 7.88 at the .005 significance level. Table 2 presents the results of the difference tests, showing the differences in chi-squared values between pairs and their corresponding p-values. All differences were significant at the .01 level, demonstrating that the subscales exhibit discriminant validity.

<table>
<thead>
<tr>
<th></th>
<th>Accuracy</th>
<th>Format</th>
<th>Timeliness</th>
<th>Ease of Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>Content</td>
<td>10.74 (p&lt;.005)</td>
<td>11.34 (p&lt;.005)</td>
<td>9.23 (p&lt;.005)</td>
<td>17.85 (p&lt;.005)</td>
</tr>
<tr>
<td>Accuracy</td>
<td>9.74 (p&lt;.005)</td>
<td>7.60 (p&lt;.01)</td>
<td>15.13 (p&lt;.005)</td>
<td></td>
</tr>
<tr>
<td>Format</td>
<td>12.15 (p&lt;.005)</td>
<td></td>
<td>12.34 (p&lt;.005)</td>
<td></td>
</tr>
<tr>
<td>Timeliness</td>
<td></td>
<td></td>
<td></td>
<td>9.03 (p&lt;.005)</td>
</tr>
</tbody>
</table>
Structural Analysis

Table 36 presents the goodness of fit indices for the EUCS structural model along with guidelines for evaluating the fit values (Browne & Cudek 1993; Hair et al. 1992; Pedhazur & Schmelkin 1991; Sharma 1996). Though always reported, the chi-square test is not considered to be practically meaningful and is typically discounted in favor of other methods for evaluating fit of the model to the data (Bearden et al. 1982). All the indices except chi-square indicate that the model provides a good fit for the data.

Table 3: Analysis of Model Fit

<table>
<thead>
<tr>
<th>Goodness of Fit Indicator</th>
<th>Value</th>
<th>Recommended Value</th>
<th>Conclusion</th>
</tr>
</thead>
<tbody>
<tr>
<td>chi-square (49 d.f.)</td>
<td>69.35 (p &lt; .01)</td>
<td>p &gt; .05</td>
<td>poor</td>
</tr>
<tr>
<td>normed chi-square (chi-square/d.f.)</td>
<td>1.42</td>
<td>&lt; 5</td>
<td>good</td>
</tr>
<tr>
<td>GFI</td>
<td>.99</td>
<td>&gt; .90</td>
<td>good</td>
</tr>
<tr>
<td>AGFI</td>
<td>.98</td>
<td>&gt; .80</td>
<td>good</td>
</tr>
<tr>
<td>NFI</td>
<td>.98</td>
<td>&gt; .90</td>
<td>good</td>
</tr>
<tr>
<td>NNFI</td>
<td>.99</td>
<td>&gt; .90</td>
<td>good</td>
</tr>
<tr>
<td>CFI</td>
<td>.99</td>
<td>&gt; .90</td>
<td>good</td>
</tr>
<tr>
<td>RMR</td>
<td>.105</td>
<td>&lt; .20</td>
<td>good</td>
</tr>
</tbody>
</table>

Since the model fit is acceptable, the loadings of the subscales - Content, Accuracy, Format, Timeliness, Ease of Use - on the second-order factor End-User Computing Satisfaction can be evaluated. Table 4 presents the structural loadings and their corresponding t-values. All loadings are significant at the .001 level.

Table 4: Analysis of Structural Loadings on EUCS

<table>
<thead>
<tr>
<th></th>
<th>Content</th>
<th>Accuracy</th>
<th>Format</th>
<th>Timeliness</th>
<th>Ease of Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>EUCS</td>
<td>.920</td>
<td>.886</td>
<td>.855</td>
<td>.938</td>
<td>.814</td>
</tr>
</tbody>
</table>

(37.27)  (36.95)  (36.62)  (53.22)  (29.05)
Conclusion

The purpose of this study was to assess the reliability and validity of a Spanish version of the End-User Computing Satisfaction (EUCS) instrument used to evaluate perceptions of satisfaction among Mexican Internet users. EUCS, a commonly used surrogate for measuring system success, has proven reliable and valid in a number of previous studies when applied to both information systems in general and in specialized environments.

Before considering conclusions from a survey study such as this, it is important to ensure that the survey instrument retains its psychometric properties. The testing of this study’s EUCS Spanish translation, specifically targeting Internet satisfaction and using data collected from a sample of Internet users living in Mexico, indicates that the instrument does retain its psychometric properties. The results provide evidence supporting EUCS as a second-order construct with five subscales - Content, Accuracy, Format, timeliness, and Ease of Use.
References


Feasibility Assessment System on National Research and Development (R&D) Programs in Korea

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In Korea, GERD (Gross expenditure in R&D) has increased from 14 billion US$ in 1996 to 31 billion US$ in 2008. GERD as a portion of GDP increased from 2.42% in 1996 to 3.37% in 2008 (OECD 2009). Also, the public R&D budget exceeded 10 billion US$ in 2008 and it has been more than doubled during the past decade. Rapid growth of R&D portion in a government budget inevitably accompanied with high uncertainties of plans for national R&D programs due to the complexity of Science and Technology (S&T). In order to reduce risks associated with public budget allocations, government officers try to evaluate feasibility of programs before launching them. Especially for newly proposed R&D programs which need a government budget of over 50 million US$, feasibility assessment must be done before launching the programs on the basis of the National Financial Law. Feasibility assessment is conducted with deep analysis in three viewpoints which are technology, policy, and economy and impact. The final conclusion on the feasibility for launching new national R&D program is derived from the multiple analyses of technology, policy and economy and impact using AHP (Analytic Hierarchy Process) tool. This assessment system for feasibility analysis of national R&D programs in Korea can be a good reference to other countries in emerging economies, including Latin America, and other developing countries in the Western Hemisphere.
The goal of this study was to examine the role of socialization on the attitudes and perceptions employees hold toward computer technology, and their subsequent work related attitudes of job satisfaction and organizational commitment. The examination of employee attitudes and perceptions of technology needs to be accounted for because they contribute to a person’s view of reality. Analysis of 586 full-time working adults indicated positive relationships between socialization and attitudes employees hold toward technology. Additionally, it was found through Structural Equation Modeling the value of socialization in the development of the attitudes employees hold toward technology and their work related attitudes of job satisfaction and organizational commitment.
Workplace socialization is a communication behavior that is defined as the process by which employees acquire the requisite attitudes, behaviors, and knowledge necessary to participate as an organizational member (Louis, 1980). Jablin (1987, 2001) pointed out that an important feature of socialization is behavioral and attitudinal modification, which involves the employee learning the organization's norms for behaviors, values, and attitudes, and then aligning these with their own behaviors, values, and attitudes. As a result of the increased complexity and ambiguity found in today's technologically equipped workplace is important to also consider the work related attitudes such as job satisfaction and organizational commitment that accompany the attitudes employees develop toward technology during the socialization process. Since computer technology has become the newest “member” to join the workplace; the way in which the organization socializes its members to this newcomer (technology) should be of interest to communication scholars and business professionals alike.

The addition of computer technologies to the workplace have changed the way in which organizations interact and coordinate activities with customers, suppliers, and its members. These changes involve the substitution of everyday business activities involving paper, telephone, and fax-based communication with electronic information exchange through the use of computer technology (Straub & Watson, 2001). With the presence of computer technology in nearly every aspect of daily life, researchers have begun to focus on the possible consequences of such use (see Murrell & Sprinkle, 1993; Smith & Caputi, 2001). For example, specific to the workplace some scholars discuss the presence of technology from a panopticon metaphor to explain the pervasive and often unobtrusive character of organizational surveillance in an employee's working life (e.g., D'Urso, 2006). From this perspective, technology is seen as a form of power and control that subjugates workers through the use of technology (Brannan, 2005). Additional research indicates that technological advances have tethered employees to their work, thus blurring work-life
boundaries (Edley, 2001). For instance, in today’s workplace companies expect their employees to work more than 40 hours per week and are prepared to equip them with an array of technology and directly or indirectly link rewards, promotions, and other incentives for work performance that can only be delivered by the extension of the typical workday (Higgins, Duxbury, & Irving, 1992).

In contrast, other researchers highlight the positive characteristics associated with technology such as those identifying computers as cooperative partners (Clarke & Smyth, 1993) and decision makers that provide users with the best available solutions to problems (Moon, 2003). Similarly, Bocionek (1995) acknowledged the value of computer technology based on its interactivity; meaning, that computers observe users actions, develop an understanding of the user’s needs, learn the user’s behaviors, and then provide the user with advice. Computers and other communication technologies have also been described as the conduit that has allowed organizations to compete on a global scale (see Marcuse, 2007).

One area of interest to the current study involves the relationship between the attitudes employees hold toward computer technology and their work-related attitudes. For example, Rafaeli (1986) examined the impact of positive versus negative attitudes toward computers on general employee attitudes within the manufacturing industry. Rafaeli found that job involvement significantly moderated the relationship between computer use and computer attitudes. Rafaeli’s research also indicated that employees who were involved with their jobs and committed to their organization reported lower levels of computer anxiety than did their counterparts. However, the relationship between the attitudes employees hold toward computer technology their work-related attitudes of job satisfaction and organizational commitment have yet to be fully examined.

In addition to the value of examining the relationship between computer related attitudes and work related attitudes it is also important to examine organizational factors such as socialization that may contribute to these attitudes. However, little research to date has focused on the
organization’s responsibility in the development of such attitudes. Therefore, an examination of the way in which employees are socialized to computer technology (the new member of the workforce) is relevant here because the attitudes employees hold as a result of this socialization contribute to their view of technology in the workplace. Taken as a whole, the development of workplace related attitudes are primarily the result of environmental factors (Holender & Duscherer, 2004) Thistly, it could be extrapolated that factors associated with the workplace, such as the communication behaviors associated with socialization, contribute to the attitudes and perception employees hold toward computer technology and ultimately their job related attitudes. As a result, the goal of this study was to extend prior research by examining the role of socialization on the attitudes employees develop toward technology and the relationship between these attitudes toward technology and their job satisfaction and organizational commitment. The following section highlights the possible role of socialization (organizational, work-group, and task) in the development of computer related attitudes.

**Socialization**

Broadly stated, socialization involves a shared understanding between the organization and its members regarding acceptable job behaviors (e.g., the appropriate use of computer technology) propagated through dialogue. Specifically, these behaviors are promoted informally by the activities of coworkers and formally through interactions with supervisors and by organizational policies and procedures disseminated to employees during their socialization (Van Maanen & Schein, 1979). Organizational socialization has also been considered as a component of the assimilation process which is defined as the way of teaching the behavioral norms and cognitive processes needed for individuals to become integrated into the organization (Jablin, 2001). Rousseau (1990) suggests that the behavioral norms encouraging employees to follow the values of the organization are driven by an organization’s espoused values (e.g., trust, autonomy, technological innovation, and
the use of technology) communicated by supervisors, coworkers, and the organization itself. These values, according to Rousseau, are “the preferred states that are often manifested in observable behaviors” (p. 159). Important here is the component of socialization that involves the values, attitudes, and behaviors associated with the appropriate use of computer technology in the workplace.

With regard to organizational socialization and technology use, organizational members are both informally and formally introduced to the appropriate use and misuse of computer technology in the workplace. Specifically, it is reasoned here that organizational and work-group socialization regarding computer technology influences the employee’s attitudes toward technology. In addition to learning the norms associated with the appropriate use of technology in the workplace, the socialization of employees to technology also involves the user mastering the task of using technology (Markus, 1994) and the symbolic nuances associated with specific forms of technology (Sitkin, Sutcliffe, & Barrios-Choplin, 1992). In following with that thought, socialization was considered here as a multidimensional process including organizational, work-group, and task socialization. According to Haueter, Hoff-Macan, and Winter (2003), task socialization involves learning about the job and understanding the tasks for which one had been hired, organizational socialization involves the employee learning the values, goals, rules, politics, customs, and language of the organization, and work-group socialization involves learning particulars about the work group and the behaviors associated with the group’s rules, goals, and values.

To ensure that employees think and behave in ways espoused by the organization, rules and norms (both formal and informal) are propagated through socialization. In turn, it is reasoned here that the attitudes and perceptions employees hold toward computer technology are developed through socialization which serves to shape that person’s view of reality in the workplace. Since the attitudes and perceptions employees hold are significant to the successful use of computer
technology and the overall success of the organization, employee attitudes and perceptions will be considered in greater detail below.

*Employee Attitudes/Perceptions of Computer Technology*

Some of the seminal research carried out in the field of attitudes’ was conducted by Ajzen and Fishbein (1980) who described attitudes as a pre-disposition to respond either favorably or unfavorably to objects in the world. Implicit in this viewpoint is the notion of evaluation, where individuals rate their feelings toward an object or procedure. In effect, this evaluation process is the foundations for the current study, which is based on individuals rating their feelings toward computer technology in the workplace. According to Brown and Duguid (1991), employees learn the appropriate uses of and develop perceptions of computer technology as a result of their interactions with supervisors and coworkers. These interactions provide guidance and influence that is thought to result in a unique shared set of norms among organizational members (Brown & Duguid, 1998). To emphasize this position, Brown and Duguid (1998) pointed out that one work-group may develop a set of norms that encourage learning and exploration of new technologies, whereas another group may evolve specific norms to avoid using computer technology, or possibly even to sabotage technology. Similarly, George, Iacono, Kling, and Leaming (1995) studied two work groups that were each expected to use computer technology. Their findings indicated that each group developed contrasting views and attitudes as to the use of the technology. Their findings suggest that the same technology, when introduced into different social settings, will be viewed in very different ways, resulting in distinct patterns of use shaped by job-specific conditions, employee attitudes and perceptions, and group norms (George et al., 1995).

Although, the forms of socialization (organizational, work-group, and task) discussed in the current study are of value; the way in which these attitudes and perceptions serve to influence work related attitudes is of equal importance. The impact of work-related attitudes has been a widely
studied phenomenon. Previous research has consistently demonstrated an association between work-related attitudes and individual performance and overall organizational productivity. Two specific groups of job related-attitudes; job satisfaction and organizational commitment, have been examined for their relationship to the attitudes employees hold about work and the organization (Miller & Mange, 1986). In order to buttress this relationship between the attitudes employees hold toward technology in the workplace and work related attitudes of job satisfaction and organizational commitment the current study was forwarded. Thistly, following sections will considered the work related attitudes of job satisfaction and organizational commitment in greater detail.

**Job satisfaction**

Specifically, job satisfaction denotes a group of attitudes that include individuals’ feelings (positive or negative) toward their jobs (Miller & Mange). These attitudes include cognitive, affective, and behavior evaluations and reactions toward one’s job (Miller & Mange). Various aspects of communication within the organization have also been found to influence employee job satisfaction such as: quantity and quality of information, use of technology, superior/subordinate communication, and the climate and culture of the organization (Bateman & Strasser, 1984). Employee satisfaction has been found to influence job-related behaviors such as productivity, turnover, and absenteeism (Taber, 1991; Hatcher, 1999).

In today’s work life much of the communication is mediated through computer technology, leaving fewer FtF interactions and opportunities to clarify ambiguities and misunderstandings (Yaverbaum, 1998). Further, the reliance on computer technology has also reduced instrumental and emotional social support from managers and lessened opportunities for employees to socialize at work. Subsequently, Yaverbaum (1998) found that employees who are required to utilize computer technology on a regular basis to communicate with others experience decreased satisfaction, boredom, and isolation from a lack of interpersonal contact with others in the workplace.
Additionally, Wall and Kemp (1987) argued that technology may have a positive or negative affect on employee job satisfaction depending on the perceptions employees hold toward technology. Despite the substantial amount of prior research focusing on technology in the workplace, researchers have yet to fully examine the relationship between the attitudes and perceptions users/employees hold toward computer technology and their job satisfaction and organizational commitment. For some employees, technological advances have allowed them a greater levels of autonomy in the workplace, and for others this increased level of autonomy has served as a means to isolate them (see Wilkes, Frolick, & Urwiler, 1994). For example, technology that allows employees the autonomy of working in locations other than that of the central office or production facilities has also created conditions that isolate employees by limiting their contact with co-workers to only those mediated through technology (Martino & Wirth, 1990).

While job satisfaction deals with a person’s attitudes toward the job, organizational commitment addresses the person’s attitudes toward the organization. Employees who are strongly committed to the organization accept the goals and values of the organization and have a strong desire to maintain membership in that organization (Porter & Steers, 1973). In that job satisfaction is different from, yet related to organizational commitment; it could be extrapolated that employees’ attitudes and perceptions of computer technology are likely to influence both job satisfaction and organizational commitment. Specifically, it is reasonable to expect that employees who express favorable attitudes and perceptions of computer technology will articulate greater levels of job satisfaction and organizational commitment than employees who develop negative attitudes and perceptions of computer technology. As a result of the possible association between organizational commitment and the attitudes employees hold toward computer technology, organizational commitment was included in the current study and will be discussed in greater detail below.
Organizational Commitment. Organizational commitment indicates various aspects of how people feel about their work environment and has been conceptualized as the strength of emotional attachment to the organization and the acceptance of the organization's goals and values (Mowday, Porter, & Steers, 1982). Allen and Meyer (1990) added that organizational commitment is influenced by the employee's attitudes, affective beliefs, and job characteristics, which in turn influences employee turnover. In order to be committed to an organization, an employee must perceive a level of compatibility with the organization to the extent that a congruency of values, attitudes, and behaviors must exists between the employee and the organization (Vandenberg & Nelson, 1999). Hence, the reduction of employee-organization friction as a result of shared attitudes and perceptions of computer technology affects how employees view the organization (Semler, 1997). That is, the agreement between organizational and personal factors, such as those regarding computer technology and its relevance to mutual goal attainment are important to the way in which employees perceive and are committed to the organization (Hacker & Steiner, 2002).

Research indicates that employees who sense that their organization cares about them and is willing and able to provide them with the tools (e.g., computer training, equipment, and service support) necessary to perform their jobs, are expected in turn to offer increased levels of commitment to the organization (Hutchison, Sowa, Eisenberger, & Huntington, 1986). However, when incongruencies in the values, attitudes, and behaviors exist between the employee and the organization, employees' feelings of isolation and alienation increase (Madlock & Chory, 2008) while their satisfaction and commitment decrease (Fox, 1995; Warr, Cook, & Wall, 1979). Despite the increasing recognition of the powerful influence that organizational commitment may exert on a wide range of organizational outcomes and processes, knowledge of the influence that technology in the workplace has on commitment is fragmented at best (Ellemers, Kortekaas, & Ouwerkerk, 1999).
Especially relevant to the discussion here are two particular sets of determinants associated with job satisfaction and organizational commitment, which are located in the realm of attitudinal development toward computer technology and employee socialization. Insight into such determinants could not only be of considerable practical value to organizations, but also of theoretical value. For example, this increase in knowledge could serve to aid in our understanding of how attitudes and perceptions toward computer technology are influenced by workplace socialization and how these attitudes toward technology influence the work related attitudes of job satisfaction and organizational commitment. Thistly, the following hypotheses and research question were advanced.

H1: There will be a positive relationship between socialization (organizational, work-group, and task) and the attitudes employees hold toward computer technology.

R1: Which form of socialization (organizational, work-group, and task) will be the greatest predictor of the attitudes employees hold toward computer technology?

H2: There will be a positive relationship between the attitudes employees hold toward computer technology and their job satisfaction and organizational commitment.

H3 The data will fit the following model (see Fig. 1) where socialization (organizational, work-group, and task) to technology in the workplace will influence the attitudes employees hold toward technology and their subsequent job satisfaction and organizational commitment.

----------Place Figure 1 Here----------

Methodology

Participants

The study contained the responses of 586 full time working adults from the Mid-Atlantic and Mid-Western regions of the United States (48.6% male, n = 285) and (51.4% female, n = 301),
whose overall tenure at their current job ranged from 1 to 39 years ($M = 9.95$, $SD = 7.67$). Participants ranged in age from 23 to 61 ($M = 40.43$, $SD = 10.44$) and reported working for a variety of organizations including, education (18.8%, $n = 110$), government (8.4%, $n = 49$), service (23.4%, $n = 137$), high tech (3.6%, $n = 21$), manufacturing (7.3%, $n = 43$), civil service (2.9%, $n = 17$), healthcare (15.4%, $n = 90$), customer service (7.2%, $n = 42$), and other (13.1%, $n = 77$). Participants reported their position as top management (12.5%, $n = 73$), mid management (22.4%, $n = 131$), lower management (18.1%, $n = 106$), non-management (33.6%, $n = 197$), or other (13.5%, $n = 79$). The percentage of their day that participants reported using computers as a part of their job functions ranged from 20% to 100% ($M = 71.60$, $SD = 20.29$). Participants also reported their computer experience ranging from 1 to 38 years ($M = 14.48$, $SD = 6.14$).

**Procedures**

A network sample was utilized for the current study consisting of employees recruited by the primary author and students enrolled in communication courses at a large Mid-Atlantic university and at a large Mid-Western university. The participants were full-time working adults who are required to use computer technology as a function of their jobs. To ensure that the participants were working adults the following procedure was utilized. The participants (working adults) were given an email address located on the cover letter in which they were asked to report the name of their organization in the subject line of the email followed by their name and telephone number in the body of the email. Participants were then instructed to return the completed questionnaire in the self addressed stamped envelope provided by the researcher in which the return name and address were to match the company name indicated in the subject line of their email. Also in the lower right hand corner of the envelope they were asked to write their name as it appeared in the body of the email. Only envelopes containing a completed questionnaire with verifiable information were used in the
study. Periodically (i.e., approximately every 30 surveys), the author called and verified that the participant who completed the questionnaire was the persons they claimed to be.

Measures

*Organizational Socialization* was measured using a modified version of the 35-item Newcomer Socialization Questionnaire (Haueter et al., 2003). The measure was designed to assess three forms of socialization (12-item organizational, 12-item work-group, and 11-item task socialization). The organizational socialization measure consists of items developed to measure newcomers’ organizational knowledge and organizational role-behavior knowledge. For the current study, the items were modified to reflect a focus on computer technology. For example, “I understand this organization’s objectives and goals” was modified to read, “I understand this organization’s objectives and goals regarding the use of computer technology.” The modified organizational socialization scale was measured on a 5-point Likert type scale ranging from (1 = Strongly Disagree to 5 = Strongly Agree) consistent with the original measure.

The work-group socialization measure consists of items developed to measure work-group knowledge and work-group role-behavior knowledge. For the current study, the items were modified to reflect a focus on computer technology. For example, “I know my work-group’s objectives” was modified to read, “I know how computer technology contributes to my work-group’s objectives.” The modified work-group socialization scale was measured on a 5-point Likert type scale ranging from (1 = Strongly Disagree to 5 = Strongly Agree) consistent with the original measure.

Lastly, the task socialization measure consists of items developed to measure job related knowledge and job role-behavior knowledge. For the current study, the items were modified to reflect a focus on computer technology. For example, “I understand how to perform the tasks that make up my job” was modified to read “I understand how to perform the computer related tasks
that make up my job” The modified task socialization scale was measured on a 5-point Likert type scale ranging from (1 = Strongly Disagree to 5 = Strongly Agree) consistent with the original measure.

According to Haueter et al. (2003), from the original 35-item version of the measure, organizational, work-group, and task socialization measures were found to have reliabilities ranging from .88 to .92. Additionally, Madlock and Horan (2009) reported similar reliabilities as did Hauter et al. (2003) with .91 for organizational socialization, .94 for work-group socialization, and .90 for task socialization. Cronbach’s alpha for the present study was .88 for organizational socialization (M = 4.30, SD = 0.72), .86 for work-group socialization (M = 4.57, SD = 0.59), and .89 (M = 4.60, SD = 4.61) for task socialization.

The Attitudes and Perceptions of Computer technology were measured here by the Computer Attitudes Scale (CAS; Nickell & Pinto, 1986). The CAS was designed to measure general positive and negative attitudes toward computers. Nickell and Pinto developed the measure to include 8 items indicating positive attitudes toward computers (e.g., Computer technology is bringing us into a bright new era) and 12 items indicating negative attitudes toward computers. Sample items include: “People are becoming slaves to computer technology” and “Computer technology intimidates me because it seems so complex.” The negatively worded items were reverse coded to indicate that overall higher scores reflected greater positive attitudes towards computer technology. Participants responded to the items on a 5-point Likert scale with responses ranging from (1 = Strongly Disagree to 5 = Strongly Agree). The CAS was found to have evidence of scale reliability. For example, Nickell and Pinto (1986) reported a reliability of .81 for the positive dimension and .86 for the negative dimension of the scale. Since then a number of researchers have used the measure and found the CAS to be a reliable measure of users’ attitudes about computer technology (see Harrison
& Rainer, 1992; Nickell & Seado, 1986; Pinto et al., 1987). Cronbach’s alpha for the present study was .96 (M = 3.89, SD = 0.85).

*Job satisfaction* was measured by the eight-item Abridged Job In General Scale (Russell, Spitzmüller, Lin, Stanton, Smith, & Ironson, 2004). A 7-point semantic differential response format was used in the current study instead of the original scale formatting (0 for “no,” 1 for “?” and 3 for “yes”) for clarity. The scale is comprised of short statement or single word dyads regarding an employee’s overall perception of his/her job (e.g., good-bad; undesirable-desirable). The AJIG Scale was found to have evidence of scale reliability. For example, Russell et al. (2004) reported a scale reliability of .87, where Madlock (2008a) reported a scale reliability of .92 and .88 (Madlock, 2008b). Cronbach’s coefficient alpha for the current study was .81 (M = 5.55, SD = 1.16).

*Organizational commitment* was measured by the 15-item Organizational Commitment Questionnaire (Mowday, Steers, & Porter, 1979). The items were measured on a 5-point Likert scale response format ranging from (1 = Strongly Disagree to 5 = Strongly Agree) consistent with its original formatting. A sample item reads: “I am proud to tell others that I am part of the organization.” According to Barge and Schlueter (1988), internal reliability coefficients for the OCQ ranged from .82 to .92, and the scale measures employee attachment to the organization. More recently, Madlock and Horan (2009) reported a reliability of .92. Cronbach’s coefficient alpha for the current study was .81 (M = 4.10, SD = 0.67).

**Results**

Hypothesis one predicted significant positive relationships between the variables of socialization (organizational, work-group, and task) and the attitudes employees hold toward computer technology. Results of Pearson’s correlational analysis showed that the data were consistent with the hypothesis by indicating significant positive relationships between the variables. Specifically, moderate relationships were found between organizational (r = .36, p < .001), work-
group \( r = .35, p < .001 \), and task socialization \( r = .35, p < .001 \), and the attitudes employees hold toward technology (See Table 1 for correlational results).

----------Insert Table 1 Here----------

Research question one sought to answer the question; which form of socialization (organizational, work-group, and task) would be the greatest predictor of the attitudes employees hold toward computer technology? A regression model containing the criterion variable of the attitudes employees hold toward computer technology and the block of predictor variables (organizational, work-group, and task socialization). The criterion variable was regressed on a linear combination of the predictor variables indicating a significant model \( F(3, 582) = 41.66, p < .001 \), \( R^2 = .177 \). The standardized regression coefficients indicated that organizational socialization \( \beta = .216, p < .001 \) was the greatest predictor of the attitudes employees hold toward technology followed by work-group socialization \( \beta = .209, p < .001 \). Task socialization was not found to be a significant predictor \( \beta = .077, p = .173 \).

Hypothesis two predicted that there would be a positive relationship between the attitudes employees hold toward computer technology and their job satisfaction and organizational commitment. Results of Pearson’s correlational analysis showed that the data were consistent with the hypothesis by indicating significant positive relationships between the variables. Specifically, a strong relationship was found between job satisfaction \( r = .72, p < .001 \) and the attitudes employees hold toward technology, whereas a moderate relationship was indicated between organizational commitment \( r = .45, p < .001 \) and the attitudes employees hold toward technology.

Hypothesis three predicted that the data would fit the model containing the three forms of socialization, the attitudes employees hold toward technology, and job satisfaction and organizational commitment. A structural equation models was developed in Amos 7.0 to test the hypothesized model. Results indicated that the data were consistent with the hypothesis for the
model The results indicated that the variables fit the model: \( \chi^2 (1) = 3.154, p = .076; \) CFI = .996, NFI = .994, GFI = .996, AGFI = .979, RMSEA = .051. Therefore, the hypothesis was supported (see Figure 1).

Discussion

The goal of this study was to advance our understanding of technology in the workplace to benefit both communication scholars and business professionals alike. As a result, the current investigation examined the role of socialization on the attitudes and perceptions employees hold toward computer technology, and their subsequent work related attitudes. It was reasoned here that the attitudes employees’ develop toward technology in the workplace mediate the relationship between socialization and the work related attitudes of job satisfaction and organizational commitment. One of the major assumptions here centered on the notion that the three forms of socialization (organizational, work-group, and task) served to shaped the attitudes employees hold toward technology. In order to test this, hypothesis one was advanced. The results supported the hypothesis indicating a positive relationship between the variables. In other words, it appears that the way in which employees are socialized to new technology in the workplace, influences their attitudes towards that technology. However, since behaviors are not enacted in a vacuum, it would be remiss to simply accept these correlational findings without further consideration of the specific influence each form of socialization has on the attitudes employees hold toward technology. In order to fully understand the impact of these correlational results additional analysis of the data were addressed in research question one.

The findings of research question one indicated that organizational and work-group socialization were significant predictors of the attitudes employees held toward technology, whereas task socialization was not. These results make several significant contributions to the current body
of knowledge in organizational communication. Specifically, it suggests that task mastery of computer technology alone has little impact on the attitudes employees hold toward technology; yet, organizations tend to spend a great deal of time and money training employees on task mastery while offering only a cursory overview of the underlying values, beliefs, and attitudes the organization and work-groups hold toward technology. However, as a result of the current findings, the socialization of employees to its newest member of the workforce (computer technology) should involve additional attention communicating the values, beliefs, and attitudes toward technology held by the organization and its work-groups. These findings suggest that traditional training programs that primarily focused on task mastery are out-of-date and need to be revised to include a greater focus on insuring value matching between the organization, work-groups, and the employee regarding technology in the workplace.

Findings of additional value associated with the current study involve the extension of socialization beyond that of newcomers to include the introduction of new technology in the workplace. It appears that any major change to the daily operation of an organization may require a period of socialization in which employees formulate attitudes and perceptions of the new policy or procedure as well as the acceptance of such a change. Thus, it could be reasoned from these findings that employee adaptation and acceptance of new technologies span beyond the task of using the technology, to include the way in which the technology dovetails into the current structure and values of the organization.

Hypothesis two examined the relationships between the attitudes employees hold toward technology and their job satisfaction and organizational commitment. The findings indicated that the attitudes employees hold toward technology were positively related to their job satisfaction and organizational commitment. In other words, as employees’ positive attitudes toward technology increased so did their job satisfaction and organizational commitment. The opposite condition is
also possible, resulting in low levels of job satisfaction and organizational commitment. In this instance, the value of technology is explained by the association between the attitudes employees hold toward technology and their subsequent work related attitudes of job satisfaction and organizational commitment. Thirstily, there appears to be value associated with technology in the workplace in the form of employee job satisfaction and organizational commitment, both of which have been found to result in monetary savings for organizations. As a result, this study provides a means to explain how to maximize the value-added component of technology through effective socialization. Based on the costs associated with recruiting, training, and socializing newcomers, organizations should take note of this finding.

Of greatest value here is found in hypothesis three because it highlights the value added component of new technology to organizations. For example, the model represents the influence of socialization (organizational, work-group, and task) on the attitudes employees hold toward technology and their subsequent work related attitudes of job satisfaction and organizational commitment. The findings indicate that it is not enough to socialize employees to new technological advances without value matching. Implicit in this viewpoint is the notion of evaluation, where individuals rate their feelings toward an object or procedure. According to Brown and Duguid (1991), employees learn the appropriate uses of and develop perceptions of computer technology as a result of their interactions with supervisors and coworkers. These interactions provide guidance and influence that is thought to reside in the unique shared set of norms among organizational members (Brown & Duguid, 1998). In other words, it is important to socialize employees to technology in ways that produces positive attitudes toward that technology in order to increase employees work related attitudes of job satisfaction and organizational commitment. With that information, organizations can realize the value added benefits of technology through increased job
satisfaction and organizational commitment of its employees by creating a communication environment that embraces technology.

Limitations

Although the findings of this study are of value they are not without limitations. Since people do not live in isolation there are many factors thought to contribute to the attitudes individuals hold toward technology. For example, employees who have high computer anxiety and low computer self efficacy may perceive technology differently than other employees regardless of their socialization experience. In other words, the current study is limited in its generalizability due to its limited focus. Future researchers may want to include additional factors such as those previously mentioned.

A similar limitation is centered on the lack of a qualitative component to this study. It would have been of value to understand, through the voices of the participants, specifically what it was about socialization that influenced the attitudes they held toward technology in the workplace. Although the current study had its limitations, it serves as a starting place to further investigate the influence of technology in today’s workplace.
References


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Table 1

*Correlations among Socialization, Employee Attitudes toward Technology, and Work Related Attitudes*

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Note: ** statistically significant at $p < .01$; * statistically significant at $p < .05$
Hypothesized Model Containing Forms of Socialization, Attitudes toward Technology, Job Satisfaction, and Organizational Commitment

Figure 1
Figure 2

Model Containing Forms of Socialization, Attitudes toward Technology, Job Satisfaction, and Organizational Commitment

\[ x^2 (10) = 3.154, p = .076; \text{CFI} = .996, \text{NFI} = .994, \text{GFI} = .996, \text{AGFI} = .979, \text{RMSEA} = .051 \]
A Share-maximizing Marketing Strategy Model of the Distribution

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Chien Chih Chen  
National Chung Cheng University

I. Introduction

Spatial interaction models have received a great deal of attention either in theoretical advances or empirical applications. In the early 1940's, spatial allocation problems were cast in the form of the linear programming transportation models developed by Hitchcock (1941), Kantorovich (1942) and Koopmans (1949). Enke (1951) laid down the foundation of the spatial equilibrium model based on the Kirchhoff law of electrical circuits. Samuelson's influential work on spatial price equilibrium (1952) has generated a significant amount of interest in the spatial economics. In 1964, Takayama and Judge reformulated the Enke-Samuelson problem into a quadratic programming model with the objective of maximizing "net social payoff." Since then, theoretical advances and refinements along the line of the Enke-Samuelson-Takayama-Judge include: Thore's extensions on the original Takayama-Judge model (1971); new algorithm by Nagurney (1986, 1987); applications and statistical sensitivity analysis by Uri (1975), Yang and Labys (1981, 1982); mathematical sensitivity analysis by Irwin and Yang (1982, 1983), and Tobin (1987); spatial equilibrium model with transshipment by Tobin and Friesz (1983); applications of linear complementarity problem by Takayama and Uri (1983) and Yang and Labys (1985), and a sufficient solution condition by Smith (1984); critical analyses of the spatial equilibrium model by Liew and Shim (1978) and Florian and Los (1982); imperfect spatial competitions by Nelson and McCarl (1984), Yang (1985), and Harker (1986); variational inequality by Daffermos (1983), Daffermos and Nagurney (1984), Pang (1984), Tobin and Friesz (1986), and Nagurney (1987); spatial equilibrium game by Harker (1987); dispersed spatial equilibrium model by Harker (1988); spatial diffusion model by Yang (1990); spatial pricing in oligopolistic competition by Sheppard et. al.(1992); and the spatial tax incidence by Yang and Page (1993). The advances of the spatial equilibrium model can be found in Labys and Yang (1991, 1996, and 1997). Most recently, Yang et al. (2002) proposed and solved a spatial equilibrium Cournot Model.
The purpose of this paper is to introduce two spatial entropy models as competing alternative to traditional linear programming transportation (LPT) problem on its market version: spatial equilibrium (SE) model. The next section briefly presents LPT and SE models. Section III introduces the Maxwell-Boltzmann entropy model. Section IV presents critical analyses with respect to the three models based on some estimated results. Section V offers a conclusion.

II. Linear Programming Transportation and the Spatial Equilibrium Models

Since the linear programming transportation (LPT) model is the building block upon which other allocation models rest, we begin the descriptions based on the LP model. Given the available data, the optimum solution to the Hitchcock-Kantorovich-Koopmans model may be derived from solving the standard linear programming transportation problem:

\[
\text{Minimize } TC = \sum_{i \in I} \sum_{j \in J} t_{ij} x_{ij} \quad (1)
\]

Subject to

\[
\sum_{j \in J} x_{ij} \leq s_i \quad \forall i \in I
\]

\[
\sum_{i \in I} x_{ij} \geq d_j \quad \forall j \in J
\]

\[
x_{ij} \geq 0 \quad \forall ij \in I \times J
\]

and \( I = \{i = 1, \ldots, m\} \) and \( J = \{j = 1, \ldots, n\} \) are positive integer sets; \( I \times J \) is the Cartesian product of \( I \) and \( J \); \( t_{ij} \) and \( x_{ij} \) are the transportation cost and commodity flows from supply region \( i \) to demand region \( j \) respectively; \( TC \) is the total transportation cost analogous to the total energy in a closed physical system; \( s_i \) is the capacity constraint in the \( i \) th region; \( d_j \) is the demand requirement of the \( j \) th region. The computational advantages of the LPT model render it a required chapter in a standard operations research or production management text. Nonetheless, supply and demand requirement (\( s_i \) and \( d_j \)) being fixed are devoid of market and economic interpretations. To incorporate market demand and supply directly in the system, Takayama and Judge (1964) reformulate the LPT model based on Samuelson’s spatial equilibrium (SE) model (1952) with the objective of maximizing sum of consumer and producers surpluses net of the transportation costs or net social payoff (NSP):

\[
\text{Maximize } \text{NSP}(y_j, x_i, x_{ij}) = \sum_{j \in J} a_{ij} y_j - \frac{1}{2} \sum_{j \in J} b_{ij} y_j^2 - \sum_{i \in I} c_x x_i
\]

\[- \frac{1}{2} \sum_{i \in I} d_i x_i^2 - \sum_{i \in I} \sum_{j \in J} t_{ij} x_{ij} \quad (5)\]

Subject to

\[
\sum_{j \in J} x_{ij} \leq x_i \quad \text{for all } i \in I \quad (6)
\]

\[
\sum_{i \in I} x_{ij} \geq y_j \quad \text{for all } j \in J \quad (7)
\]

\[
x_{ij} \geq 0, \ y_j \geq 0, \ x_i \geq 0 \quad \text{for all } i \in I, \ j \in J \quad (8)
\]

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Where \( a_j \) = estimated intercept of the demand function in region \( j \)
\( b_j \) = estimated slope of the demand function in region \( j \)
\( c_i \) = estimated intercept of the supply function in region \( i \)
\( d_i \) = estimated slope of the supply function in region \( i \)
\( y_j \) = consumption in region \( j \)
\( x_i \) = production in region \( i \)

Note that quantity supplied in region \( i \) \( x_i \) and quantity demand in region \( j \) \( y_j \) are now endogenous to the model. It is evident from (5), (6), (7), and (8) that if optimum \( y_j, s \) and \( s_i \) correspond to what are actually observed in the markets, then the spatial equilibrium model is equivalent to conventional linear programming transportation model for \( y_j = d_j \) and \( x_i = s_i \).

Let \( K \) be a constant term which is the sum of the first four terms economic surpluses in the right hand side of equation (5), and since a constant sum drops out in the maximization problem, the spatial equilibrium model of (5) is reduced to the following

\[
\text{Maximize} \quad K - \sum_{i=1}^{m} \sum_{j=1}^{n} t_{ij} x_{ij} \quad (9)
\]

\[
\text{Minimize} \quad TC = \sum_{i=1}^{m} \sum_{j=1}^{n} t_{ij} x_{ij} \quad (10)
\]

Subject to (6), (7), and (8).

Which is the LPT model.

It is to be pointed out that the quadratic programming SE model (integrations of statistically estimated linear demand and supply functions) was widely used in agricultural and mineral sectors in the 1970’s and 1980’s (Labys, 1989). The popularity was perhaps due to the advert of several quadratic programming packages (e.g., Cutler and Pass, 1971, Shrage, 1986). However, both LPT and SE models possess a fundamental limitation: there can be no more than \( m+n-1 \) positive shipments among \( m \) supply and \( n \) demand regions (Liew and Shim, 1978; Gass, 1985; Labys and Yang, 1996). For instance, in a 5 by 5 LPT or SE model, the best one can get is a solution set consisting of 9 (out of 25) positive commodity shipments. Is it true that the primary objective function of an economic entity requires minimizing total transportation cost? In the next two sections, we propose entropy model in which the likelihood of spatial interactions (shipments) is maximized.

III. Maxwell-Boltzman Entropy Model

The concept of entropy is originally derived from thermodynamics. In a closed physical system, the elements of such a system tend toward an arrangement which can be organized in as many ways as possible (maximum disorder). Such a tendency is called the maximization of the entropy of a system (Nijkamp and Paelinck 1974). Hence, based on the well known formula of combinatorial calculus, it can be shown that entropy-maximizing model determines the most probable state of spatial flows of commodities. If commodity units (particles) over space are generally considered to be distinguishable, Maxwell-Boltzman entropy (MBE) can be used. If we limit the solutions to be integer-valued, the maximum possible ways to assign five distinct objects into three locations is

\[ \frac{5!}{2!1!1!} = 5! \]


\[
\begin{align*}
\frac{5!}{1!2!2!} \quad & \text{or} \quad \frac{5!}{1!2!3!} \quad \text{which is greater than other possibilities, i.e.,} \quad \frac{5!}{3!2!0!} \quad \text{or} \quad \frac{5!}{0!0!5!}. \quad \text{Such distributions are most probable to occur and generally correspond to more spatial diffusions (Batten, 1983). Using the fundamental combinatorial formula, Batten (1983) showed the Maxwell-Boltzman entropy (MBE) model can be formulated as the following:}

\text{Maximize} \quad \log W \\
\text{Subject to} \quad \sum_{i \in I} \sum_{j \in J} t_{ij} x_{ij} = K \quad (11)
\text{and} \quad (2), \ (3) \text{ and } (4)
\text{in which} \quad W = \prod_i \left[ \left( \frac{s_i !}{\prod_j x_{ij} !} \right) \prod_j (h_j ^{x_{ij}}) \right] \quad (13)

\text{where} \quad s_i \text{ is quantity supplied of region } i; \quad x_{ij} \text{ is shipment from supply } i \text{ to demand region } j; \quad h_j \text{ is the number of depots (consumption centers) in demand region } j.

\text{Note that the last term in equation (13) is another combinatorial formula of how many possible ways to assign incoming shipments to numbers of depots in demand region } j. \text{ For instance if } x_{ij} = 3 \ \text{and} \ j = 2, \text{ there exist } 2^3 = 8 \text{ ways to assign three different commodities (A ∙ B ∙ C) to two depots (I ∙ II). In addition, the value } k \text{ can be calibrated representing total energy in the system} \text{ in which TC of the LPT model assume its minimum value. The rest of the notations are identical to those of the LPT model.}

\text{Since the solution to this maximization problem remains invariant under any monotonic transformation (Wilson 1970, p.5), it is mathematically convenient to take logarithmic function of } W \text{ as shown below:}

\text{Maximize} \quad \log W = \sum_{i \in I} \log s_i ! - \sum_{i \in I} \sum_{j \in J} \log x_{ij} ! + \sum_{i \in I} s_i \log h_j \\
= -\sum_{i \in I} \sum_{j \in J} \log x_{ij} ! \quad (14)

\text{As the constant terms } \log s_i ! \text{ and } s_i \log h_j \text{ drop out in the maximization process. In addition, we use Stirling's approximation } x_{ij} ! \approx x_{ij} ^{x_{ij} + 0.5} \sqrt{2\pi e} ^{x_{ij}} \text{ in computer simulations to facilitate the computation. Equations (2), (3), (4), (12) and (14) constitute the Maxwell-Boltzmann entropy model. The optimum } x_{ij} \text{'s therefore correspond to the most probable commodity flow distribution with the given constraints.}

\text{In order to evaluate the properties of the entropy model, we form the Lagrangian equation as shown below:}

\[ L = -\sum_{i \in I} \sum_{j \in J} \log x_{ij} ! + \sum_{i \in I} u_j (s_i - \sum_{j \in J} x_{ij}) + \sum_{j \in J} v_j (d_j - \sum_{i \in I} x_{ij}) + z (k - \sum_{i \in I} \sum_{j \in J} t_{ij} x_{ij}) \quad (15) \]

\text{Where } u_j, \ v_j, \text{ and } z \text{ are corresponding Lagrangian multipliers of } (3), \ (4) \text{ and } (12). \text{ Using Stirling's approximation and differentiating (15) with respect to } x_{ij} \text{ yields} \]
\[
\frac{\partial L}{\partial x_{ij}} = -\log x_{ij} - u_i - v_j - zt_{ij} = 0 \quad \text{for all } x_{ij} > 0 \tag{16}
\]

which leads to

\[x_{ij} = e^{-u_i - v_j - zt_{ij}}\tag{17}\]

The other first order conditions are the constraint equations (2), (3), and (12) with variables evaluated at their optimum values. Summing up (17) over \(J\) and \(I\), and utilizing equation (2) and (3), we can derive the following:

\[e^{-u_i} = s_i / \sum_{j=1} e^{-v_j - zt_{ij}} = s_i E_i\tag{18}\]

\[e^{-v_j} = d_j / \sum_{i=1} e^{-u_i - zt_{ij}} = d_j F_j\tag{19}\]

and hence

\[x_{ij} = s_i E_i d_j F_j e^{-zt_{ij}}\tag{20}\]

The equilibrium condition (20) from the Maxwell-Boltzman entropy model takes the form of the familiar Newtonian gravity model with \(\exp(-zt_{ij})\) representing some kind of friction factor\(^1\). The commodity flows can be estimated either in conjunction with an input-output model (Leontief and Strout, 1963) or by spatial econometric methods (Cesario 1975). The close relationship between the LPT, SE, and gravity, econometric models and the Maxwell-Boltzman entropy problem suggests that they all emanate from the same concept of thermodynamics.

IV. Empirical Results of the Entropy, Spatial Equilibrium and Linear Programming Model of the U.S. Coal Market

The coal industry in the United States has some important characteristics that befit the spatial equilibrium or LPT model: numerous coal mines and consumers (e.g., utility companies) and the coal can be made homogeneous in terms of heat content (btu) or it may be viewed as distinct to its quantity (e.g., sulfur content or degree of purity) or differing transportation costs or simply to the eyes of consumers. The LPT model was actually implemented by Henderson (1958) in the US coal market. Several SE models were estimated for the U.S. coal market (e.g., Labys and Yang, 1980; Campbell et al. 1980, and Hwang et al., 1994). To evaluate the performance of the 3 models-LPT, SE and MBE, we opt to employ two empirical estimated SE coal models (Labys and Yang, 1980; Campbell et al. 1980) as the basis for comparison. All we need here is unit transportation costs and actual coal shipments so that we could simulate LPT and MBE model while results of the SE model were already given in these papers.

Unit transportation costs and actual coal shipment of five regions in the US (Cambell et al. 1980) are reported in table 1

\(^1\) Another important gravity model is by Theil, 1967.
### TABLE 1

<table>
<thead>
<tr>
<th>From</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>Total consumption</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>4.78**</td>
<td>1.14</td>
<td>0.02</td>
<td>0</td>
<td>0</td>
<td>5.94</td>
</tr>
<tr>
<td></td>
<td>14.7***</td>
<td>20.47</td>
<td>33.69</td>
<td>42.25</td>
<td>42.69</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>0.43</td>
<td>0.92</td>
<td>0.20</td>
<td>0</td>
<td>0</td>
<td>1.55</td>
</tr>
<tr>
<td></td>
<td>16.44</td>
<td>13.88</td>
<td>19.14</td>
<td>34.69</td>
<td>28.80</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>0.55</td>
<td>0.53</td>
<td>1.44</td>
<td>0.02</td>
<td>0</td>
<td>2.54</td>
</tr>
<tr>
<td></td>
<td>32.39</td>
<td>21.15</td>
<td>11.80</td>
<td>41.82</td>
<td>40.90</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>0.02</td>
<td>0.009</td>
<td>0.03</td>
<td>0.09</td>
<td>0.08</td>
<td>0.23</td>
</tr>
<tr>
<td></td>
<td>58.68</td>
<td>57.25</td>
<td>51.11</td>
<td>15.04</td>
<td>42.80</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>0.003</td>
<td>0.005</td>
<td>0.02</td>
<td>0.01</td>
<td>0.19</td>
<td>0.23</td>
</tr>
<tr>
<td></td>
<td>51.62</td>
<td>52.78</td>
<td>50.25</td>
<td>46.05</td>
<td>14.43</td>
<td></td>
</tr>
<tr>
<td>Total Demand</td>
<td>5.78</td>
<td>2.61</td>
<td>1.71</td>
<td>0.12</td>
<td>0.27</td>
<td>10.49</td>
</tr>
</tbody>
</table>

* Source: Campbell et al. (1980)
** in $10^{15}$ Btu.
*** cents per million Btu.

The solution of the LPT model is readily available as shown in table 2. To simulate the MBE model, we need a value that represents total entropy (k) for the system (US coal market). As we are to compare the optimum shipments with actual coal shipments, a natural choice is the actual total transportation cost that sustained the market transactions. For comparison purpose, we present optimum solutions (coal shipment) of all 3 models in table 2.
### Table 2

**Optimum solutions and actual shipment of the US coal market**

<table>
<thead>
<tr>
<th>FROM TO</th>
<th>Region 1</th>
<th>Region 2</th>
<th>Region 3</th>
<th>Region 4</th>
<th>Region 5</th>
<th>Consumption</th>
</tr>
</thead>
<tbody>
<tr>
<td>Region 1</td>
<td>4.78 (5.78)</td>
<td>1.14 (0.16)</td>
<td>0.02 (0)</td>
<td>0 (0)</td>
<td>0 (0)</td>
<td>5.94 (5.94)</td>
</tr>
<tr>
<td></td>
<td>[5.89]</td>
<td>[0.65]</td>
<td>[0]</td>
<td>[0]</td>
<td>[0]</td>
<td>[6.54]</td>
</tr>
<tr>
<td></td>
<td>{3.967}</td>
<td>{1.973}</td>
<td>{0}</td>
<td>{0}</td>
<td>{0}</td>
<td>{5.94}</td>
</tr>
<tr>
<td>Region 2</td>
<td>0.43 (0)</td>
<td>0.92 (1.55)</td>
<td>0.2 (0)</td>
<td>0 (0)</td>
<td>0 (0)</td>
<td>1.55 (1.55)</td>
</tr>
<tr>
<td></td>
<td>[0]</td>
<td>[1.53]</td>
<td>[0]</td>
<td>[0]</td>
<td>[0]</td>
<td>[1.53]</td>
</tr>
<tr>
<td></td>
<td>{1.312}</td>
<td>{0.238}</td>
<td>{0}</td>
<td>{0}</td>
<td>{0}</td>
<td>{1.55}</td>
</tr>
<tr>
<td>Region 3</td>
<td>0.55 (0)</td>
<td>0.53 (0.83)</td>
<td>1.44 (1.71)</td>
<td>0.02 (0)</td>
<td>0 (0)</td>
<td>2.54 (2.54)</td>
</tr>
<tr>
<td></td>
<td>[0]</td>
<td>[0]</td>
<td>[1.23]</td>
<td>[0]</td>
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<td>[1.23]</td>
</tr>
<tr>
<td></td>
<td>{0.464}</td>
<td>{0.366}</td>
<td>{1.71}</td>
<td>{0}</td>
<td>{0}</td>
<td>{2.54}</td>
</tr>
<tr>
<td>Region 4</td>
<td>0.02 (0)</td>
<td>0.009 (0.07)</td>
<td>0.03 (0)</td>
<td>0.09 (0.12)</td>
<td>0.08 (0.04)</td>
<td>0.23 (0.23)</td>
</tr>
<tr>
<td></td>
<td>[0]</td>
<td>[0]</td>
<td>[0]</td>
<td>[0.28]</td>
<td>[0]</td>
<td>[0.28]</td>
</tr>
<tr>
<td></td>
<td>{0.037}</td>
<td>{0.033}</td>
<td>{0}</td>
<td>{0.12}</td>
<td>{0.04}</td>
<td>{0.23}</td>
</tr>
<tr>
<td>Region 5</td>
<td>0.003 (0)</td>
<td>0.005 (0)</td>
<td>0.02 (0)</td>
<td>0.01 (0)</td>
<td>0.19 (0.23)</td>
<td>0.23 (0.23)</td>
</tr>
<tr>
<td></td>
<td>[0]</td>
<td>[0]</td>
<td>[0]</td>
<td>[0]</td>
<td>[0.71]</td>
<td>[0.71]</td>
</tr>
<tr>
<td></td>
<td>{0}</td>
<td>{0}</td>
<td>{0}</td>
<td>{0}</td>
<td>{0.23}</td>
<td>{0.23}</td>
</tr>
<tr>
<td>Production</td>
<td>5.78 (5.78)</td>
<td>2.61 (2.61)</td>
<td>1.71 (1.71)</td>
<td>0.12 (0.12)</td>
<td>0.27 (0.27)</td>
<td>10.49 (10.49)</td>
</tr>
<tr>
<td></td>
<td>[5.89]</td>
<td>[2.18]</td>
<td>[1.23]</td>
<td>[0.28]</td>
<td>[0.71]</td>
<td>[10.29]</td>
</tr>
<tr>
<td></td>
<td>{5.78}</td>
<td>{2.61}</td>
<td>{1.71}</td>
<td>{0.12}</td>
<td>{0.27}</td>
<td>{10.49}</td>
</tr>
</tbody>
</table>

Those without parentheses are actual flows.

( ) = Linear Programming Transportation Model Solution

[ ] = Spatial Equilibrium Model Solution

{ } = Maxwell-Boltzman Entropy Model Solution

In order to compare the magnitudes of interregional commodity flows under the three models with that actually observed, we employ the following performance index:

$$I = \sum_{i=1}^{l} \sum_{j=1}^{n} \left( \frac{\hat{x}_{ij} - x_{ij}}{x_{ij}} \right) \times 100\%$$

Where $\hat{x}_{ij}$ is the predicted optimum coal shipment from supply region $i$ to demand region $j$ and $x_{ij}$ is the observed value of the corresponding $\hat{x}_{ij}$. Of the 25 possible coal shipments, the performance index for Maxwell-Boltzman, Hitchcock-Kantorovich- Koopmans linear programming models and spatial equilibrium are 39.945%, 44.426% and 48.222% respectively. In other words, the
three spatial models explains 60.055%, 55.574% and 51.778% of all possible interregional shipments in the US coal market. The result comes as a surprise that traditional LPT and market-oriented spatial equilibrium models perform less satisfactorily than the entropy model especially when coal is considered a "bulky" commodity whose transportation cost constitutes a noticeable portion of the demand price.

Qualitatively, it is important to predict adequate numbers of positive coal shipments in the market, there existed 20 actual coal shipments. An examination of table 2 indicates that the SE model produced only six coal shipments: $x_{11}, x_{21}, x_{22}, x_{33}, x_{44}$ and $x_{55}$, A number less than is allowed by the LPT or SE (5+5-1=9) model. This is to say, the SE model is highly degenerate: it predicts little interregional activities. The lack of spatial interaction renders the SE model less effective in predicting number of positive shipments. The LPT solution consists of 9 positive coal flows of possible 25: a nondegenerate case, the fact that the LPT model predicts 9 of 20 actual coal shipments implies that it performs better than the SE model in terms of interregional commodity shipments. However, SE models with market demand and supply functions could have more policy implementations: taxes and pollution control (e.g. Yang and Hwang, 2008). On the other hand, the MBE model predicts 12 of 20 actual coal shipments respectively. Both have clearly outperformed the efficiency-oriented LPT and SE models. On the efficiency side, cross-hauling is not allowed. For instance, $x_{21} > 0$ in both LPT and SE models imply that $x_{21}$ cannot be positive (Table 2). That is, it makes sense for shipments to go from low price to high price regions not vice versa. However, there are circumstances cross-hauling is rational. When regions are highly aggregated, cross-hauling can certainly occur especially around the borderline areas. During a year, it is not unusual to ship vegetables from A to B in summer but reverse direction prevails in winter. The entropy model has the advantage in allowing for such occurrence. More importantly, the objective of a large business entity may focus on market penetrations even if profit opportunity is not as great. Market penetration and spatial diffusion can play an important role in modern business environment and as such entropy maximization model can serve as an alternative to the traditional efficiency-oriented LPT or SE models.
REFERENCES


Perspective of the American Labor Market by Type of Origin

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According to the U.S. Census Bureau, the American population will be 400 million in year 2050, including 25% of Hispanics born in the United States as well as immigrants, these composed basically by people who migrate looking for job opportunities. The hypothesis is that future white American labor force will imply a deficit to be filled by non white people, with special emphasis on the Hispanic component. So, this paper estimates, on one hand, the American capacity to accept foreign labor force taking into account the white American labor force dynamism, say, how many enter in and how leave from the labor market and, on the other, the reposition magnitude to be filled by non white labor force. The method of estimation has two parts. First, projection of American white labor force by using tables of active life to estimate the deficit of white workers; secondly, immigration flows through the Todaro’s model, which considers both attraction and rejection migration factors in the U.S. and in a region of migration origin, as Mexico, respectively. The time horizon of projection is 2010 – 2030 because those who will integrate the labor force of that period stay alive now.
Offshore Financial Centers: 
Recent Evolution and Likely Future Trends 

Roberto Santillán 
Instituto Tecnológico y de Estudios Superiores de Monterrey 

The origins of the Offshore Financial Centers are closely related to the surge of the Eurocurrency markets during the 1950s and 1960s. After a first stage of rapid expansion many of those OFCs finally reached a consolidation phase and remained in place, even after most of the original drivers for their creation were no longer present. Their insertion in the complex mechanism of the global financial markets is based in the high skilled financial services as well as the usually benign fiscal treatment the host countries give to multinational institutions established in their territory, and they represent an important segment of the international financial markets. As a consequence of the 2007-2009 Financial Crisis, the more advanced nations have formed a new group called the G20, with the aim to improve the coordination of different dimensions of the international economic environment. In its first reunions the G20 have focused in discussing the changes that are needed at the level of the financial architecture and the regulations that apply to international financial markets, with the intention to minimize the probability of another episode of financial crisis in the future. The changes that are likely to follow the G20 initiatives will change the operating conditions and affect the competitive advantages of the OFCs, but will also represent new opportunities for business. This work briefly explores the historical background of the OFCs phenomenon, analyzes its current situation and discusses its likely future trends, based on the OFCs’ most recent environmental changes.
Introduction

The International Financial Centers are urban locations dispersed all over the geography of the planet. Their main economic activity is the supply of international financial services by multinational commercial banks and other large-scale agents. The main services provided include the reception of deposits, different forms of credit to enterprises and governments, and many other more specialized activities like interbank transferences, currency exchange, swaps of currencies and interest rates, trading of futures contracts, etc. They play a role of great importance for the operation of the global financial system.

As a response to the financial crisis of 2007-2009, and to the marked global economic deceleration that ensued, in 2009 governments and financial authorities of the more developed countries agreed to design and take to execution a strategy to overcome the crisis.

Negotiations to define what actions to conduct as well as the responsibilities that correspond to different multilateral organizations like the World Bank (WB) and the International Monetary Fund (IMF) took place during the first months of 2009, with the direct participation of the governments of the 20 major economies of the planet, the group called “G20”. On April 2, 2009, there was a meeting of the Heads of Government and Chiefs of State of the G20 members in London, and an official declaration was made public at the end. It contained the main actions to conduct and the way the responsibilities to pursue their execution will be distributed.

The initiatives of the G20 members included using financial resources in the order of 1,1 trillion U.S. dollars to support financial organizations with urgent needs of liquidity or capitalization, and to impulse the recovery of growth. These were, no doubt, extraordinary measures by the order of magnitude of the resources involved and by the multilateral character of the coordination required something without precedent. Nevertheless, there was consensus on the urgency of their need to palliate the effects of the crisis, and to reactivate the flow of credit to the economy.

In the official communiqué of the meeting, the participants attributed the causes of the crisis to faulty regulation and supervision of the financial sector, particularly in the banking sector. Consequently, the most relevant proposals were oriented towards the revamp of the regulatory frame and the supervision mechanisms to support the recovery of the financial sector. With such an intention, the members started working in co-ordination to make sure that the reforms to the national regulatory systems (or regional, as in the case of countries that share the same financial currency and the same institutions) would be robust.
The intention was to obtain a greater integration and transparency in the regulation and supervision of the financial markets, to stabilize the financial cycle, to reduce the dependency of economic agents from risky sources of financing and to discourage the taking of financial positions with excessive risks. Among the most relevant aspects of the proposal, there was the statement that regulators and national supervisors are responsible to protect to the consumers and investors, to support market discipline, to avoid adverse impacts on other countries, to reduce the scope for regulatory arbitration, to support competition and to look for a continuous adaptation of the regulatory framework to the keep-up with the fast pace of the innovations introduced by market participants.

At a more specific level, the official declaration of the G20 emphasized the introduction of new regulations to examine the operation of hedge funds, as well as “vigorous measures” against those countries classified as “fiscal paradises”, that would be publicly identified and subject to sanctions if they did not accept to share fiscal information with the authorities of other countries.

Of the reading of the official notice issued when finalizing the meeting of the G20 it was very clear that the intention of the signatory countries was to apply sanctions to those jurisdictions considered like fiscal paradises in defense of their public finances and their financial systems. Also, their decision explicitly aimed to conclude the era of “banking secrecy”.

That same day, April 2nd, 2009, the Organization for Economic Cooperation and Development (the OECD) announced the results of an evaluation made to a group of jurisdictions it follows to measure the fulfillment of internationally accepted standards of fiscal transparency. The jurisdictions included in the list were classified according to their degree of advancement in the fulfillment of acquired commitments to negotiate agreements of fiscal exchange of information.

The diversity of the matters that the G20 proposed to reform, and the additional complexity derived from the different points of view that existed between Member States, suggested that the new regulations and announced measures would take time. However, the forcefulness with which the intentions of the G20 members were expressed makes it likely that they will be made effective in the non-distant future.

In all the official declarations, emphasis was put on the need to find an appropriate balance between new national and supranational regulatory frameworks to reduce the risks of financial globalization and, at the same time, to guarantee the freedom required to operate financial centers. Within
that context, the danger consists in getting to adopt measures that may dampen economic recovery by discouraging the flow of credit to the real economy.

Within that context, improving the understanding of the workings and functionalities of Financial Offshore Centers becomes a subject which, having its own interest, also has a general interest as part of the challenging process to overcome the extremely costly consequences of the recent financial crisis.

**International Financial Centers and Offshore Financial Centers.**

Sociological, political, and even military factors have been present in the surge of International Financial Centers (IFCs), and their evolution has gone through periods of relative stability, but also of great turbulence. There are good economic reasons that justify their existence, be it in terms of an international services specialization, or in terms of the economies of scale and scope that can be achieved in the different types of services they offer.

It is very important to analyze the conditions through which the international fiduciary system is currently transiting through an extraordinary period, faced with a number of changes that have resulted from the complex circumstances associated to the 2007-2009 financial crisis.

The permanence and growth of the activities carried out by the IFCs and the Offshore Financial Centers (OFCs) will depend, in a good measure, on the design and execution of the public policies resulting from coordinated international efforts motivated by the crisis to redefine the architecture and rules of the international financial system.

Among other several interesting features, IFCs and OFCs have the potential to create a vast amount of specialized and well remunerated jobs for activities directly linked to the financial intermediation process and complementary services. They represent a significant fiscal income source for the locations that host them, and have favored the accumulation of wealth of cities and countries in which they have surged.

These benefits become much more evident in the cases of major IFCs, such as London, New York, Tokyo, Frankfurt and Paris, although they are also quite important for other places in developed and developing countries. Historically, the rise of the IFCs was closely related to the productive and commercialization activities carried out in a specific location.

Along the global economy’s transition towards its post-industrial stage of development, in which new laws for competition rule, a considerable number of IFC/OFC locations with different functional
focus, size and potential have risen and compete with each other. The competition takes place mainly on
the base of products and services aimed at particular markets, but also in terms of their continuous efforts
to innovate and become more productive all the time.

From an extensive review of the literature on the conceptual elements associated to the
IFCs/OFCs it is possible to identify numerous common traits to all of them. In particular, there is a
generalized consensus regarding the fact that IFCs/OFCs generate a number of indirect benefits to the
host countries, some of them very substantial. The most frequently cited arguments can be summarized as
follows:

1. Optimization of distributional efficiency: to host an IFC reduces the probability that monopolies
or monopsonies arise in the local financial industry; its presence promotes savings, as well as the
integration of the domestic economy with other more efficient regional markets, and/or with the
global market. An optimal allocation of financial resources at a regional and even global scope is
achieved thanks to them.

2. Increase the size of the high-end local jobs segment: the IFCs give impulse to the development
of a domestic financial industry and other sophisticated services that are closely associated like,
for example, the professional services of lawyers, accountants, printing and different types of
transportation. That development generates new opportunities for well remunerated jobs that
represent the possibility of “Career Plans” for local citizens. Also, the economic activity
generated by the above mentioned industries affects other sectors and brings about a beneficial
multiplicative effect for the economy as a whole.

3. Tax Generation: the IFCs’ activity generates additional fiscal income for host governments. That
fiscal income includes taxes on the income of individuals employed by the financial services
industry and related activities, fees and tariffs for the registration of foreign financial institutions,
rights on the transference of titles, etc. Other diverse types of taxes frequently generated are, for
example, real estate transactions and capital gains, in addition to the previously mentioned.

4. They promote the internationalization of the local economy: the location of IFCs attracts foreign
investments to the host country, be it under the form of ‘joint ventures’ or other diverse forms. It
also accelerates the smooth flow of relevant information on financial, commercial and industrial
aspects originated beyond the borders of the country. Thus, the arrival of relatively abundant
foreign capital and the flow of international information results in the modernization of the local economy.

5. Increase of the financial activities of Multinational Corporations (MNCs): IFCs/OFCs are frequently hosts of commercial and industrial conglomerates’ headquarters; they also frequently host the financial subsidiaries of MNCs, given their favorable fiscal and regulatory environment. For example, the so-called ‘captive insurance companies’ of MNCs are generally located in OFCs to maximize their financial flexibility.

The international hierarchy recognized to different IFCs has to do, mainly, with their capacity to represent a safe option to protect investments, as well as with their role as a source of financing. Their prestige also depends on the quality, solidity and visibility of the institutions established in each case.

It is possible to carry out a measurement of the specific weight that the economic activity of the financial sector in a country represents through different approaches like, for example, the value of the exports of financial services, the level of development of their stock market, the size of the banks established, the presence of foreign banks, the presence of their own banks abroad, the absolute and relative amount of foreign deposits received, credits granted to foreigners, etc. The possibility of using one or several of those measurement tools is subject to the availability of frequently incomplete and hardly homogeneous information.

One can look at the degree of freedom to perform their activity as a continuum in which, at one extreme, practically no restrictions exist to the operation of financial intermediaries and, at the other extreme, nationalization and State control of the institutions prevails.

The More Traditional International Financial Centers

The origins of the first IFCs took place as a result of commercial activities and/or the presence of important “nodes” (hubs) of transportation (in particular, the ports oriented to marine transportation of commercial effects), but also responded to factors like the existence of political stability, and the presence of solid monetary or financial institutions.

In the years that followed the 2nd World War, London and Tokyo satisfied those characteristics totally, as well as Singapore and Hong Kong. Of the three, London achieved a major expansion and positioned itself as one of the two largest and more diversified IFCs in the world. Since its early times, New York fulfilled the majority of the requirements, but it did not still operate like a “node” of transport
until the 20th century, when the sheer size and high sophistication of its capital markets converted it into the other paradigmatic IFC.

Even before the establishment of the Bundesbank, Frankfurt stood out more than other German places like Dusseldorf and Hamburg and, in more the recent times, its leadership was strengthened when it was selected as the location for the new European Central bank, from where the monetary policy for all the Member States of the European Monetary Union is conducted. Additionally, the most important system of liquidations and payments known like TARGET, operates from Frankfurt.

**The Euromarkets and the surge of the Offshore Financial Centers**

During the early 1960s the vast majority of the national financial systems was quite refractory to performing transactions with foreigners. Only New York, and to a lesser extent London, had reached a truly international category. Nevertheless, the transformations of the following years created the conditions for the sprouting of the market for ‘eurodollars’.

By 1958 the dispositions contained in the Bretton Woods Agreement, signed since July of 1944, became fully effective. Consequently, the dollar became the pillar of the international monetary system, and the majority of the currencies returned to free convertibility. At that time, some European banks began to operate in dollars (Levich 1990; Cassard 1994).

The chronic deficit of the United States balance of payments during the 1940s, and the efforts aimed to the reconstruction of Europe already had produced a relative abundance of dollars in the international markets. During the same period, due to the economic importance of the U.S. dollar, the quote of practically all the commodities traded in the international market was expressed in dollars. Therefore, the brokers frequently received payments and realized deposits in that currency outside the territory of the United States.

The above facts explain why it became more frequent to observe banks from Canada, Switzerland and Great Britain accept deposits in U.S. dollars originated from foreign trade and foreign investment transactions. At first, those deposits were placed in U.S. money and capital market instruments through correspondents in New York but, by the mid 1950s, some foreign banks that received dollar deposits decided to use them to finance foreign trade transactions or other projects, from which they obtained an attractive yield. This completed the circuit of deposits-loans in U.S. dollars taking place out of the territory of the United States and created a wholly new market know as the ‘Eurodollar’ market.
An anecdotic factor that had an influence in the surge and consolidation of the Eurodollar market was the supply of dollars owned by the governments of the U.S.S.R., China, and of other Eastern European countries. During the Cold War years, those countries resisted to deposit the dollars generated from their exports and used for diverse commercial transactions (or with political or ‘intelligence’ purposes) in accounts in banks based inside the United States.

Thus, instead of incurring the risk of a confiscation, the Russians, for example, deposited their dollars in London and Paris in banks affiliated with banks property of the Russian state. One of those banks, located in Paris, the Banque Commerciale pour l'Europe du Nord, used the cable direction “EUROBANK”, term that from those times onwards was associated to the activity of receiving deposits and granting loans in a foreign currency.

However, the list of possible factors that gave impulse to the surge of the OFCs is extensive. Some of the likely influences were, among others:

- The regulations imposed by some developed countries (the United States and the United Kingdom)¹ by which lending to foreigners in local currency was prohibited²;
- Ceilings to the interest rates that were paid in the domestic market of the United States (the so-called Regulation ‘Q’)³;
- The limited size of the domestic market of several countries to satisfy the needs of large projects, or of multinationals based in those countries.
- The establishment of capital controls to reinforce industrialized countries monetary policy effects.
- The elimination in 1958 of the currency exchange rate restrictions in Western Europe.
- The desire of U.S. banks to carry out business in overseas territories, propelled by the Glass-Steagall Act, that prohibited commercial banks to participate in the investment banking industry (and vice versa).

¹ The ‘Interest Equalization Tax’ (IET), introduced in 1963, was the first measure implemented by the United States to control its chronic Balance of Payments disequilibrium, due to the foreign investment and loans capital flows towards overseas territories. The IET established a retention at the source over interests on loans granted by U.S. residents to foreigners.
² As their short and medium term compromises grew, and their gold reserves declined, the U.S. authorities introduced a ‘Voluntary Foreign Credit Restraint’ in February 1965, with the intention to reduce the flow of capital towards foreign countries. Beginning in 1968 the character of that restraint became obligatory.
³ The Regulation ‘Q’ was introduced during the 1930s top put a ceiling to the interests paid by deposits made in the U.S. domestic market, thus representing an incentive to search for more profitable returns overseas.
As a result of such diverse economic forces at work, at first, the International Financial System began working under the new logic of the Eurodollars (more so, because the dollar was the axis of the Bretton Woods Agreement). But, a few years later, there was a surge of other ‘Eurocurrencies’ to include, besides the North American dollar, the German mark (Euromark), the Swiss franc (Euro-Swiss Franc), the pound sterling (Europound), etc.

In particular, the place of London, actively supported by the Bank of England, took advantage of the opportunities associated with the sprouting of the Euromarkets. The activities of the London banks (and foreign banks present there) specialized in intermediation services for foreign agents. Thus, after the difficult challenges it faced during World War II, London recovered its important standing in the international financial system.\(^1\)

As of the first years of the 1970s the geographic location of the Euromarkets had expanded beyond the territory of Western Europe. The banks at first, and the insurance companies and brokerage houses some time later, began to establish subsidiaries in numerous jurisdictions within the Caribbean, Latin America and Southeast Asia regions. Those jurisdictions became what nowadays we know as “Offshore Financial Centers”.\(^2\)

That concatenation of cause-effect relationships leads to the conclusion that the OFCs and the market for Eurocurrencies share a common history, since the former rose as a result of the geographic expansion of the latter. In a sense, both embodied an answer of the multinational banks and corporations to the attempts of the governments of several industrialized countries to control the international flows of capital exiting their jurisdictions by means of regulation. Their original intention was to reinforce their control over capital flows to achieve greater effectiveness with their monetary policy measures, but the markets, unexpectedly, reoriented deposits and demand of financing towards multinational banks established in different the OFCs.

In most cases, the new OFCs were small countries and stand-alone cities that did not face great difficulties to attract international banking institutions, and obtained substantial benefits for their domestic economy in terms of the creation of high-salary employments, the contribution to their fiscal income, the development of infrastructure and the development of other sectors indirectly associated with the activity and operations of the OFC.

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1 During the 1950s, but mainly during the 1960s, the London based financial industry surged notably, in spite of the weakness of the sterling pound that was devalued in November of 1967.
2 The Bank for International Settlements defines an “offshore” center when the proportion of financial transactions with respect to its GDP is more than three times.
From a strategic analysis perspective, the surge of the Euromarkets, the progress of communications technology and the transformations to the regulations of the main industrialized countries acted to reduce the “barriers to entrance” to the industry of international financial intermediation. To create the necessary conditions to constitute itself like a OFC, an interested country only had to create a favorable regulatory frame, give a decided impulse to its communications infrastructure, and introduce some innovations in its operations.

Some initiatives were more successful than others; for example, in some countries offshore banking accounts were created especially for foreign financial institutions, like the Asian Currency Units (ACU) in Singapore, the Deposit Taking Companies (DTC) in Hong Kong, or the Offshore Banking Units (OBU) in Bahrain and Manila.

London was the first place that operated with all the characteristics of an OFC. Later, many more cities, in all geographic areas of the planet, reproduced the model, but always introduced some variations. Although the functions that each OFC carries out as part of the international financial system are not the same, their operating model and their development process have been relatively similar.

**Implications for the Offshore Financial Centers of the G20 Efforts to Achieve Economic Recovery**

Within the objectives of The Global Plan for Recovery and Reform, presented at the G20 meeting, those which are focused to the financial system, regulation of the financial sector, global trade and investment, are the ones that will be affecting directly the International and Offshore Financial Centers.

Among the initiatives presented by the G20 members to deal with the challenges ahead, there was an explicit mention to the fact that the Financial Stability Forum should be expanded, given a broadened mandate to promote financial stability, and re-established with a stronger institutional basis and enhanced capacity as the Financial Stability Board (FSB).

The FSB will:

- Assess vulnerabilities affecting the financial system, identify and oversee action needed to address them;
- Promote co-ordination and information exchange among authorities responsible for financial stability;
- Monitor and advise on market developments and their implications for regulatory policy;
- Advise on and monitor best practice in meeting regulatory standards;
• Undertake joint strategic reviews of the policy development work of the international Standard Setting Bodies to ensure their work is timely, coordinated, focused on priorities, and addressing gaps;

• Set guidelines for, and support the establishment, functioning of, and participation in, supervisory colleges, including through ongoing identification of the most systemically important cross-border firms;

• Support contingency planning for cross-border crisis management, particularly with respect to systemically important firms; and

• Collaborate with the IMF to conduct Early Warning Exercises to identify and report to the IMFC and the G20 Finance Ministers and Central Bank Governors on the build-up of macroeconomic and financial risks and the actions needed to address them.

In terms of the scope of the new regulatory framework, it was agreed that all systemically important financial institutions, markets, and instruments will be subject to an appropriate degree of regulation and oversight. In particular:

• The regulatory systems will be amended to ensure that authorities are able to identify and take account of macro-prudential risks across the financial system including in the case of regulated banks, shadow banks, and private pools of capital to limit the build-up of systemic risk. Large and complex financial institutions require particularly careful oversight given their systemic importance;

• It will be ensured that the national regulators possess the powers for gathering relevant information on all material financial institutions, markets, and instruments in order to assess the potential for their failure or severe stress to contribute to systemic risk. This will be done in close coordination at international level in order to achieve as much consistency as possible across jurisdictions;

• In order to prevent regulatory arbitrage, the IMF and the FSB will produce guidelines for national authorities to assess whether a financial institution, market, or an instrument is systemically important by the next meeting of our Finance Ministers and Central Bank Governors. These guidelines should focus on what institutions do rather than their legal form;

• Hedge funds or their managers will be registered and will be required to disclose appropriate information on an ongoing basis, including their leverage, necessary for assessment of the
systemic risks that they pose individually or collectively. Where appropriate, registration should be subject to a minimum size. They will be subject to oversight to ensure that they have adequate risk management.

- Supervisors should require that institutions which have hedge funds as their counterparties have effective risk management practices and systems. This should include mechanisms to monitor the funds’ leverage and set limits for single counterparty exposures;
- Standardization and resilience of credit derivatives markets will be promoted, in particular through the establishment of central clearing counterparties subject to effective regulation and supervision.

More specific guidelines for Tax havens and non-cooperative jurisdictions were clearly drawn under the belief that it is essential to protect public finances and international standards against the risks posed by non-cooperative jurisdictions.

The call on countries to adopt the international standard for information exchange was endorsed by the G20 in 2004 and reflected in the U.N. Model Tax Convention. The OECD has today published a list of countries assessed by the Global Forum against the international standard for exchange of information.

Actions will be taken against those jurisdictions which do not meet international standards in relation to tax transparency. To this end it was agreed to develop a toolbox of effective counter measures for countries to consider, such as:

- Increased disclosure requirements on the part of taxpayers and financial institutions to report transactions involving non-cooperative jurisdictions;
- Withholding taxes in respect of a wide variety of payments;
- Denying deductions in respect of expense payments to payees resident in a non-cooperative jurisdiction;
- Reviewing tax treaty policy;
- Asking international institutions and regional development banks to review their investment policies; and,
- Giving extra weight to the principles of tax transparency and information exchange when designing bilateral aid programs.
The IMF and the FSB in cooperation with international standard-setters were designated to provide an assessment of implementation of these rules by relevant jurisdictions, building on existing FSAPs, wherever they exist.

It cannot be disregarded that probably the most powerful reason why OFCs have thrived in recent decades is their franc disposition towards bank secrecy. The principle of anonymity of bank account holders as well as the secrecy on the nature, frequency and magnitude of the transactions they perform is something that OFC’s clients value much and are unwilling to lose.

It is true that, in granting secrecy to any account-holder, financial intermediaries become a potential smoke-curtain behind which non-legal transactions can take place. However, OFCs’ challenge is, precisely, to guarantee such practices do not occur. This is a matter of the utmost ethical importance from a professional perspective, although a very complex challenge in operational terms at the same time.

One of the areas where OFCs are experiencing more international pressure as part of the recent initiatives is in the area of tax-shielding related transactions.

Concluding Remarks

As the G20 initiatives become effective, the OFCs will be more regulated and more closely monitored within a framework of information disclosure, such that the flow of funds and their allocation can be easily tracked.

The enforcement of the new rules that will derive from G20 initiatives and other unilateral initiatives from countries severely affected by tax-evasion by their citizens is justified in more than one sense. However, it is likely to have serious effects on the longer-term viability of the OFCs.

The risk, as usual in the financial industry, is to find the right amount between too much and too little regulation. In the process of developing the new framework, authorities must not disregard the important economic functions that the OFCs perform for the rest of the international financial system.

By reducing the costs of transaction and bureaucratic red-tape, the functioning of the OFCs can contribute significantly to the world’s economic recovery. Also, the role that OFCs can play if they specialize in dealing with “toxic assets” for the rest of the world may represent a long-awaited escape valve that will conduct to more liquidity and objective valuation of those securities.
International financial centers are constantly battling against new initiatives and threats from different economic and financial bodies throughout the world. The more financial industry rules and regulations that are implemented by the most developed countries, the better offshore financial centers will do. Bureaucracy is like oxygen to OFCs, the more there is, the more the opportunities that exist to provide safe havens for those fleeing it.

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