**Volume 12, Number 2** **Print ISSN 1544-0222**
**Online ISSN 1544-0230**

# JOURNAL OF INTERNATIONAL BUSINESS RESEARCH

**Balasundram Maniam, Editor**

**Sam Houston State University**

**Susan E. Nichols, Editorial Advisor**

**San Diego State University – Imperial Valley Campus**

The *Journal of International Business Research* is owned and published by Jordan Whitney Enterprises, Inc. Editorial Content is controlled by the Allied Academies, a non-profit association of scholars, whose purpose is to support and encourage research and the sharing and exchange of ideas and insights throughout the world.

The *Journal of International Business Research* is owned and published by Jordan Whitney Enterprises, Inc., 51 Blake Drive, Arden, NC 28704, USA. Those interested in communicating with the *Journal,* should contact the Executive Director of the Allied Academies at info@.alliedacademies.org.

# EDITORIAL REVIEW BOARD

# TABLE OF CONTENTS

# LETTER FROM THE EDITORS

We are extremely pleased to present the *Journal of International Business Research*, an official journal of the Academy of International Business Research. The AIBR is an affiliate of the Allied Academies, Inc., a non profit association of scholars whose purpose is to encourage and support the advancement and exchange of knowledge, understanding and teaching throughout the world. The *JIBR* is a principal vehicle for achieving the objectives of the organization. The editorial mission of this journal is to advance the knowledge and understanding of international business throughout the world. To that end, the journal publishes high quality, theoretical and empirical manuscripts which advance the discipline.

The manuscripts contained in this volume have been double blind refereed. The acceptance rate for manuscripts in this issue, 25%, conforms to our editorial policies.

Our editorial policy is to foster a supportive, mentoring effort on the part of the referees which will result in encouraging and supporting writers. We welcome different viewpoints because in differences we find learning; in differences we develop understanding; in differences we gain knowledge and in differences we develop the discipline into a more comprehensive, less esoteric, and dynamic metier.

The Editorial Policy, background and history of the organization and of the Allied Academies, and calls for conferences are published on the Allied Academies website. Please visit our site and know that we welcome hearing from you at any time.

Balasundram Maniam, Editor
Sam Houston State University
Susan E. Nichols, Editorial Advisor
San Diego State University – Imperial Valley Campus

# ANALYSIS OF ALTERNATIVE SCENARIOS IN THE WORLD OIL MARKET; OPEC WITH AND WITHOUT RUSSIA

**Mohammad Mahbobi, Thompson Rivers University**
**Maria Bezymyannaya, Thompson Rivers University**

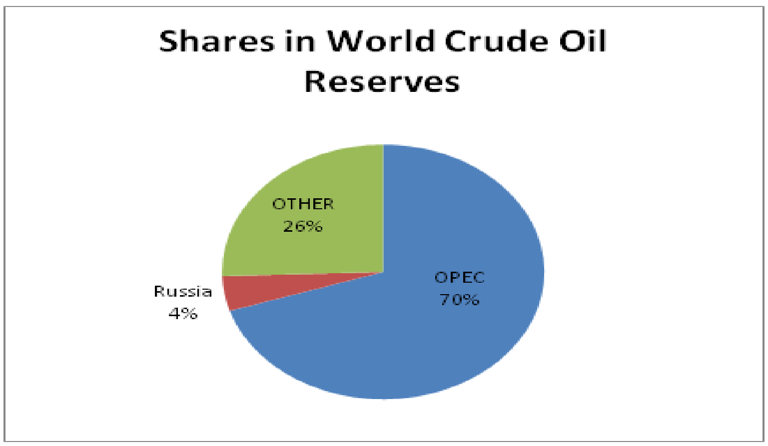
## ABSTRACT

*The main objective of this paper is to examine the potential influences of Russia's membership to OPEC on the existence market power in the world crude oil market. Additionally, this paper updates the findings of Alhajji and Huettner (2000b) by adding more recent available data for the whole period of 1976 to 2009. Unlike Alhajji and Huettner (2000), the outcomes of this paper indicate that OPEC production quotas aimed to boost the world crude oil prices within the period of 1982 to 1988 was effective. In addition, there are both economic and political reasons for Russia to join OPEC. To investigate whether this membership would affect the current model of OPEC's behavior, alternative scenarios were examined. In doing this, a 2SLS estimation technique was applied under three different assumptions of the dominant, the Cournot, and the competitive models. The results demonstrate that neither current OPEC nor OPEC including Russia was consistent with competitive, Cournot, and dominant models. Finally, an alternative scenario under which Russia and Saudi Arabia together coordinate their actions as a dominant firm was tested and found to be significant. If they act collectively, the current behavior of OPEC would be changed and they will be in control of the world crude oil prices.*

## INTRODUCTION

Since the crude oil price significantly increased in 1973-1974, for companies, organizations, and countries participating in the world oil market, it has become crucial to understand how this market actually functions. For OPEC (The Organization of the Petroleum Exporting Countries), it is also essential to understand how world demand and non-OPEC supply of crude oil reacts to changes in response to the production quota set by OPEC. OPEC was founded in Baghdad, Iraq; with the signing of an agreement in September 1960 by five founder members. These include Iran, Iraq, Kuwait, Saudi Arabia, and Venezuela. These countries were later joined by Qatar (1961), Indonesia (1962), Libya (1962), the United Arab Emirates (1967), Algeria (1969), Nigeria (1971), Ecuador (1973), Gabon (1975) and Angola (2007). From December 1992 until October 2007, Ecuador suspended its membership. Gabon terminated its membership in 1995. Indonesia suspended its membership effective January 2009. Currently, the Organization has a total of 12 Member Countries (OPEC, 2012). The major reserves of crude oil in the world belong to the members of OPEC. Figure-1 illustrates the shares of oil reserves owned by OPEC relative to that owned by other countries in the world. In addition, understanding of the world oil market is also significant in determining OPEC's potential market power[3]. For oil producers outside OPEC and for oil importing countries it is equally imperative to know that to what extent OPEC has exercised its market power. Russia, as one of the non-OPEC oil producer with enormous share of proven reserves of crude oil, may benefit and therefore support the idea of strong oil price. Russia pumps about 9.8 million barrels of crude oil a day, the second-largest producer in the world after Saudi Arabia, and exports about seven million barrels of crude oil and refined products, mostly to Europe (Kramer, 2008). The president of OPEC once said that Russia would be of special importance to OPEC if it joined, it would increase OPEC's strength in terms of production share, which would become around 50 per cent of the world output (Russia to Join OPEC, 2008). Therefore, both Russia and OPEC may potentially be willing to explore such opportunity, i.e. Russia's membership to OPEC. Russia, in particular, may be interested in such agreement in order to increase both its political and economic influences. The political aspect of this agreement is beyond the scope of this paper.

**Figure-1 Shares of World Crude Oil Reserves in 2009**




*Source: Energy Information Administration*

Most economic models treat the world crude oil market in terms of demand and supply models. The modeling of world oil supply is complex even though it is not difficult to estimate the world oil demand function. Good body of the literature has been devoted to understand how the world market for crude oil works. However, it became evident that crude supply does not look like a simple model of supply where supply is a function of cost of inputs. This can be explained by the fact that world crude oil supply side is neither fully competitive nor fully monopolistic.

The main objective of this paper is to examine empirical evidence of how Russia's membership in OPEC might influence the allocation of market power in the world crude oil market. The research in this paper makes several important contributions to the existing literature. First, this paper builds upon the work of Alhajji and Huettner (2000b). They applied several theoretical and econometric models to explain behavior of the world crude oil market. The research done by Alhajji and Huettner covers the period of 1973 to1994. This paper expands their research to present time in order to test if Alhajji and Huettner's findings are still applicable to the oil market over the period from 1976 to 2009. This paper also investigates the possibility of Russia joining OPEC. Adding Russia as OPEC member, under three scenarios, allows testing whether Russia's membership in OPEC will change the current model of OPEC's behavior in the world crude oil market.

Further, a multi-equation static econometric analysis is applied to study if OPEC as a whole or its different sub-groups has exercised any market power as a dominant producer in the world crude oil market. In addition, the Cournot model is tested to identify if OPEC determines its oil output based on rival non-OPEC output to maximize its profit. Then, the competitive model is applied to test whether it describes the behavior of world crude oil market. The dominant firm model, the Cournot model, and the competitive model are also applied to a hypothetical market, one in which it is assumed Russia has joined OPEC.

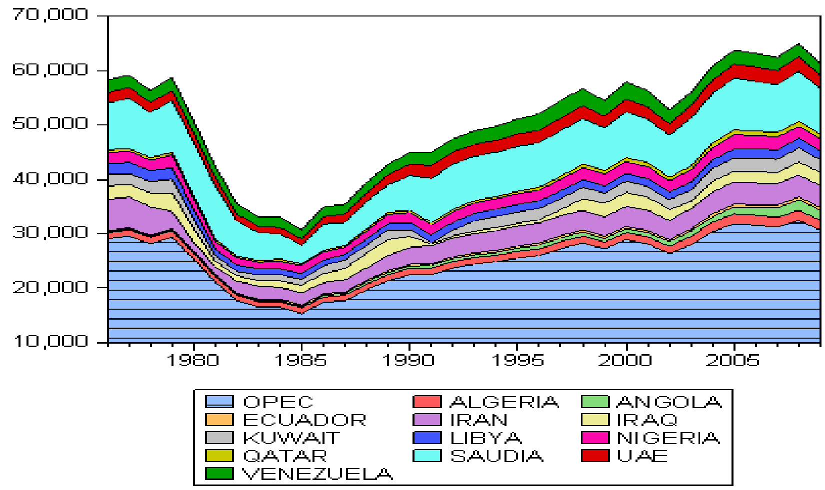
## LITERATURE REVIEW

A lot of research has been done to find the model that describes oil market behavior over the past thirty years. A highly uncertain nature of the research findings can be distinguished. While some of them find small evidence that oil market behavior is consistent with a largely competitive market, others find weak proof of various forms of collusive behavior among the OPEC members. Griffin (1985) and Guelen (1996) examined whether the output level of individual OPEC members tends to move synchronically, and found partially effective output coordination. Even though simultaneous and similar movements in the output levels of OPEC members are not inconsistent with the Griffin's (1985) cartel hypothesis, they are also not inconsistent with competitive behavior. Griffin (1985) and Jones (1990) studied single-equation models, where the competitive hypothesis implies a positive relationship between a country's output and price. They reject the competitive hypothesis only for some OPEC members. Kandel (2004) finds that a price-leader model best describes OPEC and the oil market. Polasky (1992) assumes the supply in the oil market is characterized by a dominant producer, comprised of some or all of the OPEC countries imposing a selling price on a competitive group of followers, also known as price-taker countries. Rauscher and Konstanz (1988) developed a model explaining the OPEC behavior and the price of oil. Their work was later extended and empirically tested by Alhajji and Huettner (2000b). Alhajji and Huettner (2000b) applied a multi-equation dynamic econometric model to test if OPEC as a whole or its different subgroups has exercised any market power.

### Oil Production and OPEC

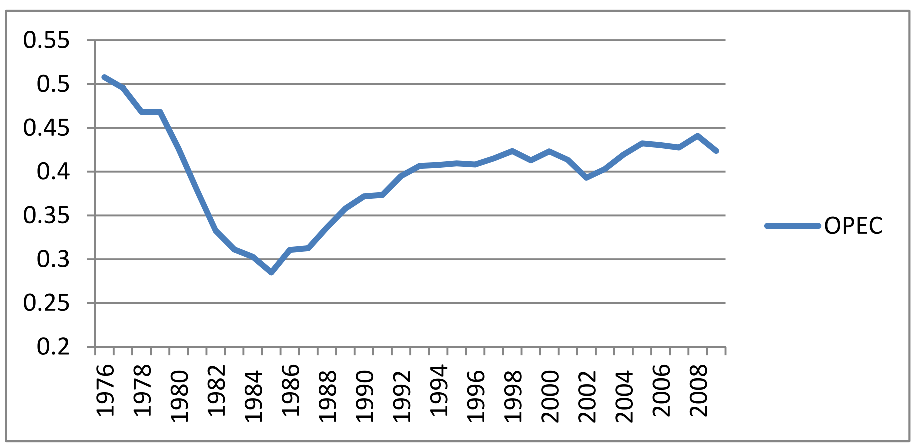
Figure-2 illustrates the annual oil production (in 1000 barrels per day) of the OPEC and its member countries. Figure-3 shows the OPEC's share of world oil production from 1976 to 2009. Starting from around 51% in 1976, the percentage share declines to about 25% in early 1985 and then stabilizes at around 40% in early 1992. The observed decrease in OPEC's production share is possibly explained by the dominant firm behavior of the OPEC. If the OPEC is a successful dominant firm that controls the oil production of its member countries, and if the objective of the cartel is to raise or maintain the oil price, it has a clear incentive to restrict its production.

**Figure-2: Oil Production of OPEC and Member Countries**




*Source: U.S. Department of Energy, Monthly Energy Review*

**Figure-3: OPEC's Share of World Oil Production (1976-2008)**




*Source: U.S. Department of Energy, Monthly Energy Review.*

## Theoretical Models of Worlds Crude Oil Market and OPEC Behavior

In this paper, the Cournot, the dominant firm, and the competitive models are developed and applied to the world oil market. Economists began to construct and estimate empirical multi-equation macro models in the late 1930s (Judge, 1968). The interrelated equations jointly determine the values of the individual variables. In case of world oil market, simultaneous equations models may produce better estimation results, as the price and quantity produced of oil are determined by the interaction of two equations: one for oil supply and the other for world demand.

## The Dominant Firm Model

The dominant firm model treats OPEC as a cartel and assumes that OPEC members have unified goals and set the price of oil collectively. The model divides the world into two groups which are OPEC producers and non-OPEC fringe producers. The OPEC sets the price by equating its marginal revenue to marginal cost. The following five scenarios of the dominant firm model are tested in this paper:

a) OPEC is the dominant firm in the world oil market.
b) Saudi Arabia is the dominant firm in the world oil market.
c) The OPEC core countries as the dominant firm in the world oil market. The core countries in OPEC are Saudi Arabia, Kuwait, UAE, and Qatar.
d) OPEC is the dominant firm in case of Russia joining it.
e) Saudi Arabia and Russia are dominant firms.

The last two alternatives are the expansion of the primary research done by Alhajji and Huettner (2000). Under the assumption of OPEC being a dominant firm, demand for OPEC's oil is the difference between the world demand and the oil supplies by non-OPEC countries, also known as residual demand. For the world market, crude oil demand is assumed to be a function of real price of oil and real GDP of OECD countries who are major buyers of crude oil in the world. Thus, world crude oil demand is expressed as[4]:

$$D_w = f\,(P, GDP, Dummy)$$

where P is expected to have a negative sign, as demand for oil is negatively related to price increases. GDP has a positive sign because it stands for economic activity and growth. The dummy variable equals 1 for the 1973-1981 period of the U.S. oil price control and equals 0 otherwise. The dummy variable is expected to have a positive coefficient. The real price of crude oil for the year was calculated by dividing average spot price of crude oil for the year by CPI index for that year. The dynamics of the supply side of the world crude market is relatively complex with OPEC and Non-OPEC countries being two major players. The Non-OPEC supply is expressed as

$$S_{no} = g(\,P, U_{no}, \text{Dummy})$$

Price, P, is expected to have a positive coefficient. Both user cost of non-OPEC countries, Uno, and a dummy variable for U.S. control are assumed to have negative signs. Systematically reducing oil exports was regarded as the only way for the U.S. to mitigate the inevitable trend towards higher prices and to reduce its impact on the importing economies (Finon, 1994). The expectation of continued higher prices justified the upfront investment required to develop substitutes for OPEC oil (Finon, 1994). When U.S. control of oil prices was imposed in 1973-1981, world demand for oil increased due to a subsidy effect. U.S. producers had significantly decreased their production, and Saudi Arabia started to produce more oil to satisfy the increased demand. As a result, Saudi Arabia's production boosted but non-OPEC producers experienced loss due to Saudi Arabia domination. The residual demand for OPEC oil is equal to:

$$D_o = D_w - S_{no}$$

After all variables are transformed by the natural logarithm:

(1) $\mathrm{Ln}(D_w) = \beta_0 - \beta_1 \mathrm{Ln}(P) + \beta_2 \mathrm{Ln}(GDP) + \beta_3 \mathrm{Ln}(Dummy) + \epsilon_{world}$
(2) $\mathrm{Ln}(S_{no}) = \delta_0 + \delta_1 \mathrm{Ln}(P) - \delta_2 \mathrm{Ln}(Uno) - \delta_3 \mathrm{Ln}(Dummy) + \epsilon_{NON-OPEC}$
(3) $D_{opec} = D_w - S_{no}$

The system of equations above is based on the assumption that the price of oil (P), world demand for oil (Dw) and supply by non-OPEC members are endogenous variables and are determined simultaneously within the model. GDP, user cost of Non-OPEC countries, and U.S. price control policy are assumed to be exogenous variables. Alhajji and Huettner( 2000) defined the profit maximization condition for the OPEC as dominant firm as

(4) $P = \frac{Uo\beta 1}{Mo + \beta 1}$

where $U_0$ is per barrel user cost and increased security cost for OPEC (in dollars). This condition is rearranged to state the profit maximization condition as the usual monopoly condition of

(5) $P = \frac{Uo}{1+1/Eo}$

where $E_0$ is price elasticity of demand for OPEC's oil and Mo=1, β1=Eo and Eo < -1. The cost of incremental supply tends to increase in the oil industry (Adelman, 1972). Exploration costs are likely to increase, either because exploration moves from places with a high probability of containing oil to places where the likelihood of finding oil is lower and/or because exploitation costs tend to increase since the yield of oil from reservoirs reduces as exploitation progresses (Adelman, 1972). The cost of producing oil by non-OPEC countries can be approximated by the U.S. cost of production and exploration. This is due to the fact that the U.S. has the highest cost and is the marginal producer.

The scenario of the dominant firm model should not be rejected if the coefficients in estimated models 1 and 2 are statistically significant, have the signs shown and the profit maximization condition 5 is met. In order for the profit maximization condition to be satisfied, the elasticity of demand for a dominant producer must be less than -1. The profit maximizing condition is not met if the dominant producer operates on the inelastic segment of its demand curve. Table-1 summarizes the expected signs of the coefficients for the dominant firm model:

| Table-1 Summary of Expected Signs of Coefficients for the Dominant Firm Model | | |
|---|---|---|
| Model | | Dominant Firm |
| Demand Equation | Ln (Price) | - |
| | Ln (GDP) | + |
| | Dummy | + |
| Supply by Non-OPEC | Ln (Price) | + |
| | Ln (Cost) | - |
| | Dummy | - |

## The Competitive Model

According to the competitive model, members of OPEC take the oil price as given. Therefore, changes in each member's output will not have any effect on the price level of crude oil. In this case OPEC will set its price equal to its marginal cost plus its user cost. The oil prices are considered to be determined by the fundamentals of supply and demand. The production of OPEC (So) is modeled as:

$$S_o = f(P, U_o, \text{Dummy})$$

where Uo is the user cost OPEC which includes the increased security cost for OPEC countries (A.F. & Huettmer, 2000). When oil companies own and control the reserves in foreign countries, they include the security costs in the cost of production. Venezuela, a member of OPEC, is under low risk of invasion by neighboring countries. Alhajji and Huettner,( 2000) proposed to include increased security cost in the production costs of OPEC member countries. However, their research covers the period from 1973 to 1993. In that period the major events influencing Energy security occurred are: Yom Kippur War (1973), Iranian Revolution (1979), Iraq-Iran war (1980-1988). This research covers a more recent period up to 2009. Therefore, the need to include increased security costs in the production costs of OPEC countries should be reviewed and tested.

The competitive model is to be estimated first for the OPEC and non-OPEC suppliers; for OPEC including Russia and the new non-OPEC supply.

(6) $\mathrm{Ln}(D_w) = \beta_0 - \beta_1 \mathrm{Ln}(P) + \beta_2 \mathrm{Ln}(GDP) + \beta_3 \mathrm{Ln}(Dummy) + \epsilon_{world}$

(7) $\mathrm{Ln}(S_{no}) = \delta_0 + \delta_1 \mathrm{Ln}(P) - \delta_2 \mathrm{Ln}(Uno) - \delta_3 \mathrm{Ln}(Dummy) + \epsilon_{NON-OPEC}$

(8) $\mathrm{Ln}(S_{no}) = \alpha_0 + \alpha_1 \mathrm{Ln}(P) - \alpha_2 \mathrm{Ln}(Uno) - \alpha_3 \mathrm{Ln}(Dummy) + \epsilon_{OPEC}$

(9) $D_w = S_{non} - S_{opec}$

The competitive model should not be rejected if the coefficients in equations are statistically significant and have the signs shown in these equations. Table 2 summarizes the expected signs of the coefficients in the competitive model equations. The competitive model is tested both for OPEC and for the hypothetical model in which Russia is included as an OPEC member.

| **Table-2 Summary of Expected Signs of Coefficients for a Competitive model** | | |
|---|---|---|
| Model | | Competitive Model |
| Demand Equation | Ln( Price) | - |
| | Ln( GDP) | + |
| | Dummy | + |
| Supply by Non-OPEC | Ln( Price) | + |
| | Ln (Cost) | - |
| | Dummy | - |
| Supply by OPEC | Ln (Price) | + |
| | Ln (GDP) | - |
| | Dummy | + |

## The Cournot Model

Suppose that OPEC and non-OPEC fringe must decide how much oil to produce. The total amount of oil produced certainly will affect the market price of oil, but the underlying decision of each market player is not a pricing decision but rather the quantity of oil to produce. If each player must determine its output level at the same time that other players determine their output levels or if each player expects its own output decision to have no impact on rivals' output decisions, then the oil market fits the model of a Cournot oligopoly. In this model there are two equations which are the demand function and the profit maximization condition. The world demand for crude oil is described as

$$(10) \quad \mathrm{Ln}(D_w) = \beta_0 - \beta_1 \mathrm{Ln}(P) + \beta_2 \mathrm{Ln}(GDP) + \beta_3 \mathrm{Ln}(Dummy) + \epsilon_{world}$$

Alhajji and Huettner (2000b) derived the following profit maximization condition for OPEC and non-OPEC variant of the model:

$$(11) \quad \beta 2 = \frac{\mathrm{UnoMo} - \mathrm{UoMno}}{\mathrm{Uo} - \mathrm{Uno}}$$

where *Uo* is the user cost OPEC which includes the increased security cost for OPEC countries (A.F. & Huettmer, 2000), *Uno* is per barrel user cost for Non-OPEC countries ($), *Mo* is OPEC's market share in international oil production (%) and *Mno* is Non-OPEC's market share in the international oil market (%).

The Cournot model should not be rejected if the coefficients in equation 10 are statistically significant, have the signs shown in the equation, and the profit maximization condition of equation 11 is met. The profit maximization condition is tested by calculating an upper and lower bound for the profit maximizing β2 and observing whether the calculated value in equation falls in this range. Table 3 summarizes the expected signs of the coefficient for a Cournot model applied to OPEC case and OPEC including Russian as a member case.

| Table-3 Summary of Expected Results for the Cournot Model | | |
|---|---|---|
| Model | | Cournot Model |
| Demand Equation | Ln( Price) | - |
| | Ln( GDP) | + |
| | Dummy | + |
| Source: Authors Calculations | | |

## DATA

Data and information for this research have been collected from several sources. The estimation is based on annual data for the sample time period from 1976 to 2009 which is most recently available data. The data on crude production (supply), consumption (demand) and proven reserves has been collected from Energy Information Administration, OPEC and the U.S Department of Energy. The data on GDP has been obtained from OECD publications. The data on world CPI has been collected from World Bank. The data on user cost of oil production has been taken from the Monthly Energy Review. In order to calculate the user and increased security costs for OPEC the formula derived by Alhajji and Huttner (2000) is used:

$$\text{OPEC\_Cost} = \mu + \rho + [\alpha + 0.03(\alpha)]$$

where $\mu$ = the security cost of producing a barrel of oil. Alhajji and Huettner (2000) calculated it as a per barrel increase in military expenditure per day for each OPEC country relative to Venezuela.

$\rho$ = Royalties = 0.13

$\alpha$ = extraction cost which calculation is based on the assumption that it increases by 3 percent each year.

Royalties are payments to the owner of the resource and have been paid to the owners of oil since the birth of the industry. Royalties are multiplied by the real price of oil in each time period. The customary royalty percentage is 12.5 percent or 1/8 of the value of the oil or gas at the wellhead (Mineral Rights, 2010)

## EMPRICIAL RESULTS

### The Dominant firm Model

We first test the dominant model assumption. Table-4 shows the summary of two-stage generalized least squared regressions for five variants of the dominant firm model.

### OPEC as the Dominant Firm

Based on Table-1, the model in which OPEC is the dominant firm is not rejected. In fact, the results indicate that OPEC is the dominant producer in the world crude oil market over the period from 1982 to 1988. This finding is significant, since previous researches have not found any evidence of OPEC being a dominant firm. Table-1 also shows that all the coefficients of the estimated equations are significant and have the expected signs. World demand for crude oil is negatively affected by increase in real price of oil as predicted by the demand model. The dummy variable for the U.S. oil price control (Dummy) in a demand equation is positive and statistically significant. U.S. control of oil prices, through subsidies, caused an increase in the world demand of oil by lowering oil prices, in real terms. The expected results for the non-OPEC production equation are met. The price coefficient in the supply equation is positive and significant. The user cost coefficient is negative and statistically significant. The oil price control by the U.S. suppressed world oil production; therefore, the dummy variable exhibits a negative sign and is significant.

**Table- 4 Two-Stage Generalized Least Squares Results for the Dominant Firm Model**

| Alternative Models | Dependent Variable | ln(Price) | ln(GDP) | ln(Cost) | Dummy | $R^2$ |
|---|---|---|---|---|---|---|
| OPEC | ln(Dw) | -0.096* | 0.523* | | 0.352* | 0.93* |
| | ln(Sno) | 0.244* | | -0.246* | -0.564* | 0.38* |
| Saudi Arabia | ln(Dw) | -0.052* | 0.439* | - | 0.255* | 0.93* |
| | ln(Sothers) | 0.434 | - | -0.417 | 0.147** | 0.45* |
| Core | ln(Dw) | -0.061* | 0.438* | | 0.261* | 0.92* |
| | ln(Sothers) | -0.025** | | -0.117 | 0.081* | 0.39* |
| OPEC (with Russia) | ln(Dw) | -0.051* | 0.438 | - | 0.255* | 0.92* |
| | ln(Sothers) | -0.143** | - | -0.091** | 0.067** | 0.75* |
| Russia and Saudi Arabia | ln(Dw) | -0.061* | 0.438* | - | 0.261* | 0.92* |
| | ln(Sothers) | 0.219* | - | -0.373* | 0.364** | 0.78* |

Source: Authors calculations.

**Table-5 OPEC Quotas in 1982 Compared to Production in 1978 and 1981**

| Production by Countries | 1978 production | 1981 production | 1982 quotas |
|---|---|---|---|
| **Iran** | 5.2 | 1.3 | 1.2 |
| **Iraq** | 2.6 | 0.9 | 1.2 |
| **Kuwait** | 2.1 | 1.1 | 0.8 |
| **Qatar** | 0.5 | 0.4 | 0.3 |
| **UAE** | 1.8 | 1.5 | 1.1 |
| **Nigeria** | 1.9 | 1.4 | 1.3 |
| **Algeria** | 1.2 | 0.8 | 0.65 |
| **Libya** | 2.1 | 1.2 | 0.75 |
| **Venezuela** | 2.2 | 2.1 | 1.5 |
| **Ecuador** | 0.2 | 0.2 | 0.15 |
| **Saudi Arabia** | 8.3 | 9.8 | 7.15 |
| **Total OPEC** | 29.8 | 22.6 | 17.5 |

Source: OPEC 1986

The most interesting result, however, is that the profit maximization condition is met for OPEC in the period from 1982 to 1988 where elasticity of demand for OPEC's oil is larger than -1. This result implies that OPEC has been operating on the elastic segment of its demand curve over this period. The OPEC countries faced a decline in their revenues in 1981-1982. The prices of oil on the free markets fell. In March 1982, OPEC members decided on a coordinated reduction in production levels in an attempt to limit the drop in prices, and the organization imposed production quotas. The following table summarizes the limitations on oil production by OPEC compared to the previous years' production.

After imposing quotas in 1982, the organization was able to maximize its profits by setting the price where its marginal equaled marginal cost. As Table- 5 shows, in 1981 and 1982 OPEC's actual output was very low to achieve the profit-maximizing monopoly level. It seems reasonable to expect that if market power is being exercised, either OPEC as a whole or some substantial subset is restricting output to keep the prices that maximize its profits. Since the estimated econometric model shows that during 1982 -1988 OPEC operated on elastic part of the world oil demand, it is possible to find the profit-maximizing price for OPEC. The formula is

$$P = \left[\frac{\text{Uo}}{1+\frac{1}{\text{Eo}}}\right] \quad \text{Where Eo} < -1$$

where Uo is the user cost OPEC which includes the increased security cost for OPEC countries (A.F. & Huettmer, 2000) and Eo is the price elasticity of demand for OPEC's oil. Table-6 compares the profit-maximizing price for OPEC and actual oil price over the period of 1982-1986. The profit-maximizing prices are very close to the observed prices over this period.

**Table-6: Price of Crude oil and Profit-Maximizing (1982-1988)**

| Year | Profit-Maximizing Price | Actual Price |
|---|---|---|
| 1982 | 48.96 | 41.87 |
| 1983 | 29.60 | 28.99 |
| 1984 | 27.19 | 28.63 |
| 1985 | 23.54 | 26.75 |
| 1986 | 18.63 | 14.55 |
| 1987 | 22.21 | 17.92 |
| 1988 | 20.42 | 16.67 |

Source: Authors calculations and U.S. Energy Information Administration

For the time periods other than 1982-1988 the dominant firm model for OPEC is rejected as the profit maximization condition is not met for OPEC because the elasticity of demand for OPEC's oil is larger than -1.

## Saudi Arabia as the Dominant Firm

Another version of the dominant firm can be assumed a case in which Saudi Arabia is the dominant producer. Under this assumption, the behavior of producers other than Saudi Arabia approximates that of a competitive fringe producers' behaviour. Other producers include all non-OPEC countries and OPEC members other than Saudi Arabia. Other large producers such as Iran with a market share close to that of Saudi Arabia act as competitive suppliers because their output does not fluctuate as widely as that of Saudi Arabia's due to different production capacity.

In the model where Saudi Arabia is the dominant firm, it acts as the swing producer. It means that when other members try to go beyond the production quota, Saudi Arabia acts a residual supplier.

Since the expected results for the demand equation and the supply of the rest of the world equation are not met, the dominant firm model for Saudi Arabia is rejected. Particularly, the price coefficient in the supply function is negative which is not consistent with the theory. Therefore, the profit maximization condition is not met for Saudi Arabia. This results support the findings done by Griffin (1985). He concluded that Saudi Arabia does not fit the dominant firm model because the correlation between the output of Saudi Arabia and the output of other OPEC members is positive (Griffin, 1985).

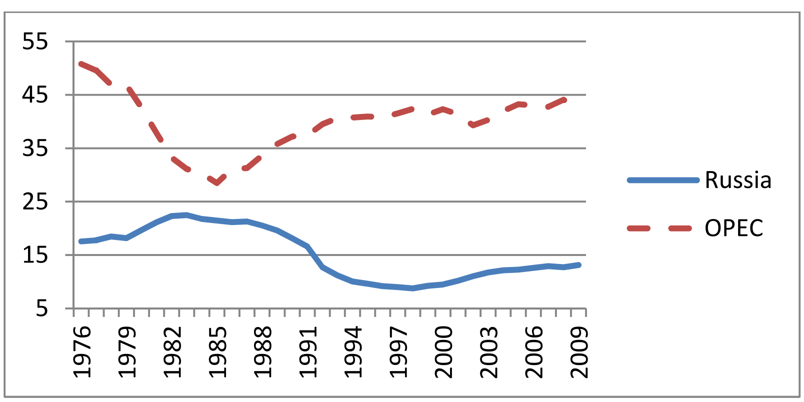
**The Core Countries as the Dominant Firm**

Under this model, Saudi Arabia, Qatar, Kuwait and UAE – "the cartel core" act as the residual supplier. The non-OPEC competitive fringe as well as the subset of OPEC producers is given a standard supply curve with positive price elasticity. The rest of OPEC countries follow a rule according to which their production varies inversely to price. The dominant firm model for the core countries in OPEC was rejected. The core countries are not a dominant producer. The expected results for the signs of the coefficients from the supply equation are not met.

**Russia as a Member of OPEC**

Russia often benefits from higher oil prices caused by OPEC production quotas but does not actually reduce its own output. The main goal of this paper is to explore the possibility of a hypothetical situation in which Russia becomes a member of OPEC, including the effects on the power of OPEC in the world oil market. If Russia joins OPEC, OPEC's production may reach more than 50 percent of the world oil production. Figure-4 illustrates the fact that Russia's production of oil in the world has increased from 8 percent in 1998 to 13 percent in 2009. OPEC production of oil has been quite volatile and is currently declining.

**Figure-4 OPEC and Russia's Share in Production of Crude Oil (%)**




*Source: U.S. Department of Energy*

The dominant model for OPEC with Russia as a member is rejected. The coefficients in both demand and supply equations are statistically significant, but the sign of a price variable is not as it is expected to be. It follows that if Russia had joined OPEC during the period 1976-2009 that would not have increased the possibility of OPEC becoming a dominant firm.

**Russia and Saudi Arabia as a Dominant Producer**

The last hypothetical scenario is where Russia and Saudi Arabia act as a dominate producer in the world market. Russia and Saudis together own a huge percentage of world reserves of crude oil. The capacity of oil production by Saudi Arabia has always put them in a better position compared to other OPEC members. "The Saudis are the chief of the price makers, the cartel of OPEC nations- not OPEC itself, which is of no importance" (Adelman, 1985). Russia on the other hand, has the over 12 percent of the world market share. Therefore, if Russia and Saudi Arabia join together and act as a dominant firm, the world oil market might be in a totally different shape than what it is today.

The results of this paper show that the model in which Russia and Saudi Arabia act as the dominant firm is not rejected. Both supply and demand equations in this system have expected and statistically significant signs. The profit maximization condition is met for the period from 1976 to 1980 and from 1983 to 2009. The coefficient of determination for demand equation is 92 percent and 78 percent for supply equation. In this variant of a dominant firm model the supply equation included production of non-OPEC countries as well as the production by other OPEC member excluding Russia and Saudi Arabia. The result shows that Russia and Saudi Arabia together can influence the world price of oil in the world to achieve a profit-maximizing level of output. The assumption is that all other producers will adjust their production to the price set by Russia and Saudi Arabia. The results also indicate that the competitive model is rejected for both OPEC and OPEC including Russia. Table-7 represents the results of this scenario. The results confirm that neither OPEC nor OPEC including Russia as a member is consistent with a competitive model. The signs of the price coefficients in supply equations are negative contrary to economic theory and in some cases are not even statistically significant.

Table-7 . Two-Stage Generalized Least Squared Results for the Competitive Model

| Alternative Models | Dependent Variables | ln(Price) | ln(GDP) | ln(Cost) | Dummy | $R^2$ |
|---|---|---|---|---|---|---|
| OPEC | ln(Dw) | -0.052* | 0.438* | - | 0.255* | 0.93* |
| | ln(Sno) | 0.105* | - | -0.106* | -0.304* | 0.48* |
| | ln (So) | -16.65 | - | 17.88 | 0.801** | 0.30* |
| OPEC (with Russia) | ln(Dw) | -0.364* | 0.908 | - | 0.126* | 0.94* |
| | ln(Sno) | 0.117 | - | 0.044 | -0.245* | 0.83* |
| | ln (So) | 0.361* | - | -0.003** | 0.594* | 0.61* |

* Significant at 1 %, ** Significant at 5 %, Source: Authors Calculations.

The Cournot assumption for this scenario is also rejected for both OPEC and OPEC including Russia cases. The following table summarizes the results of the demand equation for OPEC and OPEC including Russia.

| Table- 8 Ordinary Least Squares Results for the Cournot Model | | | | |
|---|---|---|---|---|
| | Independent Variables | | | |
| Dependent. Variable | ln(Price) | ln(GDP) | Dummy | $R^2$ |
| ln(Dw) | -0.052* | 0.438* | 0.255* | 0.93* |
| Source: Authors Calculations | | | | |

All coefficients in the equation for the crude oil world demand are significant and have the expected sings. The price elasticity of demand is lower than required by the profit maximization condition in the Cournot model. Therefore, the profit maximization condition is not met for both OPEC and OPEC including Russia cases. As a result, under Cournot assumption, neither OPEC nor OPEC with Russia expects that its output decision will have an influence over non-OPEC production.

## CONCLUSIONS

This paper extended the outcomes of the original models of the world crude oil market introduced by Alhajji and Huettner (2000). In the first part, three main economic models were introduced to explain OPEC behavior: the dominant firm model, the competitive model and the Cournot model. Each model was further developed into several variants. In next part, an assumption of Russia's membership to OPEC was made in order to determine whether it would change the model, by which the behavior of world crude oil market was best described. Built on Alhajji and Huettner (2000), this paper also examined the existence of a dominant producer in the world crude oil market for the period from 1973 to 1994.

The outcomes of this paper demonstrate statistical evidence that OPEC operated as a cartel over the period from 1982 to 1988. This period was also known as a period when OPEC quotas in production aimed to boost world oil prices. Even though, Alhajji and Huettner (2000) did not find any evidence of OPEC being a cartel, this paper provided an empirical evidence of the success of OPEC's quotas. Unlike Alhalli and Huettner's research (2000), the model with Saudi Arabia as a dominant firm in the world oil market was not supported when more recent data were incorporated. The core members of OPEC did not operate as the dominant producer in the world crude oil market. These core members do not voluntarily reduce capacity unless they are forced to do so by market conditions or other unexpected circumstances.

The second part of this paper extended Alhajji and Huettner (2000) model by introducing an assumption of Russia's membership to OPEC. Russia may join OPEC for both economic and political reasons. Similarly, OPEC might, at least, theoretically welcome Russia into the organization. This could be due to the fact that Russia's theoretical membership to OPEC may increase OPEC's strength in terms of production and proven reserves shares. In the case Russia joins OPEC; the crude oil cartel will be able to control more than half of world crude oil output. Russia often benefits from the world oil prices provided by OPEC. It neither follows the OPEC production quota nor sharing in the financial loss from cutting production. Yet, production cuts by OPEC have indeed been subsidising Russia's economy. To examine these alternatives, a series of scenarios were tested. The results demonstrated that both OPEC with and without Russia scenarios were rejected under the assumptions of the competitive and the Cournot models. The dominant firm model in which OPEC would include Russia as a member was also rejected. If Russia joins OPEC, OPEC as a whole will not gain much monopoly power and OPEC will not be a dominant producer. Given the fact that Saudi Arabia and Russia own the majority of crude oil reserves and their production capacities are enormous, this paper finally tested the assumption under which both countries act as the dominant firm. The results indicated that this assumption was statistically significant. If they join together, they may operate as the dominant firm and control the world crude oil prices.

## ENDNOTES

1 Dr. Mahbobi is a Faculty at the Department of Economics, School of Business and Economics, Thompson Rivers University, 900 McGill Road, Kamloops, BC, Canada, V2C 0C8. Email: mmahbobi@tru.ca.

.2 Bezymyannaya, is a 4th year BBA-Major in Economics at the Department of Economics, School of Business and Economics, Thompson Rivers University, 900 McGill Road, Kamloops, BC, Canada, V2C 0C8.

3 Market Power refers to any power that firms may experience to influence the market price. Hogan (1997), p. 107.

4 See the Appendix for the definitions of all variables.

## BIBLIOGRAPHY

Adelman, M.A. (1985). “An Unstable World Oil Market.” *The Energy Journal* 6(1) : 17-22

Alhajji, A. & Huettmer, D. (2000). OPEC and World Crude Oil Markets from 1973 to 1994: Cartel, Oligopoly, or Competitive? *The Energy Journal* , 31-60.

Alhajji, A. & Huettner, D. (2000 b). "The Target Revenue Model and the World Oil Market: Empirical Evidence from 1971 to 1994." *The Energy Journal,* 21 (2): 121-144

Finon, D. (1994) "From Energy Security to Environmental Protection: Understanding Swings in the Energy Policy, *Energy Studies Review,* Vol. 6, No.1, pp. 1-15.

Hogan W.W. (1997), “A Market Power Model with Strategic Interaction in Electricity Networks”, *The Energy Journal*, Vol. 18, No. 4, pp. 107-141, IAEE.

Judge, G. (1968). The Search for Quantitative Economic Knowledge. *American Journal of Agricultural Economics* , 50-68.

Kramer, A. (2008, December 10). *Russia Volunteers to Join an OPEC Cut in Oil Output* . Retrieved November 27 , 2010, from the New York Times: http://www.nytimes.com/2008/12/11/business/worldbusiness/11oil.html

*Mineral Rights.* Retrieved January 4, 2012, from News and Information About Geology: http://geology.com/articles/mineral-rights.shtml

Organization of the Petroleum Exporting Countries, "Organization of Petroleum Exporting Countries." *Organization of Petroleum Exporting Countries*. OPEC, 26 02 2012. Web. 28 Feb 2012. <http://www.opec.org/opec_web/en/>.

*Russia to Join OPEC?* (2008, December 15). Retrieved December 27, 2010, from The Straits Times: http://www.straitstimes.com/Breaking%2BNews/Money/Story/STIStory_314737.html

## APPENDIX

### Definition of Variables:

*P = real price of crude oil ($)*

*Dw = world demand for crude oil, thousands of barrels a day (b/d)*

*GDP= OECD's GDP ($)*

*Dummy = dummy variable. It equals 1 for the Period of U.S. oil price control, O-otherwise. The period of U.S. price regulation lasted from 1973-1981*

*E= error term*

*Sno= Non-OPEC supply of crude oil (thousands b/d)*

*Do= residual demand for OPEC (thousands b/d)*

*So= OPEC supply of crude oil (thousands b/d)*

*Uno= per barrel user cost for Non-OPEC countries ($)*

*Uo= per barrel user cost and increased security cost for OPEC ($)*

*Mo= OPEC's market share in international oil production (%)*

*Mno= Non-OPEC's market share in the international oil market (%)*

*Bi= price elasticity of world demand*

*Δi= price elasticity of Non-OPEC supply*

*Ai = price elasticity of OPEC supply*

*Eo= price elasticity of demand for OPEC's oil*

# AN EXAMINATION OF INVENTORY COSTING CONVERGENCE UNDER GENERALLY ACCEPTED ACCOUNTING PRINCIPLES AND INTERNATIONAL FINANCIAL REPORTING STANDARDS

**Casey Reineking, Murray State University**
**Don H. Chamberlain, Murray State University**
**Holly R. Rudolph, Murray State University**
**L. Murphy Smith, Murray State University**

## ABSTRACT

*Accounting principles in the United States are converging toward international standards. If convergence continues, and there are proponents and detractors, then the U.S. system of accounting, called Generally Accepted Accounting Principles (GAAP), will eventually be replaced by International Financial Reporting Standards (IFRS). Convergence has profound implications for publicly traded companies and their many stakeholders such as investors, lenders, government agencies, and employees. A key issue facing accounting standard-setters is the treatment of inventory costing, an area in which GAAP and IFRS differ. This study addresses three research questions: What is the past and current usage of different inventory costing methods?, How important is inventory on corporate financial reports?, and What will be the impact on corporate financial reporting, specifically regarding inventory costing, if IFRS replaces GAAP? Findings show that a change from GAAP to IFRS will have a major impact on inventory costing and, as a result, on corporate financial reporting overall.*

## INTRODUCTION

A revolutionary trend in financial reporting is the convergence of the United States standards of accounting, under Generally Accepted Accounting Principles (GAAP), with International Financial Reporting Standards (IFRS). This ongoing process has profound implications for publicly traded companies in the United States and their many stakeholders, including investors, lenders, government agencies, employees, and others. One of the issues facing accounting standard-setters is the treatment of inventory costing.

Both GAAP and IFRS permit inventory valuation methods known as First-In-First-Out (FIFO) and weighted average. However, IFRS does not allow Last-In-First-Out (LIFO), while GAAP does allow this method. This paper addresses three research questions:

*RQ1 What is the past and current usage of different inventory costing methods?*

*RQ2 How important is inventory on corporate financial reports?*

*RQ3 What will be the impact on corporate financial reporting, specifically regarding inventory costing, if IFRS replaces GAAP?*

To answer RQ1, data regarding inventory costing will be acquired from Accounting Trends and Techniques (AICPA, 2011a). To answer RQ2, data will be acquired from a sample of publicly traded multinational corporations. To answer RQ3, a case-based analysis is used to evaluate how a shift from LIFO to an IFRS-allowed method will affect companies currently using LIFO (currently allowed only under GAAP). In addition, reasons are presented why IFRS does not allow the LIFO method.

Accounting has been called the language of business. The profession accumulates, calculates, and organizes all of the financial information needed for companies to communicate with management, with shareholders, and with other interested parties. Like every language, it can be translated into many different forms. Also like every language, some things may be mistranslated, or lost in translation entirely.

The 'languages' of accounting include United States Generally Accepted Accounting Principles (GAAP) and International Financial Reporting Standards (IFRS). These two languages are the most prominent and most widely used methods of accounting in the world. For over 30 years, standard-setters have been working to close the gap between these two sets of standards and to knit together one universal set of accounting principles. This process is called convergence.

The road to convergence has not been without its challenges. While GAAP and IFRS are similar in many aspects of accounting, there are some notable differences. GAAP has been referred to as being more rule-based, while IFRS has been deemed more principle-based (Feucht et al., 2011; Rezaee, Smith, & Szendi, 2010; Sagafi-nejad et al., 2010; Smith, 2008). Consider, for example, that the rules of GAAP, if printed, could fill a three volume, nine inch thick set, while IFRS fills a two inch thick text (Crovitz, 2008).

Convergence of accounting standards is an ongoing process principally involving the two standard-setters: the Financial Accounting Standards Board (FASB, 2011a & 2011b) and the International Accounting Standards Board (IASB, 2011), but also many other interested parties, from corporate accountants, internal auditors, and business managers to public accountants, investors, government regulators, and analysts. The development of common measures, procedures, and financial reports will drive efficiency and add value to the financial information provided. The process involves many challenges; some have been resolved but some remain. The process of convergence in the US and in other countries is anticipated to lead to a universal set of accounting standards for use in all countries of the world.

## GENERALLY ACCEPTED ACCOUNTING PRINCIPLES

United States GAAP has formally existed since the formation of the first national standard setting body, the American Association of Public Accountants (AAPA) in 1887

(AICPA, 2011c). The AAPA was replaced in 1916 by the Institute of Public Accountants, later known as the American Institute of Accountants. In 1957, the organization changed to its current moniker, the American Institute of Certified Public Accountants (AICPA). Throughout the evolution of this institution was the development of many committees, and later task forces, all designated to draft, maintain, and regulate rules for accounting practices (AICPA, 2011c).

In 1972, the Financial Accounting Foundation (FAF) was organized as an independent, private sector organization. The FAF was established to improve standards of accounting and financial reporting (Financial Accounting Foundation, 2011). To accomplish this, the FAF established the Financial Accounting Standards Board (FASB), the Governmental Accounting Standards Board (GASB), and the advisory councils for both FASB and GASB respectively (Financial Accounting Foundation, 2011).

Established in 1973, the FASB oversees and regulates the reporting standards for nongovernmental and not-for-profit business entities. The FASB is a private sector organization that is responsible for developing standards that guide the preparation of financial statements. The AICPA and the Securities and Exchange Commission (SEC) recognize standards set forth by the FASB as authoritative (FASB, 2011a).

## INTERNATIONAL FINANCIAL REPORTING STANDARDS

In 1973, the International Accounting Standards Committee (IASC) was formed by the efforts of many accounting standards organizations throughout the world, including the AICPA (IFRS, 2011 and IASB, 2011). The IASC functioned from 1973 to 2001, developing the International Accounting Standards (IAS). In 2001, the IASC reorganized under the current IFRS Foundation into the International Accounting Standards Board (IASB) and became responsible for issuing International Financial Reporting Standards (IFRS) (IFRS, 2011 & IASB, 2011).

The IASB is an independent, standard-setting body under the IFRS Foundation. Today, the IASB works to develop and improve IFRS regulations and standards for companies, as well as working with the US FASB to reach convergence of IFRS with GAAP. The IASB also works along with the International Organization of Securities Commissions to further develop regulation regarding IFRS pursuits (IOSCO, 2011).

## ORIGINS OF CONVERGENCE

The idea of merging US GAAP and IFRS is not a novel one. The concept first began to gain momentum in the late 1950s, during the time of post-World War II economic integration and the related effect of increasing capital flows across borders (IASB, 2011). Originally, this notion began as a process called harmonization—"reducing the differences among the accounting principles used in major capital markets around the world" (IASB, 2011).

During the mid-1990s, the efforts of the FASB and the IASC began to shift away from total harmonization, and instead moved toward convergence—"the development of a single set of high-quality, international accounting standards that would be used in at least all major capital markets" (FASB, 2011b). When the IASC reorganized into the IASB, the IASB picked up where the IASC left off, and by the year 2009, the European Union as well as over 100 other countries were on board with IFRS, either requiring or permitting the new set of standards (FASB, 2011b). The FASB and the IASB have been cooperatively working toward diminishing the differences between GAAP and IFRS. The globalization of accounting methods offers substantial advantages to all parties involved. For international businesses, benefits include comparable financial statements, reduced complexity errors, enhanced efficiency, and the elimination of barriers that hinder competitiveness (such as the cost of reconciling statements using differing methods) (Beier & Kaplan, 2007).

Not all US companies see IFRS as a good alternative to GAAP. Some have expressed reluctance to shift from GAAP to IFRS. Progress toward convergence has moved faster in recent years, and this may have caused some companies to get cold feet. Many have taken the attitude of 'if it's not broken, don't fix it'. Others have pointed out the hefty start-up costs of replacing GAAP, as well as the potential negative implications of either convergence or adoption, such as slowing economic growth and perhaps lowering the US standard of living (King, 2010).

Some experts regard arguments against IFRS as short-term oriented. Proponents of IFRS see the long-term benefits as far outweighing short-term costs of conversion. Recent timelines announced by the SEC have stated that GAAP may be replaced with the required use of IFRS by 2014 (Cheng, 2009). A universal accounting system is on the horizon and appears to be gaining momentum. In 2011, the AICPA made its position clear by recommending the option of adoption of IFRS to the SEC. Paul V. Stahlin, AICPA chairman, and Barry C. Melancon, AICPA president and CEO, stated that:

> *The AICPA supports the goal of a single set of high quality, comprehensive financial reporting standards to be used by public companies in the preparation of transparent and comparable financial reports throughout the world. We believe one common financial reporting language would benefit investors, as well as issuers and capital markets, because it would facilitate the comparison of reporting entities domiciled in different countries. We believe the standards issued by the International Accounting Standards Board (IASB) are best positioned to become those global standards. We, therefore, agree… that a U.S. issuer compliant with U.S. generally accepted accounting principles (GAAP) should also be able to represent that it is compliant with IFRS as issued by the IASB (AICPA, 2011b).*

## THE ROADMAP

In November of 2008, the SEC published the *Roadmap for the Potential Use of Financial Statements Prepared in Accordance with International Financial Reporting Standards by U.S. Issuers*. One large implication made by this Roadmap was the shift in focus from accepting IFRS prepared statements by foreign companies in the US markets, to the focus on the idea of requiring US companies to prepare their statements in accordance with IFRS (Cheng, 2009).

Though 2014 has been called the 'target year' for US companies to switch over to IFRS, there are several significant milestones that must be achieved before then. Notably, these include continuous improvement of accounting standards, funding and accountability for the IASC Foundation, the installation of the eXtensible Business Reporting Language format (XBRL), an understanding of the differences between GAAP and IFRS by practicing professionals, greater

awareness of the transition, careful timing for IFRS reporting accommodation, and the staged transition of IFRS use for US companies, as well as eventual mandatory use (Cheng, 2009).
In 2002, the Norwalk Agreement was formed between the FASB and the IASB. This memorandum served to ensure that both organizations would agree to cooperate in the convergence process and to engage in future programs to coordinate further compatibility between GAAP and IFRS (FASB, 2002).

Standard-setting bodies have been historically uneasy about compromising on the strictness and complexities of GAAP. Among the reasons why GAAP is so complex and rule-heavy are the legal and political currents at work. GAAP has been modified and amended as needed throughout the years due to corporate scandals, loopholes, and some convoluted bookkeeping. Because of efforts to make GAAP as airtight as possible, some of the methods have become unwieldy in day-to-day situations. The construction of the Roadmap to convergence suggests that the SEC is doubtful that the FASB will give up its independence and convert whole-heartedly to IFRS (Cheng, 2009).

When IFRS becomes the mandatory accounting method of the United States, not only will businesses be affected, but business schools, educational curricula in accountancy, the CPA exam, and the training of accountants. The Roadmap itself states that:

> *Because IFRS has the greatest potential to become the global standard of accounting, we believe it is in the interest of U.S. investors, U.S. issuers and U.S. markets to consider mandating reporting using IFRS in the United States as well. Additionally, we believe that over the long term, the existence of dual accounting standards in the United States may create challenges in the U.S. capital markets, such as comparability for investors and other users of financial information and professional competence of auditors. We therefore are proposing this roadmap towards the mandatory use of IFRS by U.S. issuers* (Morgan, 2008).

The list of convergence projects between the FASB and the IASB is extensive. This study examines one area of convergence, inventory valuation methods. Differences between IFRS and GAAP in relation to inventory valuation will be examined using a case study analysis.

## INVENTORY VALUATION

There are three main methods for assigning value to inventory. These are weighted average, First-In, First-Out (FIFO), and Last-In, First-Out (LIFO). It is up to the discretion of the individual company on which method to adopt. There are advantages and disadvantages to each of the methods, also called cost-flow assumptions. A business determines which method to use by taking into account the purchase costs, cost of goods sold, and target gross profit and taxable income. In some cases, a business might make use of two methods. One method may be used to prepare external reports, while a second method may be used for the internal, managerial reports.

The LIFO inventory method poses several advantages and disadvantages for companies. First and foremost, most companies who employ LIFO often do so for tax or external reporting purposes. During periods of inflation, net income is lower under LIFO than it would be under

FIFO, resulting in lower taxable income. Critics of LIFO argue that a company may increase or decrease its income by manipulating the timing of purchases of inventory (Shim & Siegel, 2010).

Some companies that use LIFO for external reporting purposes may employ FIFO or weighted average for internal reporting purposes. This is in order to base internal decisions on a method other than LIFO and also because a pure LIFO system may cause problems for interim periods (Horngren, Harrison, & Oliver, 2009). The SEC requires companies using LIFO to include in their notes the amounts by which LIFO differs from FIFO. This amount is referred to as the LIFO reserve. Disadvantages of LIFO include the reduction of earnings and an understatement of fair inventory value, as well as encouraging inappropriate purchasing habits, which may be driven more by earnings manipulation goals than purely good business goals. Use of LIFO has become a heavily debated topic in the convergence process.

## INVENTORY VALUATION UNDER IFRS AND GAAP

Both IFRS and GAAP are in agreement regarding inventory methods under FIFO and weighted average. However, the greatest stumbling block in convergence regarding valuation is the disallowance of LIFO under IFRS. Many GAAP-based companies employ LIFO and are reluctant to convert to another method. The IASB has rejected LIFO throughout the convergence process. What is it about the Last-In, First-Out cost assumption that has brought GAAP and IFRS to this conflicting position?

As mentioned earlier, the use of LIFO allows for certain tax reporting advantages. By matching the most recent purchases against sales, a company may reduce net income. This results in a lower taxable income, and therefore a lower tax liability than would be reported under FIFO or weighted average. Of course, this is only a timing difference, and in the lifetime of a company, inventory valuation methods equal out.

In an inflationary economy, unit costs of purchases are consistently increasing in current dollars. Under LIFO, this results in a higher cost of goods sold than would have been reported if under FIFO or weighted average.

The difference between reported amounts under LIFO and FIFO is the LIFO reserve. Because a company may employ LIFO to reduce taxes, the LIFO reserve basically represents this deferred taxable income amount. Correspondingly, ending inventory, in an inflationary period, under LIFO valuation will be lower than FIFO valuation.

By expensing the more recent (and more expensive) purchases under the LIFO method, the cheaper goods remain in inventory, whereas under FIFO, the cheaper goods are expensed first, leaving the more expensive goods in inventory. The LIFO reserve has been designated as the reconciling element between FIFO and LIFO.

A means of rectifying LIFO shortcomings is LIFO liquidation. This process effectively brings old inventory up to date with current costing. In other words, it ‘liquidates’ the old inventory, expensing it against current period sales. This voids the chief advantage of LIFO and increases tax liability by increasing revenue income.

A third facet of LIFO valuation is the option of dollar-value LIFO. This method within LIFO provides for inventory to be computed in base dollars rather than units. Under this option, ending inventory for a period is divided into homogeneous pools, and then these pools are multiplied by appropriate pricing indices to adjust them to base year prices.

Over time, GAAP has incorporated numerous amendments to make LIFO more compatible with financial information processing. However, these changes have also served to further complicate Last-In, First-Out. IFRS, on the other hand, has essentially washed its hands of the method entirely, allowing only weighted average or FIFO valuation. Nevertheless, many GAAP companies are continuing to use LIFO in the face of potential future disallowance under convergence.

## WHY IFRS DOES NOT ALLOW LIFO

When IAS 2 was revised in 2003, LIFO was expressly prohibited as a method of inventory valuation. This was in response to the shift of IFRS from an income statement focus to a balance sheet focus. While an income statement approach focuses on end-period amounts, a balance sheet approach focuses on account balances on a day-to-day basis. For clarification, GAAP uses the term ‘income statement’ while IFRS uses the term ‘statement of income’. Also, GAAP uses the term ‘balance sheet’ while IFRS calls it a ‘statement of financial position’. Although slightly different in appearance and format, these two financial statements relate the same information in both GAAP and IFRS languages.

The balance sheet approach requires that figures on the statement of financial position represent the most relevant information regarding time. Thus, this approach emphasizes the present market conditions for the balance sheet and not the income statement. Because LIFO expenses the most recently purchased inventory as cost of sales, it follows that the remaining inventory consists of the oldest purchases. This is considered outdated information by IFRS standards and is not considered relevant for financial reporting. Thus, LIFO was disallowed by the IASB (Hasaan, 2011).

## LIFO RECAPTURE & WHY MANY GAAP COMPANIES CONTINUE TO USE LIFO

As mentioned in the previous section, companies with a balance sheet focus are strongly discouraged from using LIFO valuation because this method misrepresents market conditions and up-to-date information. However, many companies and firms under GAAP have a strong focus on the income statement. This approach allows for LIFO to be used appropriately.

Critics of LIFO can be traced back to 1940 when George R. Husband, in an article in *The Accounting Review*, complained that LIFO was a manipulation of income and a distortion of truth. In contrast, 40 years later, SEC Chairman Harold Williams, in his 1980 address to the Commonwealth Club, stated that in the context of inflation, LIFO was the best representation of economic reality. He said that in his judgment, LIFO was the preferred accounting approach for both tax purposes and financial reporting in the majority of situations (Hoffman & McKenzie, 2009).

With convergence, there is a reasonable possibility that LIFO will be eliminated as an acceptable method of inventory valuation. The IASB has made its position known on this matter and FASB has declared that when IFRS comes in, LIFO will no longer be an option (White, 2008). However, many policymakers are debating about a potential exception, perhaps permission for the use of LIFO for tax purposes. Of all possible tax repercussions of switching from GAAP to IFRS, the most significant likely concerns the elimination of LIFO (Tipton, 2012). Eliminating LIFO results in 'LIFO recapture,' which would cause substantially higher income and tax liability for many companies. LIFO recapture is the excess of ending inventory as calculated under FIFO over ending inventory calculated under LIFO. This excess amount corresponds to the cumulative reduction in income ensuing from use of LIFO.

The US Treasury Department proposed a repeal of LIFO for taxable years beginning after 2011. This statement indicates that the administration has come to the conclusion that LIFO provides an opportunity for unfair tax deferral. Further, the point is made that the repeal of LIFO would make easier the convergence process between GAAP and LIFO (Barry, Kuykendall, & McClements, 2009).

Eliminating LIFO was one of the options suggested by the Obama White House in 2011 to help raise tax revenues, which estimated that doing so would raise tax revenues of $72 billion by 2016. Oil and gas companies were specifically targeted in the White House proposal, as repealing LIFO and deductions for those companies would increase their taxes by an estimated $46 billion (Przybyla, 2011). Yet oil and gas companies are not the only companies affected, a broad alliance of business groups are opposing elimination of LIFO, including the U.S. Chamber of Commerce, the National Association of Manufacturers, and the chief small business lobby, the National Federation of Independent Business. Some business leaders maintain that over one third of the nation's businesses use LIFO and those would be severely hurt by LIFO's elimination (Koffler, 2011).

A majority of companies that have been reporting under LIFO are continuing to report with this method, despite the knowledge that convergence with IFRS will eliminate it. The greatest impediment to these companies changing from LIFO is the tax implications. Not only will the cessation of LIFO cause the individual tax burden on companies to rise, but the costs of changing to another method and costs of accounting for prior years' reports are substantial.

In order to use LIFO for tax reporting purposes, a company must also use LIFO for financial reporting purposes. This is called the LIFO conformity requirement (Barry, Kuykendall, & McClements, 2009). Because IFRS does not allow LIFO as a method for financial reporting purposes, the discontinuance would force companies to also discontinue using LIFO for tax reporting purposes.

To convert from one method to another, a company must obtain approval from the Internal Revenue Service. After attaining approval, the company may move forward with conversion. Translating financial statements across methods not only applies to current year amounts, but it also must be applied retroactively to prior year statements.

If LIFO is eliminated, all of the tax burden that was deferred across time will be brought up to the present and must be accounted for. This accumulation can be extensive and overwhelming to companies who have been using LIFO for many years. There has been speculation that Congress wants to repeal LIFO even before IFRS conversion in order to reap the tax revenues (Leone, 2010).

The dramatic increase in gross income for a company shifting from LIFO to another method would be a one-time occurrence. The Treasury Department's proposal has taken this into account and has provided that this increase could be taken into taxable income systematically over eight taxable years (Barry, Kuykendall, & McClements, 2009). This adjustment period is twice as long as the current IRS adjustment period of four years for other changes in accounting method.

The conversion from LIFO to any other valuation method will not be without its downsides to all companies currently using LIFO. However, the cost may be mitigated over a period of time, instead of overwhelming a business in the initial year of conversion. Congress and the standard-setting bodies are trying to develop ways to alleviate the burden of this change before the possible mandated elimination of LIFO.

## TRENDS IN INVENTORY COSTING

For many years, the American Institute of CPAs has gathered data regarding accounting methods that businesses use and how these change over time. This information is compiled in an annual publication, *Accounting Trends and Techniques* (AICPA, 2011a). Exhibit 1 shows the breakdown of inventory costing methods used by a sample of publicly traded companies, for selected years, starting with 1975.

As shown, LIFO was used by about 35 percent of sample firms in 1955, declining to 16 percent in 1973. In 1955, FIFO was used by 24 percent of firms and weighted average by 25 percent. LIFO usage increased dramatically between 1973 and 1982; in 1982, 38 percent of firms used LIFO. This increase in LIFO might be explained by the relatively high rates of inflation experienced in the late 1970s and that, as a result, firms began using LIFO to a greater degree to put more current costs on the income statement (specifically in cost of goods sold). LIFO usage slowly declined, staying at or above 30 percent of firms until 2004, when usage dropped to 29 percent of firms. In the last year of data available, 2009, LIFO usage was 26 percent.

Research Question 1 is: What is the past and current usage of different inventory costing methods? The answer is that LIFO usage has been relatively high in past years, as high as 35 percent in 1955, when FIFO usage was 24 percent and weighted average was 25 percent. LIFO usage hit an all-time high in 1982 at 38 percent of firms. In the most current year, the breakdown of LIFO, FIFO, and weighted average was 26, 49, and 22 percent, respectively.

### Average Inventory and Proportionate Value by Industry Type

Research Question 2 is: How important is inventory on corporate financial reports? To answer this question, average cost and proportionate value of inventory was obtained for a sample of publicly traded companies. Complete data was available for a sample of 192 firms, selected from the Fortune 500 (Fortune, 2011), in 2009 and 193 firms in 2010, the most current year for which financial reports were available. Exhibit 2 and Exhibit 3 show average inventory relative to average total assets and to average net income in 2009 and 2010, respectively.

**Exhibit 1: Extent of Use of Different Inventory Costing Methods during 1955 To 2009**

| | Number of Entities | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| **Inventory Methods** | **2009** | | **2008** | | **2007** | | **2006** | | **2005** | |
| First-in first-out (FIFO)………….. | 325 | 49% | 323 | 49% | 391 | 50% | 385 | 48% | 385 | 48% |
| Last-in first-out (LIFO)…………. | 176 | 26% | 179 | 27% | 213 | 27% | 228 | 28% | 229 | 29% |
| Average Cost………………………. | 147 | 22% | 146 | 22% | 155 | 20% | 159 | 20% | 155 | 19% |
| Other……………………………………. | 18 | 3% | 17 | 3% | 24 | 3% | 30 | 4% | 30 | 4% |
| **Total**……………………………………. | 666 | 100% | 665 | 100% | 783 | 100% | 802 | 100% | 799 | 100% |
| **Inventory Methods** | **2004** | | **2003** | | **2002** | | **2001** | | **2000** | |
| First-in first-out (FIFO)………….. | 386 | 47% | 384 | 46% | 380 | 46% | 382 | 44% | 386 | 44% |
| Last-in first-out (LIFO)…………. | 239 | 29% | 251 | 30% | 255 | 31% | 265 | 30% | 283 | 32% |
| Average Cost………………………. | 169 | 21% | 167 | 20% | 165 | 20% | 180 | 21% | 180 | 20% |
| Other……………………………………. | 27 | 3% | 31 | 4% | 28 | 3% | 46 | 5% | 38 | 4% |
| **Total**……………………………………. | 821 | 100% | 833 | 100% | 828 | 100% | 873 | 100% | 887 | 100% |
| **Inventory Methods** | **1999** | | **1998** | | **1997** | | **1996** | | **1995** | |
| First-in first-out (FIFO)………….. | 404 | 44% | 409 | 43% | 415 | 43% | 417 | 43% | 411 | 42% |
| Last-in first-out (LIFO)…………. | 301 | 33% | 319 | 34% | 326 | 34% | 332 | 34% | 347 | 35% |
| Average Cost………………………. | 176 | 19% | 176 | 19% | 188 | 20% | 181 | 19% | 185 | 19% |
| Other……………………………………. | 34 | 4% | 40 | 4% | 32 | 3% | 37 | 4% | 40 | 4% |
| **Total**……………………………………. | 915 | 100% | 944 | 100% | 961 | 100% | 967 | 100% | 983 | 100% |
| **Inventory Methods** | **1994** | | **1993** | | **1992** | | **1991** | | **1990** | |
| First-in first-out (FIFO)………….. | 417 | 42% | 417 | 42% | 415 | 41% | 421 | 41% | 411 | 40% |
| Last-in first-out (LIFO)…………. | 351 | 35% | 350 | 35% | 358 | 35% | 361 | 35% | 366 | 36% |
| Average Cost………………………. | 192 | 19% | 189 | 19% | 193 | 19% | 200 | 19% | 195 | 19% |
| Other……………………………………. | 42 | 4% | 42 | 4% | 45 | 4% | 50 | 5% | 44 | 4% |
| **Total**……………………………………. | 1002 | 100% | 998 | 100% | 1011 | 100% | 1032 | 100% | 1016 | 100% |

| | Number of Entities | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| **Inventory Methods** | **1989** | | **1988** | | **1987** | | **1986** | | **1985** | |
| First-in first-out (FIFO)………….. | 401 | 40% | 396 | 38% | 392 | 37% | 383 | 36% | 381 | 36% |
| Last-in first-out (LIFO)…………. | 366 | 36% | 379 | 37% | 393 | 37% | 393 | 37% | 402 | 38% |
| Average Cost………………………. | 200 | 20% | 213 | 21% | 216 | 21% | 223 | 21% | 223 | 21% |
| Other……………………………………. | 48 | 5% | 50 | 5% | 49 | 5% | 53 | 5% | 48 | 5% |
| **Total**……………………………………. | 1015 | 100% | 1038 | 100% | 1050 | 100% | 1052 | 100% | 1054 | 100% |
| **Inventory Methods** | **1984** | | **1983** | | **1982** | | **1973** | | **1971** | |
| First-in first-out (FIFO)………….. | 377 | 36% | 366 | 34% | 373 | 35% | 394 | 43% | 333 | 41% |
| Last-in first-out (LIFO)…………. | 400 | 38% | 408 | 38% | 407 | 38% | 150 | 16% | 144 | 18% |
| Average Cost………………………. | 223 | 21% | 235 | 22% | 238 | 22% | 235 | 25% | 220 | 27% |
| Other……………………………………. | 54 | 5% | 52 | 5% | 53 | 5% | 148 | 16% | 125 | 15% |
| **Total**……………………………………. | 1054 | 100% | 1061 | 100% | 1071 | 100% | 927 | 100% | 822 | 100% |
| **Inventory Methods** | **1970** | | **1969** | | **1955** | | | | | |
| First-in first-out (FIFO)………….. | 292 | 38% | 276 | 36% | 138 | 24% | | | | |
| Last-in first-out (LIFO)…………. | 146 | 19% | 153 | 20% | 202 | 35% | | | | |
| Average Cost………………………. | 203 | 27% | 202 | 27% | 146 | 25% | | | | |
| Other……………………………………. | 124 | 16% | 129 | 17% | 91 | 16% | | | | |
| **Total**……………………………………. | 765 | 100% | 760 | 100% | 577 | 100% | | | | |

Source: AICPA. 2010. *Accounting Trends and Techniques*, 2010-1983; 1974; 1972-1970; 1956 (New York, New York: AICPA).

**Exhibit 2: 2009 Average Inventory Compared to Total Assets and Net Income by Industry Type**

| Industry Type: | No. of Companies | Avg. Total Assets ($Millions) | Avg. NI ($Millions) | Avg. Inventory ($Millions) | Avg. of Inv./ Total Assets | Avg. of Inv./ NI |
|---|---|---|---|---|---|---|
| Manufacturing | 116 | $ 37,603.51 | $ 3,038.00 | $ 2,360.09 | 8.2% | 34.6% |
| Retail | 38 | $ 19,703.65 | $ 885.14 | $ 4,409.72 | 23.8% | 689.6% |
| Service | 38 | $ 39,957.67 | $ 1,927.69 | $ 1,183.85 | 4.1% | 24.4% |
| Total | 192 | | | | | |

**Exhibit 3: 2010 Average Inventory Compared to Total Assets and Net Income by Industry Type**

| Industry Type: | No. of Companies | Avg. Total Assets ($Millions) | Avg. NI ($Millions) | Avg. Inventory ($Millions) | Avg. of Inv./ Total Assets | Avg. of Inv./ NI |
|---|---|---|---|---|---|---|
| Manufacturing | 117 | $ 40,934.92 | $ 2,892.02 | $ 2,532.73 | 8.4% | 187.5% |
| Retail | 38 | $ 20,277.53 | $ 1,333.10 | $ 4,706.04 | 24.7% | 684.1% |
| Service | 38 | $ 60,391.19 | $ 2,646.65 | $ 1,252.38 | 4.0% | 85.4% |
| Total | 193 | | | | | |

The averages of the ratio of inventory to total assets and to net income were a relatively high proportion for all three types of industries: manufacturing, retail, and service. In 2009, the ratio of inventory to total assets was 8.2, 23.8, and 4.1 percent for manufacturing, retail, and service firms, respectively; and about the same in 2010: 8.4, 24.7, and 4.0 percent, respectively. In 2009, the ratio of inventory to net income was 34.6, 689.6, and 24.4 percent for manufacturing, retail, and service firms, respectively; and in 2010, 187.5, 684.1, and 85.4 percent for manufacturing, retail, and service firms, respectively.

Average differences in ratios were significant between manufacturing and retail firms, and between retail and service firms. Significant differences were present in both 2009 and 2010. Results of the statistical analysis are shown in Exhibit 4.

Findings show that inventory is a relatively high proportion of assets for all types of business firms but especially for retail firms. Inventory to net income was also a high ratio for all types of business firms but especially for retail firms, 689.6 percent in 2009 and 684.1 percent in 2010. Thus, based on these ratios, a change in inventory costing methods will affect all firms, but have a bigger proportionate effect on retailing firms than on manufacturing and service firms.

## Overview of Case Study

Research Question 3 is: What will be the impact on corporate financial reporting, specifically regarding inventory costing, if IFRS replaces GAAP? To explore the ramifications of the three inventory costing methods, as well as the resulting differences in the financial reports, we will generate multiple financial statements for the hypothetical merchandising company Furniture Depot. For the purposes of this analysis, we will assume that this is the second year of operations for the business and that it operates under a perpetual inventory system.

**Exhibit 4: Average Inventory Compared to Total Assets & Net Income by Industry Type: 2009-2010**

| Industry Type: | 2009 Avg. of Inv./ Total Assets | 2010 Avg. of Inv./Total Assets | % Change | 2009 Avg. of Inv./NI | 2010 Avg. of Inv./NI | % Change |
|---|---|---|---|---|---|---|
| Manufacturing | 8.2% [a] | 8.4% [a] | 3.3% | 34.6% [a] | 187.5% [b] | 441.5% |
| Retail | 23.8% [a] | 24.7% [a] | 3.7% | 689.6% [a] | 684.1% [b] | -0.8% |
| Service | 4.1% [a] | 4.0% [a] | -1.5% | 24.4% [a] | 85.4% [b] | 250.6% |

Note: a=Mfg, Ret, & Ser all significantly different at $p<.01$.
b=Mfg & Ret significantly different at $p<.01$; Ret & Ser significantly different at $p<.01$; Ret & Ser are not significantly different.

With this in mind, we will examine the financial impact under weighted average, FIFO, and LIFO inventory valuation methods. In so doing, the differences among revenue, cost of goods sold, inventory, and income will be brought to light.

## CASE STUDY OF FURNITURE DEPOT

Beginning account balances for the year for Furniture Depot amounted to the following:

| | | |
|---|---|---|
| Cash | | $12,000 |
| Accounts Receivable | | 5,000 |
| Inventory | | 6,000 |
| Equipment | $30,000 | |
| Less: Accumulated Depreciation | 6,000 | 24,000 |
| Accounts Payable | | 25,000 |
| Common Stock | | 13,000 |
| Retained Earnings | | 7,000 |
| General and Administrative Expenses | | 2,000 |

Over the course of the second business year, Furniture Depot had the following activity:

1. Beginning inventory was $6,000 (10 units of inventory for $600 each)
2. January 15: Purchased on account 20 pieces of furniture inventory for $700 each
3. February 20: Purchased on account 5 pieces of furniture inventory for $800 each
4. March 27: Sold 20 pieces of furniture for $1,000 each
5. August 1: Purchased on account 10 pieces of furniture for $1000 each
6. August 23: Sold 20 pieces of furniture for $1500 each

We will begin by formulating the figures for ending inventory for the period under all three methods of valuation. Exhibit 5 shows the impact on beginning inventory, cost of goods sold, and ending inventory under the three inventory methods for Furniture Depot. Depending on the inventory costing method used, the cost of goods sold materially changes, resulting in significantly different levels of net income. FIFO reports the greatest net income with $19,000. The weighted average method reports $18,055 net income. LIFO reports the smallest amount of net income at $17,000.

**Exhibit 5: Comparison of the Impact of Alternative Inventory Valuation Methods on Furniture Depot's Financial Performance**

| | FIFO | | Weighted Average | | LIFO | |
|---|---|---|---|---|---|---|
| **Sales** | | $50,000 | | $50,000 | | $50,000 |
| **Cost of Goods Sold** | | | | | | |
| Beginning Inventory | $6,000 | | $6,000 | | $6,000 | |
| Add: Purchases | 28,000 | | 28,000 | | 28,000 | |
| Goods Available for Sale | 34,000 | | 34,000 | | 34,000 | |
| Less: Ending Inventory | 5,000 | | 4,055 | | 3,000 | |
| Cost of Goods Sold | | 29,000 | | 29,945 | | 31,000 |
| **Gross Profit** | | 21,000 | | 20,055 | | 19,000 |
| Less: General and Administrative Expenses | | 2,000 | | 2,000 | | 2,000 |
| **Net Income** | | $19,000 | | $18,055 | | $17,000 |

Currently under GAAP, Furniture Deport, which is using the LIFO method for inventory valuation, ending inventory is $3,000 and net income is $17,000. If the U.S. switches to IFRS, then Furniture Depot would no longer be able to use LIFO. A switch to weighted-average method would result in an ending inventory of $4,055 and net income of $18,055. Compared to LIFO, this is a 35.17 percent increase in ending inventory and a 6.21 percent increase in net income. A switch to the FIFO method would result in an ending inventory of $5,000 and net income of $19,000. Compared to LIFO, this is a 66.67 percent increase in ending inventory and an 11.76 percent increase in net income. Thus, the answer to Research Question 3 is that a change from GAAP to IFRS can potentially have a major impact on inventory valuation and net income.

## CONCLUSIONS

The United States is considering switching from its generally accepted accounting principles to International Financial Reporting Standards. With regard to inventory costing, the switch from GAAP to IFRS would mean the disallowance of LIFO. The shift from LIFO to an IFRS-supported method would have a significant financial impact on GAAP-based companies. Among these impacts would be lower reported ending inventory, higher net income, and higher tax liability.

This study addressed three research questions. With regard to the first, the trend in inventory costing is mixed, with the LIFO method being used by 26 percent of firms in 2009 (the most current year with data available). The highest usage of LIFO was 38 percent (1982-1985) and the lowest was 16 percent in 1973. With regard to the second research question, average cost and proportionate value of inventory to total assets and to net income was obtained for a sample of publicly traded companies. Findings show that the ratio of inventory to total assets and to net income is relatively high for all three types of business firms but especially for retail firms. As a result, a change in inventory costing methods will affect all firms, but have a bigger proportionate effect on retailing firms than on manufacturing and service firms.

Regarding the third research question, a case study analysis of a hypothetical representative company shows that a change from GAAP to IFRS can potentially have a major impact on corporate financial reporting, specifically on inventory valuation and net income. In the case study, a switch from LIFO to one of the two approved GAAP methods would have a major impact on financial reporting, specifically, the income statement. The switch from LIFO to weighted average resulted in a 35 percent increase in inventory valuation and 6 percent increase in net income. The switch from LIFO to FIFO resulted in a 66 percent increase in inventory valuation and an 11 percent increase in net income.

## LIMITATIONS AND FUTURE RESEARCH

This study is limited by the data available from selected years of prior corporate financial reports in the sample data collected by the AICPA and reported in *Accounting Trends and Techniques* (AICPA, 2011a) and the sample data collected by the authors from available financial data of the 192 Fortune 500 firms in 2009 and 193 firms in 2010. The case study analysis is limited in that it is an illustration of the potential effect of a change in inventory costing methods, resulting from the replacement of GAAP with IFRS. The impact on actual companies could be more or less, depending on the unique financial situation of individual companies.

The current study provides a starting point for future research on this important area of financial reporting, that is inventory costing. Future research could extend the current study by using samples that include additional years of data and financial data from additional business firms. The case study analysis could be extended to include other hypothetical companies in different financial situations. Finally, this study offers a methodology for evaluating other accounting changes that would result from a switch from one set of accounting standards to another.

## ACKNOWLEDGMENT

The authors wish to express special appreciation to Andrew Lane, graduate assistant, who assisted with this study. We also express our gratitude to Dr. Warren Edminster, Director of the Honors Program at Murray State University, who provided direction to Casey in the Honors Program, which set the stage for this study.

## REFERENCES

AICPA (2011a). *Accounting Trends and Techniques*. New York: AICPA.

AICPA (2011b). AICPA recommends SEC allow optional adoption of IFRS by U.S. public companies. Retrieved December 17, 2011, from http://www.aicpa.org/press/pressreleases/2011/pages/aicparecommendssecallowoptionaladoptionofifrsbyuspubliccompanies.aspx .

AICPA. 2011c. History of the AICPA. Retrieved December 1, 2011, from http://www.aicpa.org/About/MissionandHistory/Pages/History%20of%20the%20AICPA.aspx (August 30).

Barry, J., K. Kuykendall & T. McClements (2009). *The Uncertain Future of LIFO*. New York: PriceWaterhouseCoopers LLP.

Beier, R. & D. Kaplan (2007). *IFRS: The Right Step for US Businesses*. New York: PriceWaterhouseCoopers LLP.

Cheng, K. (2009). Navigating with the IFRS convergence roadmap. *Journal of Corporate Accounting and Finance,* 20(6), 31-37.

Crovitz, L.G. (2008). Closing the information GAAP. *The Wall Street Journal* (September 8): A17.

FASB (2002). The Norwalk Agreement. FASB. Retrieved May 4, 2011, from http://www.fasb.org.

FASB (2011a). Facts about FASB. FASB. Retrieved May 6, 2011, from http://www.fasb.org/jsp/FASB/Page/SectionPage&cid=1176154526495 (August 29).

FASB (2011b). International convergence of accounting standards. FASB. Retrieved October 10, 2011, from http://www.fasb.org/cs/ContentServer?c=Page&pagename=FASB%2FPage%2FSectionPage&cid=1176156304264.

Feucht, F., M. Imhof, L.M. Smith & K. Wang (2011). The call for increasing the international component of the US accounting curriculum. *Academy of Accounting and Financial Studies Journal*, 15(3), 133-146.

Financial Accounting Foundation (2011). Financial accounting foundation overview. Financial Accounting Foundation. Retrieved August 29, 2011, from http://www.accountingfoundation.org/cs/ContentServer?site=Foundation&c=Page&pagename=Foundation%2FPage%2FFAFSectionPage&cid=1176158231339.

Fortune (2011). Fortune 500. CNN Money. Retrieved May 23, 2011, from http://money.cnn.com/magazines/fortune/fortune500/2011/full_list/.

Hasaan (2011). Why LIFO is not permissible under IFRS? Retrieved June 2, 2011, from http://pakaccountants.com/why-lifo-is-prohibited-under-international-accounting-standards/.

Hoffman, M.J.R. & K.S. McKenzie (2009). Speed bump or barricade? LIFO Conformity and the road to IFRS. *Strategic Finance*. Retrieved July 30, 2010, from Interactive Business Network Resource Library - http://findarticles.com/p/articles/mi_hb6421/is_1_91/ai_n39236617/?tag=content;col1.

Horngren, C.T., W.T. Harrison Jr. & M.S. Oliver (2009). *Financial & Managerial Accounting (Second Edition).* New York: Pearson.

IASB (2011). International Accounting Standards Board. International Accounting Standards Board. Retrieved November 1, 2011, from http://www.fasb.org/cs/ContentServer?c=Page&pagename=FASB%2FPage%2FSectionPage&cid=1176156304264.

IFRS (2011). About the IFRS foundation and the IASB. Retrieved September 2, 2011, from http://www.ifrs.org/The+organisation/IASCF+and+IASB.htm.

IOSCO (2011). IOSCO historical background. Retrieved September 6, 2011, from http://iosco.org/about/index.cfm?section=background.

King, A.M. (2010). IFRS is dangerous to your health. *Accounting Today*. Retrieved January 21, 2012, from http://webcpa.com.

Koffler, K. (2011). Obama friends business while trying to wreck its LIFO. White House Dossier. Retrieved July 21, 2011, from http://www.whitehousedossier.com/2011/07/21/obama-friends-business-wreck-lifo/.

Leone, M. (2010). Sucking the LIFO out of inventory. *CFO Magazine.* Retrieved July 15, 2010, from http://www.cfo.com/article.cfm/14508745?f=singlepage (July 15).

Morgan, J. (2008). SEC launches international accounting roadmap. *Money Management Executive*, December 1: 7.

Przybyla, H. (2011). Obama wants to scrap $72-billion business tax break as Republicans balk. Retrieved June 27, 2011, from http://www.bloomberg.com/news/2011-06-27/obama-targets-72-billion-business-tax-break-republicans-balk.html.

Rezaee, Z., L.M. Smith & J.Z. Szendi (2010). Convergence in accounting standards: Insights from academicians and practitioners. *Advances in Accounting*, 26(1), 142-154.

Sagafi-nejad, T., L.M. Smith, S. Byrne, L. Gaskins, Z. Nguyen & S. Sexton (2010). Moving toward international financial reporting standards (IFRS) in North America. *Internal Auditing*, 25(1), 3-9.

Shim, J.K. & J.G. Siegel (2010). *Dictionary of Accounting Terms (Fifth Edition).* Hauppauge, NY: Barron's: 305.

Smith, L.M. (2008). Are international financial reporting standards (IFRS) an unstoppable juggernaut for US and global financial reporting? *The Business Review Cambridge*, 10(1), 25-31.

Tipton, J.S. (2012). IFRS and the repeal of LIFO. University of Tennessee honors thesis projects. Retrieved March 30, 2012, from http://trace.tennessee.edu/utk_chanhonoproj/1483 (March 30).

White, G. (2008). LIFO vs. IFRS. Cpa2Biz. Retrieved June 12, 2010, from http://www.cpa2biz.com/Content/media/PRODUCER_CONTENT/Newsletters/Articles_2008/Tax/impediment.jsp.

# ONLINE PRIVACY PRACTICES: ADVANCES IN CHINA

**Andrea J. S. Stanaland, Radford University**
**May O. Lwin, Nanyang Technological University**

## ABSTRACT

*Much of the research in the area of online privacy has been limited to the United States. However, with the Internet community truly global, studies dealing with policy issues of online privacy should extend internationally. Using a relativistic perspective based on the U.S., we first examine the state of privacy regulations in China, which has one of the highest Internet usage rates in the world. We next assess the information practices of companies in China by examining the extent and the type of disclosures posted by top Chinese consumer-oriented websites. Our findings suggest that there is some semblance of self-regulation evolving in terms of online privacy protection in China. A surprising 72.5% of Chinese websites posted some kind of privacy disclosure, and the range of information posted on the websites appears to be comparable with the types of disclosures on the U.S. websites. In fact, privacy disclosures of Chinese websites adhere more closely to Federal Trade Commission fair information practices than do those of U.S. websites.*

## INTRODUCTION

The technological advancements that have made the Internet a penetrating force in today's consumer marketplace have also improved marketers' abilities to collect and disseminate information electronically. This rapid advancement in technologies has enhanced the potential for consumer surveillance and data exchange which, if left unchecked, places consumer privacy at considerable risk (Roger, 1998; Taylor, 2004). Personal privacy has historically been valued and sought by consumers, and today's firms must be responsive to consumer privacy issues when determining ethical strategies that will benefit both the company and its customers (Lanier & Saini, 2008). In fact, Palmer (2005) notes a transformation of the concept of privacy in online realms, and presents privacy as an inherent ethical issue to ecommerce (Palmer, 2005). Online privacy can be viewed as essentially a consumer's exchange of information for online benefits in the form of information/message relevance (Ashworth & Free, 2006). However, privacy worries have at times led consumers to provide false information when online privacy policies are not readily available, thus undermining data accuracy (Kuo, Lin & Hsu, 2007). Website privacy policies have thus been identified as an important way for companies to ease privacy concerns of consumers, and reassure them of a firm's ethical practices (Pollach, 2005).

Regulatory approaches to online privacy have varied according to different economic blocs: the European Union has taken an omnibus approach with its position as a central overseer, Asia-Pacific Economic Cooperation (APEC) has begun work on a privacy framework amenable to its Member Economies, and the United States has chosen a sectoral approach, legislating according to industry needs. As the Internet penetrates all national boundaries and consumers on the Web can no longer be confined territorially, ethical approaches to privacy should warrant attention across nations. To address this need, the current research examines the state of privacy regulations in China, which has one of the highest Internet usage rates in the world. We next assess the information practices of companies in China by examining the extent and the type of disclosures posted by top Chinese consumer-oriented websites as compared to fair information standards of companies in the United States.

## BACKGROUND

### Corporate Practices and Internet Privacy in a Global Context

Milne and Culnan (2002) showed that companies in the U.S. have been steadily increasing their adherence to fair information practices despite a legislation-free environment. On the public policy front, the findings of these studies have also been influential in a number of U.S. Federal Trade Commission (FTC) decisions on Internet privacy (e.g., FTC, 1999). Yet, resistance to the adoption of a global standard remains, with the greatest disparity still centered on the policy instruments chosen to enforce the standards (Bennett, 1992; Milberg, Smith & Burke, 2000; Pincus & Johns, 1997). With the proliferation of Internet usage worldwide, the lack of parity between nations is likely to become more acute, and will inevitably lead to varying degrees of compliance towards data protection standards within these countries.

Overall, research of cross-national information privacy issues has been scarce. In 1995, Milberg, Burke & Smith researched the relationships among nationality, cultural values, personal information privacy concerns, and information privacy regulations across 30 countries. The results showed that different cultures exhibit various levels of government involvement in regulating information privacy. In the U.S., the government has clearly stated that private efforts of industry working in cooperation with consumer groups are preferable to government regulation (The White House, 1997). In contrast, the E.U. backs government legislation, allowing the setting of specific rules and providing the usual legal enforcement procedure to ensure compliance (Swire, 1997). As the universal nature of the Internet connects all nationalities, more research needs to be undertaken on how marketers internationally are approaching privacy issues (Milne, 2000). Indeed, Caudill and Murphy (2000) proposed that international regulation, rather than just a U.S. based public policy, is a likely long-term answer for the privacy problem. As stated earlier, past research has been limited mainly to the U.S. and the E.U. (e.g., Phelps, Nowak & Ferrell, 2000; Regan, 1999). With the increasing application of Information Technology (IT) to power the world's globalization process, there has been a need for governments to strike an ideological balance between institutional and structural factors.

## The Case of China—Research Questions

China in particular is one of the most connected places globally in terms of Internet usage. Already, the country is emerging as one of the largest e-commerce giants, with the government-administered China Internet Network Information Centre (CNNIC) reporting that the country has over 1,310,000 commercial websites, with an annual increasing rate of 66.4% (CNNIC, 2007). According to the United Nations Conference on Trade and Development's E-Commerce and Development report, China had the second largest number of Internet users in the world (162 million), lagging behind only the U.S. (215 million) (UNCTAD, 2004).

However, while figures showing the rapid growth in China's online industries are readily available, the state of Internet regulation there remains largely enigmatic. In Privacy International's survey on international privacy laws, Rotenberg and Laurant (2006) have described China's politburo as being highly interested in data privacy issues. Domestically, there has been much fine-tuning of the legal environment, with legislation being debated, passed, and retracted on a regular basis. With so much at stake in China, there is a necessity to quantifiably show the state of data protection here, making it an important market with which to conduct a cross-cultural study on ethical privacy practices. Hence, we propose the following research questions:

1. Are the legal processes that oversee online privacy in China developing along the self-regulatory model in an online environment that is influenced by U.S. legal institutions?
2. How have business practices pertaining to privacy in China evolved under such an environment?

To answer these questions, we first examine the state of regulations regarding usage of information in China. We then conduct an analysis of websites to examine the real nature of information practices by Internet companies in China.

## State of Privacy Regulation in China

Privacy has been established as a fundamental right in the Chinese Constitution. Article 40 states that "Freedom and privacy of correspondence of citizens of the People's Republic of China are protected by law. No organization or individual may, on any ground, infringe on citizens' freedom of privacy of correspondence, except in cases where to meet the needs of state security or of criminal investigation, public security or procuratorial organs are permitted to censor correspondence in accordance with procedures prescribed by law" (Constitution of the People's Republic of China, 2004). Chinese leaders apparently see improvements in its information infrastructure as key to maintaining, not loosening, political control while advancing economic objectives. Top priority was placed in the creation of a "secret and restricted" information system interconnecting China's senior government leaders and providing them with immediate access to reference data from other institutions, organizations and offices under the direct jurisdiction of the Communist Party Central Committee (Bork, 2000).

In fact, former President Jiang Zemin called upon the nation to embrace the wonders of the Internet (Sheila, 2000). Yet there are issues that will come hand in hand with a burgeoning

Internet market, and privacy is one of them. There are indications that the Chinese government is beginning to understand the importance of protecting consumer privacy online. For instance, Beijing backtracked on the tough laws that banned the sale of products containing foreign-made encryption software which is generally used in everyday items such as mobile phones and e-mail programs and web browsers to protect user privacy (Einhorn, 2000). In 2000, the Chinese government also passed a few regulations related to Internet information security and privacy protection. For instance, the Regulations on Administration of Internet Bulletin Board System (BBS) Service, passed by the Ministry of Information Industry in 2000, mandates that BBS service providers should keep the Internet users' personal information secret, and shall not reveal it to other parties unless otherwise provided under law (Section 12). In addition, the Decision of the Standing Committee of National People's Congress on Internet Security passed on 28 December 2000 also includes "illegally intercepting and capturing, tampering with or deleting others' emails or other information, violating other's correspondence freedom and privacy" as criminal activities punishable with severe penalties (Section 4).

Nonetheless, corresponding laws on the tight control of Internet Service Providers (ISPs) and BBS providers show that the government is still not prepared to leave regulation in this area to market forces. For example, the Measures for Managing Internet Information Services requires an Internet Content Provider (ICP) providing services relevant to news information, publishing business, and e-announcements, to record the contents of the information, the time the information is released, and the address or the domain name of the website; ISPs are required to record such information as the time of its subscribers' access to the Internet, the subscribers' account numbers, the addresses or domain names of the websites, and the main telephone numbers they use (State Council of China, 2000). These records must be kept for at least 60 days, and be shown to relevant state authorities upon request (Section 14). Similar restrictions can also be found in relation to BBS service providers (Regulations on Administration of Internet BBS Service, Section 14).

## STUDY: CHINESE COMPANIES' ONLINE PRACTICES

Given the lack of self-regulation and that there are few specific regulations from the government regarding Internet privacy, one would expect that Chinese websites have little need to show concern towards consumer Internet privacy. This perceived lack of need for privacy protection in the regulatory environment poses an interesting research question as to how businesses in China are really approaching the issue. Specifically, it should be of interest to researchers to know if businesses are taking advantage of the lax governmental controls or if initiatives have been taken towards self-regulation. While researchers agree that observing fair information practices is constructive for business, questions remain as to whether China's e-companies observe such policies in view of what may be seen as lighter policy guidelines and modest legal protection. To undertake this task, we made an initial examination of previous studies which tackled this issue in the U.S. We then adapted existing methods used in FTC studies to provide a fair yardstick for possible inter-country reference. We first discuss these extant U.S. studies in the next section, following which we will discuss our current research.

## Previous Studies of U.S. Websites

In the United States, privacy disclosures posted by websites abide by the FTC's five Fair Information Principles: 1) notice, 2) choice, 3) access, 4) security, and 5) redress (FTC, 2008). Assuming that a firm does not misrepresent its actual conduct in its declarations, such guidelines signal to the consumer that the firm will abide by a set of rules that most consumers perceive as fair, and will not behave opportunistically (Bradrach & Eccles, 1989; Shapiro, 1987). Because such fair information practices minimize the risk of wanton disclosure, they help build trust and encourage consumers to reveal personal information that is needed for relationship marketing (Culnan & Bies, 2003; Lewicki, Mcalister & Bies, 1998; Milne & Boza, 1999). In order to measure the success of the FTC's self-regulatory environment, a number of studies have been undertaken to see how and if companies were posting privacy disclosures. In 1999, the Online Privacy Alliance (OPA), a consortium of private sector companies, funded the Top 100 websites and the Georgetown Internet Privacy Policy Survey (Culnan, 1999; 2000). The surveys covered the top 100 .com websites visited by consumers and a random sample of 361 commercial U.S. websites. The research found that almost one-third of the sampled websites did not disclose any of their information practices, and the postings of the remaining two-thirds were not fully reflective of fair information practices. This implied that an effective self-regulatory regime was still not present at that time (Culnan, 2000). Based on these results, the FTC concluded that a full self-regulatory regime had yet to emerge, and legislation to place parents in control of online collection and use of personal information from children was thus recommended. In the latter part of 1998, Congress enacted the Children's Online Privacy Protection Act (COPPA, 1998) regulating the collection and use of personal information collected by websites targeted to children under 13 years of age. Subsequently, the FTC also made a recommendation to Congress to enact laws that would buttress the present self-regulatory framework (Milne & Culnan, 2002).

## Method

To examine the state of Internet privacy in China, we ask the same questions previously directed only at the websites in the U.S. We also reassess the top U.S. websites concurrently to ensure that our comparisons are fair and current. We thus pose questions in three basic domains:

1. What types of personal information are Chinese websites collecting from consumers?
2. How many of the top Chinese websites have posted privacy disclosures?
3. To what extent do the privacy disclosures of Chinese websites reflect fair information practices as defined in the U.S.?

For our sample we used the most updated sample of the top Chinese commercial and government websites from the 20th statistical report on the development of internet in China issued by the China Internet Network Information Center (CINIC, 2007), resulting in a sample of 102 popular Chinese websites. For the U.S. sites, we used the Media Metrix list of Top 500 sites, and surveyed a sample of 203 commercial websites drawn from the list. Websites were screened based on whether they are directed towards consumers and the fact that the site had to collect some kind of personal information from consumers (without any purchase involved in the exchange). We next assess the existence and the nature of privacy statements of each website.

Two independent coders, who were bilingual in Mandarin and English were trained on the coding scheme. A preparatory session was conducted for the coders to improve objectivity, and to increase familiarity with the coding scheme and other operational definitions (Kolbe & Burnett, 1991). For the actual data collection, four steps were included in the process. First, coders determined whether a site was active before ensuring that the site was indeed Chinese. After the coders had concluded that the website qualified for inclusion in the sample, the coder searched the site and completed a coding form for the site.

Coders then determined the types of personal information and/or demographic information the site collected. The first part of the coding sheet examined the nature and types of personal information that U.S. and Chinese websites collect from consumers. We adopt the definition of "personal information" used by the FTC, which includes two broad categories of information: personal identifying information, and demographic/preference information (FTC, 1998). Personal identifying information consists of details that can be used to identify consumers, such as a name or e-mail address. Demographic information includes items such as gender and education; this can be used together with identifying information for purposes of market segmentation.

Coders then examined each of the websites for two types of privacy disclosures – privacy policy notices and information practice statements. Our definitions follow the U.S. Federal Trade Commission (FTC, 1998). *Privacy Policy Notice* is defined as a comprehensive description of a site's practices that is located in one place on the site that may be reached by clicking on an icon or a hyperlink. An *Information Practice Statement* is defined as a discrete statement that describes a particular information practice or policy from which at least one potential use can be inferred.

Finally, coders analyzed the content of the *Privacy Policy Notice* or *Information Practice Statement(s)* to determine the extent to which the privacy disclosures posted by websites are based on fair information practices. In accordance with the FTC, we analyzed the contents of the privacy disclosures to determine whether they included the following: 1) notice, 2) choice, 3) access, 4) security, and 5) redress. Notice consists of statements about how and what information is collected, how it will be used, whether it will be reused or disclosed to third parties, and whether the website says anything about its use or nonuse of cookies. Choice is operationalized as statements regarding choice offered about being contacted again by the same organization, and the choice of not disclosing non-aggregate personal information collected by the website to third parties. Access is defined as allowing consumers to review or ask questions about the information the site has compiled, and whether the sites disclose how inaccuracies in personal information are handled. Security comprises protecting information during the transmission and subsequent storage of information. Lastly, redress looks at whether contact details are available for a consumer to ask a question about a website's information practices or to complain to the company or another organization about its privacy policy. The five FTC principles ensure the enforcement of fair information practices.

## RESULTS

### Personal Information Collection

We first assessed personal information collected by websites. Table 1 shows the frequency of each type of personal information collected.

**Table 1: Frequency and Type of Personal Information Collected**

| Type of Information | Number of Sites Collecting | | Percentage Collecting (%) | |
|---|---|---|---|---|
| | China (102) | United States (199) | China (102) | United States (199) |
| **Frequency of Information Collection** | | | | |
| Personal Identifying Information | 85 | 199 | 83.3 | 100 |
| Demographic Information | 56 | 157 | 54.9 | 78.9 |
| **Personal Identifying Information** | | | | |
| E-mail address | 81 | 190 | 79.4 | 95.5 |
| Name | 70 | 170 | 68.6 | 85.4 |
| Postal address | 28 | 96 | 27.5 | 48.2 |
| Telephone number | 36 | 62 | 35.3 | 31.2 |
| Credit card number | 9 | 14 | 8.8 | 7.0 |
| Fax number | 2 | 4 | 2.0 | 2.0 |
| ID number/Social security number | 20 | 5 | 19.6 | 2.5 |
| **Demographic Information** | | | | |
| Age/Date of birth | 45 | 101 | 55.9 | 50.8 |
| Zip code/City/ State | 32 | 131 | 31.4 | 65.8 |
| Gender | 50 | 92 | 49 | 46.2 |
| Preferences/Interests | 23 | 52 | 22.5 | 26.1 |
| Occupation | 24 | 28 | 23.5 | 14.1 |
| Income | 18 | 31 | 17.6 | 15.6 |
| Education | 20 | 17 | 19.6 | 8.5 |
| Family information | 6 | 19 | 5.9 | 9.5 |

While most of the websites surveyed collect some form of demographic information, there was a disparity in the amount of demographic data collected by the Chinese (China=54.9%,) versus the U.S. (U.S.=78.9%) websites, as well as collection of personal identifying information (China = 83.3% vs. U.S. = 100%). The types of information collected in China are similar to those outlined by the FTC. Personal information such as "E-mail address" and "Name" are collected by a majority of websites from both countries. One notable difference with regards to Chinese websites is their frequent collection of "ID number" (China=19.6% vs. U.S. Social Security number = 2.5%). The ID number (equivalent to the U.S. social security number), is issued by the Government of China for personal identification, with each citizen being assigned a unique number. For demographic information, while few websites ask for "Family information" (China=5.9%, U.S.=9.5%), most routinely collect "Age/Date of birth"

(China=45%, U.S.=50.8%), "Gender" (China=49%, U.S.=46.2%), and "Zip code/City/ State" (China=31.4%, U.S.=65.8%). Chinese websites exceed U.S. websites in the collection of "Occupation" (China=23.5%, U.S.=14.1%), and "Education" (China=19.6%, U.S.=8.5%). In terms of "Income", similar results showed in both countries (China=17.6%, U.S.=15.6%). Overall, we find mixed results in terms of type of personal information collected. In some instances, websites from the U.S. and China show similarity (e.g., postal address, telephone number, age/date of birth), while in other cases, disparities exist (e.g., ID number/social security number, zip code/city/state, education).

## Frequency of Privacy Disclosures

We then assessed website privacy disclosures. Table 2 shows the frequency of privacy disclosures by the type of disclosure.

**Table 2: Frequency Of Privacy Disclosures By Type**

| Type of Privacy Disclosure | Proportion of Base (%) | |
|---|---|---|
| | China (102) | United States (199) |
| None | 27 .5 | 0.5 |
| websites with at least one privacy disclosure | 72.5 | 99.5 |
| Privacy policy only | 4.9 | 15.1 |
| Information practice statement only | 10.8 | 1.0 |
| Both | 56.8 | 83.4 |

Almost all of the U.S. websites contain at least one privacy disclosure (U.S.=99.5%), and 83.4% of the U.S. websites have both a privacy policy and information practice statement. This is a significant improvement from Culnan's 2000 study where only 65.9% of the websites had at least one privacy disclosure, and 36.0% of the websites had both types of disclosures. In terms of privacy disclosures, there is a large gap between the U.S. and Chinese websites, with a considerable proportion of Chinese websites (27.5%) not displaying any privacy disclosure as compared to the U.S. (0.5%). In terms of type, much fewer Chinese websites contain at least one privacy disclosure (China=72.5%, U.S.=99.5%), with even fewer having both types of disclosures (China=56.8%, U.S.=83.4%).

## Nature of Disclosures

Finally, we assessed whether posted privacy disclosures are based on fair information practices. Table 3 shows the nature of privacy disclosures for the websites in China and the U.S. Based on these figures, an unexpected pattern is observed. In general, it appears that Chinese websites are posting privacy disclosures that are adhering more closely to FTC regulations than U.S. websites. With the exception of "Access" (China = 58.3%, U.S. = 77.7%), the Chinese websites have higher scores in the other categories of fair information practices than the U.S. websites. With regards to "Choice", 86.5% of Chinese websites post this privacy disclosure, while only 44.9% of U.S. websites provide this information. The same phenomena appeared when came to “Notice,” with 86.5% of Chinese websites (compared to 44.9% in U.S) explaining use or non-use of cookies. Concerning “Redress,” China has a higher percentage of websites (58.3%) that provide contact information to the company or another organization than the U.S. (38.9%).

**Table 3: Nature of Privacy Disclosures**

| Nature of Privacy Disclosures | Proportion of Base (%) | |
|---|---|---|
| | China (69) | United States (198) |
| Notice<br>e.g., the site explains its use or non-use of Cookies | 86.5 (64) | 44.9 (89) |
| Choice<br>e.g., the site gives consumers choice to whether they want to be contacted by the company | 86.5 (64) | 44.9 (89) |
| Access<br>e.g., the site allow consumer to review, edit, update personal information | 58.3 (42) | 77.7 (154) |
| Security<br>e.g., the site provide security for information after the site has received it | 84.5 (61) | 49.0 (97) |
| Redress<br>e.g., the site provide contact information on how to complain to the company or another organization about privacy | 58.3 (42) | 38.9 (77) |

## DISCUSSION

### Online Privacy in China

Our primary objective was to examine the current state of business practices as reflected in the privacy policy content of websites in China as compared to those in the U.S. From our examination of the existing legal frameworks in the two countries, we found the privacy policy framework for Chinese websites to be dissimilar (and more lax) compared to those in the U.S. However, our findings suggest some semblance of self-regulation evolving in terms of online privacy protection in China. With regards to the business practices of Chinese websites, we find a combination of practices which are sometimes indigenous and at other times surprisingly universal. Key themes observed in our analysis are as follows: First, the fact that the majority of top Chinese websites (83.3%) collect personal identifying information suggests that information collection is now a common feature of commercial websites outside the U.S. Thus, researchers looking at privacy concerns should not confine themselves to the U.S. consumer market. It is interesting to note that type of information collected, especially personal information, varies slightly between the two countries. Chinese websites, in particular, seem more interested in collecting “ID number/Social security number”. This may be seen as an extension of the government’s effort to keep track of its citizens, as in the general requirement for all citizens to carry identification cards. While the collection of such identifying information has its advantages (for instance, in the prevention of online fraud and other criminal activities), it would likely be considered an intrusion into a person’s private realm by other cultures. Here is another apparent example of the uniqueness of China’s business culture.

Second, it is encouraging to recognize that out of the Chinese websites surveyed, 72.5% posted some kind of privacy disclosure. This is a sizable number considering the lack of substantive legal or government directives on this issue, and whatever measures there are come solely from the industry itself. In addition, the range of information posted on the websites appears to be comparable with the types of disclosures on the U.S. websites. As such, Chinese websites do demonstrate some convergence towards the U.S. standards. This perspective suggests a case where business ideology may have a stronger authority than national culture on privacy policy Web content.

Another theme emanating from our data is that the blending of business practices can be highly domain-specific. For example, when looking at the nature of privacy disclosures, the general conclusion is that the business practices in China have adhered quite strongly with the U.S. FTC framework. While this counters what we expected regarding the direction of China based on our analysis of its legal framework, our findings actually coincide with the adjustment of values of management-level personnel in China. Ralston et al. (1997) found that the Chinese have been very successful in merging Western management practices together with Asian values, leading to a high incidence of "crossvergence". The fact that this same pattern is suggested in our findings may be attributed to how Chinese business practice customs have evolved. Traditionally, social relationships in China have been fostered through the use of lavish banquets, where individuals could personally 'measure' the tenability of forging an interpersonal relationship. Personal contact was a necessity because the conditions for a lasting relationship were gauged through personal feelings, which in turn dictated how much trust could be placed on the other party (Wang, Zin & Goodfellow, 1998). Thus, the problems of conducting e-commerce activities become apparent since trust between buyer and seller can no longer be developed through traditional means. Further, the Communist Party Central Committee's information network system (Bork, 2000), and the "two carriages system" of having a Communist Party secretary and general manager run a state enterprise together (Wang, Zin & Goodfellow, 1998, p. 71) further reinforces the mistrust between businesspeople and consumers.

To circumvent this problem, the online industry in China has had to develop trust through a more Western-style approach. Posting a detailed statement of the company's privacy policy appears to be one solution that they may be pursuing. While this may be at odds with the Chinese notion of putting personal relationships before the law, it is important here to note that, unlike the West, the signing of a contract in China does not mark the end of further negotiations since there are no proper legal institutions to enforce them (Wang, Zin & Goodfellow, 1998). An online company is thus able to post a privacy statement while reserving the right to reinterpret its contents at a future date. An added benefit of a privacy statement is that it helps to alleviate worries that consumers might have over the watchful eyes of the state, which as explained previously, is intimately related with business concerns. It is important to note, however, that the Chinese government generally views consumer privacy as being secondary to the interests of the state, as suggested by the recent problems Google has experienced with Gmail hacking in China (Einhorn, 2010).

Overall, our findings appear to be in line with the findings of other cross-cultural researchers (e.g., Ralston et al., 1997) whose results demonstrate strong support for an interaction between culture and business environment which creates a unique set of managerial values and practices. Although the growth of the Internet and virtual unfettered access that spans countries and cultures has spurred Chinese businesses to adopt Western practices, cultural norms within the country may still provide prescriptions for specific types of business situations (e.g., privacy content on websites), and for specific types of content, (e.g., personal identifying information versus demographic information). Such a phenomenon is a sign of "crossvergence" as stated earlier, where a new value set exists "in-between the values supported by national culture and economic ideology" (Ralston et al., 1993, p. 257). This blending of influences, when examined specifically, provides some observations that can be useful to both global marketers and public policy makers.

**Future Research**

Our study represents only an initial effort to understand legislative initiatives and existing corporate practices of countries outside the U.S. and the E.U. that exhibit enormous latitude for e-commerce growth. There is little doubt that consumer privacy research as a topic has a great deal of potential internationally, especially with regards to online marketing and resulting public policy issues. A number of areas that need to be urgently addressed include:

International laws and policies. A comparative perspective of the latest development in privacy regulations is needed, whether initiated by the government or relevant industries. Countries which should be looked at closely are those with high Internet penetration and/or growth rates, (e.g., the E.U., U.K., Canada, China, Japan, India), and countries with small populations and high reliance on external websites (e.g., Singapore, Hong Kong and Australia). An initial comparison study of two countries, which can later be expanded to include other countries as suggested by Caudill and Murphy (2000), may help to ascertain whether a set of universal core privacy rights do exist. For example, a comparison of the regulations in the U.S. and China could provide another step towards furthering knowledge of international privacy standards.

Consumer-based cross-national studies. Consumer researchers should also assess consumer comprehension, knowledge, and privacy concerns across cultures. While such a study had been initiated by Milberg, Burke & Smith (1995) through a small-scale assessment of 900 members from the Information Systems Audit and Control Association in 30 countries, researchers to date have yet to fully tap into this potentially large stream of research. Future research should also incorporate cultural links to privacy. Our findings indicated that although the types of information collected in China are similar to those by U.S. websites, the frequency of certain information collected appears to be at variance. For example, it can be seen from Table 2 that Chinese websites are fond of collecting ID numbers (41.0%), while this is the type of information that U.S. websites would be slow to collect because of its high sensitivity (Sheehan, 1998). A preliminary conclusion that explains this difference would be that what might be considered highly sensitive to the U.S. consumers might not be such to the Chinese. In other words, information sensitivity is likely to vary across nations and cultures. Along these lines, the efficacy of website privacy policies in China is unknown. Do Chinese consumers understand

and interpret disclosure statements in ways similar to U.S. consumers? Examining Chinese website privacy policies from a linguistic perspective (see Pollach, 2005) to gauge intent and potential effectiveness would be valuable.

Developing theories on privacy. A number of approaches may be borrowed from economics, public policy, and ethics to address key issues online. These include a) applying social contract theory to investigate the trade-offs consumers across cultures are prepared to make for personal information, b) utilizing the stakeholder concept, whose premise lies in the fact that a firm must take into consideration all the stakeholders of the firm, to evaluate the decisions-making processes of international organizations, and c) applying the concept of cultural relativism to study the behavior of online companies in foreign countries (e.g., Amazon.com.fr). Such research will move the field towards a wider understanding of consumer privacy in a global context, and aid in the construction of a more internationalized code of ethical practice for all online companies regardless of country of origin.

## REFERENCES


Ashworth, L., & Free, C. (2006). Marketing dataveillance and digital privacy: Using theories of justice to understand consumers' online privacy concerns. *Journal of Business Ethics, 67*, 107-123.

Bennett, C. J. (1992). *Regulating privacy*. Ithaca, NY: Cornell University.

Bork, E. (2000). The red internet. *The Washington Post*, June 17, A19.

Bradrach, J.L., & Eccles, R. G. (1989). Price, authority and trust. *Annual Review of Sociology, 15,* 97-118.

Caudill, E. M., & Murphy, P. E. (2000). Consumer online privacy: Legal and ethical issues. *Journal of Public Policy & Marketing, 19*(1), 7-19.

COPPA. (1998). *Children's Online Privacy Protection Act.* http://www.cdt.org/legislation/105th/privacy/coppa.htm.

CINIC (China Internet Network Information Center). (2007). *20th statistical survey report on the internet development in China*. http://www.cnnic.net.cn/uploadfiles/pdf/2007/7/18/113918.pdf.

The White House. (1997). *Framework for global electronic commerce.* www.technology.gov/digeconomy /framewrk.htm.

*Constitution of the People's Republic of China.* (2004). http://www.lawinfochina.com.

Culnan, M. J. (1999). *Privacy and the top 100 websites: Report to the FTC.* http://www.securitymanagement.com/archive/library/elec_privacy.pdf.

Culnan, M. J. (2000). Protecting privacy online: Is self-regulation working? *Journal of Public Policy & Marketing, 19*(Spring), 20-26.

Culnan, J. J., & Bies, R. J. (2003). Consumer privacy: Balancing economic and justice considerations. *Journal of Social Issues, 59*(2), 323-342.

Einhorn, B. (2000). Big brother may crush China's web dreams. *Business Week*, 3668, 64.

Einhorn, B. (2010). Google and China: A Win for Liberty—And Strategy. *Business Week*, 4164, 35.

FTC (Federal Trade Commission). (1998). *Privacy online: A report to Congress*. http://www.ftc.gov/privacy.

FTC (Federal Trade Commission). (1999). *Self regulation and privacy online: A report to Congress.* http://www.ftc.gov/privacy.

FTC (Federal Trade Commission). (2008). *Protecting personal information, a guide for business*. http://www.ftc.gov/bcp/edu/pubs/business/privacy/bus69.pdf.

Kolbe, R. H., & Burnett, M. S. (1991). Content-analysis research: An examination of applications. *Journal of Consumer Research, 18*(2), 243-252.

Kuo, F. Y., Lin, C. S., & Hsu, M. H. (2006). Assessing gender differences in computer professionals' self-regulatory efficacy concerning information privacy practices. *Journal of Business Ethics, 73,* 145-160.

Lanier, C. D., & Saini, A. (2008). Understanding consumer privacy: A review and future directions. *Academy of Marketing Science Review, 12*(2), 1-49.

Lewicki, R. J., Mcallister, D. J., & Bies, R. J. (1998). Trust and distrust: New relationships and realities. *The Academy of Management Review, 23*(3), 438-458.

Milberg, S. J., Burke, S. J., & Smith, J. H. (1995). Values, personal information privacy concerns, and regulatory approaches. *Communications of the ACM, 38*(12), 65-74.

Milberg, S. J., Smith, J. H., & Burke, S. J. (2000). Information privacy: Corporate management and national regulation. *Organization Science, 11*(1), 35-37.

Milne, G. R. (2000). Privacy and ethical issues in database/interactive marketing and public policy: A research framework and overview of the special issue. *Journal of Public Policy & Marketing, 19*(1), 1-6.

Milne, G. R., & Boza, M. E. (1999). Trust and concern in consumers' perceptions of marketing information management practices. *Journal of Interactive Marketing, 13*(1), 5-24.

Milne, G. R., & Culnan, M. J. (2002). Using the content of online privacy notices to inform public policy: A longitudinal analysis of the 1998-2001 U.S. Web surveys. *The Information Society, 18*, 345-359.

Palmer, D. E. (2005). Pop-ups, cookies, and spam: Toward a deeper analysis of the ethical significance of internet marketing practices. *Journal of Business Ethic,* ,58, 271-280.

Phelps, J., Nowak, G., & Ferrell, E. (2000). Privacy concerns and consumer willingness to provide personal information. *Journal of Public Policy & Marketing, 19*(Spring), 27-41.

Pincus, L. G., & Johns, R. J. (1997). Private parts: A global analysis of privacy protection schemes and a proposed innovation for their comparative evaluation. *Journal of Business Ethics, 16*(12/13), 1237-1260.

Pollach, I. (2005). A typology of communicative strategies in online privacy policies: Ethics, power and informed consent. *Journal of Business Ethics 62*, 221-235.

Ralston, D. A., Gustafson, D. J., Cheung, F. M., & Terpstra, R. H. (1993). Differences in managerial values: A study of U.S., Hong Kong and P.R.C. managers. *Journal of International Business Studies, 24(2)*, 249-275.

Ralston, D. A., Holt, D. H., Terpstra, R. H., & Yu, K. C. (1997). The impact of national culture and economic ideology on managerial work values: A study of the United States, Russia, Japan, and China. *Journal of International Business Studies, 28*(1), 177-207.

Regan, P. M. (1999). American business and the European data protection directive: Lobbying strategies and tactics. In C. Bennett & R. Grant (Eds.), *Visions of privacy: Policy choices for the digital age* (pp. 199-216). Toronto: University of Toronto Press.

Roger, C. (1998). Information privacy on the Internet: Cyberspace invades personal space. *Telecommunication Journal of Australia, 48*(2), 34-38.

Shapiro, S. P. (1987). The social control of impersonal trust. *American Journal of Sociology, 93*(3), 623-658.

Sheila, M. (2000). Solving China's Internet riddle. *The Asian Wall Street Journal*, 10.

Sheehan, K. B. (1998). Antecedents and effects of privacy among online consumers (Doctoral dissertation, University of Tennessee-Knoxville).

State Council of China (2000). *Measures for Managing Internet Information Services*. http://www.novexcn.com/internet_law_2000.html.

Swire, P. P. (1997). Markets, self-regulation, and government enforcement in the protection of personal information. In W.M. Daley & L. Irving (Eds.), *Privacy and self regulation in the information age* (pp. 3-20.) Washington, DC: U.S. Department of Commerce.

Taylor, C. R. (2004). Consumer privacy and the market for customer information. *The Rand Journal of Economics, 35*(4), 631-650.

UNCTAD (United Nations Conference on Trade and Development). (2004). *E-Commerce and Development Report 2004*. http://www.unctad.org/en/docs/ecdr2004_en.pdf].

Wang Y. S., Zin, Z., & Goodfellow, R. (1998). *Business culture in China*. Singapore: Butterworth Heinemann Asian.

Zarrow, P. (2002). The origins of modern Chinese concepts of privacy: Notes on social structure and moral discourse. In B.S. Mcdougall & A. Hansson (Eds.), *Chinese concepts of privacy* (pp. 121-146). Leiden: Brill.

# ARE U.S. ACADEMICS AND PROFESSIONALS READY FOR IFRS? AN EXPLANATION USING TECHNOLOGY ACCEPTANCE MODEL AND THEORY OF PLANNED BEHAVIOR

**Murad Moqbel, University of Kansas Medical Center**
**Peerayuth Charoensukmongkol, Texas A&M International University**
**Aziz Bakay, Gediz University, Turkey**

## ABSTRACT

*International Financial Reporting Standards (IFRS) have been adopted by several countries around the world as a common accounting and financial language. However, the U.S. is yet to do so. In this study, we investigate the acceptance of the U.S. academics (accounting and auditing students and professors) as well as practitioners (auditors, accountants, CPAs, and financial analysts) to embrace IFRS as a common accounting and financial reporting language. We discuss the extent to which they are familiar with IFRS as well as their perception about the usefulness and risks in adopting IFRS. We further touch on IFRS education, training, and information technology role. Finally, we introduce a modified model based on the technology acceptance model (TAM) and the theory of planned behavior TPB to examine the extent to which perceived risk, perceived usefulness, and perceived familiarity with IFRS affect the perception of readiness to adopt the new standards. We do this by surveying 84 U.S. academics and practitioners. The results from structural equation modeling (SEM) show that perceived risk, familiarity, and usefulness are significant determinants of the adoption of the new standards. In particular, perceived risk of IFRS had the strongest power in predicting the readiness to adopt the new standards.*

Key words: IFRS, international financial reporting standards, Structure Equation Modeling, WarpPLS, accounting, GAAP.

## INTRODUCTION AND BACKGROUND

Differences across nations from language, history to economy have constructed barriers that challenge the ease of doing business globally. As such the accounting standards and financial reporting have been raised as an international issue to be addressed. To overcome international accounting standards problem, establishing mutually acceptable and agreeable commitments among diverse set of countries, existence of an international institution has become crucial (Lange & Howieson, 2006). In order to provide optimum understanding of cross-border business transactions, accounting standards are set accordingly by an independent and internationally recognized accounting standard-setting institution: International Accounting

Standards Board (IASB). The fast pace of globalization and the international financial markets have stimulated the need for a common financial language; IFRS which is under the auspice of IASB, an independent accounting standard-setting body based on London. The IASB morphed from another organization called the International Accounting Standards Committee (IASC) that was established in 1973 (Kennedy, 2010). Several countries around the world have already adopted IFRS and a few are to follow. Around 120 countries have completely or partially embraced International Financial Reporting Standards (IFRS, 2010). The European Union has made it mandatory for publicly traded companies to use IFRS to prepare their financial statements (Brackney and Witmer, 2005). Other countries recently joined including Canada and Korea. Mexico is planning to require all listed companies to report using IFRS in 2012. As for the U.S., the Financial Accounting Standards Board (FASB) and the IASB in their meeting in September 2002 reached an agreement, called the Norwalk agreement, to converge on a single set of accounting standards. They also agreed to make their existing financial reporting standards fully compatible and to coordinate their future work programs to maintain that compatibility (Hermann and Ian, 2006).

There are around 11,000 firms registered with the U.S. Securities and Exchange Commission (SEC), of which about 1,100 are non-U.S. companies (Oracle Corporation, 2008). In 2005, the U.S. SEC allowed non-U.S. firms to submit their financial statements in compliance with either U.S. GAAP or IFRS; on the condition they reconcile discrepancies in the results between the two. But in 2007, the U.S. SEC voted to drop the reconciliation requirement for financial statements for the year 2007 (Smith, 2008). The United States was scheduled to require all publicly traded companies to prepare their financial statements based on IFRS by 2014 as it was announced by the U.S. SEC in 2008 (Kennedy, 2010). However, the U.S. SEC decided in February 2010 that 2015 might be the earliest possible date for IFRS adoption by the U.S., calling for more study of IFRS (Defelice and lamoreaux, 2010).

The U.S. Generally Accepted Accounting Principles (GAAP) and IFRS have some similarities and differences. One of the differences is that U.S. GAAP is rule-based type of standards while IFRS is more of a principle-based set of standards (Arthur, 2005). The U.S. GAAP is intended to enforce compliance by having detailed rules, while IFRS is intended to improve transparency yet subject to implementers' judgment.

The objective of this study is to attempt to investigate the acceptance of the U.S. academics (accounting and auditing students and professors) as well as practitioners (auditors, accountants, CPAs, and financial analysts) to converge to IFRS as a common accounting and financial reporting language. We attempt to determine the extent to which the perception about risks, usefulness, and familiarity with IFRS affect the perception of readiness to adopt the new standards. Specifically, we introduce a modified model based on the technology acceptance model (TAM) and the theory of planned behavior TPB to test the contribution of these factors. TAM has been widely used in information systems research to explain individuals' decision to adopt technology (Davis, 1989). Therefore, it can be a useful model to explain the adoption of IFRS.

## LITERATURE REVIEW

### IFRS Benefits and Challenges

Convergence to IFRS can provide benefits as well as challenges. One of the advantages of having one common set of financial standards is comparability of apple to apple in terms of financial reporting of global companies (Smith, 2008). Using IFRS can enable cross-border investment and facilitates the flow and access to global capital markets (Anderson, 1993). Other benefits of IFRS to companies include reduction of diversity, complexity, and the possibility of mistakes in the financial reporting process. In addition, the adoption of IFRS for SMEs (i.e. non-listed) is expected to bring in benefits besides international comparability (Grant Thornton, 2010). As such, cross-border trading partners, potential investors and credit agencies can obtain more accurate information about SMEs that adopted IFRS. Accounting standards pose substantial importance as a message conveyed to the market by multinational firms. Cross-border firm activities are not limited to the trade of goods and services in the global market. Capital market has also become an important concern. Because market equilibrium is based on various factors including information and its distribution, market mechanism would response and form a new equilibrium as the new information is inputted into the system reaching to a more efficient market. Thus, disclosing information of business activities through comparable, understandable, and verifiable accounting reports is an essential part of today's businesses (Ding, Jeanjean & Stolowy, 2005).

As for the challenges, they can be cultural, political, and legal (Rezaee, Smith, & Szendi, 2010). The major challenge of converting to IFRS is costs associated with the adoption. These costs can stem from staff training and education to personnel to prepare them to use IFRS and from implementing information technology systems. The U.S. SEC estimates that the transition to IFRS from the U.S. GAAP in the first year of filing will cost U.S. firms between 0.125 percent and 0.13 percent of their revenue, predicting that early adoption will cost a firm $32M in 2010 (Johnson and Leone, 2008). Another challenge to convergence is the overcoming of the resistance to change as both academics and practitioners are used to U.S. GAAP and it will be very hard to change (Rezaee et al., 2010). Several schools of businesses as well as accounting programs here in the U.S. have shortages of professors as well as curriculum that help teach IFRS. In addition, the translation of the actual IFRS into various languages was considered to be a concern (Larson & Street, 2004).

### IFRS Education and Training

Training accountants, auditors, financial analysts, valuation experts, and actuaries is a very important step for convergence to IFRS. Industry groups as well as professional associations have started to include IFRS in their training materials and testing, and several universities and colleges started including IFRS in their curricula (Kroll, 2009). Customized courses offered by international subject matter experts are provided by some training firms such as IASeminars. Those seminars can range from one day to several days customized to client's needs. The big four have been a great help in the training and education part of preparation to IFRS. For example, Grant Thornton, in collaboration with IASeminars, has been offering IFRS courses as well as guest speakers in Canada in preparation for IFRS (Grant Thornton, 2010). Deloitte Touché Tohmatsu is offering free e-learning modules on IFRS available to download on its website upon registration as a public service (Deloitte Touché Tohmatsu, 2010). PricewaterhouseCoopers gave $700,000 grants in 2009 to colleges to speed up the preparation of students for IFRS and international accounting (Kroll, 2009). This grant is aimed at updating instruction materials to include IFRS in 26 universities. In addition, PricewaterhouseCoopers is offering "IFRS Ready" program that consists of videos for students that explain IFRS and its impacts (PricewaterhouseCoopers, 2010). In further step towards preparation for IFRS, American Institute of Certified Public Accountants (AICPA) announced in 2009 that CPA exams, starting Jan. 1, 2011, for the first time will include testing on International Financial Reporting Standards (Journal of Accountancy, 2009). Since IFRS are principle-based standards, the way it has to be taught IS to concentrate on reasoning and strengthening the judgment abilities rather than basing it on memorization of rules.

### Information Technology Role

Information technology can be a great help for accounting, financial analysts, and auditors in the process of transition to IFRS. Switching to IFRS will require a great amount of information technology applications change. Firms' financial departments will need to identify the scope of the information applications needed by specifying the type of information they need from each application. They will need to decide whether their current software such as Enterprise Resource Planning (ERP), a management information system that integrates different areas such as planning, inventory, purchasing, accounting, financing, marketing, human resources, etc, can accommodate IFRS reporting, consider purchasing over-the-shelf software or customized new systems, or even build in-house information systems. Some of the information technology applications that enable companies to generate reports that comply with current requirements and respond quickly to new changing standards requirements are SAP ERP Financials, Oracle's PeopleSoft Financial Management, and Oracle's enterprise performance management system. Hyperion Financial Management is a web-based application that delivers global financial consolidation, reporting, and analysis in several GAAPs including IFRS (Oracle Corporation, 2008). Firms' financial departments will have to take into account whether to procure from small service providers who might not have the expertise or from well-established and reputed partners. Other things to be considered for the transition process to IFRS from the IT perspective are training, time budget for implementation, and costs.

## THEORETICAL BACKGROUND AND HYPOTHESES DEVELOPMENT

The proposed model is based on the TAM model and the TPB (Ajzen, 1985, 1991). This model is used to measure the user readiness/acceptance of IFRS by the U.S. academics and practitioners. The theory of reasoned action (Ajzen & Fishbein, 1980; Fishbein & Ajzen, 1975) morphed into TPB by the addition of perceived behavior control (Ajzen, 1991). TPB consists of three main conceptually independent determinants of intention: attitude, subjective norms, and perceived behavioral control (Ajzen, 1991). Attitude, a behavioral belief, captures the degree to which a person has favorable or unfavorable evaluation of the particular behavior. Second, subjective norm, a normative belief, stands for the perceived social pressure to perform or not to perform a certain behavior (adoption of IFRS). Third, the perceived behavioral control, a control belief, refers to the perceived ease or difficulty of performing the behavior. In other words, the TPB stipulates that the more favorable the attitude and subjective norm with respect to behavior, and the greater the perceived behavioral control, the stronger should be an individual's intention to perform the behavior under consideration (Ajzen, 1991).

Based on the above two theories, Davis (1989) developed a technology acceptance model (TAM) to measure the user acceptance of technology use. The original determinants of intention in TAM were perceived ease of use and the perceived usefulness representing the beliefs of the user. Perceived ease of use refers to "the degree to which a person believes that using a particular technology system would be free of effort" (Davis, 1989). Perceived usefulness refers to "the degree to which a person believes that using a particular technology system would enhance job performance" (Davis, 1989).

Based on the attitude definition by Ajzen (1991) as a determinant of intention which measures the degree to which a person has favorable evaluation on a behavioral belief as well as Davis's (1989) definition of perceived usefulness, we measured accounting academics and practitioners favorite evaluations of the adoption of IFRS. This, in turn, makes up our first construct titled "Perceived Usefulness" of the adoption of IFRS. Perceived usefulness, in this context, refers to the benefits the user perceived will be provided as a result of the adoption of IFRS. We argue that the higher the perceived benefits, the more likely individuals will intend to adopt IFRS. In the technology context, several studies found significant positive influence of perceived usefulness on adoption (Davis, 1989; Moqbel, 2012; van der Heijden, 2004; Venkatesh, Morris, Gordon, & Davis, 2003). This leads to the first hypothesis:

*Hypothesis 1: Perceived usefulness of the adoption of IFRS will positively influence perceived intention/readiness to adopt IFRS.*

Perceived familiarity in this study refers to the extent to which individuals have understanding of IFRS. We measured the extent to which accounting academics and practitioners are familiar with IFRS in a variable we named "Perceived Familiarity" with IFRS. Our dependent variable is the level to which academics and practitioners are ready/intending to adopt IFRS, which was titled "Intention/Readiness" to adopt IFRS. We argue that perceived familiarity will positively influence the behavioral intention. Literature shows that familiarity is essential in influencing behavioral intention (Arora & Stoner, 1996; Ha & Jang, 2010). This leads to the following hypothesis:

*Hypothesis 2: Perceived familiarity with IFRS will positively influence perceived intention/readiness to adopt IFRS.*

Familiarity with an issue is a major aspect of losing fear and therefore reducing perceived risk. In other words, familiarity reduces the uncertainty involved with the adoption of a certain behavior. Therefore, we argue that familiarity with IFRS reduces the level of perceived risk of the adoption of IFRS. In support of this argument, Celina, Ana, & Juan (2006) found evidence that familiarity had significant effect on intention. In addition, Lee and Kwon (2011) concluded that familiarity is an important predictor of intention. This leads to the following hypothesis:

*Hypothesis 3: Perceived familiarity with IFRS will negatively influence perceived risk of the adoption of IFRS.*

The theory of perceived risk, first introduced by Bauer (1960), hypothesizes that perceived risk negatively affects behavior. Perceived risk has been studied in several researches in the consumer behavior literature (Taylor, 1974; Thomas, 2011; Wu & Wang, 2005). In the current study, we measured perceived risk in accordance with Ajzen's (1991) definition of perceived behavioral control, which refers to the perceived ease or difficulty of performing a certain behavior. In other words, perceived risk refers to the perceived difficulty and the behavior refers to the adoption of IFRS. We anticipate that perceived risk will negatively affect the intention of U.S. accounting academics and practitioner to adopt IFRS. In a similar context of the use of perceived risk, Gebauer, Kline, and He (2011) found that perceived risk of an online application had influence on the intention of exerting password-related efforts. This leads to the following hypothesis:

*Hypothesis 4: Perceived risk of the adoption of IFRS will negatively influence perceived intention to adopt IFRS.*

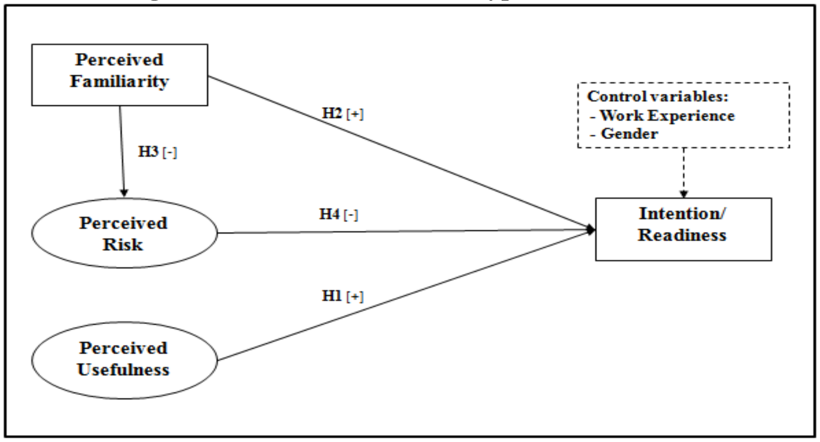
The proposed model presented in Figure1 summarizes the hypotheses and their directions as discussed above.

## RESEARCH METHODS

### Sample and procedure

A survey was conducted on accounting academics and practitioners to measure their perception on the readiness, benefits, challenges, and ways to adopt IFRS (see Appendix A). A survey was distributed to junior, senior, and graduate level accounting students as well as Ph.D. students and faculty members teaching accounting in a mid-size university in south Texas. We included a brief statement explaining the purpose of the survey and pledging to share the results of the findings.

**Figure 1: Research model and hypotheses**




We received a total of 84 responses; 31 responses were received from academics and 53 from practitioners. Of the respondents, 37 were males and 47 were females. The average years of work experience among respondents were 5.6.

## Variables operationalization

We adopted most of the questionnaire questions from Rezaee et al (2010).

*Intention/readiness* to adopt IFRS was measured by a single item. Respondents were asked to indicate the extent to which they think auditors, accountants, and accounting students are ready for the convergence of IFRS. The scale ranges from 1 (not ready) to 5 (very ready).

*Perceived usefulness* of the adoption of IFRS was measured by 5 items. The respondents were asked to rate the importance of the perceived benefits of convergence to IFRS as a single set of accounting standards. The scale ranges from 1 (least important) to 5 (most important).

*Perceived risk* of the adoption of IFRS was measured by 8 items. The respondents were asked to rate the severity of factors in the move toward complete convergence to IFRS. The scale ranges from 1 (not severe) to 5 (severe).

*Perceived familiarity* with IFRS was measured by 1 item. The respondents were asked to rate the extent to which they are familiar with IFRS. The scale ranges from 1 (not familiar) to 5 (very familiar).

## Model assessment

In order to determine the effect of perceptions about risk, usefulness, and familiarity with IFRS on perceived readiness to adopt the new standards, we used a variance-based SEM technique as our estimating method. Partial Least Square (PLS) is a second generation multivariate technique used to estimate the parameters of a structural model. It maximizes the explained variance of dependent variables by disaggregating the overall causal model into partial equations which are solved simultaneously via regression analysis (Chin, 1998).

Before analyzing the validity and reliability of our model, we need assess the sample size. When using variance-based technique (PLS), the sample size should be ten times the number of indicators in the most complex construct (Gefen, Straub, & Boudreau, 2000) or ten times the number of constructs impacting the independent variable (Chin & Newsted, 1999). Since the number of the most complex construct in our study is six and our sample size is 84, exceeding the minimum requirement, these constraints were satisfied. This study uses WarpPLS 3.0, a nonlinear variance-based structural equation modeling software tool that uses PLS regression algorithm to implement variance-based SEM, to assess the measurement and the structural model (Kock, 2010, 2011, 2012).

Before performing the analysis to investigate the extent to which perception about risks, benefits, and familiarity with IFRS affect the perception of readiness to adopt the new standards, we conducted validity and reliability tests of the measurement model in connection with the latent variables. The results from the reliability tests and factor loadings are shown in Table 1. First, we used Cronbach's alpha and composite reliability to assess the reliability. Our results show that the values of Cronbach's alpha and the composite reliability are larger than 0.7 which satisfy the cutoff values (Nunnally, 1978). The test of the convergent validity of the constructs was performed by factor analysis. All the items have factor loadings higher than 0.5 which satisfies the criteria suggested by Fornell and Larcker (1981).

**Table 1: Construct validity and reliability**

| Construct | Indicator | Loading | Cronbach's Alpha | Composite Reliability |
|---|---|---|---|---|
| **Usefulness** | **USEF1** | 0.665 | 0.71 | 0.81 |
| | **USEF2** | 0.516 | | |
| | **USEF3** | 0.769 | | |
| | **USEF4** | 0.839 | | |
| | **USEF5** | 0.596 | | |
| **Risk** | **RSK1** | 0.517 | 0.81 | 0.86 |
| | **RSK2** | 0.573 | | |
| | **RSK3** | 0.631 | | |
| | **RSK4** | 0.746 | | |
| | **RSK5** | 0.909 | | |
| | **RSK6** | 0.863 | | |

In terms of the discriminant validity, we calculated the square root of the AVE for each variable and compared them to the interconstruct correlations for each pair of variables. As shown in Table 2, the square roots of all the AVE estimates for each variable (in bold) are greater than the interconstruct correlations which satisfy the level of discriminant validity.

**Table 2: Correlations between square roots of AVEs and constructs**

| | Usefulness | Risk |
|---|---|---|
| **Usefulness** | **(0.69)** | |
| **Risk** | 0.08 | **(0.72)** |

It is important to ensure that the results are not biased because of multicollinearity problem among variables. Therefore, we assessed the variance inflation factor (VIF) values provided by WarpPLS 3.0 (Kock, 2012). Table 3 shows that the VIF values for all constructs were less than the threshold 5 and the highest VIF value was 4.25 for perceived usefulness.

**Table 3: VIF Coefficients**

| | Intention | Familiarity | Usefulness | Risk |
|---|---|---|---|---|
| **VIF** | 1.33 | 1.12 | 1.09 | 1.31 |

The key fitness indices of the research structure model are shown in Table 4. The proposed model in the study is judged to be appropriate to estimate the relations among the variables, because the results show satisfactory levels such as average path coefficient (APC) = 0.18 ($p<0.001$), average R-squared (ARS) = 0.14 ($p<0.01$), and average variance inflation factor (AVIF) = 1.08 which is way less than the 5, which is the threshold recommended (Kock, 2012). The values for the key fit indices were within the threshold of the recommended values, providing evidence of good overall fit.

**Table 4: Structural model fit indices**

| APC | ARS | AVIF |
|---|---|---|
| 0.18*** | 0.14** | 1.08 |
| **Note: ** = P < 0.01; *** = P < 0.001** | | |

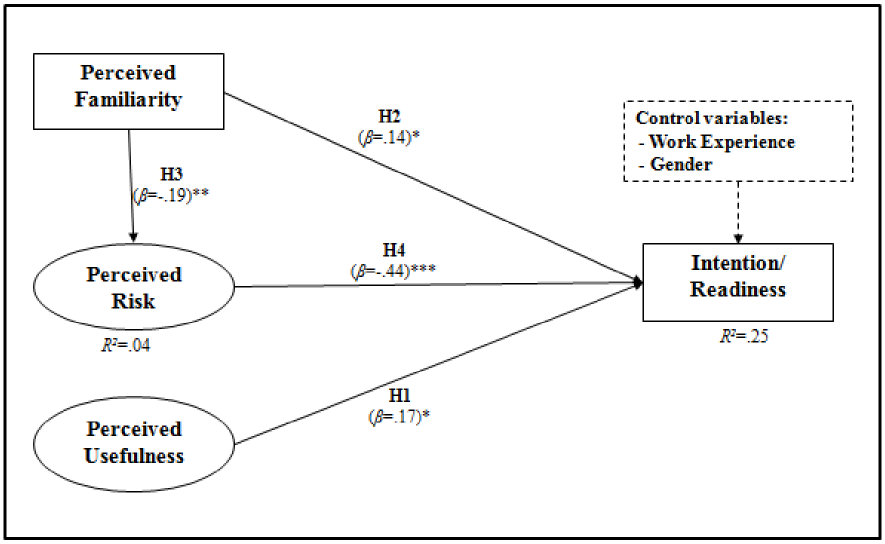
## RESULTS

Hypothesis 1 predicted positive association between perceived usefulness of the adoption of IFRS and the perceived intention to adopt IFRS. The result supported the hypothesis at below 10% level ($\beta$=.17; $p<.10$). Hypothesis 2 predicted positive relationship between the level of familiarity with IFRS and the perceived intention to adopt IFRS. The result also supported the hypothesis at below 10% level ($\beta$=.14; $p<.10$). Hypothesis 3 predicted negative association between the level of familiarity with IFRS and perceived risk of the adoption. The result strongly supported the hypothesis at below 5% level ($\beta$=-.19; $p<.05$). Finally, Hypothesis 4 predicted negative association between perceived risk of the adoption of IFRS and perceived intention to adopt IFRS. The result also strongly supported the hypothesis at below 1% level ($\beta$=-.44; $p<.01$). The results from PLS estimation is shown in Figure 2.

## DISCUSSION AND CONCLUSION

Convergence to a global set of accounting standards can help global comparability in financial reporting. Allowing non-U.S. firms to submit their financial statements in compliance with either U.S. GAAP or IFRS in 2005 was a positive sign by the SEC that it has a serious intention to a complete convergence between the U.S. GAAP and IFRS which in turn contributes to the achievement of global investment comparability. There are still several issues that need to be sorted out before moving towards a complete convergence. The global acceptance of IFRS and its use by several countries around the world urges the U.S. to take serious steps to convergence.

**Figure 2: Hypotheses and related coefficients**




Notes:

- * $p<.10$, **$p<.05$, *** $p<.01$
- Standardized coefficients are reported
- $\beta$ = beta coefficient (a.k.a. path coefficient).
- $R^2$= R-squared.

In this paper, we attempted to investigate the acceptance of the U.S. academics (accounting and auditing students and professors) as well as practitioners (auditors, accountants, CPAs, and financial analysts) to adopt IFRS as a common accounting and financial reporting language. We attempted to determine the extent to which perceived risk, usefulness, and perceived familiarity with IFRS affect the perception of readiness and intention to adopt the new standards. Specifically, we proposed a model based on the TAM model and TPB to test the contribution of these factors. TAM has been widely used in information systems research to explain individuals' decision to adopt technology (Davis, 1989). Therefore, it can be a useful model to explain the adoption of IFRS.

The results from PLS regression show that perceived risk, usefulness, and the familiarity with IFRS are significantly related to the perception of readiness or intention to adopt the new standards. In particular, the perceived risk is a factor that has the strongest impact on the readiness to adopt the new standards.

This study has theoretical contributions to the field of international business in general and to the international accounting in particular as, to the best of our knowledge, this is the is first study to employ the TAM model and the TPB in investigating the determinants of the adoption of IFRS. Future studies can further empirically test our proposed model in other countries that are considering adopting IFRS. Future studies can employ our proposed model by collecting data from multiple industries.

As for the practical implications of our study, the results show that perceived risk is explaining the majority of the variance in the perceived readiness/intention construct. This result suggests that countries should reduce perceived risk in order to facilitate the adoption of IFRS. One mechanism that countries can implement to reduce perceived risk is increasing familiarity and awareness of IFRS. This can be through educating individuals more about IFRS through formal and informal venues. Informal venues can be media in general. Formal venues can be through school curricula. In higher education, injection of international accounting cases in international business courses as well as other accounting courses will develop more robust understanding of today's business. This latter venue may also include specialized training programs that aim to disseminate latest information about IFRS, showcase its practicality and international applications. Hopefully, in the near future the convergence of international accounting standards with the trained businessman-women and accountants will be overcome with minimal costs.

In conclusion, reducing perceived risk, increasing awareness and familiarity with IFRS, and highlighting the benefits of IFRS are essential steps in order to enhance of the intention to adopt IFRS.

## REFERENCES

Ajzen, I. (1991). The theory of planned behavior, organizational behavior and human, *Decision Processes,* 50, 199-211

Ajzen, J. & Fishbein, M. (1980). *Understanding Attitudes and Predicting Social Behavior*, Englewood Cliffs, NJ: Prentice Hall.

Anderson, A. (1993). The globalization GAAP. *Management Accounting* (August), 52–54.

Arora, R., & Stoner, C. (1996). The effect of perceived service quality and name familiarity on the service selection decision. *Journal of Services Marketing, 10*(1), 22.

Bauer, R. A. (1960). *Consumer Behavior as Risk Taking.* Paper presented at the 43rd Conference of the American Marketing Association, Chicago.

Brackney, Kennard S. and Philip R Witmer. (2005). The European Union's Role in International Standards S etting. *The CPA Journal*. Vol. 75, Iss. 11 (Nov): 18-27.

Celina, M., Ana, M., & Juan, G. (2006). Antecedents of the difference in perceived risk between store brands and national brands. *European Journal of Marketing, 40*(1/2), 61-82.

Chin, W. (1998). The partial least squares approach to structural equation modeling In G. A. Marcoulides (Ed.), *Modern methods for business research*. Hillsdale, NJ: Lawrence Erlbaum Associates.

Chin, W. W., & Newsted, P. R. (1999). Structural equation modeling analysis with small samples using partialleast squares *Statistical strategies for small sample research* (pp. 307-341): Thousand Oaks. Calif: Sage Publications.

Davis, F. D. (1989). Perceived Usefulness, Perceived Ease of Use, and User Acceptance of Information Technology. *MIS Quarterly, 13*(3), 319-340.

Defelice and lamoreaux (2010). The SEC's IFRS Work Plan. *Journal of Accountancy*. Accessed at: http://www.journalofaccountancy.com/Issues/2010/Apr/20102658

Deloitte Touché Tohmatsu. (2010). *IFRS e-learning*. Available at http://www.deloitte.com/view/en_GX/global/services/Audit/global-ifrs-offerings-services/ifrs-implementation-services/ifrs-elearning/index.htm

Ding, Y.; Jeanjean, T. & Stolowy, H.. (2005). Why do National GAAP Differ from IAS? The Role of Culture. *The International Journal of Accounting, 40*(4), 325-350.

Fornell, C., & Larcker, D. F. (1981). Structural Equation Models With Unobservable Variables and Measurement Error: Algebra and Statistics. *Journal of Marketing Research (JMR)*, 18: 382-388.

Gebauer, J., Kline, D. M., & He, L. (2011). Password security risk versus effort: An exploratory study on user-perceived risk and the intention to use online applications *Journal of Information Systems Applied Research, 4*(2), 52-62.

Gefen, D., Straub, D., & Boudreau, M.-C. (2000). Structural equation modeling and regression: Guidelines for research practice. *Communications of the Association for Information Systems, 4*(7), 1-70.

Grant Thornton, (2010). *EU should allow Member States to decide on IFRS for SMEs says Grant Thornton*. Available at: http://www.grantthornton.com/portal/site/tcom/menuitem.550794734a67d883a5f2ba40633841ca/?nextoid=87c65e0ce3267210VgnVCM1000003a8314acRCRD&vgnextchannel=ff8f2cfeadc16210VgnVCM1000003a8314acRCRD

Grant Thornton. (2010). *IFRS learning opportunities*. Available at http://www.grantthornton.ca/services/IFRS/IFRS_learning

Ha, J., & Jang, S. (2010). Perceived values, satisfaction, and behavioral intentions: The role of familiarity in Korean restaurants. *International Journal of Hospitality Management, 29*(1), 2-13.

Herrmann, Don and Ian P.N. Hague. (2006). Convergence: In Search of the Best. *Journal of Accountan, 201*(1), 69-73.

Johnson and Leone. (2008). SEC: Early IFRS Adoption Will Cost Firms $32M. *CFO Publishing LLC*. Available at http://www.cfo.com/article.cfm/12625195

Journal of Accountancy. (2009). *CPA Exam to Undergo Transformation*. Available at http://www.journalofaccountancy.com/Web/20092194.htm

Kroll, Karen. (2009). Is it U.S. GAAP IFRS at U.S. universities? *Financial Executive*. Available at http://www.allbusiness.com/education-training/education-systems-institutions/12386671-1.html

Kock, N. (2010). Using WarpPLS in e-collaboration studies: An overview of five main analysis steps. *International Journal of e-Collaboration, 6*(4), 1-11.

Kock, N. (2011). *WarpPLS 2.0 user manual*. Laredo, TX: ScriptWarp Systems.

Kock, N. (2012). *WarpPLS 3.0 User Manual*. Laredo, TX: ScriptWarp Systems.

Larson, R. K. and Street, D. L. (2004). Convergence with IFRS in an expanding Europe: Progress and obstacles identified by large accounting firms' survey. *Journal of International Accounting Auditing & Taxation,13*(1), 89-119.

Lee, Y., & Kwon, O. (2011). Intimacy, familiarity and continuance intention: An extended expectation confirmation model in web-based services. *Electronic Commerce Research and Applications, 10*(3), 342-357.

Moqbel, M. (2012). Explaining user acceptance of social networking: Employees' Perspective. *Proceedings of theSouthwest Decision Science Institute Forty Third Annual Conference, February 29 –March 3*, 110-118.

Paul De Lange, & Bryan Howieson. (2006). International Accounting Standards Setting and U.S. Exceptionalism. *Critical Perspectives on Accounting, 17*(8), 1007.

PricewaterhouseCoopers. (2010). IFRS Ready. Available at http://www.pwc.com/us/en/faculty-rsource/ifrsready.jhtml

Nunnally, J. C. (1978). *Psychometric theory* (2d ed.). New York: McGraw-Hill.

Rezaee, Z., Smith, L. M., & Szendi, J. Z. (2010). Convergence in accounting standards: Insights from academcians and practitioners. *Advances in Accounting, 26*(1), 142-154.

Oracle Corporation. (2008). *Managing the Transition to International Financial Reporting Standards*. Available at: http://www.oracle.com/appserver/business-intelligence/hyperion-financial-performance-management/docs/manage-transition-to-ifrs-whitepaper.pdf

Piper, Arthur. (2005). A Matter of Principles. *The Internal Auditor*. Vol. 62, Iss. 5 (Oct): 62-68.

Smith, L. (2008). Are International Financial Reporting Standards (IFRS) an Unstoppable Juggernaut for US and Global Financial Reporting? *The Business Review*, *Cambridge* 10, no. 1, (July 1): 25-31.

Taylor, J. W. (1974). The role of risk in consumer behavior. *Journal of Marketing, 38*(2), 54-60.

Thomas, S. (2011). Addiction in Internet chatting: An empirical study using modified Technology Acceptance Model. *Interdisciplinary Journal of Contemporary Research in Business, 3*(4), 287-298.

van der Heijden, H. (2004). User acceptance of hedonic information systems. *MIS Quarterly, 28*(4), 695-704.

Venkatesh, V., Morris, M. G., Gordon, B. D., & Davis, F. D. (2003). User Acceptance of Information Technology: Toward a Unified View. *MIS Quarterly, 27*(3), 425-478.

Wu, J.-H., & Wang, S.-C. (2005). What drives mobile commerce?: An empirical evaluation of the revised technology acceptance model. *Information & Management, 42*(5), 719-729.

# APPENDIX A

Perceived Familiarity

- Please indicate the extent to which you are familiar with International Financial Reporting Standards (IFRS) by circling the appropriate response (1 = not familiar; 5 = very familiar).

Perceived Intention/Readiness to Adopt IFRS

- Please indicate the extent to which you think auditors, accountants, and accounting students are ready for the convergence to International Financial Reporting Standards (IFRS) by circling the appropriate response (1 = not ready; 5 = very ready).

Perceived Risk

Please indicate the extent of severity of the following in a move toward complete convergence to IFRS by circling the appropriate number (1 = not severe; 5 = severe).

- Initial cost of convergence
- Required changes in auditing standards
- Transition plan and issues pertaining to IFRS
- Lack of education, understanding, and experience by preparers of financial reports with the use of IFRS
- Lack of coverage of IFRS in financial accounting textbooks
- Lack of coverage of International Standards on Auditing (ISAs) in auditing textbooks

Perceived Usefulness

Please rank the importance of the perceived benefits of convergence to IFRS as a single set of accounting standards by circling the appropriate number (1 = least important; 5 = most important).

- Minimize barriers to global competition for capital
- Increase global comparability promoting a more informed global marketplace
- Position IFRS to be the globally accepted accounting language
- IFRS enable management and auditors to exercise more professional judgment
- IFRS create uniformity in global financial reporting including audit reports

# EFFECTS OF CAPITAL FLIGHT ON A SMALL ECONOMY: THE CASE OF FIJI

**Christopher Ngassam, Grambling State University**
**Young Dimkpah, Virginia State University**

## ABSTRACT

*Capital outflows from Fiji are estimated using a variant of the residual approach. Since the political crisis of 1987 and up until 2003, a total of US$1.4 billion, averaging US$83 million per annum has leaked out of Fiji. This has translated into 5 percent of Fiji's GDP on an annual average basis for the 1987-03 period. Capital outflows are channelled largely through foreign investors, offshore investment, emigration, travel and import payments. Establishing a long-term secure and stable political environment, creating an attractive domestic environment, reforming the foreign investment tax incentives, retention of qualified and skilled people, eliminating corruption and institutional weakness in banking system's and effective enforcement's of customs regulations can allow the retention of much needed financial capital in the domestic economy.*

## INTRODUCTION

Capital outflows including capital flight (generally referring to abnormal capital outflows largely motivated by fears and suspicions of future), is now a characteristic of the Fiji economy. Fiji is an example of a very small country where capital outflows has intensified over time and seems to be an offshoot of Fiji's political crisis that first eventuated in 1987. Capital outflows from Fiji were largely unheard of and did not get much attention until the removal of the democratically elected government of the Fiji Labor Party in 1987. In May 2000, the events of 1987 were repeated, again provoking capital outflows. The root cause of Fiji's capital outflows is more overt than those experienced by other countries. Capital flows from Fiji to a large extent has stemmed from its political crises creating insecurity amongst fund holders. In order to be able to effectively retain financial private capital, it becomes imperative to know its magnitude. There has been absence of formal analysis, meaning, measurement and causes of financial capital outflows from Fiji and not much is known with certainty about the extent of financial capital outflows.

The central concern of this study is to estimate the magnitude Fiji's capital outflows for the post-1987 period. Capital outflows in this study refers to outflows of financial capital motivated by normal portfolio decisions as well as those based on the desire to place assets beyond the control of domestic regulatory authorities. The measure here does not distinguish between legal and illegal outflows. The next section provides a background to Fiji's capital outflows. Section three outlines the methodology. Section four presents the estimated value of capital outflows. Section five discusses the channels of capital outflows. A summary and conclusion is presented in section six.

## BACKGROUND

While addressing the measurement, causes and consequences of capital outflows, several studies have focussed on large developing countries such as Mexico, Latin American countries, Russia, Africa and the Asian continent. Capital outflows are not restricted to large developing countries, for small and very small developing countries also experience this phenomenon (see for example, Bennett, 1989 and Henry, 1996). While the evidence on the magnitude of capital outflows may be much less in the small and very small developing countries, its impact in reducing investment and growth, limiting imports, erosion of the tax base and regressive distribution of income are of equal magnitude as in the large developing economies.

Among the several of the detrimental outcomes of Fiji's political crisis, capital outflows seem to have significantly contributed to Fiji's post-coup economic downfall. Individuals and large businesses seem to have transferred large sums of funds abroad, including illegal transfers through schemes that the regulatory institutions like the Reserve Bank of Fiji and Fiji Customs have failed to bring under their scrutiny and control. In additions, Fiji's post-coup financial scams and miss-management of public funds amounting to approximately F$500 million has contributed to its economic suffocation. The F$240 million National Bank of Fiji scams (see for example, Grynberg, Munro and White, 2002), the F$67 million Commodity Development Fund Fiasco and the F$25 Agricultural Scheme scam in year 2001 is cases to note. While it is unknown with certainty how much of these funds have left for offshore, the collapse of the National Bank of Fiji is the best example in case of Fiji's post-1987 financial mismanagement.

Capital outflows, together with Fiji's post-coup financial miss-management, among other factors such as rising government debt, exacerbated its economic difficulties (see for example, Prasad, 2003). For example, negative or very low real GDP growth rate was recorded in a number of years in the post-1987 period (Figure 1). In additions, Fiji's economic growth since 1987 has on average been below that of the lower-middle-income countries in East Asia and the Pacific.

The unsettled political environment that has unfortunately been prolonged has caused uncertainty about the future returns on investment in Fiji (see Duncan, 2004). For example, since the political crisis of 1987, Fiji has been struggling with a number of problems concerning the domestic investment that has been falling and below the average for lower-middle-income countries and Asia and the Pacific (Figure 2). Unresolved land lease issues, limited investment outlets, a highly regulated commercial policies and poor governance has further compounded Fiji's deteriorating investment environment (see for example, Duncan (2003 and 2005); Gani and Duncan (2004); and Prasad (2003). These factors make it risky for residents to retain their financial capital in the country and provide strong incentives to send it abroad, both legally as well as illegally. Investors consider the risk attached to investing in undeveloped and often-unstable economies; thus the movements of financial capital abroad may occur even if the rate of return is actually higher in the domestic economy.

**Figure 1**

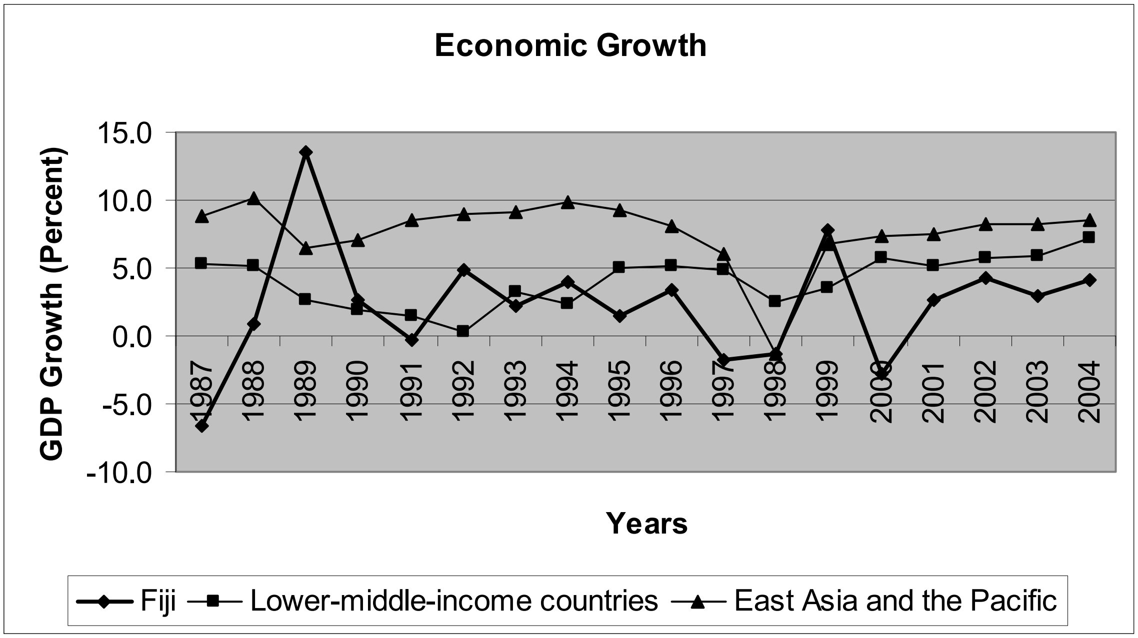
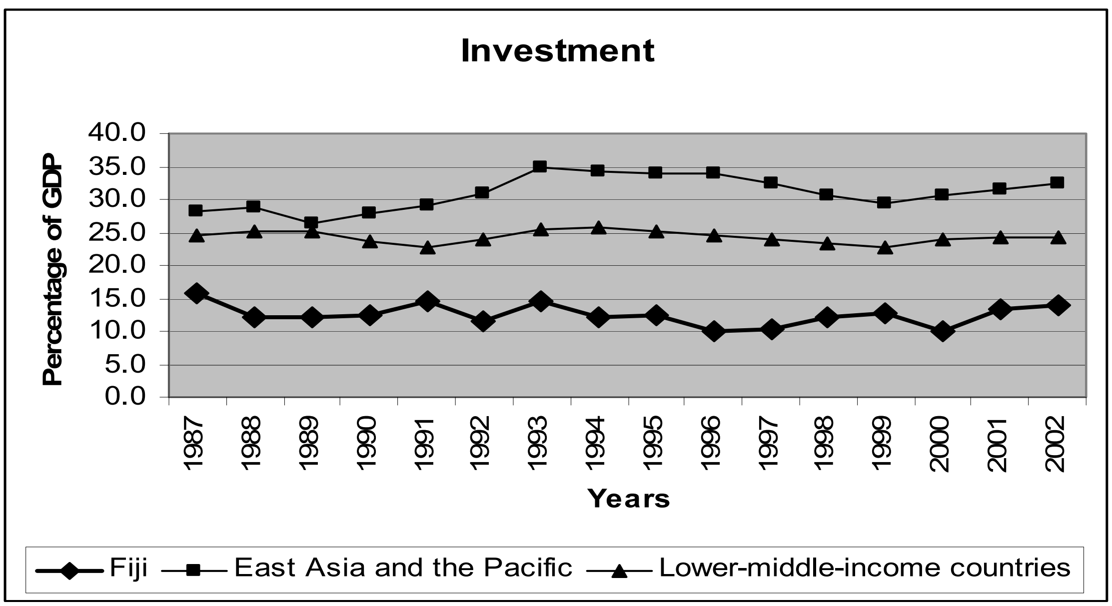



**Figure 2**




## LITERATURE AND METHODOLOGY

Capital outflows have been a topic of investigation by many researchers largely addressed within the context of capital flight both legal and illegal. For example, Khan and Haque (1985), Erbe (1985), Dooley (1988 and 1996), Pastor (1990), Tornell and Velasco (1992), Eggerstedt *et al*. (1995) and Murinde *et al*., (1996), Loukine (1998), Segal and Vincent (1998), Clark and Jokung (1998), Bhattacharya (1999), Collier, Hoeffler and Pattillo (2001), Loungani and Mauro (2001) and Kant (2002). These literatures reveal several causes of capital outflows. High inflation, rising government debt, large budget deficits, frequent exchange rate depreciation, low interest rates, unsettled political environment, low returns on investment, unevenly enforced tax rates, and lack of clear property rights (see for example, Eaton, 1987; Sheets, 1996; Collier, Hoeffler and Pattillo, 2001; Loungani and Mauro, 2001; and Kant, 2002).

A review of the above capital flight literature reveals that past researchers have not settled on a universal methodology in measuring capital outflows. A number of controversies surround the methodological approach, for example, ignoring the impact of cross-currency exchange rate changes on the value of debt stock, the differences in data on debt as recorded by International Monetary Fund (IMF) and the World Bank and unsettled issues such as how to treat interest incomes on assets held abroad but not reported in the domestic economies current account.

Based on the available data for Fiji, it is impossible in practice to precisely distinguish among capital outflows that result from unlawful or criminal activities, those that are unlawful but initially acquired through legal activities and those that are purely lawful and acquired through genuine means. Past researchers elsewhere have also encountered similar data related difficulties in terms of clearly distinguishing legal and illegal outward movement of funds. This is probably one of the reasons for a lack of consensus on a single methodology in measuring capital outflows.

Capital outflows with reference to Fiji is seen in this study as a result of private portfolio decisions, reacting largely to Fiji's continued political instability, economic and social downturn, investment policies and massive emigration and doubts over returns from domestic investment. This study settles for capital outflow as a broad concept that covers private capital flows of any kind.

To get an idea of the extent of capital outflows from Fiji, this study uses a variant of the *residual approach* as used in some of the past studies, for example, the World Bank (1985), Morgan Guaranty (1986), Murinde, Hermes and Lensink (1996), and more recently Collier, Hoeffler and Pattillo (2001). In the residual method all private capital outflows is treated as capital flight. The method compares the sources of capital inflows (net increases in external debt and net inflow of foreign investment) with the uses of these inflows (current account deficit and foreign reserves) on a yearly basis. The basic assumption is that capital inflows in the form of increases in indebtedness and foreign direct investment finance either the current account deficit or official reserve accumulation; any shortfall is indicative of private foreign asset accumulation, which in this approach is associated with capital outflows (Eggerstedt, *et al*., 1995). This method is widely used as it gives straightforward computations. However, some studies (for example, The World Bank (1985); Erbe (1985); and Morgan Guaranty (1986) have also modified this method by adding the changes in foreign assets of the domestic banking system. The basic estimable form is represented by equation (1).

$$KO_t^{Fiji} = \Delta SGED_t + NFI_t + CAB_t - \Delta SOFR_t \qquad (1)$$

where, *KO* is capital outflows, *SGED* is stock of gross external debt, *NFI* is net foreign investment, *CAB* is current account balance (negative is deficit), *SOFR* is stock of official foreign reserves, $\Delta$ is change and $t$ is the time period.

Equation (1) indicates that total capital inflows or sources are the sum of net foreign investment and changes in gross public and private debt. It then assumes that if any capital inflow that does not finance the current account deficit or reserve accumulation leaves the country, regarded as capital flight.

Equation (1), although a standard representation of capital flight has been subject to some modifications. For example, Dooley (1986) makes adjustments for receipts of total external assets as well as takes into account of net errors and omissions. Due to data discrepancy, adjustment for external assets is impossible in case of Fiji. However, the methodology here does takes into account of net errors and omissions *(NEO)*, hence, equation (2).

$$KO_t^{Fiji} = \Delta SGED_t + NFI_t + CAB_t - \Delta SOFR_t - NEO_t \qquad (2)$$

The source of data is World Bank's World Development Indicators CD-ROM (2004), Asian Development Bank's Key Indicators (2004) and various issues of the Reserve Bank of Fiji's Quarterly Bulletins.

## ESTIMATED CAPITAL OUTFLOWS FROM FIJI

Figure 3 depicts the levels in financial capital outflows providing confirmation that Fiji has experienced high levels of capital outflows in the post-coup years. Some trends are worth highlighting. According to the results depicted in Figure 3, capital outflows amounted to a low of US$4.0 million in 1988 and peaked to US$180 million in 1995. On average capital outflows amounted to US$83 million per annum for the 1987-03 period. Since 1987, some US$1,407 million has leaked out of Fiji in the form of financial capital. As a share of GDP, capital outflows have ranged from 0.4 percent to just over 10 percent during the post-1987 period (Figure 4). Capital outflows averaged 5 percent of GDP annually for the 1987-03 period.

Past research involving large developing countries have identified a range of variables as potential causes of capital outflows (Dooley, 1988; Pastor, 1990; and Henry, 1996). For example, the lack of economic growth may signal potential investors that expected profitability of investments might not be realized and encourages capital outflows while a growing economy has an opposite effect. A growing economy may also signal capital outflows as investors realise profits and when the domestic investor environment is unattractive. If interest earnings on domestic savings are less than the earnings from the foreign assets, this may also encourage capital outflows. Some capital outflows occur with the aim of avoiding taxes. If individuals expect taxes to increase through government policy, they are likely to transfer their savings abroad. Social discomfort is another contributing factor. The comparatively high standard of living in high-income countries is an escape for transferring wealth abroad if individuals are uncomfortable with domestic living conditions and with the anticipation of emigration. Currency overvaluation is seen as an important determinant of capital flight. An overvalued currency leads to an expected future depreciation. To avoid capital losses, residents are compelled to hold their assets abroad.

**Figure 3**

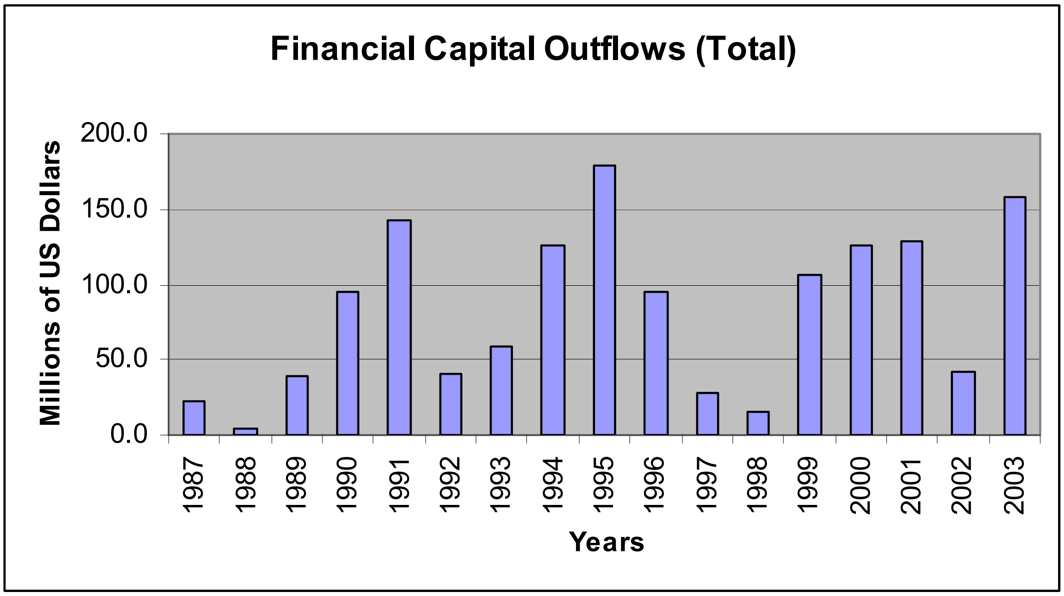
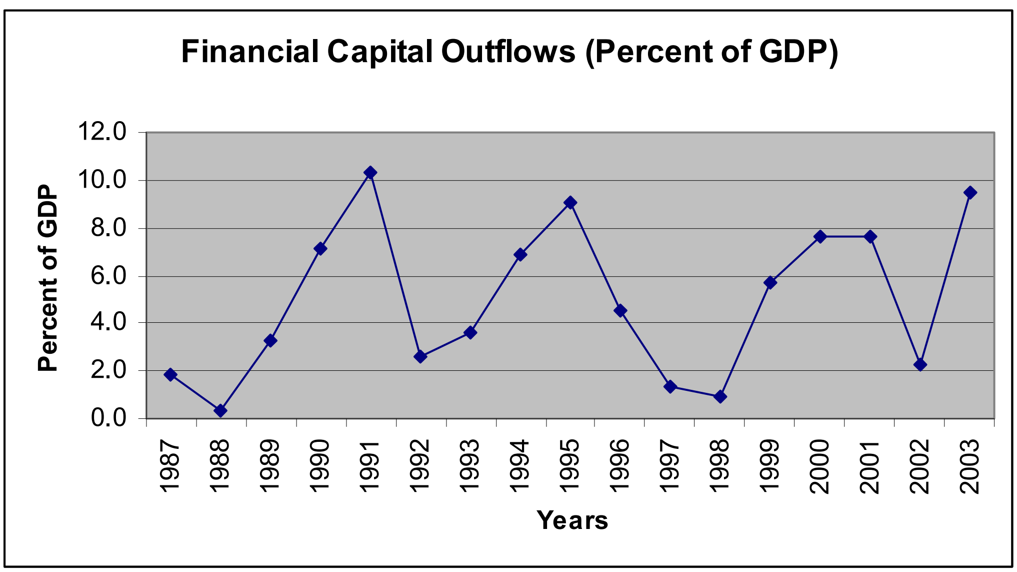



**Figure 4**




Evidence of capital outflow was apparent soon after the coups of 1987 as individuals anticipated the devaluation of the Fijian dollar, eventually devalued by 18% in June 1987 and a further 15% in October 1987. The drop in capital flight in 1988 is a result of strong foreign exchange controls placed on emigration transfers, remittances and overseas investments by residents. A relaxing of foreign exchange controls in 1989 together with high levels of emigration led to another period of substantial capital outflows. The economy also experienced an exceptional performance in 1989 with a growth rate of just over 13 percent, most likely contributing to an increase in investors return and so more capital outflows. Although the growth rate fell in 1990, it was still satisfactory recorded at close to 3 percent. Since 1990, the economy held up relatively well till 1996 with real GDP growth rate averaging 3.9 percent per annum with a high likelihood of investors realising stronger returns. The year 1997 faced recessionary conditions with 1.6 percent contraction in economic activity in 1997 and so a fall in capital outflows. The sharp deterioration of Asian currencies beginning mid-1997 and 1998, and the related falls in the Australian and New Zealand currencies, reduced the competitiveness of Fiji's goods in these markets. The Fiji economy contracted further in 1998 with a corresponding decline in capital outflows. Fiji responded through an expenditure-switching policy – a 20 percent devaluation of the currency in January 1998. On 19 May 2000, the events of 1987 were repeated with the economy ending up in recession and the continued political instability provoking significant capital outflows.

The levels of capital outflows particularly in the post-coup period are considered to be significant for a very small developing country like Fiji. The next section attempts to identify some of the channels of Fiji's capital outflows.

## CHANNELS OF CAPITAL OUTFLOWS

The channels of capital outflows from Fiji take several forms: foreign investors, emigration, import payments and travel allowance.

### Foreign investors and offshore investment

Fiji's investment laws allow foreign investors to repatriate funds invested in Fiji as well as any earnings from their investment. Foreign firms can repatriate operating and capital profits as well as withdrawals of up to F$500,000 per investor per annum. Local entities are allowed to invest offshore up to $100,000 annually. Individuals and families can also invest offshore for up to F$20,000 per family or single applicant per annum. Further, banks also offer foreign currency investment accounts for residents for up to F$20,000.

Foreign investors in Fiji have taken advantage of this arrangement as well as the tax free incentives. Since the beginning of Fiji's political crisis in 1987, industrialization became a key aspect of Fiji's development strategy in particular by making manufacturing sector more outward oriented. As such a major industrial policy change was the introduction of the tax-free system (commonly known as export processing zones (Warr, 1993)) so as to boost manufacturing exports. The tax free system comprised of two aspects: tax free zones and tax free factories, where the condition for enterprises to qualify for tax free benefits was to export 95 percent of their production. Foreign investors have benefited from Fiji's investor incentive. In 2001, the government carried out a major review of its investment incentives targeting various sectors of the economy. The industry specific incentives are offered to industries with high potential for expansion and development: tourism and mining. The incentives extended to the tourism industry included: the exemption of hotel developer profits and the Hotel Aid Act's Short Life Investment Package (SLIP). The SLIP allowed several concessions of which the no corporate tax on profits for 20 years for capital investments exceeding F$40 million seems to aid capital outflows. In addition to the above two industry incentives, the government has extended its guarantees to investors in several areas including the repatriation of profits at any point in time once exchange control guidelines are met.

The key feature of industrial investment policy that has much to do with Fiji's capital outflows is that the overly generous tax concessions granted to foreign investors. Investors that qualified under the tax-free system were not required to pay tax on corporate profits for up to a period of thirteen years. But more importantly there have been no restrictions on repatriation of capital and profits. Although, the tax free system encouraged the expansion of Fiji's manufacturing (which in fact was expanding prior to the introduction of the tax free system largely as a result of Fiji's preferential market access to New Zealand and Australia), the lack of restrictions on capital repatriation for those enterprise qualifying under the tax free system has clearly contributed towards a wholesale free flow of vital financial capital out of Fiji.

**Emigrants as a channel of capital flight**

Since the political crises of 1987, Fiji has seen massive emigration of its citizens to high-income countries: Canada, United States of America, Australia and New Zealand. While brain drain from Fiji has contributed to the loss of vital human capital necessary for its growth and development, an equally important and a parallel loss to Fiji is that emigrants have transferred their accumulated savings and wealth, so called *emigrant transfers* to the destination country (Gani, 2005). Emigrant transfers usually include legal transfers of capital abroad by the emigrants. Emigrants can take F$200,000 per family or single applicant per annum. Funds falling outside this limit are referred to the Reserve Bank of Fiji for their approval. Emigrants have facilitated legal capital outflows. Available statistics confirm that between 1987 and 1999, some US$517 million has left Fiji through emigrants and this has equalled to some 2.3 percent of GDP per annum (see Gani, 2005).

**Import Payments**

One of the likely channels through which capital leaves a country is through trade and in particular import payments. Dealers in most cases are required to make advance payments. Fiji's exchange control laws permit advance payments for imports for amounts up to F$1.0 million per invoice and are conditional that goods will land in Fiji within 90 days from the day of payment. Payments in excess of F$1.0 million are referred to the Reserve Bank of Fiji for approval. With regard to imported goods, traders are allowed to make payments up to F$1.0 million per invoice upon sighting the supplier's invoice and original customs simple administrative document for exporters.

A draw back of both advance import payments and payments for merchant goods is that it can lead to trade miss-invoicing, meaning, overstatement of import payments, including fake import contracts for goods and services: firms are established with the intention of presenting to the bank an import contract providing for a large advance payment; the firms are dissolved as soon as the transfer of funds has been carried out (see Loungani and Mauro, 2001). The under-invoicing of export payments, export smuggling with proceeds deposited in offshore accounts of domestic companies, exports via an offshore subsidiary, recorded at a low transfer price, with the margin between transfer and market prices deposited offshore are also part of trade miss-invoicing.

While it is impossible to determine the extent of trade miss-invoicing due to data limitations, this is highly likely to be an ongoing channel of capital outflows from Fiji. The highly open nature of the Fiji economy makes it very susceptible to trade miss invoicing. Fiji is highly reliant on several high-income countries (Australia, New Zealand, United Kingdom, United States of America and Japan) for its exports and imports. Foreign investors, particularly whose investment activities are concentrated in Fiji's tourism, garment and gold mining industries originate from some of these countries among others and these sectors act as dominant channels of capital outflows. In additions, several aspects of good governance and the rule of law are not effectively observed. All this has contributed to institutional weakness, particularly in the banking systems and customs compounded by poor regulatory enforcement's and corruption within the two systems.

**Travel Facilities**

Travel facilities such as travel allowance, export of cash, credit cards and debit cards also allow capital outflows. Fiji's exchange control laws allow travellers to take up to F$20,000 per trip provided they have return airline tickets and F$5,000 with a one way airline ticket. Travellers including emigrants are allowed to take Fiji currency notes up to F$500 and foreign currency notes up to the equivalent of F$5,000 (inclusive of the F$500). Authorised banks can also approve payments for the full amount payable on credit card statement while debit card holders can utilise up to F$10,000 per month overseas including a cash drawing ceiling of F$5,000. Fiji's travel allowance does facilitate capital outflows. Available statistics indicate that resident departures have been rising since 1987. In 2003, there were almost 104,000 resident departures. Although it is unlikely that each resident would take F$20,000, a modest estimate would be $1,000 per resident departure and this would equate to some F$104 million in capital outflows.

## CONCLUSION

This study estimates financial capital outflows from Fiji using a variant of the *residual approach.* Since 1987, approximately US$1.4 billion has leaked out of Fiji. Capital outflows averaged US$83 million per annum for the 1987-03 period, averaging some 5 percent of GDP per annum. Fiji's capital outflows have been largely channeled through foreign investors, emigration, and travel and import payments. Other than possible regressive effect, capital outflows have removed both the stocks of wealth and earnings in the form of taxes from the economy, thus, shrinking the direct taxable assets and income of those most able to meet government revenue requirements.

The root cause of capital outflows in Fiji has revolved over its unstable political climate. While high levels of capital outflows is likely to continue in the short-run, to retain this much needed financial capital, necessary policy adjustments are needed. Government's policy should be based on a clear recognition of the loss of vital financial capital from the domestic economy that is likely to have contracted investment and growth and eroded the tax base. The approach to retain much needed financial capital leaving Fiji for offshore is to maintain long-term political stability, reforming the foreign investment tax incentives, retention of qualified and skilled people, effective monitoring of the institutions, particularly the banking systems and customs together with eliminating corruption in these institutions. These collective measures may deter capital outflows and retain such funds within the domestic economy and enable them to be directed towards productive domestic investment.

## REFERENCES

Asian Development Bank. (2004). *Key indicators of developing Asian and Pacific Countries*, Oxford: Oxford University Press. Oxford.

Bennett, K. M. (1988). External debt, capital flight and stabilization policy: the experiences of Barbados, Guyana, Jamaica and Trinidad and Tobago, *Social and Economic Studies*, 37, 57-77.

Bhattacharya, R. (1999). Capital flight under uncertainty about domestic taxation and trade liberalization, *Journal of Development Economic*, 59, 365-87.

Clark, E. and O. Jokung. (1998). Risk aversion, wealth and international capital flows, *Review of International Economics*, 27, 507-15.

Collier, P., Hoeffler, A., and Pattillo, C. (2001). Flight capital as portfolio choice, *The World Bank Economic Review*, 15, 55-80.

Dooley, M. P. (1996). A survey of literature on controls over international capital transactions, *Staff Papers*, 43, 639-87.

Dooley, M. P. (1988). Capital flight: a response to differences in financial risks, *IMFStaff Papers*, 2*,* 606-628.

Dooley, M. P. (1986). Country-specific risk premiums, capital flight, and net investment income payments in selected developing countries, *Mimeo*, International Monetary Fund, Washington, D.C.

Duncan, R.C. (2005). Fiddling with the books: where does the buck stop?, Paper presented to the Prime Minister's Corporate Governance Summit held at The Warick Fiji, on 11-12 March, 2005.

Duncan, R.C. (2004). The Fjii economy: needing a better investment environment, Paper presented to the 17th Australia Fiji Business Forum, "Fiji and Australia New Partners", held by Australia Fiji Business Council at the Gold Coast, Australia,
17-19 October, 2004.

Duncan, R.C. (2003). "Governance and growth", paper presented to the Symposium on Governance held at the University of the South Pacific, Suva, September.

Eaton, J. (1987). Public debt guarantees and private capital flight, *The World Bank Economic Review*, 1, 377-395.

Eggerstedt, H., Hall, R. B., and Wijnbergen, S. V. (1995). Measuring capital flight: a case of Mexico, *World Development*, 23, 211-232.

Erbe, S. (1985). The flight of capital from developing countries, *Intereconomics*, 20, 268-275.

Gani, A. (2005). Fiji's emigrant transfers and potential macroeconomic effects, *Pacific Economic Bulletin*, Volume 20, Number 2, pp. 117-127.

Gani, A. and Duncan, R.C. (2004). Fiji's governance index. Available on line at http://www.usp.ac.fj/admin/files/piasdg/governance_papers/azmat_fiji_governanc e_index.pdf

Grynberg, R., Munro, D., and White, M. (2002). *Crisis: the collapse of the National Bank of Fiji,* Crawford House, Adelaide.

Henry, L., 1996. Capital flight from beautiful places: the case of three Caribbean countries, *International Review of Applied Economics*, 10, 263-272.

Kant, C. (2002). What is capital flight, *The World Economy*, 341-358.

Khan, M. S., and Haque, N. (1985). Foreign borrowing and capital Flight: a formal analysis, *IMF Staff Papers*, 2: 606-628.

Loukine, K. (1998). Estimation of capital flight from Russia: balance of payments approach, *The World Economy*, 21, 613-28.

Loungani, P., and Mauro, P. (2001). Capital flight from Russia, *World Economy*, 24, 689-706.

Morgan Guaranty Trust Company. (1986). LDC capital flight, *World Financial Markets*, XX , 13-15.

Murinde, V., Hermes, N., and Lensink, R. (1996). Comparative aspects of the magnitude and determinants of capital flight in six sub-Saharan African countries, *Savings and Development*, 1, 61-77.

Prasad, B.C. (2003). Institutional economics and economic development – the theory of property rights, economic development, good governance and the environment, *International Journal of Social Economics*, Vol. 30, No. 6, pp. 741-762.

Pastor, M. (1990). Capital flight from Latin America, *World Development*, 18, 1-18.

Reserve Bank of Fiji. (Various issues). Quarterly Review, Suva.

Segal, U., and Vincent, D. R. (1998). Punishment schedules for capital flight, *The World Economy*, 21, 629-38.

Sheets, N. (1996). Capital flight from the countries in transition: some empirical evidence, *Journal of Policy Reform*, 1, 259-77.

The World Bank. (1985). *World Development Report 1985*, Oxford University Press, New York.

The World Bank. (2004). *World Development Indicators CD-ROM*, The World Bank, Washington, D.C.

Tornell, A., and Velasco, A. (1992). The tragedy of commons and economic growth: why does capital flow from poor to rich countries, *Journal of Political Economy*, 100, 1208-31.

Warr, P. (1993). The potential for export processing zones, *Pacific Economic Bulletin*, 8, 19-26.

# THE IMPLICATIONS OF GOVERNMENT'S POVERTY REDUCTION PROGRAMS ON THE STATES OF POVERTY AND HUNGER IN THE PHILIPPINES

**John Paolo R. Rivera, De La Salle University**
**Mazel G. Pizarro, Bangko Sentral Ng Pilipinas**
**Nashrine B. Aliping, Bangko Sentral Ng Pilipinas**

## ABSTRACT

*The incidence of poverty has been a prevalent social issue in the Philippines. Poor living conditions are alarming and current measures of poverty incidence are high. Access to basic needs and assets becomes a struggle for households especially to those who belong to the lower income distribution. Even food has become a luxury for some. With income as a measure of individual welfare and the vital factor that links food consumption and poverty, as real income decreases, more households are subjected to poverty and hunger. Previous studies covered poverty statistics and its continuous revisions to capture the real state of poverty in the country which is inclusion of food distribution in poverty measures. This study aims to exposit the existence of food inequality in the Philippines, both in national and regional level. Likewise, this study will examine the source of food inequality by identifying factors through estimation of Engle Curves using the Generalized Methods of Moments (GMM). Lastly, this study will also evaluate the effectiveness of government poverty alleviation programs in addressing the state of hunger through the use of a discrete choice model employing Maximum Likelihood Estimation (MLE). This will be evaluated on a provincial level to examine the effectiveness of implemented programs in detail with regards to household characteristics. Results provide a picture on how deep food inequality go and how this should be addressed by policymakers. Also, results will provide a distinct framework for authorities in gauging how to address implementation of poverty alleviation programs.*

## INTRODUCTION

Poverty reduction has been a major challenge for all economies. This led development organizations to make poverty alleviation as its overarching goal as exemplified in the United Nations' Millennium Development Goals (MDG) of 2015. Addressing this problem poses a long standing struggle to the Philippines since this has been the primary target goal of past administrations. Poverty in the country has been persistent that it is sometimes regarded as the basket case of the Southeast Asian nations. According to Schelzig (2005), the Philippines has a noticeable unequal income distribution which supports the conclusion that the Filipinos in the lower distribution is highly susceptible to impoverished living conditions and depravity from basic sustenance and necessities, leaving households vulnerable. Income shocks have debilitating effects especially to the poor, which according to Albert & Ramos (2010) drives households to engage themselves in risky strategies that sometimes have negative effects that are irreversible and eventually succumb to deeper state of poverty.

It has been determined by the International Labor Organization (ILO) as cited by Schelzig (2005) that there are five non-monetary categories that define whether people are poor namely food, water and sanitation, health, education and shelter. In 2009, according to the National Statistics Office (NSO), the share of food to total family expenditures accounts for 42.6 percent, which is a considerable portion of income allocation and signifies as one of the priorities of consumption spending. With the existing income inequality in the Philippines, this can be easily translated to food inequality through the income channel which means that families and individuals in the lower income distribution are unable to gain access to food because of the lack of ability to afford decent food consumption. This is a serious issue because according to Reyes (2001), the poorest Filipino households allocate a significant portion of their income on food. Furthermore, decreasing real income also signifies that capacity to spend on food is restricted; hence, families are forced to concentrate household expenditure on basic necessities.

The National Statistical Coordination Board (NSCB) and NSO come up with measures to assess the depth of poverty in the country. Measures such as poverty incidence, Gini coefficient, and income and expenditure ratios all relate to the traditional measure of welfare which is the level of income. The measure of welfare and poverty is not limited to income and expenditure alone. In the Philippines, there are two official measures of poverty, namely, the food threshold and the poverty threshold (Schelzig, 2005). Recent literatures on poverty and food came up with revised measures of these thresholds in order to come up with more indicative measure of poverty. A study penned by Pedro, Candelaria, Velasco & Barba (n.d.) estimated food threshold adjusted to the lower 30 percent of the income distribution to represent the poor in the population to gauge poverty incidence through food.

Having established this relationship between food and poverty incidence, this study will investigate the link of poverty and food inequality. Hence, the main research problems of this research are: Will the poverty reduction programs of the government be effective in reducing the probability of a household experiencing state of hunger? How will the government alleviate hunger through its poverty reduction programs? To address these research problems, the following specific objectives are set:

1. To estimate the Engel curve of the Philippines that will show how responsive household food consumption is to changes in various significant sources of household income; hence, will show why households have different food consumption levels;
2. To estimate a logistic regression model at the provincial level that will show whether the government's poverty reduction programs can alleviate the probability that a household will experience state of hunger; and
3. To provide policy recommendations on how to alleviate poverty through the reduction of the number of households experiencing state of hunger.

Accomplishing these objectives will determine what significant factors affect food inequality. Furthermore, it will assess the effectiveness of government poverty alleviation programs; whether these programs do address the problem on hunger and food inequality. Upon evaluation, results of this study can provide a framework to policymakers to address program implementation more efficiently and to suggest programs that can actually sustain household welfare and answer hunger problems.

## POVERTY AND FOOD INEQUALITY

### The State of Poverty and Food Inequality in the Philippines

The Philippines has been on a continuous pursuit of poverty alleviation. However, with the recent global financial crisis, continuous severe natural calamities, and rising fuel and food prices, the government's goal of reducing poverty is becoming more difficult since these situations have been pulling more people into poverty.

The recently released official poverty statistics from the NSCB, as seen from the Table 1, show that the annual per capita poverty threshold have increased by 26.2 percent from 2006 to 2009. Although poverty incidence among families has slightly declined from 2006 to 2009, the poverty incidence among the population has increased by 0.1 percentage point and is still relatively high compared to that of Indonesia, Malaysia, Thailand, and Vietnam as per the reports from the United Nations Development Program (UNDP).

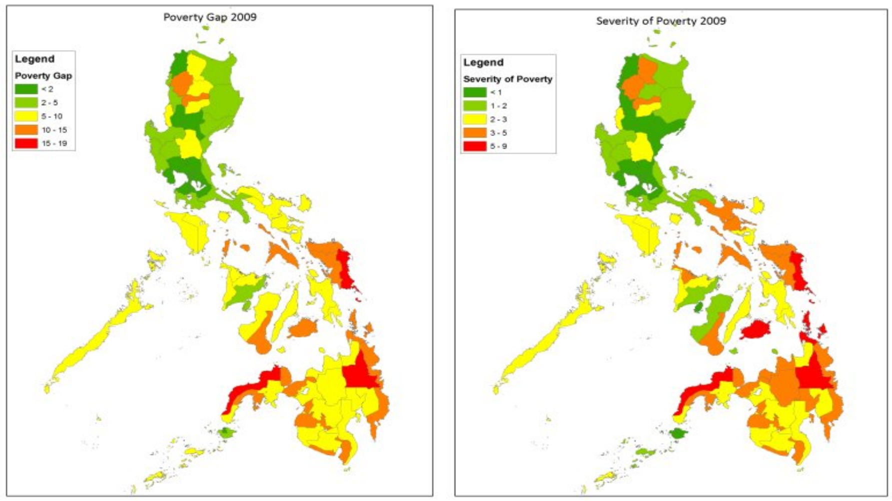
**Table 1: Annual Per Capita Thresholds and Poverty Incidence in the Philippines**

| Year | 2003 | 2006 | 2009 |
|---|---|---|---|
| **Annual Per Capita Poverty Threshold (PHP)** | 10,976 | 13,348 | 16,841 |
| **Poverty Incidence (%)** | | | |
| Families | 20 | 21.1 | 20.9 |
| Population | 24.9 | 26.4 | 26.5 |
| **Magnitude of poor (in millions)** | | | |
| Families | 3.29 | 3.67 | 3.86 |
| Population | 19.8 | 22.17 | 23.14 |
| **Subsistence Incidence (%)** | | | |
| Families | 8.2 | 8.7 | 7.9 |
| Population | 11.1 | 11.7 | 10.8 |
| **Magnitude of subsistence poor (in millions)** | | | |
| Families | 1.36 | 1.51 | 1.45 |
| Population | 8.8 | 9.85 | 9.44 |

**Source:** National Statistical Coordination Board (NSCB)

The other three poverty measures have decreased from 2006 to 2009 implying a better condition. The income gap[2] and the poverty gap[3] have been reduced by 1.5 points and 3 points in three years, respectively. However, the poverty gap is still high compared to Indonesia, Malaysia, Thailand and Vietnam. The severity of poverty or the total of the squared income shortfall has also declined by 0.2 points in 2009. All these poverty measures have all improved, however, not significantly.

**Figure 1**
**Thematic Map of 2009 Poverty Gap and Severity of Poverty**




**Source:** National Statistical Coordination Board (NSCB)

One characteristic of the country's poverty, as pointed out by Reyes, Tabuga, Mina, Asis & Datu (2010) is the glaring inequality across regions. Illustrated in Figure 1 are the thematic maps of the 2009 poverty gap and severity of poverty where red shades show higher gaps and are therefore comparatively worse off areas that green shaded areas. The darker the red, the situation in that area is worse off compared to the rest and the darker the green shade, the better off. Provinces with higher income gaps and poverty gaps are concentrated more in Mindanao than in Luzon and Visayas. There are significantly higher poverty measures in Eastern Visayas and Caraga Administrative Region where Eastern Samar and Agusan del Sur are located, respectively, compared to that of the National Capital Region (NCR). Caraga is one of the most impoverished regions whose primary source of income is the agriculture and forestry sector similar to the Eastern Visayas. Zamboanga Peninsula is also another region stricken with more poverty especially compared with its neighbor region the Autonomous Region of Muslim Mindanao (ARMM).

The map emphasizes the reality that poverty in the Philippines is a geographical matter that calls for more programs in alleviating poverty prioritizing regions with significantly worse conditions. As reported by the 2009 Philippine Poverty Statistics, the poverty incidence among families in NCR has improved from 3.4 in 2006 to 2.6 in 2009 but the considerably different poverty incidence among families in the ARMM has worsened from 36.5 in 2006 to 38.1 in 2009 and has been the region with most poverty incidence in 2006 and 2009.

National averages do not show the staggering urban and rural differences and also the regional variations. Regional averages also do not show provincial disparities (Schelzig, 2005). The startling provincial level differences are illustrated in Table 3. Eastern Samar and Agusan Del Sur's, poverty incidence among population is 54.0 and 58.1, respectively, both more than 20 times higher than that of NCR District IV's poverty incidence. Attention should also be paid to the fact that both provinces have worsened since 2006 in both poverty incidence among families and population when NCR District IV have significantly improved. The complete details of the measures of poverty incidence for the Philippines and its regions are shown in Table 2, Table 3, and Table 4. This just confirms that there is certainly a need to employ improved and well-designed policies that takes into account provincial and regional profile for a more strategic distribution to potential key areas for a more socially and economically equal society.

**Table 2: Income Gap, Poverty Gap and Severity of Poverty**

| Year | 2003 | 2006 | 2009 |
|---|---|---|---|
| Income Gap | 27.7 | 27.2 | 25.7 |
| Poverty Gap | 5.6 | 5.7 | 2.7 |
| Severity of Poverty | 2.2 | 2.2 | 2 |

Source: National Statistical Coordination Board (NSCB)

## Sources of Poverty

Developing countries are characterized by having high income inequality, inequitable distribution of income, and poverty incidence (Todaro & Smith, 2006). Although the Philippines has been vigilant in addressing poverty, it has been sluggish compared to other Asian economies that have been successful in reducing their country's poverty incidence. Even Cambodia, Indonesia, Malaysia, and Vietnam whose annual real Gross Domestic Product (GDP) growth rate is lower than the Philippines, as per the reports of the UNDP, have outperformed the country in reducing poverty for the past two decades. The general literature on poverty in the Philippines cited that the main reason for the low reduction of poverty is the slow growth of the economy. With this reduced economic expansion accompanied by high population growth rate, the country suffers a slow growth rate of per capita income. However, even though the economy will experience high growth, the quality of this growth is vital since not all economic growth is in support of the poor. Furthermore, according to Aldaba (2009), since the economy fails to maintain a high level of sustained growth, it cannot create the necessary employment, therefore, inadequate income for the poor that further reduces their opportunity to fight poverty thus increasing the gap between the rich and the poor.

Another contributory factor of insistent poverty is the high level of population growth. High level of population growth may indicate increasing family size and the larger the family size is, the greater the household or family's probability of being poor (Schelzig, 2009) because, as assessed by Orbeta (2002), high fertility is related to the decline in human capital investments. An additional member of a family means an additional allocation of a usually meager income, thus lesser division of family resources (Schelzig, 2005), most particularly, food and nutrition. Moreover, the high population growth impedes economic development for two interconnected reasons. First, rapid population growth lessens per capita income, since the people, especially the poor cannot sacrifice basic commodities, their savings are reduced and so will be the resource for investment in productive capacity. This will sequentially decrease overall economic growth and increase poverty (Schelzig, 2005). Second, the country's large population that is continuously growing exceeds the capacity of the industry to absorb new labor. Since, there is a rapid increase in the labor force, and again, with the lack of quality employment, the outcome will be more unemployed individuals negatively affecting the development of the economy. This insufficient generation of employment and low quality of employment is another reason for the persistent high poverty incidence. The availability of employment cannot keep up with the growth pace of the labor force. In a matter of a decade, the country's labor force has increased by more than 50 percent and even the total labor force participation increased due to the higher participation of women in the labor force. Even with many Filipinos opting to work overseas, according to Aldaba (2009), unemployment rates are still high.

**Table 3: Poverty Incidence in Selected Provinces**
**(NCR District IV, Eastern Samar, and Agusan Del Sur)**

| Year / Province | 2003 | 2006 | 2009 | 2003 | 2006 | 2009 | 2003 | 2006 | 2009 |
|---|---|---|---|---|---|---|---|---|---|
| | Annual Per Capita Poverty Threshold | | | Poverty Incidence Among Families (%) | | | Poverty Incidence Among Population (%) | | |
| **NCR District IV** | 13,997 | 16,487 | 19,802 | 1.8 | 2.9 | 1.6 | 2.7 | 5.0 | 2.5 |
| **Eastern Samar** | 10,106 | 12,195 | 16,385 | 29.8 | 37.6 | 45.8 | 36.4 | 47.8 | 54.0 |
| **Agusan Del Sur** | 11,226 | 14,004 | 18,443 | 48.5 | 45.5 | 51.2 | 56.0 | 53.9 | 58.1 |
| | | | | **Magnitude of Poor Families** | | | **Magnitude of Poor Population** | | |
| **NCR District** | | | | 10,769 | 17,942 | 12,389 | 78,834 | 145,819 | 88,850 |
| **Eastern Samar** | | | | 22,642 | 31,165 | 41,359 | 141,236 | 206,979 | 237,122 |
| **Agusan Del Sur** | | | | 54,915 | 54,433 | 57,189 | 313,709 | 319,936 | 343,060 |

**Source:** National Statistical Coordination Board (NSCB)

In 2010, according to NSO, the share of employment in agriculture to the total employment is 33 percent and most of the profiles of employees working in this sector including the industry sectors are considered poor. The Annual Poverty Indicator Survey (APIS) of the NSO, using the bottom 40 percent income range as a proxy for the poor, revealed that more than half of the poor are employed in agriculture in 2009 and are usually laborers and farmers (Schelzig, 2005). However, the agricultural sector that has been overlooked and has not been given proper management is lacking sustainable and quality employment (Aldaba, 2009). As argued by Schelzig (2005), the link between poverty and employment is principally apparent, not in the unemployment, but in the quality of the employment since the poor are generally working in jobs with low income and low productivity. Thus, even though the poor are employed, they are not working in a quality environment. Furthermore, rural areas where most of the poor are rely on the agricultural sector. Very little were done to strengthen, develop, and reduce or eradicate market distortions of this sector. According to Aldaba (2009), there has been less interest in advancing agricultural productivity and less concern in developing the necessary infrastructure to increase productivity further decreasing the income opportunities especially for poor in the rural areas.

| Table 4: Annual Per Capita Poverty Threshold and Poverty Incidence among Families | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Region | Annual Per Capita Poverty Threshold (PHP) | | | Poverty Incidence among Families | | | | | | Share to Total Poor Families | | |
| | | | | Estimate | | | Coefficient of Variation | | | | | |
| | 2003 | 2006 | 2009 | 2003 | 2006 | 2009 | 2003 | 2006 | 2009 | 2003 | 2006 | 2009 |
| Philippines | 10,976 | 13,348 | 16,841 | 20 | 21.1 | 20.9 | 2.3 | 2.3 | 2.1 | 100 | 100 | 100 |
| NCR | 13,997 | 16,487 | 19,802 | 2.1 | 3.4 | 2.6 | 12 | 13.1 | 12 | 1.5 | 2.2 | 1.7 |
| CAR | 10,881 | 12,976 | 16,122 | 16.1 | 18.6 | 17.1 | 11.2 | 12.8 | 11.8 | 1.4 | 1.5 | 1.4 |
| I | 11,791 | 14,350 | 17,768 | 17.8 | 20.4 | 17.8 | 7.8 | 7.6 | 7 | 4.7 | 5.3 | 4.6 |
| II | 10,350 | 12,212 | 15,306 | 15.2 | 15.5 | 14.5 | 8.4 | 9.2 | 8.3 | 2.7 | 2.6 | 2.4 |
| III | 12,771 | 15,374 | 18,981 | 9.4 | 12 | 12 | 8.6 | 8.4 | 7.6 | 5.2 | 6.2 | 6.3 |
| IV-A | 12,394 | 14,284 | 17,779 | 9.2 | 9.4 | 10.3 | 8.7 | 10.6 | 7.9 | 6.1 | 5.7 | 6.4 |
| IV-B | 10,398 | 12,610 | 15,769 | 29.8 | 34.3 | 27.6 | 6.6 | 7.2 | 6.8 | 4.5 | 5.1 | 4.2 |
| V | 11,476 | 13,645 | 17,146 | 38 | 36.1 | 36 | 4.9 | 5 | 4.2 | 10.9 | 9.9 | 10 |
| VI | 10,548 | 12,432 | 16,036 | 23.5 | 22.1 | 23.8 | 6.7 | 7.2 | 6.4 | 9.1 | 8.2 | 9 |
| VII | 11,798 | 14,468 | 17,848 | 32.1 | 33.5 | 30.2 | 6.5 | 6.4 | 6.3 | 11.8 | 11.8 | 10.8 |
| VIII | 9,850 | 11,885 | 15,910 | 30.2 | 31.1 | 33.2 | 5.9 | 5.8 | 5.3 | 6.9 | 6.9 | 7.4 |
| IX | 9,642 | 11,810 | 15,160 | 40.5 | 34.2 | 36.6 | 7.1 | 9.3 | 6.7 | 7.2 | 6.1 | 6.3 |
| X | 10,501 | 12,987 | 16,568 | 32.4 | 32.7 | 32.8 | 7.2 | 5.7 | 5.8 | 7.3 | 7 | 7.1 |
| XI | 10,737 | 13,469 | 17,040 | 25.4 | 26.2 | 25.6 | 8.3 | 8.7 | 8.4 | 6.3 | 6 | 5.9 |
| XII | 10,277 | 12,530 | 15,762 | 27.2 | 27.1 | 28.1 | 8.1 | 7 | 6.7 | 5.8 | 5.5 | 5.8 |
| Caraga | 10,355 | 12,935 | 16,858 | 37.6 | 36.9 | 39.8 | 6.2 | 6.4 | 5.4 | 4.7 | 4.5 | 4.9 |
| ARMM | 9,664 | 12,358 | 16,334 | 25 | 36.5 | 38.1 | 10.1 | 7.4 | 6.1 | 3.8 | 5.3 | 5.7 |
| **Source:** National Statistical Coordination Board (NSCB) | | | | | | | | | | | | |

Another contributory factor is the high and persistent levels of economic inequality such as income, welfare and asset inequality that diminishes the positive effect of economic growth. A study by Deininger & Squire (1998) argued that a country's initial land distribution has an effect on the succeeding expansion of its economy and performance of human development. If an economy has a high land inequality initially, it is likely that it will exhibit a lower income growth rate in the long-term and slower rate of alleviating poverty than an economy with more equitable land distribution initially. Land inequitable distribution has been the country's problem for over four decades.

There is also a high income inequality in the Philippines. In 2006, NSCB reported that the income share of the bottom 10 percent of the country's population is at 1.86. The Gini coefficient in 2006 is 45.8. Based on the statistics from the UNDP, although the unequal distribution has improved from the 46.8 in 1991 and the extent of the unequal distribution of income is better than that of Malaysia (46.2 in 2009), Thailand (53.6 in 2009) and Singapore (47.8 in 2009), it is still very high. Furthermore, Cambodia (est. 44.4 in 2007), Indonesia (36.8 in 2009), Laos (36.7 in 2008) and Vietnam (37.6 in 2008) fared better in the distribution of income.

As emphasized, poverty in the country is a geographical matter since there is a wide disparity in the standards of living and human development in the different regions. This interregional and intra-regional inequality also contributes in the persistence of poverty. According to Balisacan (2003) and Aldaba (2009), intra-regional inequality contributes 82 percent of overall inequality; thus, poverty, implying that government policies should improve distribution within the regions.

**Sources of Food Inequality**

The increases in global food and energy prices are contributing to the problem of poverty and food inequality. More people now are being pushed further below the poverty line that results to the lack of and unequal access to food. Lower-income households are responding to these increases in prices by further sacrificing the quantity and quality of food they consume. These households belonging in the first decile or the lowest-income household group are the most affected to increases in global food prices since, as shown in the households' consumption structure using a 2000 social accounting matrix constructed by Cororaton & Corong (2009), they allocate almost half of their consumption expenditure in agricultural and food products. Furthermore, the allocation on these commodities drops significantly if moved to the higher deciles where they shift their consumption to services (Cororaton & Corong, 2009).

Food security is a challenge confronting countries in the Asia-Pacific. Countries like Bangladesh are faced with food deficit problems since the country, lacking the adequate agriculture, has to import basic food commodities while Cambodia and Philippines are faced with food inequality. Both countries have the resources to produce sufficient food for the population yet it is divided unequally. Another case of food inequality is the unequal distribution of profits from exports to those that contributed to the production especially to manual laborers (World Vision, n.d.).

Recognizing the different sources of food inequality will assist in identifying possible targets or channels of policy recommendations. Nevertheless, the sources of food inequality are similar with the sources of poverty incidence but with more emphasis on the persistent stagnation and disregard to the agricultural sector since literature ascertains and recommends that developing the agricultural sector will increase food security. As proposed by Adelman & Morris (1967), in managing problems of food security, the sustainable approach is to increase food production through encouraging and supporting investment in agriculture to enhance food supply. Developing the agricultural sector is vital in supporting national economic growth and pro-poor growth that will help reduce poverty incidence since most poor are employed in the agricultural sector. By improving agriculture, food security will also improve since there is an increase in the access to food and income of poor farmers. This will then lead to their household's better nutrition and higher productivity (Yu, You & Fan, 2009).

Moreover, one approach in developing the agricultural sector in case of the Philippines is increasing rice productivity. Based on rice productivity simulation results by Cororaton & Corong (2009), there is an increase in the domestic production and decrease in the importation of rice if rice productivity is improved, therefore, lowering consumer prices. Another result of the study is that it is a pro-poor solution for food inequality since it will mostly be advantageous to households in the population's first decile. This is the case because, relative to the remainder of the population, a substantial share in their consumption basket is rice (Cororaton & Corong, 2009).

## Government Programs to Alleviate Poverty

Since the Aquino Administration in the 1990s, there had been specific projects targeted for poverty reduction. The Social Reform Agenda (SRA) by the Ramos administration focused on poverty alleviation and rural development. The concentration was principally on disadvantaged economic and social groups. This set the foundation for the Social Reform and Poverty Act of 1997 (Republic Act [RA] 8425) that established the National Anti-Poverty Commission (NAPC) that acts as a coordinating and advisory body in programs of social reform and poverty alleviation. It also institutionalizes the "basic sectors" and non-government organizations' participation, support local government units in incorporating SRA, and encourage micro-finance programs and institutions. One recent program launched in 2001 under the supervision of NAPC is the *Kapit-Bisig Laban sa Kahirapan* (KALAHI) program. There are five special projects in the KALAHI program; the rural projects, urban projects, social initiative projects, resettlement areas and in conflict areas.

There are many issues regarding the government's poverty reduction programs basically categorized into policy issues, institutional issues, and resource issues. Under policy issues, every administration is inclined to introduce new programs, usually without concern to what is in progress that was established by preceding administrations. Even successful programs were not continued since they were part of previous presidents' agendas. This results to redundancies in plans, frameworks and targets, and waste of energies and limited resources. Targeting mechanisms were also diverse, inefficient and highly politicized that lead to weak implementation. It also led to inclusion/exclusion of intended beneficiaries and significant leakages to unintended beneficiaries of the programs. Institutional issues, on the other hand, include transitional problems, highly politicized programs and political appointment of agency heads and the representation of the "basic sector" political matters often succeed even from the choice of representatives for the "basic sector", target beneficiaries and the allocation of the budget. The government response for resource issues is that a Poverty Alleviation Fund (PAF) was established in 1998 so that funds for poverty reduction will always be a part of the national budget (Schelzig, 2005)

## Government Programs to Alleviate Food Inequality

The Philippine government recognized the importance of rice productivity to the agricultural sector, therefore, introduced the hybrid rice technology to increase rice productivity. In 2002, the government launched the Hybrid Rice Commercialization Program (HRCP) that promoted the production of hybrid rice seeds and encouraged their continued use by farmers by ensuring that seeds are bought at a guaranteed price, that the distribution of the seeds to participating farmers are offered at half the procurement price and the government provided assistance by allocate money to participating farmers to compensate additional input costs. The government has even provided help by offering credit and installment payment schemes. The implementation of this program was, however, inefficient, and ineffective. The reception of hybrid rice was not encouraging. Participating farmers have opted to discontinue their use of hybrid rice since it is expensive and has to be acquired every planting season. The subsidies offered by the government have also influenced farmers' decisions between hybrid and inbred rice varieties without proper information (Cororaton & Corong, 2009).

**The Link between Food Inequality and Poverty in the Philippines**

Poverty causes inability to afford food and food consumption is used to measure poverty. The difference between poverty incidences among municipalities and regions will therefore lead to unequal distribution of food among regions and even among the population in a particular region. However, the transmission mechanisms between the two variables vary. A basic and the most explicit relationship between food and poverty are through consumption and income measures. A study conducted by Llanto (1996), delved on the reaction of Philippine households, focusing more on rural and agricultural households, to income and price changes. The motivation for such consideration is due to the belief that households in the lower strata is more affected when there are shocks affecting commodity prices and level of income. Llanto (1996) also highlighted that factors that cause food prices to increase has jeopardizing effects on small farm households hence, sharing the view that "small households spend a relatively large portion of their income on food, and thus, any increase in the price of food products is likely to hurt them more than the richer households". The research also investigated income and price elasticities with regards to region, income class and location to strengthen the stand of low income and rural households are at lose when food prices increase and level of household income decreases. The study was able to pinpoint that rural households are price inelastic to staples such as cereals, fruits and vegetables since these are easily accessed by these types of household and are not substitutable.

The measure of poverty is not stagnant. It should not be constricted to the lack of income. Its meaning evolves accordingly; from the traditional measure of income as a gauge of individual welfare towards to deprivation of basic capabilities as stated by Sen (1979). Moreover, as the Schelzig (2005) claimed, "poverty is recognized to be a dynamic, complex phenomenon involving concepts such as vulnerability and powerlessness." Furthermore, it is a deprivation of access to other assets that is important for standard living. It is essential to take note of these changes so as to fully represent the state and characteristics of poverty. As discussed by Albert & Molano (2009), in developing countries, poverty lines estimated are absolute poverty lines which are based on a fixed standard of welfare which is adjusted with regards to price changes. In the Philippines, the estimated poverty line is a representation of income needed to satisfy the minimal needs of a household, both food and non-food. The food aspect is usually referred to as the Food Poverty Line (FPL) which utilizes one-day-menus that meets the required daily dietary needs and nominally valued at the least possible price. On the other hand, the study of Pedro, Candelaria, Velasco & Barba (n.d.) estimated food threshold and poverty incidence using the food baskets across income groups. This is a comparative study between the estimated poverty incidence and food threshold between all income groups versus the bottom 30 percent of the income group. It showed that food basket of the higher income group consists of food and other commodities that are more complex and expensive as compared to the lower 30 percent of the distribution.

## FRAMEWORK OF THE STUDY

### Generalized Method of Moments (GMM) in Estimating the Engel Curve

In order to determine how responsive household food consumption is to various significant sources of household income, this study will estimate the Engel curve of the Philippines. According to Besanko & Braeutigam (2002) and Chai & Moneta (2010a), an Engel curve relates the amount of a commodity purchased to the level of income, holding constant the prices of all goods. Moreover, according to Chai & Moneta (2010a), there are two varieties of Engel Curves namely the budget share Engel curves, which describe how the proportion of household income spent on a good varies with income. Alternatively, Engel curves can also describe how real expenditure varies with household income (Chai & Moneta, 2010a). Using the concept of Engel curves, this study will also be able to verify whether Filipino households conform to the best-known single result from the article is Engel's law stating that the poorer a family is, the larger the budget share it spends on nourishment.

To estimate the Engel curve, the 2007 APIS will also be used following the general functional form given by Equation 1.

$$FC_i = f(\mathbf{y}) + \varepsilon_i \qquad 1$$

Where:

$FC_i$ is the total food consumption of household $i$

$\mathbf{y}$ is a vector composed of various sources of household income including other receipts (henceforth, income) $i$

$\varepsilon_i$ is the error term that captures all other variables that were not included in the equation

It is hypothesized by this study that the source of inequality in food distribution is the inequality in the source of income. Hence, to determine the source of inequality in food consumption, the various sources of household income that influences food consumption must be identified. This will pinpoint why there are households who consumes more than the others. Likewise, this will have policy implications on how household income can be augmented through various government-sponsored projects targeted towards poverty alleviation. As such, Equation 1 can be rewritten as in Equation 2.

$$FC_i = \beta_0 + \beta_1 RENT_i + \beta_2 WAGES_i + \beta_3 AGR\ I_i + \beta_4 INDSTRY_i + \beta_5 SRVCS_i\ {}_6 OTHR_i + \beta_7 CONAB_i + \beta_8 INTRST_i + \beta_9 DIV_i + \beta_{10} GAMB_i + \varepsilon_i \qquad 2$$

Where:

$FC_i$ is the total food consumption of household $i$.

$RENT_i$ is the income of household $i$ from rental of non-agricultural lands
$WAGES_i$ is the income of household $i$ from salaries and wages
$AGRI_i$ is the income of household $i$ from agricultural activities
$INDSTRY_i$ is the income of household $i$ from industrial activities
$SRVCS_i$ is the income of household $i$ from services activities
$OTHR_i$ are other income not elsewhere classified
$CONAB_i$ is the cash receipts, support, etc. of household $i$ from abroad
$INTRST_i$ is the income of household $i$ from interest-earning activities
$DIV_i$ is the income of household $i$ from dividends
$GAMB_i$ is the net winnings of household $i$ from gambling
$\varepsilon_i$ is the error term that captures all other variables that were not included in the equation

As an a-priori expectation, all income variables must have a positive relationship with food consumption by the concept of income effect. Besanko & Braeutigam (2002) defined the income effect as the change in the amount of good or service that a consumer would buy as purchasing power changes, holding all prices constant. However, the shapes of Engel curves depend on many demographic variables and other consumer characteristics. An Engel curve reflects its income elasticity and indicates whether the good is an inferior, normal, or luxury good. Empirical Engel curves are close to linear for some goods, and highly nonlinear for others. According to Besanko & Braeutigam (2002), for normal goods, the Engel curve has a positive gradient wherein as income increases, the quantity demanded increases. Amongst normal goods, there are two possibilities. Although the Engel curve remains upward sloping in both cases, it bends toward the *y*-axis for necessities and towards the *x*-axis for luxury goods. Meanwhile, Besanko & Braeutigam (2002) furthered that for inferior goods, the Engel curve has a negative gradient wherein as the consumer has more income, they will buy less of the inferior good because they are able to purchase better goods. On the other hand, for goods with Marshallian demand function generated from a utility function of Gorman polar form, the Engel curve has a constant slope. Similarly, most Engel Curves feature saturation properties in that their slope tends to diminish at high income levels, which suggests that there exists an absolute limit on how much expenditure on a good will rise as household income increases (Chai & Moneta, 2010b). This saturation property has been linked to slowdowns in the growth of demand for some sectors in the economy, causing major changes in an economy's sectoral composition (Pasinetti, 1981).

The Engle curve presented by Equation 2 faces the problem of endogeneity wherein there is correlation between a parameter or variable and the error term (Gujarati & Porter, 2009). Endogeneity can arise as a result of measurement error, autoregression with autocorrelated errors, simultaneity, omitted variables, and sample selection errors (Gujarati & Porter, 2009). It is suspected that the income per se is endogeneous with respect to educational attainment based on Mincer (1974) wherein income distribution is related to age as well as varying amounts of education and on-the-job training among workers. To address the problem of endogeneity, this study will attempt to provide structural equations that will explain the movement of the various sources of income. Hence, the data that will enter Equation 2 will be predicted values of the separate regression of the various sources of income against educational attainment grounded on the framework of Mincer (1974).

Aside from endogeneity, heteroscedasticity also plagues estimation of Engel curves wherein as income increases, the difference between actual observation and the estimated expenditure level tends to increase dramatically; consequently, the Engel curve and other demand function models fail to explain most of the observed variation in individual consumption behavior (Lewbel, 2007). As result, many scholars acknowledge that influences other than current prices and current total expenditure must be systematically modeled if even the broad pattern of demand is to be explained in a theoretically coherent and empirically robust way (Deaton & Muellbauer, 1980). For instance, some success has been achieved in understanding how social status concerns have influenced household expenditure on highly visible goods (Charles, Hurst & Roussanov, 2009; Heffetz, n.d.).

The problem of heteroscedasticity in estimating Engel curves is even worsened by the fact that this study is utilizing the 2007 APIS to generate empirical results, which is a cross-sectional data. According to Gujarati & Porter (2009), heteroscedasticity is defined as differing variance. Moreover, Gujarati & Porter (2009) emphasized that heteroscedasticity does not cause ordinary least squares (OLS) coefficient estimates to be biased, although it can cause OLS estimates of the variance of the coefficients to be biased, possibly above or below the population variance. Therefore, regression analysis using heteroscedastic data will still provide an unbiased estimate for the relationship between the exogenoeus and endogeneorus variables. However, standard errors and inferences obtained from data analysis are spurious. Consequently, biased standard errors lead to biased inference, so results of hypothesis tests might be wrong.

The 2007 APIS will be subjected to the Generalized Method of Moments (GMM) estimation methodology to analyze the statistical significance of the various sources of household income on food consumption. Since the dataset is cross-sectional, it is plagued by the problem of heteroscedasticity (Gujarati & Porter, 2009). According to Baum, Schaffer, & Stillman (2003), the usual approach today when facing heteroscedasticity of unknown form is to use the GMM introduced by Hansen (1982), which makes use of the orthogonality conditions to allow for efficient estimation in the presence of heteroscedasticity of unknown form. Also, many standard estimators, including the Instrumental Variable (IV) and Ordinary Least Squares (OLS) are deemed as special cases of GMM estimators. Hence, in the presence of heteroscedasticity, the GMM estimator is more efficient (Baum, Schaffer, & Stillman, 2003).

Another reason why the GMM estimation technique was preferred is because of its robustness to differences in the specification of the data generating process (DGP) and it also automatically addresses endogeneity. According to Greene (2003), under the GMM, a sample mean or variance estimates its population counterpart regardless of the underlying process. GMM provides this freedom from unnecessary distributional assumptions, such as the normality assumption under OLS that has made this method appealing. However, it must be noted that this comes at a cost because if more is known about the DGP such as its specific distribution, then the method of moments may not make use of all of the available information. Hence, the natural estimators of the parameters of the distribution based on the sample mean and variance becomes inefficient. Thus, the method of maximum likelihood estimation (MLE) is the alternative approach which utilizes this out of sample information and provides more efficient estimates (Greene, 2003).

**Maximum Likelihood Estimation (MLE) in Assessing Government's Poverty Reduction Programs in Pasay, Eastern Samar, and Agusan Del Sur**

The Engel curve estimated will explain the behaviour of households with respect to their food consumption subject to their income sources implying that food inequality is due to income inequality. However, these methodologies just show the existence of the issue on a more detailed manner. It does not empirically show how food inequality can be addressed specifically by the government. As such, another methodology must be implemented. To determine whether the government's poverty reduction programs can alleviate food inequality, there is a need to assess if existing programs can reduce the state of hunger – a proxy for food inequality because the fact that households cannot have regular access to food, it implies inequality in the distribution of food. Unfortunately, the 2007 APIS cannot capture the incidence of the state of hunger. Note that the state of hunger is defined by the Community Based Monitoring System (CBMS) survey as an indicator whether a household experienced insufficient food supplies for the past 3 months. This study is arguing that experiencing insufficient food supplies can be attributed to the inequality in food distribution.

In order to determine whether the government's poverty reduction programs can alleviate the probability that a household will experience state of hunger, the CBMS survey will be utilized since it possesses variables measuring the availability and effectiveness of these programs. Specifically, this study will look into the data of Pasay City in 2005, Eastern Samar in 2005, and Agusan Del Sur in 2006. The profiles of these provinces mentioned in earlier will provide additional reasons why the results of the regression are such. Likewise, these provinces were selected to capture the entire Philippine behavior with ample representatives from Luzon, Visayas, and Mindanao. The logistic specification of the variables influencing the probability that the household experienced state of hunger is given by Equation 4.

To reinforce the effect of educational attainment to state of hunger, this study opted to use the direct relationship of education to income and income to state of hunger. Since as explained, those who are able to acquire high educational attainment are the individuals who have access to higher level of income and therefore are the ones who decrease the likelihood to experience hunger. This procedure will utilize the OLS regression as shown by Equation 5. Afterwards, the predicted value of household income will be then substituted in Equation 4 as the representation of income influencing the probability of household hunger. In this regard, the procedure exemplify that income is the channel of education in affecting states of hunger and poverty.

$$\ln\left(\frac{p_i}{1-p_i}\right) = f(FSIZE_i, HHINCOME_i, ESTATHH_i, HEALTH_i, FEEDING_i, SCHOLAR_i, SKILLS_i, HOUSING_i, CREDIT_i) + \varepsilon_i \quad (4)$$

$$HHINCOME_i = \alpha_0 + \alpha_1 ELEMGRAD_i + \alpha_2 HSUNDR_i + \alpha_3 HSGRAD_i + \alpha_4 PSUNDR_i + \alpha_5 PSGRAD_i + \alpha_6 COLUNDR_i + \alpha_7 COLGRAD_i + \alpha_8 WMSPHD_i + v_i \quad 5$$

Where

$p_i$ is the probability that a household has experienced state of hunger while $(1 - p_i)$ is the probability that a household has not experienced state of hunger. This is an indicator whether there are abnormalities in a household's access to food evidencing the food inequality being argued by this study.

$FSIZE_i$ is the number of members in household $i$. This is expected to have a positive impact on the probability that a household will experience state of hunger because more members will have to share a finite amount of food a household was able to acquire. The statistical significance of this variable will indicate whether a population policy is necessary to address food inequality.

$HHINCOME_i$ measures total household income in logarithmic form. It is the summation of all sources of household income from domestic and international sources. By a-priori, the higher the income of the household is, the lower is the probability of experiencing hunger.

$ESTATHH_i$ is a vector of employment status of the household head, which includes $PERMANENT_i$ and $SEASONAL_i$ which are dummy variables indicating whether the household head is employed permanently or seasonally. The temporarily employed category was dropped to avoid perfect multicollinearity and dummy variable trap. Categories assume a value of 1 if the household head is permanent and seasonal, 0 otherwise. By a-priori, having permanent employment reduces the probability of state of hunger because of the stable flow of income to finance food consumption. Meanwhile, having seasonal or temporary employment might increase the probability of state of hunger in the household because of the impermanent flow of income that will result also to ephemeral food consumption.

$ELEMGRAD_i$, $HSUNDR_i$, $HSGRAD_i$, $PSUNDR_i$, $PSGRAD_i$, $COLUNDR_i$, $COLGRAD_i$, and $WMSPHD_i$are dummy variables indicating whether the household head is an elementary graduate, high school undergraduate, high school graduate, post secondary undergraduate, post secondary graduate, college undergraduate, college graduate, and with graduate studies respectively. The category elementary undergraduate was dropped to avoid the dummy variable trap. By a-priori, the higher the educational attainment of the household head is, the better opportunities await the household head in participating in lucrative job opportunities that will provide for ample food consumption.

$HEALTH_i$, is a dummy variable indicating whether a household received or availed of health assistance programs such as free eye check-up, dental services, and others during the past 12 months. It assumes a value of 1 if the household received or availed of this program and 0 otherwise.

$FEEDING_i$ is a dummy variable indicating whether a household received or availed of supplemental feeding program for the past 12 months. It assumes a value of 1 if the household received or availed of this program and 0 otherwise.

*SCHOLAR*$_i$is a dummy variable indicating whether a household received or availed of education and scholarship program for the past 12 months. It assumes a value of 1 if the household received or availed of this program and 0 otherwise.

*SKILLS*$_i$ is a dummy variable indicating whether a household received or availed of skills or livelihood programs for the past 12 months. It assumes a value of 1 if the household received or availed of this program and 0 otherwise.

*HOUSING*$_i$ is a dummy variable indicating whether a household received or availed of housing program for the past 12 months. It assumes a value of 1 if the household received or availed of this program and 0 otherwise.

*CREDIT*$_i$ is a dummy variable indicating whether a household received or availed of credit program for the past 12 months. It assumes a value of 1 if the household received or availed of this program and 0 otherwise.

$\varepsilon_i$ and $v_i$ are the respective error terms that captures all other variables that were not included in the equation.

These variables represent the provision of government subsidies that will augment incapacity of households to acquire decent and sufficient amount of food. It is expected that these variables will have various impacts on the probability that a household will experience state of hunger. Intuitively, government funded health, scholarship, and credit programs are expected to decrease the likelihood of a household experiencing state of hunger. This might be due to how such provisions shift a portion of the burden of financing food consumption, thus effectively decreasing the perceived and actual costs of purchasing food. On the other hand, assuming that food per se is a normal good, regardless of the source of income, food consumption will increase as income increases by virtue of Engel aggregation or simply income effect (Besanko & Braeutigam, 2002).

Generally assessing the effectiveness of government programs to alleviate hunger and poverty will allow for the creation of alternative policies that will directly address hunger, food inequality, and eventually poverty.

## RESULTS AND DISCUSSION

In order to address the first research objective, the Engel curve for the Philippines was estimated using GMM and results, found on Table 5, show that based on a-priori expectations, an increase in income from any source will increase food expenditure. Therefore, when households have extra income from engaging in entrepreneurial activities, there is also an increase in their total food expenditure. It just shows that food is a normal good and that by income effect, food expenditures will increase with an increase in purchasing power. Among the three major business activities where households engage in, an additional income in engaging in industrial activities has the largest marginal effect to food expenditure. An extra income from engaging in entrepreneurial activities in agriculture also has greater effect than an extra income from that of the services activities. Households that have income from renting spend most of their income in food consumption. Income from dividends and net winnings from gambling do not have any effect on food consumption possibly attributable to the few households that engage in such activities and that they do not rely on these for their food expenditure but more on spending it on other goods or services.

| **Table 5: Results of the Generalized Method of Moments (GMM) Regression (Dependent Variable: Food Consumption)** | | | |
|---|---|---|---|
| **Variables** | **Coefficient** | **Standard Error** | **Probability Value** |
| $RENT_i$ | 1.3561 | 0.0146 | 0.000 |
| $WAGES_i$ | 0.4422 | 0.0018 | 0.000 |
| $AGRI_i$ | 0.4886 | 0.0022 | 0.000 |
| $INDSTRY_i$ | 0.6967 | 0.0049 | 0.000 |
| $SRVCS_i$ | 0.2872 | 0.0028 | 0.000 |
| $OTHR_i$ | 0.2415 | 0.0028 | 0.000 |
| $INTRST_i$ | 0.9141 | 0.2609 | 0.000 |
| $CONAB_i$ | 0.0159 | 0.0038 | 0.000 |
| $DIV_i$ | 0.4066 | 0.2136 | 0.057 |
| $GAMB_i$ | 0.0446 | 0.0467 | 0.906 |
| constant | 7803.8540 | 60.7578 | 0.000 |

Likewise, as seen on Table 6, as with any other normal good, food consumption is income inelastic so any changes in income, food consumption is unresponsive as seen on the elasticity of the different variables to food. Thus, any increase in income will have an increase in the expenditure allocated to food as shown on Table 5. Another implication is that the sources of income and receipts are not close substitutes. When a household head is dismissed from the only source of income, which is work; the individual cannot immediately and easily shift and start engaging in entrepreneurial activities. Moreover, even though the household have other resources from business profits, dividends, rental income, or interest and so on, the household cannot easily replace the income lost due to, say, the unemployment.

| **Table 6: Estimated Marginal Effects (Dependent Variable: Food Consumption)** | | | |
|---|---|---|---|
| **Variables** | **ey/ex** | **Standard Error** | **Probability Value** |
| $RENT_i$ | 0.0137 | 0.0001 | 0.000 |
| $WAGES_i$ | 0.2918 | 0.0011 | 0.000 |
| $AGRI_i$ | 0.1760 | 0.0008 | 0.000 |
| $INDSTRY_i$ | 0.0107 | 0.0001 | 0.000 |
| $SRVCS_i$ | 0.0304 | 0.0002 | 0.000 |
| $OTHR_i$ | 0.1026 | 0.0011 | 0.000 |
| $INTRST_i$ | 0.0001 | 0.0000 | 0.000 |
| $CONAB_i$ | 0.0008 | 0.0002 | 0.000 |
| $DIV_i$ | 0.0000 | 0.0000 | 0.023 |
| $GAMB_i$ | 0.0004 | 0.0005 | 0.325 |

Most households' major source of income is from employment explaining food expenditure's less unresponsiveness to changes in income from salaries and wages relative to other sources of income. Among the three major industries, households' food expenditure is the most sensitive to changes in income from agricultural activities. This confirms the importance of the agricultural sector in the Philippines wherein 51 percent of the sample engages in agricultural activities and most poor households' major source of food consumption are from agricultural activities. This implies that events and policies that affect percentage changes in income from these will have the greatest effect in food consumption relative to that of industrial and services activities (i.e. transportation, wholesale and retail, other community services). Households' food consumption is less sensitive to income from industrial activities relative to that of agricultural and services activities. Households engaging in industrial activities have fewer alternatives compared to that of services and agricultural activities. This may also be attributable to the fact that engaging in industrial activities requires larger capital and are riskier than engaging in agricultural and services activities. Therefore, households that have industrial businesses may be richer relative to the other two. Although additional income from interest has one of the highest effects on additional food expenditure, food expenditure is most unresponsive to interest income possibly because few households keep interest earning assets and when they have such assets, they do not heavily rely on these for their food expenditure.

As mentioned above, even though households that have rental income allocate more of their income on food expenditure, food expenditure is less sensitive to changes in rental income. This is most likely for the reason that more than 90 percent of these households engage in other entrepreneurial activities. The additional support from abroad contributes to an increase in food expenditures although less sensitive. This is possibly because cash support from abroad is usually spent on other basic commodities other than food such as education and utilities.

Table 7 reports selected descriptive statistics. Compared to other independent variables, income at level reports an abnormally high mean, standard deviation and skewness. This can result to deflated estimate of standard error and wide confidence intervals which leads to poor estimates. The researchers opted to transform income to its logarithmic form in order to contain the high variability and also inhibit high variability in influencing the estimation.

**Table 7: Selected Descriptive Statistics**

| Variables | Pasay | | Eastern Samar | | Agusan Del Sur | |
|---|---|---|---|---|---|---|
| | **Mean** | **Skewness** | **Mean** | **Skewness** | **Mean** | **Skewness** |
| $HSIZE_i$ | 4.1980 | 1.7265 | 4.5129 | 0.6619 | 6.0776 | 0.7116 |
| $INCOME_i$ | 220,962.80 | 181.32 | 68,230.18 | 3.21 | 79,900.7100 | 204.7220 |
| $LNINCOME_i$ | 11.9394 | (0.3112) | 10.4874 | (0.1367) | 10.7236 | (0.2522) |

Table 8 shows the results of OLS regression of household income. As expected, there is a high positive and significant relationship between education and income. Furthermore, as observed in Pasay and Agusan Del Sur, as the tier of educational attainment increases, its marginal effect on income also increases. Compared to Eastern Samar, college undergraduates and college graduates are the only estimates that have a significant contribution to income. This may be due to the rural status of the region wherein college attainment is deemed as the only beneficial factor in acquiring the most lucrative jobs in the locality. In addition, those in Eastern Samar who obtained graduate studies does not contribute a significant increase in income since, yet again, this may be due to the fact that Eastern Samar is a rural area and jobs requiring such credential is not found in the locality and/or if ever there is a position, the compensation cannot suffice the bargained salary. As compared to the marginal contribution of those who possess graduate studies in Pasay and Agusan Del Sur, these coefficients are highly significant therefore giving incentives to those who have graduate degrees in attaining higher income. This is also expected because both Pasay and Agusan Del Sur are urban and partially urban areas respectively; hence, they share a common characteristic in terms of influence of educational attainment to household income.

**Table 8: Ordinary Least Squares (OLS) Regression**
**Dependent Variable: Log of Total Income**

| Variables | Pasay | | Eastern Samar | | Agusan Del Sur | |
|---|---|---|---|---|---|---|
| | Coefficient | Probability Value | Coefficient | Probability Value | Coefficient | Probability Value |
| $ELEMGRAD_i$ | 0.0884 | 0.0000 | 0.3130 | 0.0890 | 0.0380 | 0.0000 |
| $HSUNDR_i$ | 0.0408 | 0.2100 | 0.0236 | 0.8050 | 0.3468 | 0.0000 |
| $HSGRAD_i$ | 0.2089 | 0.0000 | 0.3123 | 0.0360 | 0.3853 | 0.0000 |
| $PSUNDR_i$ | 0.3239 | 0.0000 | - | - | 0.7242 | 0.0000 |
| $PSGRAD_i$ | 0.3678 | 0.0000 | 0.1823 | 0.8240 | 0.8517 | 0.0000 |
| $COLUNDR_i$ | 0.3999 | 0.0000 | 0.4106 | 0.0000 | 0.9219 | 0.0000 |
| $COLGRAD_i$ | 0.6952 | 0.0000 | 0.6435 | 0.0000 | 1.4293 | 0.0000 |
| $WMSPHD_i$ | 0.8535 | 0.0000 | -0.7614 | 0.2570 | 1.3659 | 0.0000 |
| Constant | 11.6379 | 0.0000 | 10.3257 | 0.0000 | 10.5369 | 0.0000 |

As seen from the results of the marginal effects after logit shown in Table 9, only selected variables have significant impact on the incidence of hunger in Pasay namely household size, household income, permanent employment, and seasonal employment. The marginal effects are true to its effect on state of hunger. It should also be noted that none of the government programs have significant marginal effect on state of hunger. There are advocacies and programs that address social concerns but the results show that none of which are able to address state of hunger effectively.

In the case of Eastern Samar, job status is the only significant factor that affects state of hunger. Permanent employment has the greatest marginal effect since permanency in job status assures income and of course, it assures accessibility to food. Again, government programs have no effect on addressing state of hunger because all coefficients representing government programs are insignificant. This may be due to the provincial state of Eastern Samar wherein government program implementation is not as effective as the implementation in urban areas. This can be due to the mountainous and dense tropical vegetation topography of the area making transportation from one point to another an issue for program dissemination especially to those who are located in isolated areas. As reported in the CBMS Status Report on MDGs for Eastern Samar in 2010, the province is still experiencing poverty issues and most of the families are still under the food threshold. The results of the regression are parallel with the current needs of the province because supply of sustainable living, provision of basic necessities, endemic diseases such as dengue, better and quality educational facilities and technology expansion are some of the challenges posed to the authorities of Eastern Samar.

Meanwhile, the results from Agusan Del Sur reported high significance in all variables except for the provision of feeding programs, which is the representation of food related programs of the government. This may be due to the existing strong agricultural upbringing of the region. Feeding programs are not as effective as it should be because households can easily access food via their own food supply since they are exposed to farming and other agricultural activities. Likewise, as expected household size, household income, permanent employment, seasonal employment, housing programs, and credit programs are significant and affect the state of hunger in accordance to a-priori expectations mentioned earlier. On the other hand, the provision of health programs, scholarships, and training are counter-intuitive but highly significant.

**Table 9 : Marginal Effects After Logit**

| Variables | Pasay | | Eastern Samar | | Agusan Del Sur | |
|---|---|---|---|---|---|---|
| | Coefficient | Probability Value | Coefficient | Probability Value | Coefficient | Probability Value |
| $HSIZE_i$ | 0.0015 | 0.0000 | 0.0094 | 0.0560 | 0.0713 | 0.0000 |
| $LNINCOME_i$ | -0.0243 | 0.0000 | -0.0780 | 0.1410 | -1.7387 | 0.0000 |
| $PERMANENT_i$ | -0.0328 | 0.0000 | -0.1778 | 0.0000 | -0.0303 | 0.0000 |
| $SEASONAL_i$ | -0.0061 | 0.0000 | -0.0730 | 0.0010 | -0.0197 | 0.0000 |
| $WOMEN_i$ | 0.0075 | 0.0340 | - | - | - | - |
| $FEEDING_i$ | - | - | 0.1693 | 0.1160 | 0.0020 | 0.5470 |
| $HEALTH_i$ | 0.0013 | 0.1980 | 0.0228 | 0.3610 | 0.0132 | 0.0000 |
| $SCHOLAR_i$ | 0.0068 | 0.1020 | - | - | 0.0509 | 0.0000 |
| $TRAINING_i$ | 0.0112 | 0.0950 | -0.0259 | 0.7650 | 0.0167 | 0.0010 |
| $HOUSING_i$ | 0.0072 | 0.2950 | - | - | -0.0392 | 0.0000 |
| $CREDIT_i$ | 0.0055 | 0.2610 | 0.0097 | 0.8300 | -0.0265 | 0.0000 |

Health programs in Agusan Del Sur are highly reinforced and supported. There are substantial decreases in crude death rate, prevalence of malnutrition, maternal mortality rate, etc. as reported in the CBMS Status Report on MDGs for Agusan Del Sur in 2010. Hence, death statistics in Agusan Del Sur are not alarming due to beneficial and effective contribution of health programs implemented. This grants families more financial freedom and flexibility which allows them to accommodate larger family size. This is notable in the descriptive statistics reported in Table 7 wherein the average family size in Agusan Del Sur is 6 members as compared to the 4 members of Pasay and Eastern Samar. This increase in family size then will make the household susceptible to hunger.

This can also be the case of positive marginal effects for the variables provision of scholarship and training. Wherein these programs assure lower cost for the family to sustain living, they misinterpret this financial flexibility as a way to accommodate a larger family size. This may be due to the fact that the programs implemented cushions family from rising costs of education and at the same time provide them with benefits, such as trainings for livelihood, to shed aid in their daily expenses. Hence, with the simple case of free-rider problem which encourages household to increase family size, thus, submitting the household to greater possibility of being in the state of hunger.

## CONCLUSIONS AND POLICY RECOMMENDATIONS

Living in urban areas does not assure good living conditions. Urban areas and cities might pose the illusion of offering various job opportunities but this does not entail that one can pose the illusion of offering various job opportunities but this does not entail that one can escape poverty and food shortage. Prevalence of poverty has been thoroughly present throughout history and its elimination has been one of the major key goals of past and present administrations. Still, there exists poverty and food inequality in the country.

Results have shown that the differing responsiveness of various significant sources of household income against food expenditure show the different sensitivity of food consumption to the different sources of income. This may explain why households may have different food consumption levels. Moreover, food consumption is most responsive to changes in salaries and wages of households compared to any other sources of income. This shows the importance of addressing unemployment in the Philippines since households rely more on their salaries and wages than in any other source. Among the three major entrepreneurial activities, food consumption is most sensitive to income from agricultural activities proving the significance of the agricultural sector. This does not recommend that the country should remain to be structurally agricultural; however, it should be taken note that many households food consumption may be affected if there were sudden incidents that will decrease income from that sector. The households' level of food consumption is least responsive to changes in income from interest and from abroad denoting that although food consumption increases, these incomes are usually spent on other basic commodities.

This study also found it imperative for the estimation of a logistic regression that will show, on a provincial level, whether government programs in alleviating state of hunger in selected provinces and cities that represent Luzon, Visayas, and Mindanao are effective. Results have shown that government programs are ineffective in Pasay and Eastern Samar while only feeding programs are not operational in Agusan Del Sur. This shows that government program implementation is not effective and does not influence the intended population. Furthermore, factors like regional topology hinder implementation because this defers authorities in reaching those in isolated areas which are the ones who require most of the government assistance. For the case of Agusan Del Sur, some of the government programs are positively influencing state of hunger. This is due to the after effects of effective program implementation where the programs cushion expenditures that leaves household with financial flexibility, thus, allowing them to accommodate larger family size. Hence, a simple case of free rider problem exists.

However, these results do not suggest that the government should stop promoting anti-poverty programs. Food inequality, the states of hunger and poverty is prevalent and it should be one of the prime goals of each Administration to reduce its severity. Programs addressing food shortages and poverty should be reinforced especially in areas where help from the authorities are very limited or close to none. Government agencies should implement more committed programs wherein the scope reaches the most isolated households. It is easy to ignore a few households and conveniently administer programs in populous places because they are located in far areas. On the other hand, it should be noted that these households are the ones in need. Authorities could efficiently assign *barangays* so that the scope is minimal yet it effectively reaches small communities.

Feeding programs are needed to instantaneously answer hunger. However, there is a need to call for a sustainable food production and distribution in the country. It will not only influence food supply, it will also enhance work supply in the country considering the Philippines is an agricultural reliant nation. The government could consider in establishing a more self-sufficient Philippines in terms of food production and distribution. Another plausible solution in addressing the effectiveness of government programs is through the continuous implementation of food distribution projects such as conditional food and cash grants in order to avoid the incidence of free riding. However, the government must specifically identify who must benefit from the project so that the food poverty gap will not expand. As such, this will address the distribution inefficiency to those areas that are experiencing hunger. Correspondingly, a more sustainable solution to alleviate state of hunger is to provide employment. As emphasized in the regression, food expenditure is more sensitive to changes in the salaries and wages. Providing a stable employment will relieve the government the burden of continuously providing food for the poor; instead, focus resources to other avenues of development such as agrarian reform and infrastructural development.

Allowing poor households to provide food for them will allow the government to invest in technology in order to enhance food production in the regions that have the potential to supply food to the entire country such as Central Luzon, Southern Mindanao, and Western Visayas. Food production and distribution in the country must be for the benefit of everyone regardless of social status resulting to a more equitable distribution of food in the country. Conversely, since the Philippines served as the model for quality rice production in Southeast Asia, the Philippines has to regain that niche in rice production by investing in research and development on how to improve the quality and quantity of rice production. Rationally, the government must invest in resources that will cultivate a sustainable source of marine products through the establishments of highly advanced fish pens, factories, marine farms and the like.

Likewise the government can opt to explore a strategy to enhance food production and slowly start reducing the importation of rice from Vietnam and Thailand. The country must harness again its potential in producing its own rice for national consumption and whatever excess for exportation. With this, the funds that are supposedly used to import rice can be reallocated for research development and technology to further enhance food production in the country. In this sense, the Philippines can achieve sustainability in terms of food production in the long term.

Lastly, this study would like to articulate that the government can only do so much in alleviating the state of hunger of impoverished households. If the government cannot enforce a more sustainable way of relieving the poor from the chains of poverty; and would simply utilize band-aid solutions to solve the pressing problem of hunger, then poor households will forever free ride on government efforts as exemplified in the regression. Hence, a sustainable and long run solution that this study recommends is the provision of livelihood programs. However, the government must not be lenient in the provision of livelihood programs for the poor. It must be implemented in such a way that the recipient must soley strategize and sustain the livelihood or else they will be held responsible for the consequences of their mismanagement or falsehood. The fact that the funds used for the redistribution of wealth is coming from the people's money, there is no reason for the poor not to get things right. The government can take advantage of the Filipino's attitude towards shame.

Addressing poverty is indeed a tedious task for the government that it might require not only political will but the implementation of unpopular decisions such as the intolerance for the extreme dependence of the poor on the government. The government and the poor must work together to make poverty alleviation feasible. The poor must harness the support being provided by the government instead of forever relying on their support. The government has to address other issues in the country aside from poverty. It would really help if both the government and the poor will do its part in addressing the problem. Government efforts would just be put to waste if efforts are not sustainable; hence, it is a must that the poor accompanies the efforts of the government by also striving independently to allow them to climb the social ladder.

## ENDNOTES

1 This paper was culled from the study of Rivera, Pizarro, Aliping & Reyes (2012) entitled *Determining the Link Between the State of Poverty and Food Inequality: Implications on Government's Poverty Reduction Programs in the Philippines* funded by the Angelo King Institute of De La Salle University (DLSU), Manila, Philippines in cooperation with the Community Based Monitoring Systems (CBMS).The content and findings of this study do not represent or reflect the views of DLSU and Bangko Sentral ng Pilipinas (BSP).

2 The income gap is the average income shortfall of the population from the poverty threshold (Todaro & Smith, 2006).

3 The poverty gap is the total income shortfall of the population from the poverty threshold (Todarot & Smith, 2006).

## REFERENCES


Adelman, I. & C. Morris. (1967). *Society, politics and economic development: A quantitative approach*. Baltimore: Johns Hopkins University Press.

Albert, J. & A. Ramos. (2010). *Trends in household vulnerability.* Philippine Institute for Development Studies, Series 2010-01.

Albert, J. & W. Molano. (2009). *Estimation of the food poverty line.* Philippine Institute for Development Studies, Series 2009-14.

Aldaba, F. (2009). *Poverty in the Philippines: Causes, constraints, and opportunities*. Manila: Asian Development Bank.

Balisacan, A.M. (2003). Poverty and inequality. *The Philippine Economy: Development, Policies, and Challenges*. Oxford University Press, New York.

Baum, C.F., M.E. Schaffer, & S. Stillman. (2003). *Instrumental variables and GMM: Estimation and testing*. Boston College Working Paper 545.

Besanko, D.A. & R.R. Braeutigam. (2002). *Microeconomics: An integrated approach.* United States of America: John Wiley & Sons, Inc.

Chai, A. & A. Moneta. (2010a). Retrospectives: Engel curves. *Journal of Economic Perspectives.* 24 (1), 225-240.

Chai, A. & A. Moneta. (2010b). The evolution of Engel curves and its implications for structural change. *Griffith Business School Discussion Papers Economics*, 2010-09.

Charles, K.K., E. Hurst, & N. Roussanov. (2009). Conspicuous consumption and race. *Quarterly Journal of Economics*, 124, 425–68.

Community-Based Monitoring System (CBMS) (2010a). *Status report on the Millennium Development Goals using CBMS data: Province of Agusan Del Sur.* United Nations Development Program.

Community-Based Monitoring System (CBMS) (2010b). *Status report on the Millennium Development Goalsusing CBMS data: Province of Eastern Samar.* United Nations Development Program.

Cororaton, C. B. & E.L. Corong. (2009). *Philippine agricultural and food policies: implications for poverty and income distribution.* International Food Policy Research Institute Research Report 161.

Deaton, A. & J. Muellbauer. (1980). *Economics and consumer behavior*. Cambridge University Press,

Deininger, K. & L. Squire. (1998). New ways of looking at old issues: inequality and growth. *Journal of Development Economics*, 5: 259–287.

Greene, W.H. (2003). *Econometric analysis 5th edition.* New Jersey: Prentice Hall.

Gujarati, D.N. & D.C. Porter. (2009). *Basic econometrics 5th edition.* Singapore: McGraw-Hill Companies, Inc.

Hansen, L. (1982). Large sample properties of generalized method of moments estimators. *Econometrica*, 50(3), 1029-1054.

Heffetz, O. (n.d.). A test of conspicuous consumption: Visibility and income elasticities. *Review of Economics and Statistics.*

Lewbel, A. (2007). *Engel curves*. The New Palgrave Dictionary of Economics.

Llanto G. (1996). *Philippine household's response to price and income changes.* Philippine Institute for Development Studies, Series 96-05.

Mincer, J. (1974). *Schooling, experience, and earnings.* New York: Columbia University Press.

Orbeta, A. (2002). *Population and poverty: A review of the links, evidence and implications for the Philippines*. Philippine Institute for Development Studies Discussion Paper Series No. 2002-21.

Pasinetti, L. (1981). *Structural change and economic growth*. Cambridge University Press.

Pedro, M.R., L. Candelaria, E. Velasco & C. Barba. (n.d.). *Estimating food threshold and poverty incidence using food basket across income groups vs. the bottom 30% income group*. Asian Development Bank.

Reyes, C.M. (2001). *Poverty profile of the Philippines*. Philippine Institute for Development Studies, Series 2000-40.

Reyes, C. M., A.D. Tabuga, C.D. Mina, R.D. Asis & M.G. Datu. (2010). *Are we winning the fight against poverty? An assessment of the poverty situation in the Philippines.* PIDS Discussion Paper Series No. 2010-26.

Rivera, J.P.R., M.G. Pizarro, N.B. Aliping & P.O. Reyes (2012). *Determining the link between the state of poverty and food inequality: Implications on government's poverty reduction programs in the Philippines*. Angelo King Institute for Economics and Business Studies.

Schelzig, K. (2005). *Poverty in the Philippines: Income, assets, and access.* Manila: Asian Development Bank. Retrieved from http://www.adb.org/documents/books/Poverty-in-the-Philippines/Poverty-in-the-Philippines.pdf .

Sen, A. (1979). *Equality of what?* Retrieved from http://culturability.fondazioneunipolis.org/wp-content/blogs.dir/1/files_mf/1270288635equalityofwhat.pdf

Todaro, M. P. & S.C. Smith. (2006). *Economic development 8th edition*. Manila, Philippines: Pearson South Asia Pte. Ltd.

United Nations (UN). (n.d.). *The millennium development goals.* Retrieved from http://www.un.org/millenniumgoals/bkgd.shtml

United Nations Development Program (UNDP) – Indonesia. (2010). *Report on the achievement of Millennium development goals Indonesia 2010.* Retrieved from http://www.undp.or.id/pubs/docs/MDG%202010%20Report%20Final%20Full%20LR.pdf

United Nations Development Program (UNDP) – Malaysia. (2005). *MDG1 eradicate extreme poverty and hunger.* Retrieved from http://www.undp.org.my/uploads/mdg1.pdf

United Nations Development Program (UNDP) – Philippines. (n.d.). *Status report on the Millennium Development Goals using CBMS data.* Retrieved from the Community Based Monitoring System (CBMS) Survey.

United Nations Development Program (UNDP) – Thailand. (2009). *Thailand millennium development goals report 2009.* Retrieved from http://www.undp.or.th/resources/documents/Thailand_MDGReport_2009.pdf

United Nations Development Program (UNDP) – Vietnam. (2008). *Achieving the MDGs with equity*. Retrieved from http://www.un.org.vn/images/stories/MDGs/MDG1_Eng.pdf

Yu, B., L. You & S. Fan. (2009). A *typology of food security in developing countries under high food prices.* International Food Policy Research Institute Research Discussion Paper 00945. Retrieved from http://www.ifpri.org/sites/default/files/publications/ifpridp00945.pdf.

World Vision. (n.d.) *Facing food challenges in Asia and the Pacific*. World Vision Fact Sheet. Retrieved from http://wvasiapacific.org/downloads/factsheets/foodsec.pdf.

# PARTNERSHIPS FOR INNOVATION AMONG EUROPEAN SMALL BUSINESSES

**Sherry Robinson, Penn State University/Buskerud University College**
**Hans Anton Stubberud, Buskerud University College**

## ABSTRACT

*Networks are increasingly important for small businesses that wish to engage in innovative projects. Although a small firm's own resources may be limited, a company can leverage external resources by sharing ideas, resources and capabilities. Ties with customers, suppliers, and other firms may facilitate revenue growth through shared innovative projects. This study examines innovation partnerships by analyzing the relationships between European SMEs and large businesses and their customers/clients, suppliers, universities, government institutions and private R&D organizations. In most cases, large businesses were likely to cooperate with partners than were SMEs.*

## INTRODUCTION

Networks are increasingly important for small businesses that wish to engage in innovative projects as they provide firms with access to markets, information, technology, and other resources as well as the opportunity to develop new capabilities (Birley, 1985; Dussauge, Garrette & Mitchell, 2000; Farr-Wharton & Brunetto, 2007; Gnyawali & Madhavan, 2001; Gulati, Nohria & Zaheer, 2000; Hitt & Ireland, 2002; Hoang & Antoncic, 2003; Taylor & Thorpe, 2004). Although a small firm's own resources may be limited, a company can leverage external resources by sharing ideas, resources and capabilities (Cooper, 2001; Dubini & Aldrich, 1991). Ties with customers, suppliers, and other firms may facilitate revenue growth through shared innovative projects.

This study examines innovation partnerships by analyzing the relationships between SMEs and large businesses in eight European countries and their cooperative partners. Data were drawn from the 2008 Eurostat Community Innovation survey, which asked about cooperative partners used by small (10-49 employees), medium (50-249 employees) and large (250 and more employees) businesses. These potential partners included customers/clients, suppliers, universities, government institutions and private R&D organizations. Given their limited resources, SMEs would likely have the most to gain from cooperating with other parties.

The following section provides a background on the importance of networks to innovation. The results of this study are then presented. In many, but not all, cases, large businesses were the most likely to cooperate with a given partner.

## NETWORKS, INNOVATION AND SMALL BUSINESSES

SMEs' small size and limited resources present numerous challenges. Larger companies are more likely than SMEs to control the resources necessary for innovation, including human and financial capital (Eurostat, 2009). Previous research (Robinson & Stubberud, 2012) has shown to be more likely to start innovative projects, but not necessarily to see them through to completion. Cooperating with other organizations presents one potential solution for small businesses that want to innovate but do not have the necessary resources and capabilities (Birley, 1985; Bruderl & Preisendorfer, 1998 Farr-Wharton & Brunetto, 2007; Gnyawali & Madhavan, 2001; Gulati et al., 2000; Hoang & Antoncic, 2003; Taylor & Thorpe, 2004). Empirical studies suggest networks have a strong influence on successful innovation because they influence access to information and knowledge acquisition (Cooper, 1993; Fosfuri & Tribo, 2008; Granovetter, 1973; Hoang & Antoncic, 2003; Jarillo, 1989; Liao, Fei & Chen, 2007; Liao, Wu, Hu & Tsuei, 2009; Miller & Besser, 2005; Murovec & Prodan, 2009; Soo, Devinney & Midgeley, 2007). In fact, innovation itself is said to be a social process regardless of business size (Australian Institute for Commercialisation, 2011; Charan & Lafley, 2008).

Collaboration has been shown to be related to innovation success. A study of Australian businesses showed that collaboration was associated with a 70% increase in the chances for creative innovation (Australian Institute for Commercialisation, 2011). Cooperation with other firms in the value chain is very common and often said to be one of the most beneficial forms of collaboration (Aldrich, Reese, & Dubini, 1989; Australian Institute for Commercialisation, 2011; Birley, 1985; Dollinger, 1985; Farr-Wharton & Brunetto, 2007; Granovetter, 1973, 1982; Gulati et al., 2000; Hoang & Antoncic, 2003; Madsen, 2007; Robinson & Stubberud, 2011; Teece, 1986; Uzzi, 1997). Ties with customers, suppliers, and other firms can facilitate revenue growth and these partners are typically more readily available for cooperating in sharing information and solving problems (Aldrich, Reese, & Dubini, 1989; Birley, 1985; Dollinger, 1985; Farr-Wharton & Brunetto, 2007; Granovetter, 1973, 1982; Gulati et al., 2000; Hoang & Antoncic, 2003; Madsen & Bradstad, 2007; Malecki & Poehing, 1999; Robinson & Stubberud, 2011; Teece, 1986; Uzzi, 1997). Liao, Welsh and Stoica (2003) note that customers and competitors are likely to contribute the most important knowledge. Previous research has shown that new product development tends to be more successful when customer needs are clearly defined (Campbell & Cooper, 1999; Cooper, 1993; Holt, Geschka & Peterlongo, 1984; Kirca, Jayachandran & Bearden, 2005; Lukas & Ferrell, 2000; Mavondo, Chimhanzi & Stewart, 2005; Rothwell, 1992). Overall, innovative firms have been found to be significantly more networked with customers and with universities (Fisher, Polt & Vonortas, 2009).

Despite the positive aspects of networks and cooperation, there is a limit to their usefulness. Entering into inter-firm relationships presents both costs and risks, primarily in terms of time and money (Watson, 2007; Zhao & Aram, 1995). In his study of Australian businesses, Watson (2007) concluded that the key was to find the right balance, as networking provided benefits, but too much time spent on those activities was counterproductive. Another issue is the potential for abuse. It is important that cooperative partners trust each other to refrain from acting out of self interest at the other's expense because no contract can cover all the variations and conditions that can occur (Dollinger, 2003; Uzzi, 1997).

The ability to innovate is crucial to the performance of individual businesses and national economic growth in the modern world (Norwegian Ministry of Trade 2010). Although small businesses dominate the economic landscape in most countries, they also are the most likely to face difficulties in innovating on their own. Cooperating with partners is one way that SMEs can engage in innovation despite their limited resources. The following section presents the methodology and results of the study on the partners businesses of different size cooperate with for innovation.

## METHODOLOGY, RESULTS AND ANALYSIS

This study analyzes data from the Eurostat Community Innovation 2008 (Eurostat, 2011) survey in order to determine the partners most commonly used by SMEs and large businesses. The data included a variety of innovative activities, including product/ process, organizational and marketing innovation, that occurred during the years 2006-2008. The survey included the 27 EU Member States, plus Iceland and Norway. This study includes only the 8 countries for which complete data were available and which included at least 400 large firms, and only those firms that engaged in innovation activity during the survey period. According to Eurostat (2011), innovation activity includes the introduction of new or significantly improved goods or services or processes based on new technological developments, new combinations of technologies that already exist, or new ways of utilizing other knowledge acquired by the enterprise. Enterprises that have abandoned or delayed innovation activities are included as innovators because they were involved innovation, regardless of the outcome.

Analysis focused on the choice of partners for cooperation used by small (10-49 employees), medium-sized (50-249 employees) and large (250 and more employees) businesses. These partners included customers, suppliers, competitors, competitors, universities, government and others in the same enterprise group. Due to limitations in data access, it was not possible to combine numerous variables simultaneously, preventing more detailed analysis such as the number of businesses that cooperated with multiple partners or the extent or frequency of the collaboration. This study focused on determining which partners were the most frequently used across countries and whether small, medium and large businesses showed similar patterns of collaboration in each country.

Table 1 presents data from Eurostat (2011) showing the number of firms that had engaged in technological cooperation for innovation during the 2005-2008 time period, as well as proportion of all the businesses surveyed that stated they had cooperated with a partner (all types of cooperation). The subsequent tables present the percentage of the firms included in Table 1 that had cooperated with a particular partner. Therefore, the data in Tables 2-8 reflect the results of analysis limited to those companies that shad engaged in technological cooperation for innovation. The mean percentage of total firms that engaged in innovation ranged from 16.2% in Italy to 42.4% in France. These countries also had the lowest percentage of small businesses (13.1% and 38.2%) engaged in innovation. Large businesses in Austria (70.5%) were the most likely of all groups to be engaged in innovation cooperation. Among large businesses, those in in Spain (44.1%) were the least likely to engage in innovation. Therefore, even the lowest percentage among large businesses (44.1%) was greater than the highest percentage among small businesses (38.2%). The greatest difference between the percentages of small and large businesses involved in innovation was found in Austria (38.4%), while the smallest different was found in France (26.0%). In each country, the proportions of medium-sized businesses engaged in innovation fell between the proportions for small and large businesses.

| Table 1: Firms Engaged in Innovation Cooperation (Eurostat, 2011) | | | | |
|---|---|---|---|---|
| Country | Firms engaged in innovation cooperation | 10-49 emps | 50-249 emps | 250+ emps |
| Unweighted mean | (32.6%) | (26.9%) | (39.8%) | (59.7%) |
| France | 10 873<br>(42.4) | 6 606<br>(38.2) | 2 939<br>(46.6) | 1 428<br>(64.2) |
| Netherlands | 3 882<br>(40.2) | 2 333<br>(34.8) | 1 119<br>(48.4) | 430<br>(67.2) |
| Poland | 3 978<br>(39.3) | 1 619<br>(29.5) | 1 516<br>(45.1) | 843<br>(66.1) |
| Austria | 2 613<br>(38.8) | 1 420<br>(32.1) | 779<br>(45.0) | 414<br>(70.5) |
| Czech Republic | 3 046<br>(32.9) | 1 524<br>(25.1) | 999<br>(42.6) | 522<br>(62.1) |
| Germany | 16 812<br>(20.7) | 9 676<br>(17.0) | 4 611<br>(24.4) | 2 525<br>(46.0) |
| Spain | 5 041<br>(18.7) | 2 930<br>(14.7) | 1 479<br>(26.7) | 632<br>(44.1) |
| Italy | 8 542<br>(16.2) | 5 529<br>(13.1) | 2 184<br>(25.3) | 830<br>(45.4) |

The overall total percentages of companies that reported using a given partner were used to determine ranks for each country, with 1 representing the most commonly cited partner in that country and 7 representing the least commonly cited partner in that country. This was done to provide a better idea of the relative use of cooperative partners across countries. For example, only 47.3% of Spanish businesses named suppliers as a cooperative partner, yet this was the most popular partner in that country (see Table 2). In Germany, 36.0% of businesses used this partner, ranking it fourth, with three partners that were named by higher proportions of businesses. The numbers of businesses of each size that used/did not use a given partner were included used in chi-square analyses to determine if there were associations between business size and use of that partner. It was a limitation of this study that it was impossible to determine how many different partners any given company used, or what other variables were related to the choice of partners for cooperation.

Suppliers were consistently the most commonly cited cooperative partner for innovation across countries, with only Germany ranking clients/customers, rather than suppliers, first. Over half of respondents reported cooperating with suppliers in every country except Germany and Spain. Even though a relatively low 47.3% of respondents in Spain reported cooperating with suppliers, this was the most frequently reported innovation partner in Spain, suggesting businesses in Spain are generally less likely to cooperate with partners for innovation. Differences between small, medium and large businesses were statistically significant in every country except the Czech Republic, although the spreads in percentages were not necessarily very wide. For example, the difference between medium-sized businesses (76.1%) and large businesses (81.7%) and small businesses (81.8%) in Poland was only about 5%. The same was found in the Netherlands, where the difference between small (76.0%) and large businesses (82.3%) was a little over 6%. The general trend showed that large businesses were more likely to have cooperated with suppliers. The greatest differences were shown between small and large businesses in the three countries that reported using suppliers the least: Austria (52.1% vs. 67.4%), Spain (43.6% vs. 58.9) and Germany (32.9% vs. 47.2%). In Italy and Poland, medium-sized businesses were the least likely and small businesses were the most likely to name suppliers as cooperative partners, although the differences were not great.

| Table 2: Suppliers of Equipment, Materials, Components or Software | | | | | | | |
|---|---|---|---|---|---|---|---|
| Country | Total rank | Total | 10-49 emp | 50-249 emps | 250 or more emps | Chi-square | P< |
| Unweighted mean | | 65.5% | 64.3% | 65.6% | 71.0% | | |
| Poland | 1 | 79.6 | 81.8 | 76.1 | 81.7 | 19 | .001¤ |
| Netherlands | 1 | 78.1 | 76.0 | 80.8 | 82.3 | 15 | .001¤ |
| Czech Republic | 1 | 73.8 | 71.1 | 75.6 | 78.4 | 2 | .373 |
| France | 1 | 58.7 | 56.5 | 58.9 | 68.8 | 73 | .001¤ |
| Italy | 1 | 56.6 | 57.8 | 53.8 | 56.3 | 10 | .007¤ |
| Austria | 1 | 56.6 | 52.1 | 58.9 | 67.4 | 33 | .001¤ |
| Spain | 1 | 47.3 | 43.6 | 49.8 | 58.9 | 54 | .001¤ |
| Germany | 4 | 36.0 | 32.9 | 36.5 | 47.2 | 170 | .001¤ |

Representing another link in the value chain, customers/clients were the second most popular innovation partner for businesses in most countries, and the most popular for those in Germany (see Table 3). In the Netherlands and Poland, there were not significant associations between business size and collaboration with customers. In the Czech Republic and Germany, which were the countries in which customers were most likely to be used as partners, small businesses were more likely than large businesses to cooperate with customers. In fact, the greatest differences in proportions were seen in the Czech Republic, where medium-sized businesses (49.1%) were less likely than small businesses (64.5%) and large businesses (62.5%) to cooperate with customers. In this country, small and large businesses were more similar to each other, with small business being slightly more likely to cooperate with customers. In the remaining four countries, large businesses used this type of partner most, with less than half of small businesses and medium-sized businesses naming customers as partners.

| Table 3: Customers or Clients | | | | | | | |
|---|---|---|---|---|---|---|---|
| Country | Total rank | Total | 10-49 emp | 50-249 emps | 250 or more emps | Chi-square | P< |
| Unweighted mean | | 50.7% | 50.3% | 48.7% | 55.7% | | |
| Netherlands | 2 | 59.3 | 58.1 | 60.3 | 63.3 | 5 | .095 |
| Czech Republic | 2 | 59.1 | 64.5 | 49.1 | 62.5 | 63 | .001¤ |
| Germany | 1 | 53.9 | 56.8 | 47.6 | 54.5 | 106 | .001¤ |
| Poland | 2 | 51.9 | 52.1 | 52.8 | 49.9 | 2 | .409 |
| France | 3 | 46.3 | 42.9 | 49.3 | 55.6 | 91 | .001¤ |
| Austria | 4 | 41.9 | 40.3 | 38.1 | 54.6 | 33 | .001¤ |
| Italy | 3 | 33.1 | 33.4 | 29.8 | 39.5 | 27 | .001¤ |
| Spain | 4 | 25.9 | 24.2 | 26.1 | 33.5 | 24 | .001¤ |

While other links in the value chain were popular partners for businesses of all sizes, universities were clearly more popular with large businesses (see Table 4). In every country except the Czech Republic, small businesses were the least likely to report cooperating with universities and large businesses were the most likely partners. The greatest difference was the 33.8% spread between small (24.9%) and large (58.7%) businesses in Italy. The smallest difference was a 15.6% spread between the small (38.4%) and large (51.1%) businesses in the Czech Republic. Businesses of all sizes in Germany and Austria were more likely than those in other countries to name universities as partners in innovation. These partners were the second-most commonly cited in Austria and Germany, whereas they ranked fifth in the Netherlands, France and Poland.

| Table 4: Universities or Other Higher Education Institutions | | | | | | | |
|---|---|---|---|---|---|---|---|
| Country | Total rank | Total | 10-49 emps | 50-249 emps | 250 or more emps | Chi-square | P< |
| Unweighted mean | | 37.0% | 31.1% | 40.2% | 55.5% | | |
| Germany | 2 | 52.3% | 48.0% | 52.8% | 68.2% | 326 | .001¤ |
| Austria | 2 | 50.5 | 41.6 | 56.2 | 70.0 | 118 | .001¤ |
| Czech Republic | 3 | 39.6 | 38.4 | 35.5 | 51.1 | 37 | .001¤ |
| Netherlands | 5 | 34.7 | 29.8 | 37.1 | 54.9 | 105 | .001¤ |
| Italy | 3 | 32.6 | 24.9 | 42.2 | 58.7 | 500 | .001¤ |
| Spain | 3 | 31.6 | 26.9 | 33.7 | 48.4 | 115 | .001¤ |
| France | 5 | 29.1 | 24.7 | 29.8 | 48.2 | 315 | .001¤ |
| Poland | 5 | 27.2 | 21.0 | 27.3 | 38.9 | 90 | .001¤ |

It is logical that large business would be more likely than SMEs to cooperate with other enterprises in their enterprise group given that large businesses would be more likely to be in an enterprise group (see Table 5). The highest percentage of small businesses using this type of partner was 37.3% (France) while the lowest percentage among large businesses was 61.0% (Italy). Even in Germany, which showed the smallest spread between small and large businesses, the difference between small (34.4%) and large businesses (63.2%) was 28.8%.

| Table 5: Other Enterprises Within Your Enterprise Group | | | | | | | |
|---|---|---|---|---|---|---|---|
| Country | Total rank | Total | 10-49 emp | 50-249 emps | 250 or more emps | Chi-square | P< |
| Unweighted mean | | 34.8% | 23.5% | 42.4% | 64.7% | | |
| France | 2 | 47.5% | 37.3% | 56.8% | 75.6% | 830 | .001¤ |
| Netherlands | 3 | 42.2 | 29.4 | 56.9 | 73.0 | 423 | .001¤ |
| Austria | 3 | 43.7 | 31.9 | 52.2 | 68.1 | 203 | .001¤ |
| Czech Republic | 5 | 39.6 | 30.1 | 40.9 | 64.6 | 194 | .001¤ |
| Germany | 3 | 39.4 | 34.4 | 37.0 | 63.2 | 710 | .001¤ |
| Poland | 6 | 24.0 | 12.1 | 22.6 | 49.0 | 416 | .001¤ |
| Spain | 6 | 23.3 | 13.3 | 29.8 | 54.6 | 543 | .001¤ |
| Italy | 5 | 20.7 | 11.1 | 29.7 | 61.0 | 1243 | .001¤ |

In contrast, competitors and other enterprises of the same sector were more popular cooperative partners for small businesses in half the countries (see Table 6). For example, small businesses (44.4%) in the Czech Republic were more likely than medium-sized (24.5%) or large businesses (30.8%) to cooperate with competitors. In Poland, competitors were named as the third-most popular partner.

Italian businesses of all sizes used consultant, commercial labs or private R&D institutes at a relatively high level, giving them a second-place ranking (see Table 7). In the Netherlands, consultants only ranked fourth, but the percentages using them were rather high at 32.0% (small businesses), 45.5% (medium-sized businesses) and 61.4% (large businesses). These where the highest percentages in any country for medium and large businesses. Medium-sized businesses in Germany (18.8%) were the least likely of any group to partner with consultants, commercial labs or private R&D institutes. In the other countries, small businesses were the least likely, and large businesses were the most likely, to name these partners.

| **Table 6: Competitors or Other Enterprises of The Same Sector** | | | | | | | |
|---|---|---|---|---|---|---|---|
| Country | Total rank | Total | 10-49 emp | 50-249 emps | 250 or more emps | Chi-square | P< |
| Unweighted mean | | 29.3% | 30.4% | 26.7% | 31.4% | | |
| Czech Republic | 6 | 35.6 | 44.4 | 24.5 | 30.8 | 110 | .001¤ |
| Italy | 5 | 30.5 | 32.7 | 26.7 | 25.3 | 38 | .001¤ |
| Poland | 3 | 29.7 | 32.1 | 27.7 | 28.7 | 8 | .022¤ |
| Netherlands | 6 | 29.7 | 29.3 | 29.1 | 33.5 | 3 | .189 |
| France | 6 | 25.1 | 23.4 | 25.4 | 33.1 | 59 | .001¤ |
| Austria | 6 | 23.8 | 25.7 | 19.1 | 26.3 | 14 | .001¤ |
| Germany | 6 | 23.4 | 25.5 | 19.3 | 22.6 | 67 | .001¤ |
| Spain | 7 | 18.8 | 17.8 | 17.8 | 25.5 | 21 | .001¤ |

| **Table 7: Consultants, Commercial Labs, or Private R&D Institutes** | | | | | | | |
|---|---|---|---|---|---|---|---|
| Country | Total rank | Total | 10-49 emps | 50-249 emps | 250 or more emps | Chi-square | P< |
| Unweighted mean | | 36.5% | 33.2% | 37.2% | 49.7% | | |
| Italy | 2 | 43.3 | 41.7 | 44.6 | 50.6 | 26 | .001¤ |
| Czech Republic | 4 | 40.6 | 37.9 | 39.3 | 50.8 | 28 | .001¤ |
| Netherlands | 4 | 39.2 | 32.0 | 45.5 | 61.4 | 159 | .001¤ |
| Austria | 5 | 37.8 | 31.1 | 42.7 | 51.2 | 67 | .001¤ |
| France | 4 | 31.4 | 24.8 | 37.4 | 49.2 | 391 | .001¤ |
| Germany | 5 | 27.7 | 31.4 | 18.8 | 29.9 | 256 | .001¤ |
| Poland | 4 | 27.5 | 23.7 | 26.7 | 36.3 | 45 | .001¤ |
| Spain | 5 | 25.0 | 21.4 | 26.2 | 38.3 | 81 | .001¤ |

Businesses in Spain were the most likely to cooperate with the government or public research institutes, ranking this partner group second overall for this country (see Table 8). Government and public research institutes in other countries were usually more popular among large businesses. An exception to this was in the Czech Republic, where small businesses named this type of partner most (21.2%) and medium-sized businesses (15.0%) were the least likely to name it.

| Table 8: Government or Public Research Institutes | | | | | | | |
|---|---|---|---|---|---|---|---|
| Country | Total rank | Total | 10-49 emps | 50-249 emps | 250 or more emps | Chi-square | P< |
| Unweighted mean | | 22.3% | 22.0% | 22.2% | 33.4% | | |
| Spain | 2 | 34.7 | 31.2 | 36.3 | 46.7 | 57 | .001¤ |
| Netherlands | 7 | 24.7 | 22.7 | 24.0 | 37.7 | 44 | .001¤ |
| Poland | 7 | 23.3 | 20.2 | 22.6 | 30.2 | 32 | .001¤ |
| Germany | 7 | 20.5 | 17.5 | 20.5 | 32.1 | 260 | .001¤ |
| France | 7 | 20.2 | 18.1 | 16.9 | 36.8 | 283 | .001¤ |
| Czech Republic | 7 | 19.0 | 21.2 | 15.0 | 20.1 | 639 | .001¤ |
| Austria | 7 | 18.7 | 13.3 | 20.3 | 34.3 | 94 | .001¤ |
| Italy | 7 | 10.7 | 7.5 | 13.0 | 26.0 | 276 | .001¤ |

The overall results presented here show that a higher percentage of large businesses than SMEs generally cooperate with any given partner. However, this is not a hard and fast rule as the results were not the same in every country and for every type of partner. For some partners, there were great differences between countries. Furthermore while there were statistically significant differences between small, medium-sized and large businesses in many cases, there were also several cases in which the differences were small or not significant. Medium-sized businesses were often different from both small and large businesses. The following section discusses the findings of this study and presents conclusions and suggestions for future research.

## CONCLUSIONS

The results of this study show that most businesses that are engaged in innovation cooperate with at least one partner in some way. Although it was not possible to determine if all companies cooperated with at least one partner or whether the same companies that cooperated with one partner also cooperated with several partners, comparison of the results for the different partners suggest that more than 40% of businesses cooperated with at least one partner. For example, businesses in Spain were relatively less likely to cooperate than were firms in other countries. The most commonly cited partner there was suppliers, which was named by 43.6% of small businesses, and by even more medium-sized and large businesses. Therefore, at least 43.6% of small businesses have cooperated with at least one partner. These patterns would seem to confirm the theory that innovation is supported by cooperation. The fact that the lowest proportion of large businesses was greater than the highest proportion of small businesses supports previous findings that small businesses are less likely to engage in innovation overall. However, medium-sized businesses were less likely than small or large businesses to collaborate in some countries.

Suppliers and customers were the most frequently named partners for cooperation. These results were consistent with those reported by the Australian Institute for Commercialisation (2001) in which customers and suppliers were the most commonly cited partners. It is logical for suppliers to cooperate in innovation because they are likely to directly or indirectly benefit from sales related to any innovations that come about as a result of the partnership. Customers/clients are also logical partners because they benefit from innovations as their needs are met in a better way (von Hippel, 1988). In fact, the development of improved products and services that attract customers and meet their needs is often the goal for innovation (Charan & Lafley, 2008; Liao et al., 2009). Including customers in the innovation process so that their needs are clearly identified is likely to lead to better outcomes and more successful innovation (Campbell & Cooper, 1999; Cooper, 1993; Holt et al., 1984; Kirca et al., 2005; Lukas & Ferrell, 2000; Mavondo et al., 2005; Rosenberg, 1982; Rothwell, 1992). In 1976, von Hippel found that over 80% of innovations in the scientific instruments industry came about with help from users. Online user communities in the 21$^{st}$ century can be valuable parties with whom firms can interact regarding innovation (Jeppesen, 2005; Luthje, 2004). In addition, these suppliers and buyers can provide additional benefits through their own extended networks (Aldrich et al., 1989; Australian Institute for Commercialisation, 2011 Birley, 1985; Charan & Lafley, 2008; Cooper, 1993; Farr-Wharton & Brunetto, 2007; Granovetter, 1973; Gulati et al., 2000; Hoang & Antoncic, 2003; Liao et al., 2009; Madsen, 2007; Robinson & Stubberud, 2011; Teece, 1986).

Cooperating with other enterprises within an enterprise group was a popular choice among large businesses. This was consistent with previous research (Australian Institute for

Commercialisation, 2011; Robinson & Stubberud, 2011). Given practical considerations regarding size and resources, it is logical that SMEs would have less opportunity to cooperate with such partners. On the other hand, small businesses in approximately half of the countries were more likely than medium-sized or large businesses to cooperate with competitors. It is possible that it is more difficult or perhaps impractical for large businesses to cooperate with competitors, especially businesses that are much smaller.

Large businesses were more likely to choose universities and other institutions of higher education at partners. Cooperation with universities can provide firms "with earlier, richer and more comprehensive access to important university-based science," and "improved access to university research knowledge, superior knowledge transfer capability, and timing advantages provided by collaborations are expected to provide advantage in terms of the pace of knowledge exploitation" (Fabrizio, 2004, p. 9). A certain level of knowledge is required in order to identify new knowledge as valuable, assimilate it and exploit it. SMEs may not have the absorptive capacity to make good use of partnerships with universities, and thus large businesses are more likely to cooperate with this type of partner. This may be a reason why suppliers and customers are popular partners with SMEs.

A related type of partner, government/public research institutes, was also preferred by large businesses. The government was the second most popular partner among Spanish businesses, although only 31.2% of small businesses, 36.3% of medium-sized businesses and 46.7% of large businesses reported cooperating with the government or public research institutes. Small businesses were also significantly less likely to use private consultants and R&D institutes, perhaps due to assumedly lower levels of absorptive capacity.

The overall results show that SMEs are generally less likely than large businesses to cooperate with any given partner for innovation, including customers, suppliers, universities and government/public institutions. This may be a hindrance to their growth and success in innovation. SMEs may actually have the most to gain from cooperation with other firms. Previous studies (Cooper, 1993; Liao et al., 2003; Liao et al., 2009) have concluded that larger networks are positively related to innovation, and innovation is positively related to profitability (Akgun, Keskin, Byrne & Aren, 2007; Gannon, 2007; Gilmore, 2009; Tidd, Bessant & Pavitt, 2005). Therefore, the results of this study suggest that SMEs might benefit from help in network development which could then lead to greater innovation. Organizations that seek to increase innovation in SMEs could attempt to assist small businesses by helping them discover and cooperate with external sources, especially those in their current supply chain. As stated by Cohen and Levinthal (1990), "The ability to exploit external knowledge is thus a critical component of innovative capabilities" (p. 128). Firms that cooperate with other organizations are more likely to obtain external knowledge that can be exploited for innovation. Cohen and Levinthal further state that firms that do not invest in absorptive capacity become "locked out" and do not have the ability to appreciate new opportunities that arise in the future. This suggests that if SMEs do not partner with other organizations for innovation, they may find it more difficult to do so later on because they may not have the ability to sense new opportunities.

A limitation of this study was that it was not possible to combine variables for more detailed analysis. Future research should examine the issue of SMEs' networks and how they can be improved. Business incubators, which provide mediation as well as business assistance/consulting, are likely to be an effective source of assistance to microbusinesses and connect tenants to outside resource providers (Bergek & Norrmann, 2008). Gray (2006, 348-9) contends that some of the major challenges that SMEs face are knowledge issues such as the maintaining of firm capabilities and management competencies, acquiring and interpreting new knowledge, and innovatively creating new knowledge. Future research should also examine the reasons for cooperation and the particular choice of partners. If SMEs do not understand the benefits of cooperation, or have difficulty finding appropriate partners, these issues could be dealt with appropriately, possibly leading to greater innovation for these companies. While large businesses were found to be the most likely to cooperate with others for innovation, SMEs comprise the largest segment of most economies, making it important to assist them in their growth.

## REFERENCES


Akgun, Ali E., Keskin, Halit, Byrne, John C., & Aren, Selim. (2007). Emotional and learning capability and their impact on product innovativeness and firm performance. *Technovation, 27(9),* 501-513.

Aldrich, H., Reese, P.R., & Dubini, P. (1989). Women on the verge of a breakthrough: Networking among entrepreneurs in the United States and Italy. *Entrepreneurship and Regional Development, 1,* 339-356.

Australian Institute for Commercialisation. (2011). Innovation Toolbox. < http://www.innovationtoolbox.com.au> Accessed Feb. 14, 2011.

Birley, S. (1985). The role of networks in the entrepreneurial process. *Journal of Business Venturing*, 1, 107-117.

Bruderl, J. & Preisendorfer, P. (1998). Network support and the success of newly founded businesses. *Small Business Economics, 19,* 213-225.

Bergek, A. & Norrman, C. (2008). Incubator best practice: A framework. *Technovation, 28* 20-28.

Business in the Community. (2002). *Engaging SMEs in community and social issues.* London: Business in the Community.

Campbell, A.J. & Cooper, R.G. (1999). Do customer partnerships improve new product success rates? Industrial Marketing Management, 28, 507-519.

Charan, R. & Lafley, A.G.. (2008). Why innovation matters. *Fast Company*. 30 May. <http://www.fastcompany.com/node/874798/print> Accessed Feb 14., 2011.

Cohen, W.M., & Levinthal, D.A, (1990). Absorptive capacity: A new perspective on learning and innovation. *Administrative Science Quarterly*, 35, 128-152.

Cooper, R.G. (1993). *Winning at new products*. Reading, MA: Addision-Wesley.

Dollinger, M., 1985. Environmental contacts and financial performance of the small firm. *Journal of Small Business Management* 23, 24–30.

Dubini, P., & Aldrich, H. E. (1991). Personal and extended networks are central to entrepreneurial process. *Journal of Business Venturing* 6, 305–313.

Dussauge, P., Garrette, B., & Mitchell, W. (2000). Learning from competing partners: Outcomes and durations of scale and link alliances in Europe, North America and Asia. *Strategic Management Journal*, 21(2), 99-126.

Eurostat. 2009. Epp.eurostat.ec.europa.eu. Accessed 4.December 2009.

Fabrizio, K. R. (2004). Absorptive capacity and innovation: Evidence from pharmaceutical and biotechnology firms. http://www.hbs.edu/units/tom/seminars/2004/kmarkiewicz.pdf Accessed 11 January 2012

Farr-Wharton, R. & Brunetto, Y. (2007). Women entrepreneurs, opportunity recognition and government-sponsored business networks: A social capital perspective. *Women in Management Review*, *22*(3), 187-207.

Fisher, R., Polt, W, & Vonortas, N. (2009). The impact of publicly funded research on innovation: An analysis of European Framework Programmes for Research and Development. *Luxembourg: Office for Official Publications of the European Communities.*

Fosfuri, A. & Tribo, J.A. (2008). Exploring the antecedents of potential absorptive capacity and its impact on innovation performance." *Omega: The International Journal of Management Science, 36,* 173–187.

Gilmore, R. (2009). The innovation journey. <http://www.ausicom.com/filelib/Innovation_Journey_Final.pdf> Accessed Feb. 14, 2011.

Gnyawali, D.R & Madhavan, R. (2001). Cooperative networks and competitive dynamics: A structural embeddedness perspective. *Academy of Management. The Academy of Management Review* 26, 431-445.

Granovetter, M. (1973). The strength of weak ties. *American Journal of Sociology*, 78, 1360-1380.

Gray, C. (2006). Absorptive capacity, knowledge management and innovation in entrepreneurial small firms. *International Journal of Entrepreneurial Behavior and Research,* 12, 345-360.

Gulati R., Nohria N., & Zaheer A. (2000). Strategic networks. *Strategic Management Journal,* 21(3), 203–215.

Hitt, M. A., & Ireland, R. D. (2002). The essence of strategic leadership: Managing human and social capital. *Journal of Leadership and Organization Studies*, 9(1), 3–14.

Hoang, H., & Antoncic, B. (2003). Network-based research in entrepreneurship. *Journal of Business Venturing 18 (2),* 165–187.

Holt, K., Geschka, H, & Peterlongo, G. (1984). *Need assessment, A key to user-oriented product innovation.* Chichester: John Wiley & Sons, Ltd.

Jarillo, J. C. (1989). Entrepreneurship and growth: The strategic use of external resources. *Journal of Business Venturing*, 4, 133-147.

Jeppesen, L. B. (2005). User toolkits for innovation: Consumers support each other. *Journal of Product Innovation Management*, 22, 347-362.

Kirca, A.H., Jayachandran, S., & Bearden, W. O. (2005). Market orientation: A meta-analytic review and assessment of its antecedents and impact on performance. *Journal of Marketing, 69*, 24-41

Liao, J., Welsh, H., & Stoica, M. (2003). Organizational absorptive capacity and firm responsiveness: An empirical investigation of growth-oriented firms. *Entrepreneurship Theory and Practice,* Autumn, 63-85.

Liao, Shu-Hsien, Chi-Chuan Wu, Da-Chian Hu, & Guange An Tsuei. (2009). Knowledge acquisition, absorptive capacity, and innovation capability: an empirical study of Taiwan's knowledge-intensive industries. *World Academy of Science, Engineering and Technology, 53,* 160-167.

Liao, Shu-Hsien, Wu-Chen, Fei, & Chen, Chih-Chiang. (2007). Knowledge sharing, absorptive capacity, and innovation capability: an empirical stury of Taiwan's knowledge-intensive industries. *Journal of Information Science, 33* (3), 340-359.

Lukas, B.A. & Ferrell, O.C. (2000). The effect of market orientation on product innovation. *Academy of Marketing Science Journal, 28(2),* 239-247.

Luthje, C. (2004). Characteristics of innovating users in a consumer goods field: An empirical study of sport-related consumers. *Technovation,* 24¸ 683-95.

Madsen, E. L. & Brastad, B. (2005). The effects of innovation Norway's financial support for business. <http://www.regjeringen.no/nb/dep/nhd/tema/innovasjon/a-norwegian-puzzle.html?id=582903> Accessed Sept. 12, 2010.

Mavondo, F. T., Chimhanzi, J., & J. Stewart. (2005). Learning orientation and market orientation, relationship with innovation, human resources practices and performance. *European Journal of Marketing, 39(11/12),* 1235-1263.

Miller, Nancy J. & Besser, Terry L. (2005). Exploring decision strategies evaluations and performance by networked. *Journal of Developmental Entrepreneurship*,10,167-186

Murovec, N., & Prodan, I. (2009). Absorptive capacity, its determinants, and influence on innovation output: Cross-cultural validation of the structural model. *Technovation,* doi:10.1016/j.technovation.2009.05.010

Norwegian Ministry of Trade and Industry (2010).<http://www.regjeringen.no/nb/dep/nhd/tema/innovasjon/ a-norwegianpuzzle.html?id=582903> Accessed Sept. 12, 2010.

Robinson, S. & Stubberud, H.A. (2012). Issues in innovation for Norwegian SMEs. *Journal of International Business Research,* 11(1), 53-61.

Robinson, S. & Stubberud, H.A. (2011). Source of information and cooperation for innovation in Norway. *Journal of International Business Research,* 10(2), 79-90.

Rosenberg, N. (1982). Learning by using. In Inside the Black Box: Technology and Economics. Cambridge: Cambridge University Press.

Rothwell, R. (1992). Successful industrial innovation: Critical factors for the 1990s. *R&D Management, 22(3), 221-39.*

Soo, Christine W., Devinney, Timothy M. & Midgley, David F. (2007). External knowledge acquisition, creativity and learning in organizational problem solving. *International Journal of Technology Management, 38 (1/2), 137-159.*

Teece, D, Pisano, G. & Shuen, A. (1997). Dynamic capabilities and strategic management. *Strategic Management Journal,* 18, 509-533.

Taylor, D.W. & Thorpe, R. (2004). Entrepreneurial learning: A process of co-participation. *Journal of Small Business and Enterprise Development,*11(2), 203-211.

Tidd, J., Bessant, J. & Pavitt, K. (2005). *Managing innovation: Integrating technological, market and organizational change.* West Sussex, England: John Wiley & Sons, Ltd.

Uzzi, B. (1997). Social structures and competition in interfirm networks: The paradox of embeddedness. *Administrative Science Quarterly, 42,*35-67.

Vanhaverbeke, Wim., Cloodt, Myriam, & Van de Vrande, Vareska. (2007). Connecting absorptive capacity and open innovation. <http://www.cas.uio.no/research/0708innovation/CASworkshop_VanhaverbekeEtAl.pdf> Accessed 11 January 2012.

von Hippel, E. (1976). Dominant role of users in scientific instrument innovation process. *Research Policy,* 5, 212-239

von Hippel, E. (1988). *The Sources of Innovation*. New York: Oxford University Press.

Watson, John. (2007). Modeling the relationship between networking and firm performance. *Journal of Business Venturing,* 22, 852-874.

Zhao, L. & Aram, J.D. (1995). Networking and growth of young technology-intensive ventures in China. *Journal of Business Venturing*, 10, 349-370.

# RISE TO LEADERSHIP: AN EVALUATION OF AFRICAN MAASAI WOMEN'S LEADERSHIP

**James A. Ward, Regent University**
**Steven Kiruswa, Regent University**

## ABSTRACT

*Few Tanzanian Maasai women rise from poverty conditions to leadership positions (Fraser, Brown, Wright & Kiruswa, 2012). The Maasai, a pastoral semi-nomadic culture give women no tribal leadership roles over men (Nicholson, 2005). Tremendous changes are taking place in sub-Saharan Africa as traditional tribal cultures are impacted by modern society. Yet some Maasai women succeed to roles of political, corporate and non-profit leadership. Of the women who rise from poverty; how do they describe overcoming barriers to their leadership? There is a large body of literature on women overcoming barriers to rise to leadership; this study tested its application to this indigenous culture. Survey research using the Mentor Roles Instrument (Raggins & McFarlin, 1990) with population n= 99. The research provides information about empowerment for these women.*
*Keywords: Maasai women, sub-Saharan Africa, Tanzania, women's issues, leadership*

## INTRODUCTION

Women leaders in Africa have been largely invisible in scholarly research (Nkomo & Ngambi, 2009). There is a developing body of literature on how women in Africa rise from poverty to leadership roles. "There is relative consensus across the publications in terms of factors impeding African women's access and ascent to leadership and management. Those factors are early socialization, limited educational attainment, multiple roles, gender stereotyping, subtle discrimination, and organizational policies and procedures" (Nkomo & Ngamo, 2009, p. 55). Pressing African women's issues like mentoring, work, family, and sexual harassment are systemically underrepresented in literature. (Nkomo and Ngamo, 2009).

The Maasai of Tanzania are a marginalized pastoral semi-nomadic group (www.Loocip.com) with a median income less than $1,000 per year (World Bank, 2006). Maasai women are identified as marginalized as a community that lives below the level of interest and concern of Tanzanian society; they are hidden from the discursive articulations (Fraser, Brown, Wright, & Kiruswa, 2012). Maasai women are mostly illiterate, without access to formal education unless approved by men (who often do not value education); male elders decide if women will be funded or allowed to attend formal schooling (Fraser, et al., 2012). Yet in spite of hindrances, some Maasai women succeed to roles of political, corporate and non-profit leadership. Of the women who rise from poverty; how do they describe the factors enabling leadership, and how do education, mentors, and structural variables hinder or empower them? Theories from other cultures of Africa are applied to determine if they explain how Maasai women overcome hindrances to their rise to leadership.

The conditions that hinder women from becoming leaders include cultural beliefs, structural, gender, and resource issues, traditional marriage and lack of education (Kambi, 2008; Tripp, 2003). These women have little opportunity for leadership, although a small percentage of the women do rise to be leaders. Women's hindrances literature is divided into three main areas of why these women remain hindered from leadership: (a) governmental and structural hindrances (Tripp, 2003, 1989; Shayo, 2005); (b) education and marriage opportunity (Sadie, 2005; Kritz & Makinwa-Adebusoye, 1999), and (c) cultural, gender discrimination and tribal practice (Nikomo & Ngambi, 2009).

African governments have recently started to address women's empowerment issues on a systemic level. A number of regulatory, legal and government enforcement issues remain that hinder women's progress (Kiamba, 2008; Shayo, 2005; Tripp, 2003). All sub-Saharan governments signed onto the 1997 Declaration on Gender and Development, to designate 30% of political leadership positions for women to create women's opportunity for involvement in governance by 2005 (Sadie, 2005). In this study leadership as influence is considered in the women's rise to leadership positions. Women in Tanzanian parliament stood at 28%; Maasai women are less than 1% (www.parliament.go.tz). The majority of those studies report governmental regulations requiring female representation all levels of leadership and governance, but women remain underrepresented in positions of power and leadership (de la Rey, 2005; Kiamba 2008).

Tanzania as one of the poorest nations on earth (World Bank, 2006) has structural problems that prevent it from funding gender related issues. In the poorest countries the richest fifth receive 60% of national income while the poorest fifth receives less than 5% and the majority of those poorest fifth are women (Scott, 1984). But international and United Nations reports have only recently begun to specifically reference hindrances to women (Wedgwood, 2005). A historical look at hindering and enabling factors provides only limited information. In sub Saharan Africa woman are provided jobs mainly in subsistence farming, not afforded legal land ownership; while men receive jobs on cash plantations and inherit land (Scott, 1984). Women have suffered under development as their jobs are replaced by machinery that performs subsistence farming and cottage handcrafts (Chako, 1980).

Education is an important factor in the UN Program to alleviate poverty but in Tanzania since 1994 the number of students in primary education has almost double but the success rates in graduating are low and for high school level education the graduation rate is low (Wedgwood, 2005). Nkomo and Ngambi (2009) posit that literature on African women who are leaders is invisible or missing in the knowledge base. They list the general factors as: (a) early socialization, (b) limited education, (c) Multiple roles, (d) gender stereotyping, (e) subtle discrimination, (f) organizational practices and policies (Nkomo and Ngambi, 1999).

## LITERATURE REVIEW

There is a conspicuous lack of research and theory related to female leadership in the Maasai culture. A search of the electronic databases for the last twenty years revealed forty eight articles and books related to women in leadership in Africa and none covering Maasai women. Maasai women play no part, officially, in any of the tribal decision making roles (Nicholson, 2005). Given the understanding about barriers to African Women's leadership and managerial careers one would expect a great deal of research on empowerment strategies (Kiamba, 2009; Nkomo & Ngami, 2009; Tripp, 2003). But the research on female leadership is country specific and hard to find; underrepresented. The extant literature in sub Saharan and East Africa can be divided into three areas of society: politics and law, non-governmental, and business and entrepreneurial leadership. The Maasai tribal culture is extremely collectivist, to the point that exceptional talent is not approved by tribal leadership (Nicholson, 2005). The skills that are valued are those that are of value to the collective not the individual; women who seek to develop leadership roles are inhibited by this practice. Common theme referring to both male and female leaders in Maasai culture is stewardship and servant leadership (Nicholson, 2005; Koshal, 2007).

Political leadership by women is increasing in part due to the Tanzanian government encouraging of women's involvement and laws related to the quota system. Governmental policies are increasing women's participation in politics (Rose, 2011; Wedgwood, 2005). Most African governments have ruled that women will compose 30% of elected government positions but enforcement is sporadic (Sadie, 2005). Factors inhibiting women's political participation: (a) lack of education and leadership training, (b) lack of political support for women, (c) male dominated structures, (d) lack of women mentors, (e) gender discrimination, (f) financial resources (Shayo, 2005).

Women's rise to leadership in business private economic sector and NGO positions is also hindered by: (a) cultural and traditional gender norms, (b) finances, (c) gender discrimination (d) women's time use as family providers, (d) lack of education, (e) women's mindset toward leadership, (e) lack of mentors, (f) lack of financial support (Ellis, Blackden, Cutura, Kaimba, 2008, Mac Culloch, & Seabens, 2007).

The aforementioned initiatives and structural changes are providing factors that enhance women's chances to rise to leadership roles. The Tanzanian governance, feminist organizations, NGO's and Maasai legal representatives are working to address the problems and provide new frameworks to offer fair treatment and opportunity to women. "Some women were able to transcend cultural barriers and rise to positions of leadership (whether in politics or elsewhere), but more often than not, it meant having to juggle cultural expectations with their leadership roles (Tripp, 2008). The following federal laws, initiatives and governance changes enable and empower women to become leaders in the commercial or private marketplace: (a) Tanzanian National Development Vision 2025 Goals, (b) 2005 National Strategy for Gender Development, (c) Tanzanian Constitutional reform to prohibit gender bias, (d) Maasai legal and property rights, (e) Tanzanian education requirements (MWEDO, 2006; Ellis, Blackden, Cutura, Mac Culloch, & Seabens, 2007; LOOCIP, 2007).

## Education

Literature on education in Africa is a much studied an important variable in women's rise from poverty (Tripp, 2003; World Bank, 2004). World bank studies in Africa show completion of primary school increases income levels 100% and secondary school up to 400% over not completing primary, for example (World Bank, 2004). Maasai often live great distances from the nearest schools and receive less years of education (Wedgwood, 2005). Tanzanian rural education available to the Maasai is of low quality (Wedgwood, 2005) and does not empower the women's rise to leadership as private education might.

Education in Tanzania is an example of a country where near 100% enrollment in primary schools (reached in 1990s) yielded little apparent benefit; and now only 60% of children attend primary schools (Tripp, 2007; Wedgwood, 2003). Rural education is of lower quality and access is limited for the Maasai women. A number of factors hinder women obtaining education: (a) Gender discrimination, (b) arranged marriage and dowry, (c) distribution of labor, (d) control over time usage, work in agriculture, (e) access to and distance from schools, (f) adequate finances, (g) failure to enforce compulsory education laws, (Fraser, Brown, Wright, & Kiruswa, 2012; Wedgwood, 2005: Kritz & Makinwa-Adebusoye, 1999).

## Mentor

Theory on African women who have risen to leadership roles are enabled by having a mentor; seventy percent of leaders in Kenyan education were found to have influential mentors (Kipsoi, Kindiki, and Kimengi, 2012). Further they conclude that mentors provide critical support to emerging women leader. Kram (1983) describes the nine benefits of the mentoring relationship as (a) protection, (b) challenging tasks, (c)counseling, (d) coaching, (e) friendship, (f) sponsorship, (g) exposure, (h) acceptance, (i) role model.

## Number of roles

The idea that poverty is related to the time available to be devoted to economic pursuits is not new and time poverty and income poverty reinforce each other (World Bank, 2006). The drudgery of the many domestic tasks carried out primarily by women (in the case of Maasai) reduces time for economic opportunity task (World Bank, 2006. If the Maasai woman has little time or energy to devote to career leadership aspirations the opportunity is reduced. "Poor households depend heavily on their members' time and labor for the provision of goods and services that are essential for their well-being and survival. When faced with severe time constraints, and lacking the economic resources to access market substitutes, these households may have to resort to making tradeoffs…" (Kes & Swaminathan, 2006, p. 16). SSA Women carry out the majority of subsistence farming, water fetching, childrearing and household chores. Further there is a gender difference; that sub Saharan woman carry the domestic burden on non-income producing labor reducing their time for other roles (Kes & Swaminathan, 2006 ).

**Arranged Marriage**

Theory on arranged marriage reveals an important variable because of its impact on the women of the Maasai and it is identified as an under studied area in sub Saharan Africa (Archambault, 2001). Arranged marriage is a traditional Maasai practice that limits the choice of girls to control their own destiny (Archambault, 2001). It is being impacted by international law and societal change (Hogdson, 2002). It is an emotionally charged issue that is most often portrayed as conservative pastoral patriarchs running over the individual rights of young girls (Archambault, 2001). But the issue is part of a tapestry of contemporary Maasai cultural tradition, and predicaments like land reform, political marginalization, adapting to livelihood insecurity, and failures of state systems (Archambault, 2001 , Hodgson, 2002 ).

## RESEARCH HYPOTHESES

*H1:* *Formal education and having a mentor are both positively related to attainment of leadership positions by Maasai women.*

*H2:* *Arranged marriage and increased roles are both negatively related to attainment of leadership positions by Maasai woman.*

## METHOD

The research looked at women in East and South Africa, to expand existing theory applied to women in other similar African sociocultural settings. The participant Maasai women were a convenience sample chosen for the study will be from both leaders and non-leaders. They were assigned to group one or group two for analysis based on if they hold a leadership position or not. A power level of .80 was chosen for the chosen independent variables with a significance level of .05 and $R^2$ below 12 (Hair, Black, Babin, & Anderson, 2010).

## PARTICIPANTS

Participants for these convenience samples are from the four districts surrounding the Maasai lands in Northern Tanzania. The four districts in northern Tanzania have a large population of 300,000 Maasai; concentrated along Tanzania and Kenya border (uiowa.edu, 2012). Biases expected to be found in this research are, (a) response bias from the female Maasai women not filling out or completely filling out the questionnaire; (b) the research advocates an action agenda for marginalized women (Kemmis and Wilkinson, 1998) and to inform policy makers, (c) advocacy bias some women are expected to have opinions they want policy makers to hear.

## DATA COLLECTION

The first sub- sample was taken at women's leadership conferences in Arusha. The second sub- sample was from a visit to rural villages in Longido. The area is rural and arid with transportation costs being high relative to Tanzanian income. The data was collected via survey instrument July 2012 with a paid interpreter. The Participants were selected for this study based on their ethnicity (Maasai), gender (female), age (25-40 years old), and geographical location (Northern Tanzania). The age criteria were selected because in Maasai society age is a factor in selection to leadership (Fraser et al., 2012). The researcher obtained 102 responses (99 complete) that were from a wide range of educational backgrounds as possible. The participants started their lives journey in traditional, pastoral Maasai families. Questionnaires were read to respondents who were illiterate, by the researcher. In cases where it was read the researcher so marked on the questionnaire form that it was read. The researchers verified by analysis that the read questionnaire responses do not significantly from the self- administered questionnaires. To allow for questionnaires that may not be complete a target of fifty each leader and non-leader was reached that there were 15 respondents per variable. Privacy and rights of the participants were honored in accordance with the ethical guidelines (Winston, Fields, and Cabanda, 2011; Creswell, 2009). The Tanzanian Maasai women's research instrument obtained with permission from Raggins and Cotton (1999) was reviewed for the internal validity of the added demographic questions by the Maasai review panel in Longido. The instrument was pilot tested in English and Swahili by administering it to five Maasai participants during the weekend of June 23, 2012

## RESEARCH DESIGN

The independent variables obtained from sub Saharan African theory on women's' rise from poverty to leadership include: (a) formal education, (b) having a mentor, (c) increased roles outside work, (d) arranged marriage. Formal education, increased roles and arranged marriage were measured in the demographic section provided with the Mentor Roles Instrument. Mentor support was measured with the Mentor Roles Instrument on a 7 point Likert scale. There was a language barrier that caused the women to respond over 90% of the time they had mentor support. But further investigation revealed many misunderstood the question. Therefore the two mentor roles of the MRI (Mentor job support, and mentor psychological support) were used as the mentor function of support. They are comprised of items 1- 33 on the MRI.

## MEASURES

The survey instrument, Mentor Role Instrument (MRI), is taken in its entirety from Raggins and Cotton (1999) and is found in appendix 1. It is used with permission of the author. In the Tanzanian Maasai version questions 1 -11 are demographic questions tailored by a Maasai panel for use in this study. The MRI employs a 7 point Likert like scale from one (strongly disagree) to seven (strongly agree). The 33-item MRI was developed via confirmatory factor measures each of Kram (1985) nine mentor roles. The MRI also measures parent and social interactions as gender related issues where protégé regards the mentor as a parent figure and avoiding cross gender interaction (Raggins and Cotton, 1999). "The MRI has proven reliability and preliminary evidence of validity (Ragins & McFarlin, 1990)…coefficient alphas for the eleven mentor roles ranged from .63 to .91" (Raggins & Cotton). The majority of coefficient alphas are above .80.

The MRI was translated from its original English language to Kiswahili by a PhD translator and then back translated by a separate translator for verification by the researcher. Verification will ensure all items were adequately back translated.

Sample questions from the Mentor Role Instrument:

| On a scale of 1 to 7: | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| | | Never | | | Sometimes | | | Always |
| My Mentor: | | | | | | | | |
| 1. | helps me attain desirable positions. | | | | | | | |
| 2 | uses his/her influence to support my advancement in the organization. | | | | | | | |
| 3 | uses his/her influence in the organization for my benefit. | | | | | | | |
| 4. | helps me learn about other parts of the organization | | | | | | | |
| 5. | gives me advice on how to attain recognition in the organization | | | | | | | |

As the data was collected it was entered into Excel spreadsheets and imported into IBM Statistical Package for the Social Sciences (SPSS) software for analysis. After all the data was entered into Excel and before analysis in SPSS being performed, it was checked for entry errors. Sample size was reviewed and ensured the complete questionnaires provided the expected number of useable data points. In SPSS there is no option to check logistic regression multicollinearity therefore the output statistics collinearity diagnostics were used by focusing on the coefficient table (Pallant, 2010). Finally a check of outliers or cases that are not explained by the model revealed four cases that were deleted. Then bias related to the reading of questionnaires and the assumptions conforming to tests conducted were checked. To verify this read versus self-completed responses of leader and non-leaders categories are comparable.

H1 was tested using SPSS logistic regression for independent variables formal education and having a mentor on the dependent variable having a leader role. Since the dependent variable is categorical (binary), the logistic regression is built from continuous explanatory variables used (Pallant, 2010). Coding for the dependent variable is leader role=1(target), non-leader=0. H2 was be tested by logistic regression for independent variables number of roles and arranged marriage and dependent variable leader role. The relationship of the variable data analysis was by logistic regression.

## RESULTS

In preparation for running SPSS binary logistic regression on the data for the model; intercorrelation of model variables was tested using SPSS (Table 1). The intercorrelations among the independent (predictor) variables and control are used to identifying multicollinearity which would lead to unstable regression estimates (SPSS, 2010). Additionally, omitting one problematic predictor from the model will not greatly improve prediction due to the high intercorrelation; variance in the response that can be explained by the omitted variable is still explained by the remaining correlated variable (SPSS, 2010). The results of this collinearity analysis are seen in Table 1.

Table 1: **Correlations**

| | | 1 | 2 | 4 | 6 | 9 | 36 | 37 |
|---|---|---|---|---|---|---|---|---|
| Position: Leader | Pearson Correlation | 1 | | | | | | |
| | Sig. | | .678 | | | | | |
| Education | Pearson Correlation | .043 | 1 | | | | | |
| | Sig. | .678 | | | | | | |
| Age | Pearson Correlation | .301** | -.241* | 1 | | | | |
| | Sig. | .003 | .018 | | | | | |
| Arranged | Pearson Correlation | -.183 | .276** | -.270** | 1 | | | |
| | Sig. | .074 | .006 | .008 | | | | |
| Roles outside | Pearson Correlation | .111 | .161 | -.099 | .122 | 1 | | |
| | Sig. | .280 | .116 | .338 | .236 | | | |
| Mentor Roles | Pearson Correlation | .415** | .028 | -.002 | -.065 | -.307** | 1 | |
| | Sig. | .000 | .784 | .985 | .529 | .002 | | . |
| Psycho-social roles | Pearson Correlation | .272** | .107 | -.092 | .018 | -.221* | .748** | 1 |
| | Sig. (2-tailed) | .007 | .300 | .372 | .859 | .030 | .000 | |

** Correlation is significant at the 0.01 level (2-tailed). * Correlation is significant at the 0.05 level (2-tailed); N=96

Tolerance values (all above 0.87) tested in the reveal multicollinearity is not an issue; values lower than 0.1 would indicate the variable has high correlations with other variables in the model (Pallant, 2011). The sample had standardized betas from -.13 to .50 and model significance findings of .003 to .3.

Direct logistic regression using IBM SPSS software was performed to assess factors related to the likelihood that women rise or are hindered from rising to leadership positions. The model used four independent variables (education level, arranged marriage, roles outside work, mentor roles). Mentor roles variable was composed of developmental and psychosocial roles.

The model containing the predictor variables was statistically significant; the Chi Square, $X^2$ (7, N=99)= 34.26, p< .001 (Pallant, 2010).

| **Table 2: Coefficients of Model**[l] | | | | | |
|---|---|---|---|---|---|
| | Unstandardized Coefficients | | Standardized Coefficients | | |
| Model | B | Std. Error | | T | Sig |
| Constant | -.234 | .162 | | -1.4 | .15 |
| Arranged | -.196 | .093 | -.196 | -2.09 | .03 |
| Education | .047 | .116 | .038 | .406 | .68 |
| Roles Outside | .090 | .031 | .279 | 2.91 | .00 |
| Mentor Roles | .009 | .002 | .487 | 5.15 | .00 |
| a. Dependent variable: position leader = 1; non leader = 0; signifig at 0.05 level | | | | | |

The model containing the four predictor variables(five with mentor components) was statistically significant, Chi Square, $X^2$ (7, N=99)= 22.93, p< .001, which indicated the model distinguished between those who reported leadership positions and those who reported they had no leadership position. The model had a pseudo $R^2$, accounted for and explained 27.6% (Nagelkerke R square) of the variance in leadership roles and correctly identified 69.7% of the cases. As shown in Table 1, three of the independent variables made a unique contribution that was statistically significant to the model (roles outside work, arranged marriage, and mentor career roles). The strongest predictors of attaining a leadership position were arranged marriage 2.1 odds ratio and roles outside work, recording and odds ratio of 1.6. This indicated that participants who were leaders were 2.1 times more likely to be in non-arranged marriages and 1.6 times more likely to have fewer roles outside work.

| Table 3: Omnibus Tests of Model Coefficients | | | | |
|---|---|---|---|---|
| | | Chi-square | Df | Sig. |
| Step 1 | Step | 22.932 | 5 | .000 |
| | Block | 22.932 | 5 | .000 |
| | Model | 22.932 | 5 | .000 |

| **Table 4: Classification Table**[a] | | | | | |
|---|---|---|---|---|---|
| | | | Predicted | | |
| | | | Position: Leader= 1; non Ldr= 0 | | Percentage |
| | Observed | | 0 | 1 | Correct |
| Step 1 | Position: Leader= 1; non Ldr= 0 | 0 | 42 | 11 | 79.2 |
| | | 1 | 19 | 27 | 58.7 |
| | Overall Percentage | | | | 69.7 |
| a. The cut value is .500 | | | | | |

The model was significantly better than the constant for the prediction of the dependent variable, Maasai women becoming leaders. The 95% confidence interval with the limited sample sizes resulted in quite wide odds ratios for age, education, and arranged marriage. No odds ratios were less than 1.

| Table 5: Logistic Regression Predicting Rise to Leadership | | | | | | |
|---|---|---|---|---|---|---|
| Variables in the Equation | B | S.E. | Wald | df | Sig. | Exp(B) |
| Arranged Marriage | .921 | .489 | 3.556 | 1 | .05 | 2.51 |
| Roles Outside | .473 | .208 | 5.160 | 1 | .02 | 1.61 |
| Education | -.213 | .597 | .128 | 1 | .72 | .81 |
| Mentor Roles | .036 | .013 | 8.167 | 1 | .00 | 1.04 |
| Psychosocial | .001 | .009 | .014 | 1 | .90 | 1.01 |
| Constant | -4.084 | 1.261 | 10.490 | 1 | .00 | .017 |

## DISCUSSION

The Maasai women's' leadership prediction model derived from African theory was to provide a prediction of key variables in rising to leadership. The model predicted from theory enabling factor in Maasai women's rise to leadership in Tanzania. The results provide valuable information to those trying to understand the needs and how to enhance opportunity for the Maasai. This study used convenience samples from the Arusha District of Tanzania. The generalizability of this study is limited since it was not random or representative of the general Maasai population. It does however provide some insight into the study group. Their needs should be evaluated in future research by those who desire to help them.

For example education was seen in the results as non-significant, not a clear predictor of the rise to leadership. In the literature review several factors were presented for possible causes, including rural education quality in Tanzania. Rural education quality is often of lesser quality than in education in urban areas. Resource allocation is one area where a better understanding of the factors that would enable sub Saharan policy makers to allocate scarce resources.

The small sample sizes resulted in quite wide odds ratios for age, education, and arranged marriage. The strongest predictors of attaining a leadership position were arranged marriage and roles outside work, recording odds ratio of 2.1 and 1.6 times. H1 was supported for having a mentor as a predictor but the regression failed to provide support for education as predictor for Maasai women's rise to leadership. No odds ratios were less than 1. H2 was supported for arranged marriage and H2 was supported for roles outside of work.

The resulting statistical analysis provides a picture of how theory may extend to Maasai women who overcome hindrances to rise to leadership. Factors in how these Maasai women are empowered to rise to leader roles needs further research. Tremendous changes are taking place in sub-Saharan Africa as traditional tribal cultures are impacted by modern society. The lessons learned will provide input to policy makers trying to help them.

## AUTHORS' NOTE

Research conducted by James Ward, School of Global Leadership and Entrepreneurship and Steven Kiruswa, School of Communication and the Arts, Regent University.
Correspondence concerning this paper should be addressed to The School of Global Leadership and Entrepreneurship, Regent University, 1000 Regent University Drive, Virginia Beach, VA 23464. Email: jamewar@regent.edu

## REFERENCES

Archambault, C. S. (2011). Ethnographic empathy and the social context of rights: "Rescuing" Maasai girls from early marriage. *American Anthropologist;113(4),632-643. doi:j.1548-1433.2011.01375.x*

Baraldi, C. (2006). New forms of intercultural communication in a globalized world. *International Communication Gazette*, 68, 53-69.

Creswell, J. W. (2009). *Research Design Qualitative, Quantitative and Mixed Methods. Approaches* (3rd Ed.). Los Angeles, CA: Sage.

Dutta, M., & Pal, M. (2010). Dialog theory in marginalized settings: A subaltern studies approach. *Communication Theory*, 20, 363-386.

Ellis, A., Blackden, M., Cutura, J., Mac Culloch, F., and Seabens, H. (2007). Gender and Economic Growth in Tanzania: Creating Opportunities for Women.. Washington, DC. World Bank

Fraser, B. P., Brown, W., Wright, C., & Kiruswa, S. (2012). Facilitating dialog about development through digital photography: Seeing through the eyes of Maasai women. *The Journal of International and Intercultural Communication*, 5 (1), 20-42. doi: 10.1080/17513057.2011.619667

Fowler, F. (2002). *Survey research methods* (3 ed.). Thousand Oaks, CA:Sage

Fratkin, E., & Mearns, R. (2003). Sustainability and pastoral livelihoods: Lessons from East African Maasai and Mongolia. *Society for Applied Anthropology*, 62, 112-122.

Greenleaf, R. K. (1977). *Servant leadership: A journey into the nature of legitimate power and greatness.* Mahwah, New Jersey. Paulist Press.

Habermas, J. (1996). *Between facts and norms: Contributions to a discourse theory of law and democracy*. Cambridge, MA: MIT Press.

Hair, J., Black, W., Babin, B., Anderson, R. (2010). Multivariate Data Analysis. UpperSaddle River, NJ. Pearson.

Hodgson, D. (2002). Precarious alliances: The cultural politics and structural predicaments of the indigenous rights movement in Tanzania. American Anthropologist, 104(4): 1086-1097. doi:10.1525/aa.2002.104.4.1086

Kes, A., & Swaminathan, H. (2006). Gender and time poverty in sub-Saharan Africa. Edited by C. Mark Blackden and Quentin Wodon; World Bank. (2006). Gender, time use, and poverty in Sub-Sahara Africa. Washington, DC; World Bank.

Kiamba, J. (2008). Women and leadership positions: Social and cultural barriers to success. *Wagadu*; 6, ISSN: 1545-6196. Retrieved from www.scholar.com.

Kipsoi, J., Kindiki, J.N., and Kimengi, I.N. (2012). Scaling the glass ceiling: Mentoring as a strategy for women in university leadership. Journal of the Management University of Africa; 4, 212-219. Retrieved from http://www.mua.ac.ke/attachments/article/162/A%20Journal%20of%20the%20Management%20University%20of%20Africa%20Vol.%204.pdf#page=230

Kongolo, M., & Bamgose, O. (2002). Participation of rural women in development: A case study of Tsheseng, Thintwa, and Makhalaneng Villages, South Africa. Journal of International women Studies; 4(1), p 79- 92. Retrieved from www.scholar.google.com

Koshal, J. (2005). Servant Leadership Theory: Application of the Construct of Service in the Context of Kenyan Leaders and Managers (Doctoral dissertation). Regent University, School of Leadership Studies. Virginia Beach, Virginia.

Kram, K. (1983). Mentoring at Work. Glenview, IL, Scott Foresman Company.

Kritz, M. M., & Makinwa-Adebusoye, P. (1999). Determinants of Women's decision-making authority in Nigeria: The ethnic dimension. *Sociological Forum*, 14(3), 399-424.

Maasai Women Development Organization, MWEDO, Legal empowerment of the Poor Conference (2006). *Report of the MWEDO Empowerment Task Force*. Retrieved from http://web.undp.org/legalempowerment/pdf/Tanzania%20MWEDO%20Report.pdf

Maathai, W. (2009). *The Challenge of Africa*. New York: Pantheon Books.

Mohanty, C. M. (1991) Under Western eyes: Feminist scholarship and colonial discourses in Third World women and the politics of feminism / edited by Chandra Talpade Mohanty, Ann Russo, Lourdes Torres. Bloomington, Indiana; University Press. Retrieved from http://hdl.handle.net/2027/heb.03313.0001.001

Nikomo, S., & Ngambi, H. (2009). African women in leadership: Current knowledge and a framework for future studies. *International Journal of African Studies,* 4(1), 49-68.

Patterson, K. A. (2003), *Servant Leadership a theoretical model*. Dissertation Abstracts International; 64( 2).

Ragins, B. R., & Cotton, J. L. (1999). Mentor functions and outcomes: A comparison of men and women in formal and informal mentoring relationships. *Journal of Applied Psychology;* 84(4), 529-550

Raggins, B.R., & McFarlin, D. (1990). Perception of mentor roles in cross-gender mentoring relationships. *Journal of Vocational Behavior*, 37, 321-339.

Rose, S. (2011). Women participation in party politics during the multiparty era in Africa: The case of Tanzania. EISA Occasional Paper No 34. Auckland, South Africa. Electoral Institute for the Sustainability of Democracy in Africa. Retrieved from URI: http://hdl.handle.net/123456789/30494

Shayo, R. (2005). Women participation in party politics during the multiparty era in Africa: The case of Tanzania (electronic version). EISA Occasional Paper, 34, 1-14.

Spivak, G. C. (1988). Can the subaltern speak? In C. Nelson & L. Grossberg (Eds.), Marxism and the interpretation of culture (pp. 271-313). Basingstoke, UK: MacMillan Publications.

Steeves, H. (2001). Liberation, feminism, and development communication. *Communication Theory*, 11, 397-414.

Stormer, N. (2006). A vexing relationship: Gender and contemporary rhetorical theory. In B. J. Dow &. J. T. Wood (Eds.), The Sage Handbook of Gender and Communication. 247-262. Thousand Oaks: CA: Sage Publications.

Thomas, L. (1998). Womanist theology, epistemology, and a new anthropological paradigm, *Crosscurrents; 48(4). Retrieved from www.scholar.google.com*

Tripp, A. (2003). The changing face of Africa's legislatures: Women and quotas. A paper presented at the International Institute for Democracy and Electoral Assistance (IDEA)/Electoral Institute of Southern Africa (EISA)/Southern African Development Community (SADC) Parliamentary Forum Conference. Retrieved from www.quotaproject.org/CS/CS_Tripp_2004.pdf

Tripp, A. (1989). Women and the changing urban household economy in Tanzania. *The Journal of Modern African Studies.* 27(4). Retrieved from http://www.jstor.org/stable/161111

Wedgwood, R. (2005). Education and poverty reduction in Tanzania. *International Journal of Educational Development*, 27(4), 383–396.

Wedin, A. (2006*)*. Literacy practices in rural Tanzania: The case of Karagwe*. Journal of Multilingual and Multicultural Development, 27, 225-240.*

World Bank. (2006). Gender, time use, and poverty in Sub-Sahara Africa. Washington, DC*; World Bank.*

World Bank. (2007). Tanzania: Social Sector Review. A World Bank Country Study, Washington, D.C., World Bank.

World Bank. (1999). Tanzania: Social Sector Review. A World Bank Country Study, Washington, D.C., *World Bank.*

# CONSUMER LIFE STYLES AND MARKET SEGMENTATION IN CHILE

**José I. Rojas-Méndez, Carleton University**
**Manmohan D. Chaubey, Bucknell University**
**John E. Spillan, University of North Carolina at Pembroke**

## ABSTRACT

*This paper presents the results of lifestyle and ethnocentrism analysis, which has been used to understand the market segmentation in the Chilean consumer market. A sample of 602 consumers from Chile, a Latin American country with a very dynamic economy, is studied. Descriptive and inferential statistics are used to analyze the data that was collected in three cities. Using the VALS theoretical framework, the data is analyzed to determine the specific lifestyles and market segments that exist in Chile. An exploratory research design is used to understand the issues relating to how lifestyles, VALS and ethnocentrism have an impact on market segmentation. The degree of ethnocentrism varies with respondents demographics. Factor analysis of the data indicates that nine major lifestyles exist among the consumers in our data set. Further analysis indicates that six major clusters are present that can be used to study the market segments associated with these consumer types.*

## INTRODUCTION

Selecting a marketing strategy wisely requires an accurate understanding of consumer behavior and market segments. Those living in Latin America, benefits from a dynamic consumer economy. Because this region of the world has young populations and large households, the promise of future economic growth is great. However, the fabric of the culture and the buying patterns of its members are in constant change. As a consumer group, the family or household resembles any other group with problems to solve and decisions to make (Lindquist and Sirgy 2003). The globalization of markets in Latin America over the last two decades has forced marketers to analyze consumer behavior from a variety of different perspectives. Since there is a demand for consumer products in virtually all countries of the world, planning a global or an international marketing strategy requires a firm to consider how local customers and their attitudes will affect consumer behavior.

In different cultures and under various conditions, products are used in different ways to meet differing buyer needs. Thus, international marketers must analyze these differences and decide the merits of standardizing or adapting their products for foreign markets. Adapting products is costly but adjustments may need to be made because the product is used to meet different buyer needs or because specific attributes of a product have no value or meaning in foreign markets. When a firm has limited resources or limited goals for foreign sales, it may choose to standardize its products even if demand for them will be limited. Conversely, a firm may be forced to adapt products to meet demands, relations or conditions of use to achieve successful foreign market penetration (Engel, Blackwell and Kollat 1978, p. 325).

Analysis also indicates that consumers have a specific learning style that uses systematic and careful market search, observation, and knowledge. The learning styles of novelty and fashion-conscious consumers are similar to those who are perfectionists, with the exception that the novelty-conscious consumer is likely to be a passive learner (Sproles 1990). Characteristics of decision-making techniques can be useful in profiling an individual consumer style while targeting a select consumer group for marketing plan development.

The significance of knowing consumer behavior characteristics is not limited to the United States. International marketers share an equal interest in learning about the structure of consumer behavior that exists in the various countries of the world.

This paper reports the results of an analysis of lifestyles, market segmentation and their relationship to ethnocentrism. The study investigated a large sample of consumers from Chile, in South America. The first two sections of this paper provide an overview of the consumer behavior, lifestyles, ethnocentrism issues that comprise the research questions. Additional information is presented about the major geographic and demographic dimensions of the Republic of Chile. The next three sections set forth the literature review, the research questions and the methodology. The final sections provide a review of the findings, a discussion of the findings, conclusions and limitations of the study.

## PROFILE OF CHILE

Chile with a population of 17.2 million is located in the southern cone of South America bordering the South Atlantic Ocean and the South Pacific Ocean between Argentina and Peru (EIU, 2010). It has 2,500 miles of coastline with world-class costal facilities readily available for overseas commerce activity (Sharma, 2000). Chile hopes to benefit, particularly in the area of public policy scrutiny, from its entry into the Organisation for Economic Cooperation and Development (OECD) in 2009. The formal invitation to join the OECD received by Chile made it only the second Latin American country to become a member of this club, after Mexico. Chile continues to widen its already extensive network of free-trade agreements (FTAs). Its accession to OECD further raised its international profile. Chile's economy started to recover from the 2007-2008 recession in mid-2009 and its GDP is expected to growth at 4.2% in 2010 and 4.6% in 2011, led by strengthening investment and supported by the global recovery (EIU, 2010)

Chile has become Latin America's showcase to the world. It has surmounted great economic, political and social obstacles causing it to be recognized as a global center and a first choice for investors seeking to expand in Latin America. For instance, Telefonica, the telecommunication company from Spain, choose Chile as the first country in Latin America when it decided to invest in the region. Chile's transition in 1990 to a democracy has provided the political infrastructure for installing a free market economy. It is one of the world's most competitive countries with regard to the cost of doing business. Moreover, the appealing business environment in Chile is a consequence of a policy that focuses on maintaining sound macroeconomic fundamentals and strong incentives that encourages competition and international integration (www.cia.gov, the-world-fact book, 2009). Chile has implemented effective economic fundamentals with the implementation of clear, transparent rules, created a dynamic and innovative private sector, developed a productive labor force and an independent and accountable judiciary. These actions, along with lower tariffs, have given Chile a comparative advantage, increased foreign trade and rapidly integrated it into the world markets (www.cia.gov, 2009). Additionally, other key success factors such as, its ultra-modern telecommunication systems, internationally competitive banking sector, improved infrastructure and high quality services enables Chile to compete globally (www.cia.gov, 2009).

Chile's greatest achievement, probably, is its continuity in developing and maintaining policies and strategies for creating a vigorous business environment. Pressing forward consistently and deliberately has allowed Chile to create its impressive competitiveness and enduring economic stability (O'Brien, 2002). The result of this persistence has produced a Chilean business sector, which is predominately owned and controlled by private interests (Sharma, 2002). As such, Chile offers good markets for U.S. telecommunication, computers, construction, mining and financial services. Because of the strong economic foundation, those enterprises that seek to compete in Chile will encounter intense competition from domestic, European and Asian business entities (Sharma, 2002).

During the 1990s, Chile strengthened its trade liberalization policy. Chile has been outstanding in signing free trade agreements and other types of economic complementary treaties in order to contribute to its economic dynamism. For instance, Chile has signed seven bilateral free trade agreements with Canada, South Korea, China, USA, Mexico, Colombia and Peru; and two multilateral free trade agreements with Central America (Costa Rica, El Salvador, Guatemala, Honduras, Nicaragua, and Panama) and EFTA (Iceland, Liechtenstein, Norway and Switzerland). Chile has also signed and implemented a number of association and complementation agreements with other countries and/or regions. The overall effect of such dynamic international relationships is a significant increase of Chilean foreign trade. Chile exports were valued at $6,550 million in November of 2010. Chile's economy is greatly dependent on international trade. Exports explain about 42% of its GDP. Historically, Chile has been very dependent on copper exports. Chile's largest exports markets are the European Union, United States, Japan, China and South Korea (Trading Economics, 2010). Chilean consumers are increasingly exposed to foreign product and services, which aligned with the per capita available income, offer an interesting scenario to be observed from the consumer behavior point-of-view.

## LIFESTYLES AND VALUES

The concept of 'lifestyle' has been successfully used in the field of marketing communication to influence consumption patterns. It has become the foundation for a separate category of segmentation research called 'psychographics', which typically uses extemporaneous AIO (Activities, Interests and Opinions) surveys utilizing cluster analysis**,** and which can direct the marketer toward useful lifestyle typologies. Lifestyle and psychographic analyses address the manner in which consumers articulate themselves in social and cultural environments. Friends, community and significant others influence consumers' lifestyles and value systems. They are also shaped by the generation to which the individual belongs, for instance, Gen X or Gen Y

(DuPreez et al., 2007). Moreover, in order to gauge better target market needs, marketers study the way consumers live and spend their money, as well as how they make purchase decisions (Du Preez et al., 2007).

Values are central to people's lives (Rokeach, 1973). Many behavioral actions are executed to achieve certain values. For example, a person regularly participates in the liturgy of his/her church to fulfill the values of their religion. Values influence attitude formation and the way in which people view ideas, products and services. Values provide clues about how society operates, because values are central to society. If one wants to understand another culture, or the purchasing habits of a segment of the population, then starting with an understanding of their values will be very helpful (Becker and Conner, 1981; Kahle 1985, McQuarrie and Langmeyer 1985). One approach to understanding the global marketplace is to investigate the values and lifestyles of people of different cultures. Researchers can examine the relation of values to consumption specific products within different countries or within different geographic areas of countries (Beatty, Homer and Kahle, 1988).

Understanding consumer behavior and the factors affecting their buying patterns is important and critical in meeting the needs of the customer. These influences emerge both from within and from sources external the consumer. Internal influencers consist of personal thoughts and feelings, including perception, self-concepts, lifestyle, motivation, emotion, attitudes, and intentions. They can be labeled as the *psychological influences.* These influences articulate the conduct of consumers' interactions with the world around them. Consumers can identify their feelings which allows them to gather and analyze information and using that information to formulate ideas and opinions which in turn lead them to action focused on buying a particular good or service. Understanding consumer internal influences will assist the marketer in comprehending the why and how of specific consumer behaviors. (www.media.wiley, 2009).

Consumer lifestyles and values (VALS) constructs are an integral part of the internal influence approach to understanding the consumer. The most widely used approach to lifestyle measurements are the Activities, Interests, and Opinions (AIO) rating statements (Wells and Tigert, 1977). The focus of marketers and consumer researchers has generally been on identifying the broad trends that influence how consumers live, work, and play. It allows a population to be viewed as consisting of distinct individuals with feeling and tendencies, arranged in compatible groups (segments) and to make more efficient use of mass media. In general, researchers tend to equate psychographics with the study of lifestyles. Market researchers use psychographic research to describe a consumer segment which helps an organization to better understand and reach its customers. Hence, lifestyle patterns provide broader, a multidimensional views of consumers. The basic premise of lifestyle research is that the more marketers know about and understand their customers, the more effectively they can communicate with and serve them (Kaynak and Kara, 1996b).

The concept of lifestyle relates to the economic level at which people live, how they spend their money, and how they allocate their time (Anderson and Golden, 1984). Lifestyle segmentation research measures people's activities in terms of the following: how they spend their time; what interests they have and what importance they place on their immediate surroundings; their views of themselves and the world around them; and some basic demographic characteristics.

## ETHNOCENTRISM

External influences that affect consumers' buying patterns include an individual's culture, subculture, household structure, and group memberships. These factors are *external influences* because the source of the influence comes from outside the person. Culture is the set of basic values, perceptions, wants and behaviors learned by a member of society from family and other social institutions. Culture is the most basic cause of a person's wants and behavior. Cultural influences on buying behavior may vary greatly from country to country, or even from one neighborhood to another (www.media.wiley, 2009). Culture also influences a person's attitude and behavior regarding the purchase of goods and services from a foreign country. The concept of ethnocentrism, which is one of the external factors, was first developed by Sumner (1906), in which it differentiates between "in-groups" with whom a person indentifies and an "out-group" which is considered directly opposed to the "in-group." Later, Booth (1979) described it as the tendency to view your own group as the center of the universe, to interpret other groups from the perspective of your own group, therefore, rejecting those that are culturally different from yourself, and blindly accepting those that are culturally similar. The concept of ethnocentrism was created primarily to anticipate and explain consumer's use of country of origin information. According to Hogg & Turner (1987), Ray & Lovejoy (1986), and Luthy (2007), the in-group perspective has value for people who view it as important to cognitive decision-making.

Consumer ethnocentrism is the inclination of some consumers to feel that it is wrong, and in some cases even immoral, to buy foreign made products. Some believe that it is unpatriotic and against their nationalistic sentiments as to patronize or buy imports (Shimp & Sharma, 1987; Onkvisit and Shaw 1997). Reasons for such tendencies range from beliefs about product quality of imported goods to a patriotic bias (Bilkey & Nes, 1982; Luthy, 2007). Accurate understanding of the influence of consumer ethnocentricity in product evaluations can be useful to marketers of both domestic and foreign products.

Consumer with low levels of ethnocentrism, products need to be evaluated on their own merits without consideration of the product's country of origin. Consumers with high levels of ethnocentrism are inclined to emphasize positive aspects of domestic products and to disparage foreign made items (Shimp and Sharma, 1987). However, according to Samiee et al. (2005), consumers cannot accurately match a brand to its appropriate country of origin the majority of the time (BORA or Brand Origin Recognition Accuracy). Research shows that consumers with high levels of ethnocentrism are likely to be female, older and come from low socio-economic groups with low levels of cultural exposure (Shimp and Sharma 1987; Han 1988; Nijssen, Douglas & Bressers 1999). Cosmopolitanism has been found as an opposite of ethnocentrism (Vida & Reardon, 2008). Therefore, it seems logical that the more cosmopolitan an individual is the less ethnocentric. This study uses cosmopolitanism as a proxy for openness. Vida and Reardon (2008) also find that patriotism is an antecedent to openness.

Lantz and Loeb (1996) discovered that consumers with high levels of ethnocentrism have more positive attitude towards products from culturally similar countries. Booth (1979) speaks about how nations see other nations as threats to their own vulnerabilities. The reason behind this could be the role of threat in culture exposure (Shimp & Sharma, 1987). Research on the effect of gender on culture exposure has mixed findings. Nielssen & Spence (1997), Watson & Wright (2000) found that females are more likely to have high culture exposure. However, no significant differences were found between genders by Hult et al. (1999) in Japan and Russia, and by Saffu & Walker (2006) in Canada and Russia. These findings may be used to conclude that the gender hypothesis is not supported.

Shimp and Sharma (1987) showed how regions such as Detroit showed higher levels of culture exposure due to the threat of losing their jobs because of the faltering American auto-industry. Sharma et al. (1995) further showed that the threat of foreign sales harming the domestic economy exacerbates the culture exposure effect. Therefore, similar countries could be viewed as less threatening to a consumer's homeland.

## CONCEPTUAL FRAMEWORK

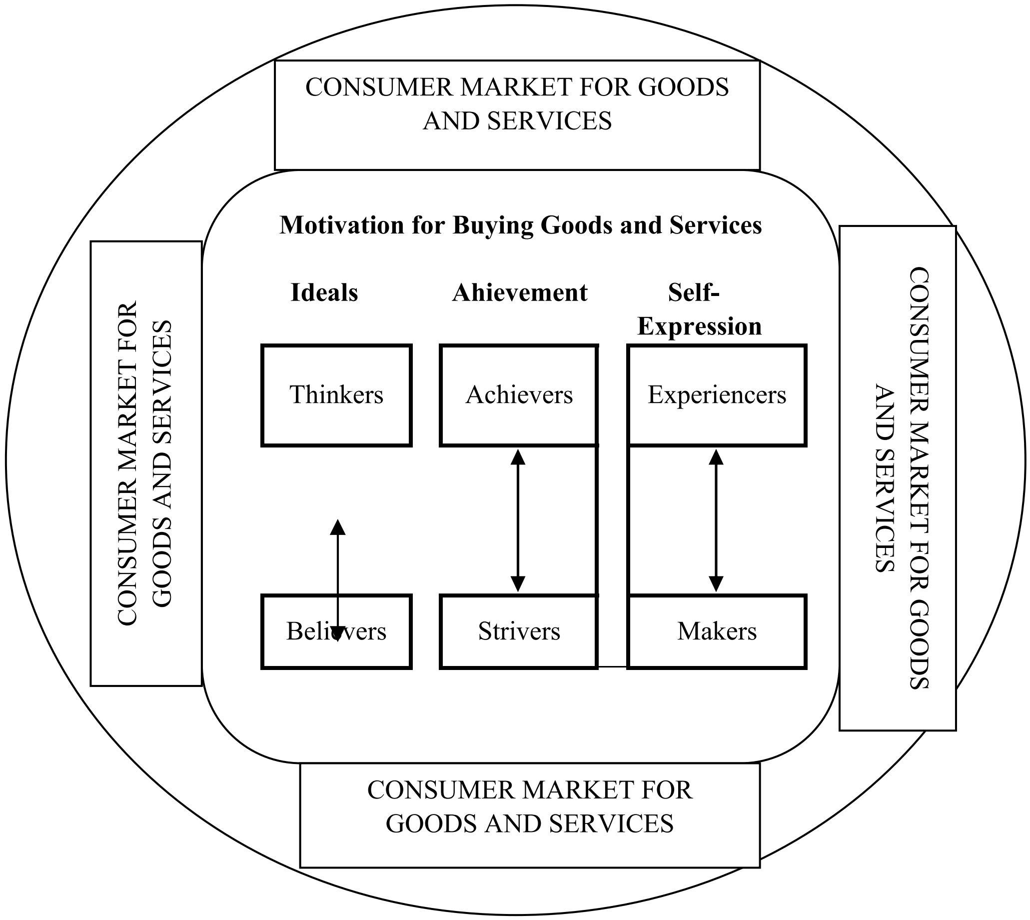
A majority of lifestyle studies have been carried out in the western countries. Lifestyle information in Chile is surely lacking. This study uses lifestyle analysis, along with other research techniques, to identify consumer market segments sharing similar patterns of social beliefs and behaviors among Chilean consumers. Once these market segments are identified, appropriate marketing strategies and policies can be developed to reach them.

Figure 1 presents the components that comprise the lifestyle and consumption process. Understanding this graphic representation of the consumption dynamics provides the marketer with information that will help direct the marketing efforts towards meeting the needs of consumers. Lifestyles have a major impact on the purchase and consumption behavior of consumers. Marketers can use lifestyle analysis with respect to specific areas of consumers' lives such as fashion or outdoor activities. Lifestyle analysis can help marketers understand the relationship between people's lifestyles and the products and services they sell (Hawkins, et al, 2004). Figure 1 summarizes the relationship of the major components of the lifestyles/VALS concept.

## RESEARCH QUESTIONS AND HYPOTHESES

Based on the review of the previous research on consumer lifestyles and ethnocentrism the following research questions were developed. Do consumer lifestyles affect the ethnocentric tendencies among male and female consumers? What group of people seems to present the most predilections toward ethnocentrism? Are Chilean consumers' lifestyles and ethnocentric tendencies significantly different from consumers in other parts of the world?

**FIGURE 1: Lifestyle and Consumption Process**




(Adapted from Peter and Olson, Consumer Behavior, 2005)

The research reported in this manuscript uses previously developed scales to ascertain the consumer lifestyles and ethnocentric tendencies of Chilean consumers. It utilizes a fifty-six item list of Activities, Interest and Opinions (AIO) statements obtained from marketing literature to identify lifestyles of Chilean consumers (Wells 1975; Wells and Tigert 1977; Mitchell 1983; Anderson and Golden 1984). The authors believe that the 56 AIO questions in the lifestyle section of the survey provide a very realistic and accurate measure of consumer lifestyle characteristics. Similarly, the 17 ethnocentric questions are almost identical to those used by Shimp and Sharma (1987). Based on the literature regarding consumer lifestyles and ethnocentrism we developed the following hypotheses:

*H1: Male respondents are more ethnocentric than female respondents.*

*H2: Respondents with higher levels of education are less ethnocentric than those with lower level of education*

*H3: Professional employees are more ethnocentric than non-professional employees.*

*H4: There is a positive relationship between Chilean consumers' lifestyles and Chilean consumers' ethnocentrism*

## METHODOLOGY

The data for this study was collected from residents in the cities of Chillán, Talca and Santiago (capital city) in central Chile. The data for the study was collected through self-administered questionnaires using a drop-off/pick-up method. Respondents were randomly contacted by telephone at their workplace and their home and asked if they wanted to participate to this cross-cultural study. For those who agreed to participate, a questionnaire was sent to their address and asked to complete the questionnaire at their most convenient time. Arrangements were then made to pick up the completed questionnaires at a specified time, generally one week later. The questionnaire for the study was developed in the English language first then translated into Spanish by a bilingual associate. Back translation was also done to check any inconsistency as well as possible translation errors. Before the survey administration, pre-test of the questionnaire with a small group of respondents was conducted, and the results were satisfactory. The questionnaire consisted of four sections. In the first section, fifty-six Activities, Interest and Opinions (AIO) statements obtained from marketing literature were used to identify lifestyles of Chilean consumers (Wells 1975; Wells and Tigert 1977; Mitchell 1983; Anderson and Golden 1984). A seven-point Likert scale was used, "1" being "strongly disagree" and "7" being "strongly agree." The second section of the questionnaire contained questions regarding the importance the respondent place on different product attributes. The third section of the questionnaire consisted of questions about ethnocentrism. Consumer ethnocentrism was measured by the popular CETSCALE developed by Shimp and Sharma (1987). The CETSCALE was developed using American consumers. However, it has been validated and used in many countries around the world including Israel (Shoham & Brencic, 2003), Russia (Durvasula et al., 1997), Spain (Luque-Martinez et al., 2000), and Guatamala (Spillan et al., 2007) The last section of the questionnaire included demographic and socio-economic questions, which are used to interpret the responses on other questions.

## DATA ANALYSIS AND RESULTS

The analysis of the data and extraction of our findings consisted of several steps. The first step tabulated the demographic profiles of the consumers surveyed in this study. The sample consisted of 602 respondents. The sample included more females than male (59.8 against 40.03 percent). Over 90 percent of the respondents belonged to the 18 to 61 age group. The number of respondents in the 18-28, 29-39 and 40-50 approximately uniform in the mid to upper twenty-percentage range. The largest cohort in the marital status category was the Married respondents

(42.9 percent). The next largest cohort in the same category was the Single category (32.2 percent). Each of the other marital status categories had less than 10 percent of the respondents. Table 1 summarizes the demographic composition of the respondents.

**Ethnocentrism**

To measure consumer ethnocentrism the 17-item CETSCALE developed by Shimp and Sharma (1987) was used. Table 2 shows the result of the reliability analysis of these 17 items. Overall, the Cronbach Alpha coefficient of 0.95 can be considered a very high reliability coefficient. Based on this, it can be assumed that all 17 items used are measuring the same construct (ethnocentrism).

**Table 1: Sample Demographics**

| **Gender** | **Number in Sample** | **Percentage** |
|---|---|---|
| Male | 241 | 39.6 |
| Female | 360 | 59.2 |
| Missing values | 1 | 1.2 |
| Total | 602 | 100% |
| **Age Category** | **Number in Sample** | **Percentage** |
| 18-28 | 170 | 28.2 |
| 29-39 | 150 | 24.9 |
| 40-50 | 160 | 26.6 |
| 51-61 | 68 | 11.3 |
| 62-72 | 31 | 5.2 |
| 73 and beyond | 15 | 2.5 |
| Missing values | 8 | 1.3 |
| Total | 602 | 100% |
| **Marital Status Category** | **Number in Sample** | **Percentage** |
| Married | 261 | 42.9 |
| Partnership | 46 | 7.6 |
| Single | 196 | 32.2 |
| Divorced | 12 | 2.0 |
| Separated | 46 | 7.6 |
| Widowed | 33 | 5.4 |
| Other | 8 | 1.3 |
| Total | 602 | 100% |

The responses on ethnocentrism indicate that Chileans strongly believe that buying Chilean products helps domestic employment (Items 6 and 11). They are aware of the advantages of foreign trade but they have strong preference for domestic products over imports and are willing to pay more for it (Item number 13). Chileans show strong feelings favoring domestically production and fear that imports can hurt jobs in the country (Item 17). The overall mean for ethnocentrism achieves a score of 3.75, and there are not significant differences between males and females in their degree of ethnocentrism.

## Values and Life Styles

In order to understand the VALS of the Chilean consumers and discern their lifestyle characteristics, the 56 AIO (Activity, Interest, Opinions) statements were factor analyzed using Varimax rotation. The analysis produced nine factors, which explain 51.9 percent of the total variance. Only those factors with an eigenvalue greater than 1.00 were retained (See Table 3). Table 3 includes only those AIO statements that have a factor loading of greater than 0.4 on their respective factors. Items loading in more than one factor and those scoring lower than 0.4 were deleted for further analysis.

**Table 2: Ethnocentrism Measured on 17-Item CETSCALE[a]**

| Item No. | Item[1] | Reliability[2] | Mean Score |
|---|---|---|---|
| 1 | Chilean people should always buy products made in Chile instead of imports | .950 | 4.34 |
| 2 | Only those products that are unavailable in Chile should be imported | .949 | 4.30 |
| 3 | Buy Chile made products and keep Chileans working | .953 | 5.41 |
| 4 | Chilean products, first, last, and foremost | .948 | 4.40 |
| 5 | Purchasing foreign-make products is un-Chilean | .949 | 3.10 |
| 6 | It is not right to purchase foreign products, because it puts Chileans out of jobs | .947 | 3.92 |
| 7 | A real Chilean should always buy Chilean made products | .946 | 3.14 |
| 8 | We should purchase products manufactured in Chile instead of letting other countries get rich on us | .947 | 4.11 |
| 9 | It is always best to purchase Chilean products | .948 | 4.26 |
| 10 | There should be very little trading or purchasing of goods from other countries unless of necessity | .947 | 3.69 |
| 11 | Chileans' should not buy foreign products because this hurts business and causes unemployment | .947 | 3.51 |
| 12 | Curbs should be put on all imports | .949 | 4.19 |
| 13 | It may cost me in the long-run but I prefer to support Chilean products | .948 | 4.38 |
| 14 | Foreigners should not be allowed to put their products on our markets | .948 | 3.25 |
| 15 | Foreign products should be taxed heavily to reduce their entry into Chile | .949 | 3.81 |
| 16 | We should buy from foreign countries only those products that we cannot obtain within our own country. | .947 | 4.02 |
| 17 | Consumers who purchase products made in other countries are responsible for putting their fellow Chilean out of work. | .947 | 3.39 |

[1] Response format is 7-point Likert-type scale (strongly agree = 7, strongly disagree = 1)
[2] Calculated using Cronbach Alpha (Alpha if item deleted). Overall Alpha 0.95.

Factor-1, which we named *FAMILY ORIENTED*, explains 8.49 percent of total variance. The AIO statements that loaded on this factor indicate the nurturing mature of the Chilean consumers. They deeply care for their children. This is the factor that receives the highest score among the respondents. Factor-2, which we labeled *BUYER INFLUENCER*, explains 6.02 percent of total variance. The AIO statements here indicate strong influence in other's purchasing decisions.

| Table 3: Factor Analysis-Rotated Component Matrix | | |
|---|---|---|
| **Factor Name** | **Loading** | **% Variance** |
| **Factor-1: Family Oriented** | | **7.79** |
| I try to arrange my home for my children's convenience | 0.92 | |
| My children are the most important things in my life | 0.92 | |
| I take a lot of time and effort to teach my children good habits | 0.90 | |
| When my children are ill in bed, I drop most everything Else in order to see to their comfort | 0.84 | |
| I don't like to see children's toys lying around | 0.82 | |
| **Factor-2: Buyer Influencer** | | **6.02** |
| People come to me for buying advice | 0.77 | |
| I like talking about products/brands | 0.63 | |
| I have influence over what friends buy | 0.58 | |
| **Factor-3: Fashion Minded** | | **5.94** |
| I usually have one or more outfits that are of the very latest style | .706 | |
| I often try the latest hairdo styles when they change | .652 | |
| When I must choose between two, I usually dress for fashion not for comfort | .638 | |
| An important part of my life and activities is dressing smartly | .573 | |
| **Factor-4: Community Oriented** | | **5.72** |
| I am an active member of more than one service organization | .726 | |
| I do volunteer work for a hospital or service organization on a fairly regular basis | .714 | |
| I like to work on community projects. | .609 | |
| **Factor-5: Independent Leader** | | **5.55** |
| I think I have a lot of personal ability | .679 | |
| I am more independent than most people | .644 | |
| I think I have more self-confidence than most people | .601 | |
| I like to be considered a leader | .591 | |
| My friends or neighbors often come to me for advice | .584 | |
| **Factor-6: Economic Minded** | | **5.31** |
| I usually watch the advertisements for announcements of sales | .698 | |
| I find myself checking the prices in the grocery store even for small items | .672 | |
| A person can save a lot of money shopping around for bargains | .611 | |
| **Factor-7: Home Maker** | | **5.26** |
| Cleaning is an unpleasant task | 0.89 | |
| I do not like household chores | 0.57 | |
| **Factor-8: Health Minded** | | **5.26** |
| I buy more low calorie food than the average housewife | .652 | |
| I have used diet foods at least one meal a day | .615 | |
| I usually take low calorie soft drinks | .590 | |
| **Factor-9: Sports Oriented** | | **4,38** |
| I watch or participate in sports events regularly | 0.74 | |
| I watch or listen to soccer | 0.59 | |
| I choose sports events over dancing | 0.47 | |

Factor-3 was named *FASHION MINDED* and it captures 5.94 percent of the total variance. This may require conversations with others to stay in touch with latest fashion trends. Chilean consumer is aware of his/her body and looks. They dress fashionably. Factor-4 indicates the inclination to be *COMMUNITY ORIENTED*, explains 5.72 percent of the total variance. Items in this factor represent the respondents' willingness to give their time to community and service organizations. We named Factor-5 as *INDEPENDENT LEADER* and it represents 5.55

percent of the total variance. The AIO statements here indicate strong individualism and self-confidence among the respondents

Factor-6 indicates the degree to which Chilean consumers are *ECONOMIC MINDED*, explains 5.31 percent of the total variance. Factor-7, somewhat related to the previous one, we named *HOME-MAKER* and it explains 5.26 percent of the total variance. Factor-8 comprises the items that reveal how *HEALTH MINDED* are the respondents. It explains 5.26 percent of the total variance. The last factor, Factor-9 was named *SPORT-ORIENTED*. It explains 4.38 percent of the total variance.

The result of the factor analysis indicates that on average the Chilean consumers' life style has shifted from a traditional collectivistic society to one more focused on the self. This is evident when looking at the mean scores of the nine dimensions emerging from the factor analysis. On one end, the highest mean score was achieved by the *Family Oriented* factor (mean score=4.10), implying that they deeply care for their children and place great importance on their family. However, the second highest score was for and the *Independent Leader* factor (mean score=3.73) which shows that they are self-confident and willing to offer their opinions. On the other end, the lowest score was achieved by the *Community Oriented* factor (mean=2.28). It seems the respondents like to buy things on sale and therefore they can be classified as *Economic Minded* (mean=3.50). The Chilean consumer also is a bargain seeker and actively looks for cost savings in his/her purchases.

Additionally, respondents tend to reflect a moderate level of care for what they eat (*Health-Minded* factor has a mean=2.98) and for sport related activities (*Sport-Oriented* factor has a mean=2.76). Chilean respondents show a rather lower level of being Fashion-Minded (Mean=2.59), and they quite enjoy spending time doing chores around house (*Home-Maker* mean score=2.54).

## EXPLORING MARKET SEGMENTS

Developing market segments is a major reason for doing lifestyle analysis. To accomplish this task, the approach proposed by Mitchell (1994) was followed. Therefore, using the results of the AIO factor analysis, a combination of cluster analysis and discriminant analysis was employed. The AIO nine factors identified in the lifestyle analysis were further used to breakdown the respondents into clusters. Euclidean distance measure and K-mean Clustering was used to determine the best solution. Investigation of the different clustering partitions revealed that six clusters solution was the best grouping of respondents into meaningful life style segments (see Table 4). The solution resulted in the assignment of 558 respondents to the six segments. Forty-four respondents could not be assigned to any of the segments due to missing data. To better describe the clusters (segments) several cross tabs were performed with demographic variables (gender, age, marital status, occupation and education level). As a final step, the six segments were used as categorical dependent variables and the nine AIO factors were used as independent metric variables for multiple discriminant analysis with step-wise method. The results yield five discriminant functions using the nine AIO factors, and they can predict 96.4% of the cases correctly. The five canonical discriminant functions explain 100% of the common variance in the dependent variable. In addition, all the five functions were statistically significant thus revealing that the means of the functions differed across the six segments. Based on the results presented in Table 5, the six segments of the Chilean respondents are described as follows:

| Table 4: Discriminant Analysis Segment Classification | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Group/Clusters Number of Cases | | | Predicted Group Membership | | | | | | Total |
| | | | 1 | 2 | 3 | 4 | 5 | 6 | |
| Count | Dimension | 1 | 100 | 1 | 0 | 1 | 0 | 1 | 103 |
| | | 2 | 0 | 53 | 0 | 0 | 0 | 1 | 54 |
| | | 3 | 0 | 1 | 84 | 0 | 0 | 1 | 86 |
| | | 4 | 0 | 1 | 1 | 96 | 1 | 0 | 99 |
| | | 5 | 0 | 0 | 0 | 0 | 114 | 0 | 114 |
| | | 6 | 3 | 3 | 4 | 1 | 0 | 91 | 102 |
| % | Dimension | 1 | 97.1 | 1.0 | .0 | 1.0 | .0 | 1.0 | 100.0 |
| | | 2 | .0 | 98.1 | .0 | .0 | .0 | 1.9 | 100.0 |
| | | 3 | .0 | 1.2 | 97.7 | .0 | .0 | 1.2 | 100.0 |
| | | 4 | .0 | 1.0 | 1.0 | 97.0 | 1.0 | .0 | 100.0 |
| | | 5 | .0 | .0 | .0 | .0 | 100.0 | .0 | 100.0 |
| | | 6 | 2.9 | 2.9 | 3.9 | 1.0 | .0 | 89.2 | 100.0 |
| Segment 1: The Achievers | | | Segment 2: The Experiencers | | Segment 3: The Believers | | | | |
| Segment 4: The Makers | | | Segment 5: The Fulfilled | | Segment 5: The Actualizers | | | | |

Segment-1 is nicknamed as *ACHIEVERS*. This segment includes 18.5 % of the respondents. This is the segment that relative to the other segments gathers the highest percentage of males (60%). Its members are quite young (mean age=39), and are the most family and sport oriented of all the segments. They consider themselves as diet minded and important buyer influencer on others. However, on the negative side, they are very low committed with community work. Compared to the other groups they score low on ethnocentrism, and more than half of them have received at least some University education. As consumers they place importance on style and advertising.

Segment-2 is labeled as *EXPERIENCERS*. The members of this segment comprise 9.7% of the sample, which is smaller relatively to the other segments, and therefore it may be useful to a niche marketer. This segment is the youngest (mean age=34), highly educated and comprises the biggest number of single individuals (56%). As it might be expected, this group is definitively not family oriented, and prefers outdoor activities. Individuals in this segment score low in ethnocentrism. They tend to be very practical as consumers since they emphasize performance and quality.

Segment-3 is nicknamed as *BELIEVERS*. This segment includes 15.4% of the respondents. Its members have the highest scores on family-oriented, independent-leader and community-oriented factors. They are the oldest among all segments (mean age=44) and the ones scoring highest in ethnocentrism. This segment comprises the highest percentage of married individuals (57%) and the lowest of single ones (20%). As consumers they pay a lot of attention to product quality.

**Table 5: Final Cluster Centers**

| | Segment | | | | | | Overall Mean Score |
|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 | |
| Family Oriented | ***4.62*** | 2.22 | ***4.61*** | ***4.44*** | ***4.54*** | 3.67 | 4.16 |
| Buyer Influencer | ***2.76*** | ***2.64*** | ***2.60*** | 2.04 | 2.13 | ***3.23*** | 2.55 |
| Fashion Minded | ***2.82*** | 2.33 | 2.41 | 2.24 | 2.65 | ***3.64*** | 2.72 |
| Self-Confident | ***3.88*** | 3.40 | ***4.01*** | ***3.77*** | ***3.81*** | 3.37 | 3.73 |
| Community Oriented | 1.72 | 1.98 | ***3.70*** | 1.64 | 1.93 | ***3.29*** | 2.36 |
| Price Conscious | ***3.45*** | 2.96 | ***3.60*** | 2.67 | ***3.89*** | ***3.57*** | 3.38 |
| Dieter | ***3.29*** | 2.94 | 2.73 | 1.70 | ***3.37*** | ***3.72*** | 2.98 |
| Housekeeping Dislike | ***2.74*** | ***2.70*** | 2.29 | 2.30 | 2.09 | ***3.15*** | 2.54 |
| Sport Oriented | ***3.50*** | 2.54 | ***3.01*** | 2.46 | 1.87 | ***3.22*** | 2.76 |
| Ethnocentrism | 3.59 | 3.49 | ***4.16*** | 3.62 | ***3.78*** | ***4.14*** | 3.75 |
| Age (years) | 39 | 34 | 44 | 37 | 40 | 41 | |
| Gender (%) | | | | | | | |
| Male | ***60.2*** | ***46.3*** | ***41.9*** | 37.4 | 18.4 | ***42.2*** | 40.0 |
| Female | 39.8 | 53.7 | 58.1 | ***62.6*** | ***81.6*** | 57.8 | 60.0 |
| Marital Status (%) | | | | | | | |
| Married | ***49.5*** | 22.2 | ***57.0*** | 42.4 | ***54.4*** | 38.2 | 43.4 |
| Living w/partner | ***15.5*** | 5.6 | 3.5 | ***8.1*** | 6.1 | 5.9 | 7.6 |
| Single | 22.3 | ***55.6*** | 19.8 | ***33.3*** | 27.2 | 31.4 | 32.6 |
| Occupation (%) | | | | | | | |
| Occasional worker | ***6.8*** | 3.7 | 3.5 | 5.1 | ***7.9*** | ***8.8*** | 6.1 |
| Non-qualified worker | ***6.8*** | 3.7 | ***8.1*** | ***10.1*** | ***8.8*** | 2.9 | 6.5 |
| Qualified worker | ***5.8*** | 1.9 | ***4.7*** | 3.0 | ***7.0*** | 3.9 | 4.3 |
| Clerk, sales | ***25.2*** | ***22.2*** | ***22.1*** | ***23.2*** | ***21.1*** | 13.7 | 20.9 |
| Professional, mid-level | 22.3 | 18.5 | ***23.3*** | ***27.3*** | 18.4 | ***23.5*** | 22.4 |
| Senior executive | 3.9 | ***13.0*** | 5.8 | 1.0 | 2.6 | ***15.7*** | 6.0 |
| Other | 29.1 | 37.0 | 32.6 | 30.3 | 34.2 | 31.4 | 33.7 |
| Education (%) | | | | | | | |
| Elementary or less | 2.9 | 0 | ***7.0*** | 1.0 | ***7.0*** | ***6.9*** | 4.3 |
| Secondary | 31.1 | 24.0 | ***36.0*** | 30.4 | ***37.7*** | 31.3 | 34.4 |
| University incomplete | ***30.1*** | ***37.0*** | 19.8 | 25.3 | ***27.2*** | 20.6 | 25.7 |
| University Degree | ***24.3*** | ***27.8*** | ***24.4*** | 16.2 | 20.2 | ***23.5*** | 22.6 |
| Postgraduate | 6.8 | 5.6 | ***10.5*** | ***9.1*** | 5.3 | ***12.7*** | 8.1 |
| Other | 4.9 | 5.6 | 2.3 | 8.1 | 2.6 | 4.9 | 4.8 |

Segment-4 is labeled *MAKERS*. This segment gathers 17.7% of the respondents. They seem to center all their activities on their children and family. They score very low in all the other AIO factors. They are moderate in ethnocentrism. In term of demographics, they are young (mean age=37), mostly females (63%) and usually occupy mid-level position or less in their workplaces. As consumers they focus on quality and manufacturing.

Segment-5 is nicknamed as *FULFILLED*. It comprises 20.4% of the respondents. They resemble very well a person that is family oriented who is economic and diet minded, but who does not spent time in outdoor and/or sport activities. This segment groups the highest percentage of females (82%), mostly married (54%) and mid-aged (mean age=40). Their level of ethnocentrism is moderated. Although one quarter of them has completed university studies, they occupy mid-level positions or lower in their workplaces. As consumers, they tend to be value seekers since they look for a good combination of price and quality.

Finally, segment 6 is labeled *ACTUALIZERS.* This segment represents 18.3% of the respondents. Individuals in this segment achieve the highest scores in buyer influencer, fashion oriented, and health and sport oriented. They are mid-working-aged (mean age=41) and very ethnocentric. In regards to education and occupation, they are better off than the other segments. They show a similar number of married and single individuals. Relative to the other segments, when buying products they place more emphasis on style, prestige of the brand, and advertising.

## ETHNOCENTRISM AND DEMOGRAPHICS

Next, we analyzed the data to explore the interdependence of relationship between the level of ethnocentrism (Low or High) and the demographic variables of age, occupation and educational level. For this purpose we cross tabulated the appropriate variables and calculated the Chi-square statistic as the confirming test value for determining the interdependence of two variables. We hypothesized that ethnocentrism is dependent on the age, occupation and education of the respondents. The Chi-square statistics were calculated for each pair if cross-tabulations to reject or not reject these hypotheses. With regard to the gender of the respondents, we have earlier stated that there is no significant relationship between gender and ethnocentrism. We divided the respondents into three categories of age-those between the age of 18 and 40, between 41 and 65 and those above 65. The respondents were divided into three occupational categories—unskilled, Administrative and Professional. Similarly, the respondents were divided into three education level categories—Basic School, Technical School or Some College and those with University Degree and Post Graduate Studies. The respondents were then classified into the resulting 2x3 contingency tables, one for each of the demographic variable. The Chi-square analysis results are presented in Table 5. The Chi-square test statistics were significant at p=. 05 level for age and education but not for occupation (p=0.067). It shows that the level of ethnocentrism was interdependent upon respondents' age and education but is independent of the occupation.

The final analysis relates to the strength of relationship between the lifestyle factors and ethnocentrism. We calculated the Pearson correlation between Ethnocentrism and the seven-lifestyle factors identified earlier through the factor analysis. The results of the Pearson correlation analysis are presented in Table 6. The Table 6 shows that three of the seven lifestyles were positively correlated to ethnocentrism. The Factors that showed positive (statistically significant) correlation with ethnocentrism are Factor 1 (Family Oriented), Factor 3 (Homebody) and Factor 4 (Fashion Minded). The correlation between ethnocentrism and the remaining four factors were found to be not statistically significant.

| TABLE 6: Ethnocentrism by Demographics: Age, Occupation and Education | | | |
|---|---|---|---|
| **Ethnocentrism and Age** | | | |
| Level of Ethnocentrism | Age 18-40 | Age 41-65 | Age 66-80 |
| Low Ethnocentrism | 224/37.6% | 105/17.6% | 10/1.7% |
| High Ethnocentrism | 124/20.8% | 111/18.6% | 22/3.7% |
| $\chi^2$ = 22.55, df = 2, Sig = .000 | | | |
| **Ethnocentrism and Occupation** | | | |
| Level of Ethnocentrism | Unskilled | Administrative | Professional |
| Low Ethnocentrism | 50/8.3% | 66/ 11.0% | 225/37.4% |
| High Ethnocentrism | 52/8.7 | 60/10.0% | 148/24.6% |
| $\chi^2$ = 5.40, df = 2, Sig = 0.67 | | | |
| **Ethnocentrism and Education** | | | |
| Level of Ethnocentrism | Basic School | Technical & Some University | University & Postgraduate studies |
| Low Ethnocentrism | 33/5.5% | 174/29.0% | 134/22.3% |
| High Ethnocentrism | 46/7.7% | 135/22.5% | 79/13.1% |
| $\chi^2$ = 10.54, df =2, Sig = .005 | | | |

## CONCLUSIONS

The purpose of this paper is essentially twofold. First, we wanted to describe the characteristics of consumers in Chile. This analysis can be very important to marketing strategists because it can provide for them information that will help them focus their advertising and marketing efforts. The lifestyle and cluster analysis is especially helpful because it gives the marketer the information as to the lifestyles existing among Chilean consumers and the market segments that can be extracted from this analysis. Segment marketing is popular and important among marketing strategists. Because consumers change over time, lifestyles also change and this requires marketers to modify their strategies constantly. Knowing consumer lifestyles and clusters is vitally important for developing effective marketing campaigns. The second purpose of the paper was to determine whether there was a relationship or association between lifestyles and other demographic variables (such as age, occupation, education). In international marketing, we find that ethnocentrism can have a major impact on the importation and exportation of products. Knowing the relationship of ethnocentrism to other marketing variables is essential when businesses are involved in transacting business across borders. In this paper, we found that age and education are clearly associated with ethnocentrism. Thus we can state that the following:

Hypothesis-1, that male respondents are more ethnocentric than female is not supported

Hypothesis-2, that respondents with higher education are less ethnocentric than those with higher level of education is supported

Hypothesis-3, that professional employees are more ethnocentric than non-professional is supported, and

Hypothesis-4, that there is a positive relationship between Chilean consumers' lifestyle and Chilean consumer ethnocentrism is supported

## LIMITATIONS OF THE STUDY

This study has some fundamental limitations and therefore the findings must be viewed as exploratory. The first limitation is that this study specifically focused on consumer behavior in Chilean consumers. Making inferences to other Latin American markets should be done with caution. Secondly, while the dataset used in this study was sizable, it was nevertheless a convenience sample. The study provides consumer data from consumers in three major cities in central part of Chile, researchers have to be cautious of the fact that these cities may not represent the perspective of Chilean people who live in Northern Chile and Southern Chile.

More research is needed to assess these differences among various regions. This will assist the marketer to shape the marketing focus to fit the targeted segment. Because the scores on the ethnocentrism scales were not at the extreme high end, Chilean consumer appears to be open to imports. The test for the marketers is to differentiate its products on the basis of the lifestyle dimensions so that the apparent benefits offset the disdain towards foreign goods.

## REFERENCES


Beatty, S.E., Homer, P.M. and Kahle, L.R. (1988). "Problems with VALS in International Marketing Research: An example from An Application of The Empirical Mirror Technique", *Advances in Consumer Research*, 15, pp. 375-38.

Bilkey, W. J. and E. Nes (1982). "Country-of-origin effects on product evaluations." *Journal of International Business Studies* (pre-1986) 13(000001): 89.

Blood, Robert O., and Donald M. Wolfe (1960). *Husbands and Wives*, Glencoe, IL: Free Press.

Booth, K. (1979). Strategy and ethnocentrism. London, Croom-Helm.

Burger, E. W. and H. J. Locke (1960). *The Family: From Institution to Companionship* (2nd Ed.) New York: American Book Co.

Charan, R. (2004), Profitable Growth Is Everybody's Business, (Crown Business: New York) 206 pages.

Cox, E. P. (1975). "Family Purchase Decision Making and Process of Adjustment", *Journal of Marketing Research*, 12: pp.189-195.

Davis, H. L. and B. P. Rigaux (1974). "Perception of Marital Roles in Decision Process", *Journal of Consumer Research*, 1: pp.51-62.

Davis, Harry L. (1976). "Decision-Making Within the Household", *Journal of Consumer Research*, 2: pp.241-260.

Doraszelskiw, U. and Draganskaz, M. (2006). "Market Segmentation Strategies Of Multiproduct Firms". *The Journal of Industrial Economics (LIV, 1),* pp.125-149.

Du Preez, R., Visser, E. M. and Zietsman, L. (2007). "Profiling Male Apparel Consumers: Lifestyle, Shopping Orientation, Patronage Behavior and Shopping Mall Behavior", *Management Dynamics*, 16(1), pp.2-19.

Durvasula, S., J. C. Andrews, et al. (1997). "A Cross-Cultural Comparison Of Consumer Ethnocentrism In The United States And Russia." *Journal of International Consumer Marketing* 9(4): p.73.

EIU, Chile (2010). http://www.eiu.com/public/

Engel, J.F., R.D. Blackwell, and D.T. Kollat. (1978). Consumer Behavior, 3rd ed. Hinsdale, IL. They Dryden Press.

Ferber, R. and F. Nicosia (1972). "Newly Married Couples and Their Asset Accumulation Decisions", in B. Strumpel, J. N. Morgan and E. Zahn, eds. *Human Behavior in Economic Affairs: Essays in Honor of George Katona*. San Francisco: Josey-Bass; Amsterdam: Elsevier, pp.161-187.

Ferber, R. (1973). "Family Decision Making and Economic Behavior", Family *and Economic Behavior: Problems and Prospects*, E. B. Sheldon, ed., Philadelphia: J. B. Lippincott Co.

Frank, R.E. W.F. Massy and Y. Wind (1972). Market Segmentation. Englewood Cliffs, N.J.: Prentice Hall, Inc.

Green, R. T., I. C. Cunningham (1980). "Family Purchasing Roles in Two Countries", *Journal of International Business Studies*, 11: pp.92-97.

Hafstrom, Jeanne L. (1992). "Consumer Decision-Making Styles: Comparison between United States and Korean Young Consumers," *Journal of Consumer Affairs,* 26 (1) (summer): pp.146-158.

Holman, C. R. and H. W. Hendrich (1973). "Effects of Status and Individual Ability on Group Problem Solving", *Decision Sciences*, 4: pp.55-63.

Hogg, M. A. and J. C. Turner (1987). "Intergroup Behavior, Self-Stereotyping, And The Salience Of Social Categories." *British Journal of Social Psychology*, 26(December): pp.325-340.

Hult, G. T. M., B. D. Keillor, et al. (1999). "A Cross-National Assessment Of Social Desirability Bias And Consumer Ethnocentrism." *Journal of Global Marketing*, 12(4): p.29.

Lantz, G. and Loeb, S. (1996). "Country of Origin and Ethnocentrism: An Analysis of Canadian and American Preferences Using Social Identity Theory," *Advances in Consumer Research*, 23, pp. 347-378.

Lindquist, J.D. and Sirgy, M.J., (2003). Shopper, Buyer, and Consumer Behavior: Theory, Marketing Applications and Public Policy Implications, Second Edition, by, Atomic Dog Pub. Cincinnati, Ohio.

Luque-Martinez, T., J. -A. Ibanez-Zapata, et al. (2000). Consumer Ethnocentrism Measurement - An Assessment of the Reliability and Validity of the CETSCALE in Spain. *European Journal of Marketing,* 34(11/12): p.1353.

Luthy, M. R. (2007). "Conducting International Consumer Ethnocentrism Surveys." *Journal of International Business Research*, 6(2): p.33.

Mitchell, V. W. (1994). "How To Identify Psychographic Segments", Part 1, *Marketing Intelligence and Planning*, 12(7): pp.4-10.

Nielsen, J. A. and M. T. Spence (1997). "A Test of the Stability of the CETSCALE, a Measure Of Consumers' Ethnocentric Tendencies." *Journal of Marketing Theory & Practice*. 5, (4), pp. 68-76.

Nijssen, E.J., Douglas, S.P. and Bressers, P. (1999), Attitudes Toward the Purchase of Foreign Products: Extending the Model, http:// pages.stern.nyu.edu/sdouglas/rpubs/attitudes.html.

Onkvisit, S. and Shaw, J.J. (1997). International Marketing: Analysis and Strategy, 3rd edn, Prentice Hall, Upper Saddle River, New Jersey.

Ray, J. J. and F. H. Lovejoy (1986). "The Generality Of Racial Prejudice." *Journal of Social Psychology,* 12(August): pp.563-574.

Saffu, K. and J. H. Walker (2005). "An Assessment of the Consumer Ethnocentric Scale (CETSCALE) in an Advanced and Transitional Country: The Case of Canada and Russia." *International Journal of Management,* 22(4): p.556.

Samiee, S., T. A. Shimp, et al. (2005). "Brand origin recognition accuracy: its antecedents and consumers' cognitive limitations." *Journal of International Business Studies*, 36(4): p. 379.

Sharma, S., T. A. Shimp, et al. (1995). "Consumer ethnocentrism: A test of antecedents and moderators." *Academy of Marketing Science. Journal*, 23(1): p.26.

Sharma, V.M. (2002). Entry into Latin American BEMs: High Or Low Resource Commitment Modes? *International Journal of Commerce and Management*, 12(4), pp.41-67.

Shoham, A. and M. M. Brencic (2003). "Consumer Ethnocentrism, Attitudes, and Purchase Behavior: An Israeli Study." *Journal of International Consumer Marketing*, 15(4): p. 67.

Spillan, J. E., O. Kucukemiroglu, et al. (2007). "Consumer Perceptions of Foreign Products: An Analysis of Product-Country Images and Ethnocentrism in Guatemala." *The Business Review*, Cambridge 8(1): p.283.

Sumner, G. A. (1906). Folkways. New York, Ginn Custom Publishing.

Trading Economics http://www.tradingeconomics.com/Economics/Exports.aspx?Symbol=CLN, access 1/6/11

Vida, I. and J. Reardon (2008). "Domestic Consumption: Rational, Affective Or Normative Choice?" *The Journal of Consumer Marketing* 25(1): p. 34.

Watson, J. J. and K. Wright (2000). "Consumer Ethnocentrism And Attitudes Toward Domestic And Foreign Products." *European Journal of Marketing*, 34(9/10): p. 1149.

Yankelovich, Daniel and David Meer, (2006). Rediscovering Market Segmentation, *Harvard Business Review*, pp. 1-10.