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# **APPROPRIATION OF INVESTMENTS AND INNOVATION BENEFITS IN THE U.S. - CHINA TRADE RELATIONSHIP**

Tony Mutsune, Luther College

## **ABSTRACT**

*It is widely understood that the 1978 market-oriented economic reforms set the stage for China's phenomenal growth and swift accession to the world's second-largest economy. A part of the reforms involved relaxing restrictions on foreign investment inflows, privatization and contracting of state-owned industries, and the lifting of protectionist policies. These initiatives are thought to have assisted the flow of knowledge and skills into China. Such flows are known to help deepen human capital which results in productivity increases when combined with improvements in physical capital and other resources. It is reasonable that these advantages are primarily channeled through international commerce linkages. This context provides for investment and innovation choices to influencing productivity outcomes among trading partners. This study presents an empirical framework for testing data from the U.S.-China trade experience for the period 1996-2014, with the aim of identifying how research and development (R&D) expenditures in the U.S. and China combine to influence productivity outcomes in the Chinese economy. The results indicate that R&D stock accumulation in the U.S. plays an important role in prompting productivity increases in China's economy when combined with China's own R&D efforts. The implications of the results can be applied in making strategic R&D choices that improve the advantages in the U.S.-China trade relationship..*

**JEL:** F14, F20, F23

**KEY WORDS:** Trade, Technology Spillovers, Productivity, Foreign Direct Investment

## **INTRODUCTION**

China's swift ascension to an economic powerhouse is unprecedented. It is the subject of much discussion and inquiry across a broad dispersion that extends from the more absorbed academic and media spheres to the occasionally interested observer. The 1978 re-orientation of China's economy towards free-market principles is widely credited for the transformations that propelled the previously lowly ranked economy to a major global player. Some unmistakable outcomes following the reforms includes the opening up of the China to foreign investment, privatization and contracting out of state-owned industries, and the lifting of protectionist policies, all of which have helped create channels that facilitate the flow of meaningful knowledge and skills from abroad. Several studies have demonstrated that these flows are instrumental in the deepening of human capital and consequently productivity increases when combined with improvements in the stock of physical capital and other resources used in production.

According to the new growth theory, increasing returns associated with new knowledge, ideas, and technology spillovers offer important insights in understanding how gains in productivity occur (Romer 1986, Lucas 1988, Rebelo 1991). This study is premised on the view that China's market-oriented reforms paved the way for dissemination of knowledge, ideas and technology spillovers through trade and foreign direct investments (FDIs). Therefore, it can be taken that China's accelerated growth is partly

explained by these factors. Correspondingly, a 1997 IMF study report by Zulu and Moshin examined the sources of China's growth and concluded that although important, the accumulation of physical capital and labor stock alone does not offer a sufficient explanation. According to the study, during 1979-94 productivity gains accounted for more than 42 percent of China's growth and by the early 1990s had overtaken capital as the most significant source of that growth. In the decades that followed the economic reforms of 1978, China has seen its FDI annual inflows increase from 109 million dollars in 1979 to more than 13 billion in 2007. This amount constituted about half of all FDI inflows to all developing countries in the 1990s (Dimitrios K., Kostas V. *et al.*). Notably, the productivity advantages of multi-national enterprises (MNEs) over their domestic counterparts is well documented (Blomström and Sjöholm, 1999; Markusen, 2002). An important argument presented by Helpman *et al* (2004) suggests that the high costs associated with FDIs in effect makes them a preserve of the most efficient firms. Therefore, there is potential for diffusion of knowledge from MNE affiliates to relatively backward local firms (Smeets and de Vaal, 2011). This study sets to examine the extent to which productivity increases in China can be explained by its trade with the U.S., by virtue of spillovers of technology and knowledge disseminated through R&D efforts by U.S. companies. The rest of the paper is organized as follows; a review of literature, explanation of data and methodology, discussion of results, and the concluding remarks.

## LITERATURE REVIEW

This section comprises a review of content from select studies related to the concept of trade-driven growth. Particular areas that feature prominently include connections between trade and growth, sources of productivity, technology and knowledge transfers. Important ideas that emerge from the review influence the data and methodology approach in the section that follows. Early attempts at making connections between international trade and economic growth date back to 1776 when Adam Smith's published his inquiry into the nature and causes of the wealth of nations. Several others have since pursued this line of inquiry and helped improve our understanding of the role of international trade in spurring economic growth among nations using both classical approaches and more current adaptations. In any case, there is a consensus that international trade and economic growth are two concepts that are paired together. It is not uncommon to find that entire economies are primarily sustained by their exports. The oil rich Middle Eastern countries offer some appropriate examples. Clearly, economic growth has always been a central pre-occupation of governments, enterprises, and people in all nations. An argument can be made that international trade is the framework upon which economic wellbeing rests globally. The logical consequence is a universal movement towards more openness in trade.

As previously stated, the 1978 economic reforms in China amounted to more openness in trading internationally. Yao and Zhang (2003) cite the absorption of foreign capital as a respectable indicator of openness following the reforms. They point out that by 1995, only the U.S. surpassed China as the largest recipient of FDIs. As global FDIs continue to grow in excess of both world output and world trade, China is by far the largest recipient having surpassed the U.S as host destination in 2004 (Shaukat and Wei, 2005). China is also trading more than it has in past years. Before the 1978 economic reforms, China's total imports ranked 32nd globally, accounting for a measly 1% of global trade compared to its present status as the world's largest commodity exporter and importer since 2013 (Xiaojun).

According to an IMF study on how trading partnerships impact economic growth among partners, Arora and Vamvakidis (2004) found that United States is the most important trading partner for other countries. This indeed is the case for China at this point in time. It is therefore conceivable that a significant level of China's economic endowments from trade is likely from its trade with the United States and FDIs from U.S. firms. A large body of literature documents that trade and investment flows into less-advanced economies could bring about important technological spillovers that boost firm-level productivity and bolster long-term economic prospects. Undoubtedly, there are cases when spillovers are confined among other multinationals, and in some cases end up crowding out domestic firms (Caves, 1996; De Backer and

Sleuwaegen, 2003). In China's case, overall, the existing literature shows mixed conclusions on the effects of FDI on domestic firms in particular. While increases in productivity among Chinese firms since the economic reforms are undisputed, the mixed outcomes from previous studies suggest caution in attributing such increases solely to FDI inflows. For example, a study by Hale and Long (2007) failed to find any significant FDI spillover effects on productivity for domestic firms in the same upstream or downstream industries. They suggest that domestic firms may be assuming a more passive role in innovation, and focusing providing inputs and intermediate goods for multinational firms instead.

With respect to international trade, previous studies concur that it is a major channel of international technology spillovers. Coe and Helpman (1995) lend support to the idea of trade-related spillovers when they show that countries exhibit higher productivity levels as a result of importing goods from countries that are more technologically advanced. Acharya and Keller's (2009) study offers other insights; they show that non-trade channels play a larger role for the U.S., Japan and Canada. Past limitations in appropriate comparative measures of openness (to trading internationally) have limited the conclusions about the relationship between openness and productivity. However, there is a broad consensus on the productivity increases that are familiar to economies which trade more internationally. In China's case, the combination of privatization and trade liberalization had strong effects on productivity growth in both the state and non-state sectors, averaging 5.50 percent and 3.67 percent respectively from 1998 to 2007 (Zhu, 2012). It is well recognized that capital intensity is one of the main determinants of productivity as measured by total factor productivity (TFP) estimation. Both government and industry are known to device policies that encourage investments in capital because of the positive impact on TFP. Meanwhile, while any list of measurements of productivity can cover a substantial number of factors, it is important to recognize that no list can be exhaustive. Even so, the suitability of TFP measurement resides in its usefulness as a residual measure of changes in total output not accounted for by total factor input changes after the output of the weighted sum of all inputs have been determined. In addition (assuming combination with a fixed factor), TFP measurement is not subject to diminishing returns, unlike increments of capital and labor. The implication is that any residual increases in output that are not accounted for by total factor input changes after the weighted sum of all inputs has been determined can be thought of as an outcome of innovativeness and technological advancements.

In effect, the connections between TFP and innovativeness reiterate the conclusions by Zulu and Moshin (1997); the accumulation of physical capital and labor stock alone do not fully account for growth increases in China. Several studies have concluded that most differences in output among countries are attributed to TFP (Porter, 1990; Ezeala-Harrison, 1995; Krugman, 1996; Aiyar and Dalgaard, 2004). According to a United Nations Industrial Development Organization (UNIDO) study by Anders Isaksson (2007), stock of knowledge has a direct effect on TFP. Even with factor inputs, one still needs to possess knowledge on how best to organize factor input combinations for optimum production. Superior knowledge allows for optimum organization of inputs. It is also understood that knowledge tends to be regenerative; it combines in new and dynamic ways that can amount to innovation. However, several studies have also pointed out that, the link between TFP and knowledge is considerably weakened by factors such as institutional quality, degree of openness and flexibility of the economy, government policy actions, and financial infrastructure among several others.

A 2010 *China Business Review* article by Jarret and Wenthold on technology transfers to Chinese firms discloses that technology transfer has been a focus of China's growth plans for decades. This focus became prominent when former leader Deng Xiaoping, inspired by the advanced technology he witnessed during trips abroad, enacted policies in the 1980s that allowed foreign firms to access China's market in exchange for advanced technology. They add that Chinese companies have benefited from advanced technologies with relatively little capital expenditure, which expedites the process of achieving organic growth. However, a 2015 Congressional Research Report by Wayne Morrison, expressed concerns about the policies arguing that they constitute pressure by government entities to transfer technology to a local

partner as a part of the cost of doing business in China, and also that such practice is in contradiction to China's obligations to the WTO. Other channels for knowledge transfers into China are less contentious. For example, in a move aimed at promoting technical improvements in local companies, especially innovation of small and medium-sized enterprises, Chinese authorities have outlined policies that use tax breaks to encourage local enterprises to upgrade their equipment and increase research and R&D efforts to improve the manufacturing industry. The arrangement particularly favors an array of high-tech equipment and product imports that are intermediate in the manufacture of IT products and software. According to a 2014 OECD Science, Technology and Industry Outlook Report, China already spends a lot more on R&D than Japan, and is poised to overtake the EU and also surpass the United States by 2019. Griliches (1988) and Coe and Moghadam (1993) show that there is sufficient empirical evidence to support the idea that cumulative domestic R&D is important for productivity. Coe and Helpman (1993) go even further by proposing that in the context of the entire international trade construct, which encompasses trade in goods and services, FDI, the exchange of information, and dissemination of knowledge, a country's productivity depends on its own R&D as well as the R&D efforts of its trade partners. They argue that own R&D enhances a country's benefits from overseas technical advances which lead to productivity increases.

## DATA AND METHODOLOGY

This paper's attempt to examine the extent to which productivity increases in China are linked to its trade with the U.S. embodies the ideas presented by Coe and Helpman (1993, 1995) in their study of international R&D spillovers among OECD countries and Israel. In this case, we adapt them to a bi-lateral trade scenario. Coe and Helpman predicated their approach on new theories of growth which emphasize links between investments in R&D and TFP increases. In it, they develop a framework for examining how a country's investment in R&D affects TFP of its trade partners. The empirical framework follows the Coe and Helpman equations set up that is based on theoretical models of innovation-driven growth. However, there are few modifications appropriate for the objective of this study. A more elaborate description of the full model can be found in Coe and Helpman (1995). We assuming an economy manufactures final output  $Y$  from an assortment of intermediate inputs. Our simplest equation has the following specification:

$$\log F_i = \alpha_i^0 + \alpha_i^d \log s_i^d + \alpha_i^f \log s_i^f \quad (1)$$

Where  $i$  specifies a country,  $\log F$  is the log of TFP.

$$\text{TFP} = \log Y - [\beta \log K + (1 - \beta) \log L] \quad (2)$$

Where  $L$  stands for labor inputs,  $K$  for capital inputs and  $\beta$  is the share of capital inputs.  $S^d$  in (1) represents the domestic R&D capital stock, and  $S^f$  represents the foreign R&D capital stock defined as the import-share-weighted average of the domestic R&D capital stocks of trade partners. The specification (1) allows the coefficients  $\alpha$  to vary across respective countries; in our case China and the U.S. Some reasons offered in Coe and Helpman (1995) for varying the constant  $\alpha^0$  are: there may be country-specific effects on productivity that are not captured by the variables used in the equations; and, variables in the TFP estimate is measured in country specific currencies whereas both R&D capital stocks are in US dollars. In our case, for TFP estimates, an index approach is used instead of currencies. More details are given under empirical testing.

The specification of (1) can be thought of as an extension of models relating TFP to (only) the domestic R&D capital stock, to include foreign R&D efforts ( $\alpha^f \neq 0$ ). Coe and Helpman (1995) acknowledge that the specification may not capture fully the role of international trade. They explain that although the

foreign stock of knowledge  $S^f$  consists of import-weighted foreign R&D capital stock, these weights are fractions that add up to one and therefore do not properly reflect the level of imports. For this reason a modified specification of (1) that accounts for the interaction between foreign R&D capital stock and the level of international trade is applicable for our purposes, along with other plausible arguments presented by Coe and Helpman. A modified version of (1) follows:

$$\text{Log } F_i = \alpha_i^0 + \alpha_i^d \log s_i^d + \alpha_i^f m_i \log s_i^f \tag{3}$$

Where  $m$  represents the fraction of imports as a share of the GDP. In this equation the elasticity of TFP with respect to the domestic R&D capital stock equals  $\alpha^d$  while the elasticity of TFP with respect to the foreign R&D capital stock equals  $\alpha^f m$ . It follows that whenever  $\alpha^f$  is the same for both China and the U.S., the latter elasticity will vary in both countries in proportion to their import shares. The empirical analysis is conducted using data for the period 1996-2014. Sources used include the U.S. Census Bureau, the Conference Board and World Bank statistical databases. The frequency of the data sample is on an annual basis. The dependent variable is represented by the logarithmic transformation of changes in China’s TFP index over the study period, and is taken as a proxy for productivity changes. The explanatory variables are represented by logarithmic transformations of China’s domestic R&D spending and import-weighted foreign (U.S.) R&D spending. To obtain import weights for China’s imports from the U.S., we use data for U.S. exports of physical goods to China as a proxy. Data in services tends to present challenges in both measurement and tracking, thus requiring appropriate adaptations not included in this study. The trade interactions that can lead to inflows of knowledge stock and ideas are assumed to be estimated by the proportion of imports in relation to the GDP as a multiple of R&D spending by the trading partner (U.S.).

**DISCUSSION OF RESULTS**

Displayed in Table are summary statistics for the variable groups in our sample. They reveal that both the mean and median of the domestic R&D data are higher than in the import-weighted foreign R&D group. Thus what has been widely reported about China’s push for innovation-driven growth is supported. However, the standard errors of the two groups have a significant difference. Higher errors are consistent with higher standard deviations as observed in the domestic R&D group. The kurtosis indicates flatness in the data distribution in both groups, with a greater degree of flatness for domestic R&D data. Both data groups assume a tailed distribution, with the longer tail evident in the import-weighted foreign R&D group. Generally, the skewness and kurtosis statistics are dependent on the sample size. Summary statistics for the TFP variable set indicated a low mean standard error and standard deviation. The kurtosis value is indicative of peak periods, which is indicative of periods when average productivity rises to peak levels. The negative tailed distribution of the TFP group is a fair reflection of economic growth trends in China in recent decades.

Table 1: Summary Statistics of Data Sample

	Log TFP (CHN)	Log Domestic R&D	Import-Weighted Log Foreign R&D
Mean	6.931	3.475	0.0862
Std. error	0.0084	0.2861	0.0031
Median	6.936	3.399	0.0825
Std. dev.	0.0367	1.247	0.0136
Kurtosis	0.0545	-1.387	-0.4584
Skewness	-0.5643	0.0549	0.6687
Count	19	19	19

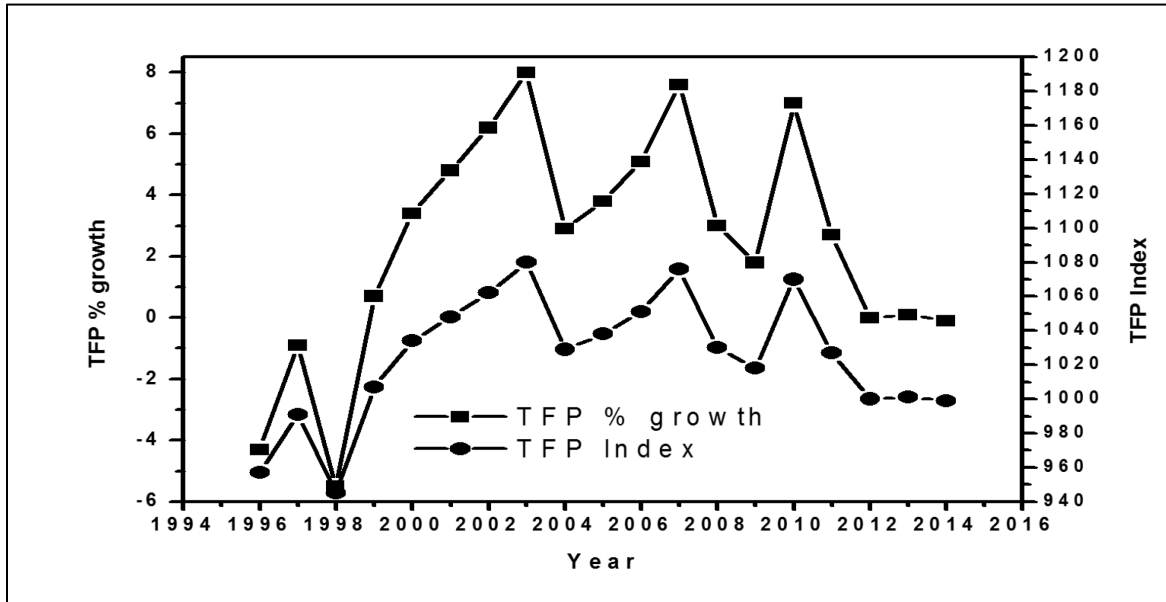
*This table shows summary descriptive statistics for each variable from our data sample, which comprises of annual observations over the period 1996-2014. The groupings consist of logarithmic transformations of TFP growth index for China as the dependent variable, and similar transformations for domestic R&D spending and import-weighted R&D spending in the U.S. as the explanatory variables. We use data on U.S. exports of physical goods to China for computing a proxy for China’s import share weight.*

Table 2: Regression Results of Equation (3)

Dependent Variable: Log of TFP Growth Index				
Sample (adjusted): 1996-2014				
Included observations sets: 18				
Cross sections: 3				
Total panel observations: 54				
Variable	Coef.	SE	t-Stat.	Prob.
Intercept	6.774***	0.0452	149.84	0.0000
Log of domestic R&D	0.0029	0.0057	0.5150	0.6135
Import share-weighted Log of foreign R&D	1.703***	0.5194	3.278	0.0047
R-squared	0.4361	Squared resid.		0.0243
Adjusted R-squared	0.3657	F-stat.		6.187
SE of regression	0.0292	Prob. (F-statistic)		0.0102

This table shows the regression results from equation (3). In the upper level is a brief description of the sample data which covers 18 years across of three sets of variable observations in logarithmic transformation. The mid-section shows the statistical outcomes for variables. The lower section reports statistical outcomes for the regression. Significance levels at 1, 5, and 10 percent levels are indicated by the notations \*, \*\*, and \*\*\* respectively.

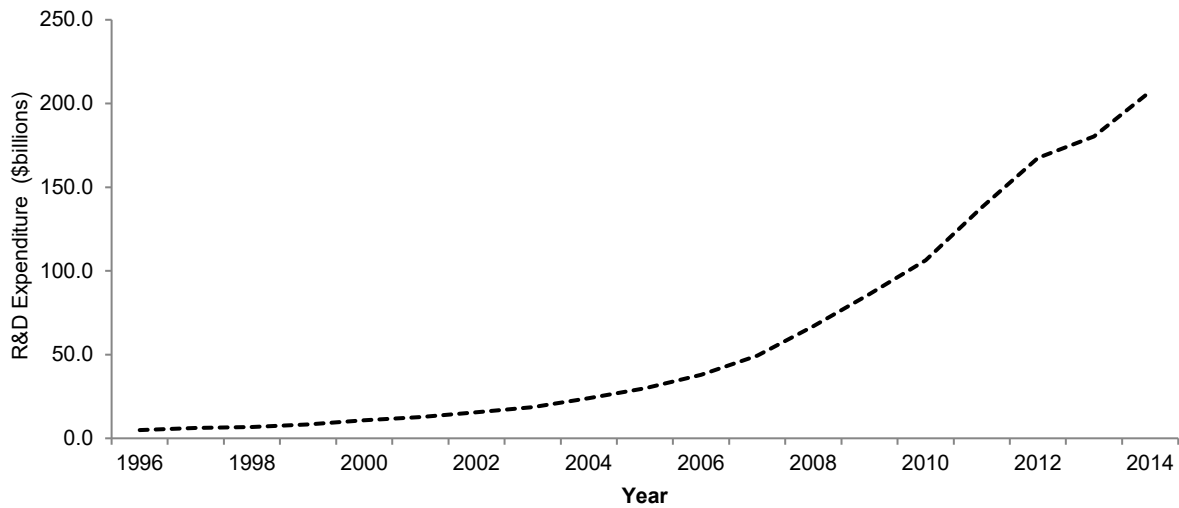
Figure 1: Changes in China’s TFP Growth Index, 1996-2014



This figure displays changes in TFP growth in percentage and index form for China over the period 1996-2014 obtained from The Conference Board statistical database: [www.conference-board.org](http://www.conference-board.org). The figure shows that TFP grew at a rapid pace before 2005, at a time when foreign stock of R&D from the U.S. grew more rapidly than China’s own R&D stock.

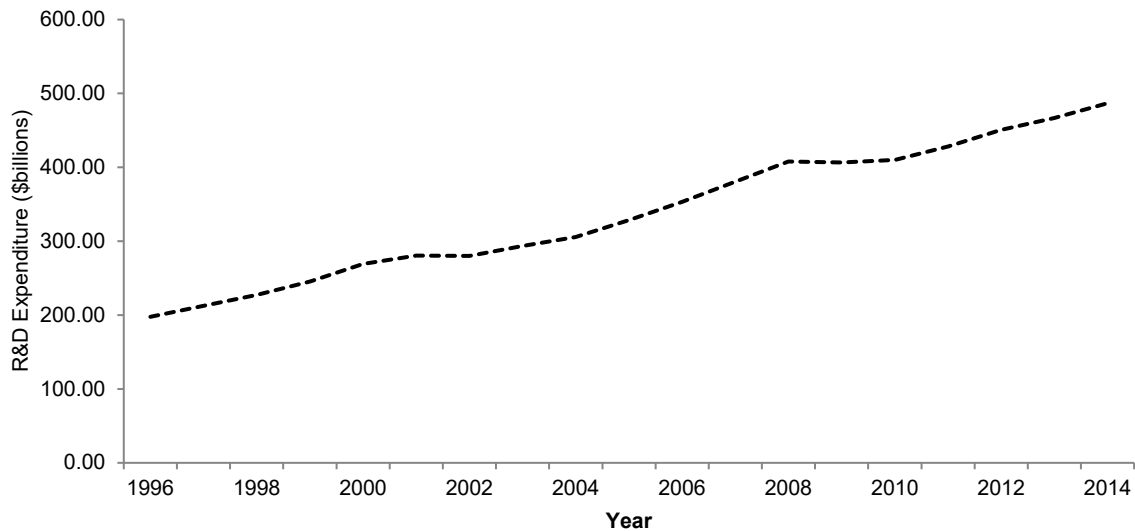


Figure 2: Domestic R&D Spending in China, 1996-2014



*This figure displays R&D spending in China for the period 1996-2014. Initial data is obtained as a percentage of GDP from the World Bank Statistical database: [www.worldbank.org](http://www.worldbank.org). It appears that domestic R&D spending grew exponentially after 2005 when China was admitted to the WTO.*

Figure 3: Foreign R&D Expenditure by the U.S., 1996-2014



*This figure displays R&D spending in the U.S. for the period 1996-2014. Initial data is obtained as a percentage of GDP from the World Bank Statistical database: [www.worldbank.org](http://www.worldbank.org). This data is used to compute the log of import-weighted share of foreign R&D spending in the regression analysis.*

The empirical analysis involves a regression fitted to equation (3). The output is presented in Table 2. The results from our data sample indicate that the model equation’s ability in explaining the link between changes in China’s productivity, domestic R&D stock and R&D stock in the U.S. is moderate. Results for the intercept and import share-weighted log of foreign R&D show significance at the one, five and ten percent levels. However, it is remarkable that the log of domestic R&D variable did not show significance

at any of the significance levels tested. We cannot therefore make strong conclusions from our data sample on the domestic R&D spending by China. While there is no real supporting evidence for rejecting a supposition of significance in productivity changes in China as a result of domestic R&D efforts, it is helpful to inspect other probable causes of the unexpected p value. We suspect that the small sample size may have constrained ability to fully detect the significance of changes in productivity levels resulting from changes in domestic R&D efforts. The variable signs are indicative of a promoting role played by both domestic and foreign R&D. Based on the data sample, foreign R&D spending seems to have a relatively greater influence of domestic productivity in China. However, it is advisable to be cautious in taking the result as evidence of a fact and instead treat it with an awareness of the unstable combination of sample size, data type, and model assumptions which can sometimes lead to overemphasized outcomes. A more sober approach is to treat the results as an endorsement of the role played by foreign (U.S.) R&D efforts in China's productivity.

## CONCLUDING COMMENTS

The aim of this study is to examine the extent to which productivity increases in China may be linked to trade with the U.S., by means of technology spillovers and knowledge dissemination that result from R&D stock in the U.S. The empirical approach is based on a framework that combines annual trade, TFP, and R&D spending data appropriately for China and the U.S. over the period 1996- 2014. The regression equation expresses productivity increases in China as dependent on China's own R&D stock and that of import-weighted R&D stock from the U.S. The results offer some insights and also raise new questions. It appears that the role of R&D stock accumulated by the U.S. in fostering productivity increases in China's economy is corroborated by the results. However, as previously mentioned, it is not clear why the results for domestic expenditure on R&D in China were inconclusive. R&D expenditure at the domestic level is undoubtedly known to impact productivity. Figure 2 shows an upward trend in China's domestic R&D expenditure over the period studied. However, data sources do not distinguish between R&D expenditures by foreign firms in China (which often are in some level of partnership with domestic firms), and locally sourced R&D funding. In addition, there are known challenges with obtaining concrete data on the Chinese economy. Most of the literature reviewed in this study expresses a positive connection between productivity increases and domestic R&D spending.

The results also seem to indicate that expenditures on R&D in the U.S. may have significant effects on China's productivity. Figure 3 shows that R&D expenditure by the U.S. was significantly higher than China's own spending between 1996 and 2014. Prior to 2005 China's productivity rose rapidly at a time when its own stock of R&D was growing at a slower rate compared to the U.S. (see Figure 1). During this period, China's productivity continued to grow, as did its trade with the U.S. particularly following accession to the WTO in 2005. The results are consistent with evidence of transfers of knowledge and technical know-how from earlier studies discussed in the literature review. China's productivity increases are not fully explained by its trade relations with the U.S. alone. Other technologically advanced countries trade and invested directly in China since the economic reforms of 1978. Overall, it appears that R&D efforts in the U.S. help in spurring productivity advances in the Chinese economy. When combined with China's own domestic R&D stock, the resulting change in productivity is boosted. Such outcomes can potentially benefit U.S. businesses. A more advanced Chinese economy can also mean a strong market for technology based products from the U.S. Also, higher productivity in China can lead to increases in wages and expansion of a middle class with a stronger demand for imports. Based on the results from this study, it is clear that U.S.-China trade relationship presents important opportunities for U.S. business that can lead to expanded markets and domestic job creation.

Whilst the findings of the study give us some insights into the allowance of productivity benefits in the US- China trade relationships, there are some exceptions. The limitations of the study design affected the outcomes. The variable estimates we used do not fully represent sectors in which technology-based products and innovative ideation is a strong feature. The study may also suffer some degree of impact limitation because of a strong country focus that assigns productivity from foreign R&D efforts solely to a single trading partner. China's trading interactions with other technologically advanced partners likely contributed to movements in productivity measures. Lastly, the limited size of the data is occasioned by incompleteness and disparity in measurement criteria from sources. Excluding the limitations, the study moves us closer to understanding a far-reaching dimension of one of the most important trade relationships in the world, which also serves as an important gauge for global trade dynamics and thus merits our attention. Future research efforts will focus on exploring improvements on the impact limitations and constraints imposed by the study design, with an ultimate goal of expanding the framework to accommodate for application to a multilateral trading system which more closely reflects the realities of a global trading system.

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## **BIOGRAPHY**

Tony Mutsune is an Associate Professor of Management and Economics at Luther College. His research appears in journals such as *Advances in Competitiveness Research*, *International Journal of Management and Marketing Research*, and *Review of Business and Finance Studies*. He can be reached at Luther College, 700 College Drive, Decorah, Iowa 52101, USA, [mutsto01@luther.edu](mailto:mutsto01@luther.edu).



# **MARKETIZATION, NOSTALGIA, AND SOCIAL CONNECTEDNESS: AN EXPLORATORY STUDY IN EASTERN GERMANY**

Marco Wolf, University of Southern Mississippi  
Dennis Kopf, University of Wisconsin – Whitewater  
Pia A. Albinsson, Appalachian State University

## **ABSTRACT**

*The purpose of this paper is to uncover how East Germans reacted to product shortages following product abundance immediately after reunification and over time. The authors conduct in-depth interviews to document the stories of the individuals during this time period. Our data analysis reveals that East Germans experienced surprising trade-offs during this transition period. On the one hand, they now had access to an abundance of products. But on the other hand, something unexpected was lost. East Germans no longer needed extensive social networks to obtain products and services. As a result, the importance of maintaining social networks decreased leading to a lack of social connectedness and security. As their disenchantment with the new market system grew, Ostalgie - a form of nostalgia indigenous to the region characterized by a deep longing for the past -emerged. This seems to indicate that societies based on materialism can have unforeseen consequences of feelings of insecurity. Business can use these results to fundamentally reconsider their role in the well-being of consumers. As a result, marketers that focus on creating opportunities for social connection will satisfy a fundamental human need leading to more successful business models.*

**JEL:** M31, P2

**KEYWORDS:** Marketing, Brand, Brand Preference, Transition Economies

## **INTRODUCTION**

**B**efore 1989, East Germans experienced severe product shortages and a lack of choice in everyday goods. However, after reunification, East Germans encountered a veritable cornucopia of products. Surprisingly, the new found freedom to consume did not satisfy all in the east, and caused a wave of longing for past times when things were seemingly better. The events seem to contradict given that the wish for freedom of consumption was one big factor contributing to the fall of the wall in 1989. Though, unlike any other country's economic advancement, East German economic change happened literally overnight and the change agents of capitalism caused many to question their newly acquired freedom. The purpose of this paper is to uncover how East Germans reacted to this abrupt change immediately after reunification and over time. Studying the abrupt change from a systems perspective allow us to gain unique insights about the paradoxical nature of capitalism. On the one hand it appears that the transition to capitalism created a loss of social connection. On the other hand, capitalism (through the efforts of creative companies) recognizes this loss and seeks to satisfy these same needs for social connection and a sense of place.

East Germans have coped with a loss of social connection by either 1) turning to the market system to satisfy those same needs, and/or 2) indulging in an intense feeling of nostalgia which often includes purchasing Communist Era products. For example, a recent BBC program noted a complex connection

between nostalgic feelings and psychological well-being (Williams, 2013). One of the interviewees in the BBC program commented on the missing warmth in the form of equality, solidarity, and citizen support in East Germany. Even though East Germans experienced limiting economic conditions and state oppression, they also provided opportunities for interactions that often don't exist in Western consumption models (Williams, 2013). It is these interactions that are studied in this paper. This BBC program concluded that East Germans seek ways to express their sentimental yearning for lost social connection in a specific form of nostalgic consumption. This is one of the phenomena explored in more depth in this paper. Macromarketing research has contributed views on market systems and the challenges they present to the parties involved. One such challenge concerns consumers and the quality of life derived from consumption related behavior. Research suggests that consumer well-being is determined by satisfaction with acquisition, possession, consumption, maintenance, and disposition of goods and services (Lee et al., 2002, Lee and Ahn, 2016).

But it was also argued that the reduction of consumption and non-consumption can also be related to well-being (Iyer and Muncy, 2016, Kilbourne, McDonagh, and Prothero, 1997). Others articulated that frustration with hyper-consumption after the fall of the wall turned experiential consumers into reluctant consumer just to preserve ones well-being (Albinsson, Wolf, and Kopf, 2010). This paper responds to a call for more system research (Layton and Grossbart, 2006) and hopes to contribute additional insights into the forces governing a market system. Specifically, this paper is organized as follows. First, a brief background of the East German economy is offered especially as it relates to the context of this study. Next, the literature on macromarketing, nostalgia, and social connectedness are reviewed. Then the research method and the research findings are presented. Finally, the paper is concluded with a discussion of the findings and some recommendations for future research and for business managers.

## BACKGROUND

Before 1989 and the fall of the Berlin Wall, East Germany (henceforth GDR for German Democratic Republic) had progressed from a post-WWII ruin to the *Jewel of the Eastern Bloc*. Per capita GDP had reached 8,100 Euros; in contrast, the per capita GDPs in Great Britain, Spain, and Greece were 9,800, 6,130, and 3,800 Euros, respectively (Wenzel, 2004). Despite this impressive gain, the GDR's planned economy often created severe shortages in many product categories. To mitigate these shortages, complex social networks evolved to support a self-regulating underground economy. Thus, the GDR's rapid marketization provides an opportunity to explore how new consumption patterns affect people's sense of connectedness and explicates the challenges to marketers.

An infrequently explored historical distinction between Eastern bloc and Western nations is the different evolutionary paths toward separating production and consumption. Since World War II, the market system and modern marketing have slowly permeated all aspects of Western life, including politics, education, and religion (Firat and Dholakia, 2006). This statement is true for the United States and Western Europe, but the marketization of East Germany happened much more quickly after reunification began in 1990. Rather than a slow permeation, the East Germans experienced rapid change. As a result, East Germans seem to be more cognizant of changes in consumption brought about by Western Capitalism. Even though rapid advances were made after 1990 and despite the vast amount of money spent in East Germany by the new German government and capital inflows from foreign direct investment, this market progress seems to have come with some drawbacks. Market progress can discourage interaction and social relationships (Firat, 1997), which in turn may increase feelings of alienation and isolation.



## LITERATURE REVIEW

As one of the emergent themes, alienation and isolation (or the lack thereof) can be viewed under the concept of social connectedness. Social connectedness is the subjective awareness of interpersonal closeness with the social world (Lee and Robbins, 1998). The social world includes proximal and distal relationships with family, friends, peers, acquaintances, strangers, community, and society as a whole (Lee and Robbins, 1995, 1998, 2000). Consumers' feelings of social connectedness are quite powerful and can be used to measure one of the most fundamental higher order needs - the need of belonging (Baumeister and Leary, 1995, Kohut, 1984, Lee and Robbins, 1995, 2000, Maslow, 1970). Distilled to its essence for marketing purposes, social connectedness is the sense of belonging that requires interaction with others. The subjective nature of social connectedness is one reason why people with long-term marriages and friendships still may feel socially disconnected. In addition, feelings or desires for social connectedness are pervasive and guide thoughts and behaviors (Lee and Robbins, 1998). In fact, recent findings have found that experimentally induced nostalgia caused individuals to feel greater levels of social connectedness and self-esteem which then leads to a heightened sense of optimism (Cheung, Sedikides, and Wildschut, 2016).

Social connectedness does not often appear in the marketing literature, but nostalgia is a concept that has been extensively studied and applied by marketers. Marketers realize the draw of nostalgic feelings and offer (often only temporary) solutions to consumers. Various techniques are designed to create nostalgic feelings to offer comfort for those in need (Boyle, 2009). For example, Dodge Ram recently ran a Superbowl ad featuring Paul Harvey's voice (a conservative American Broadcaster who often told heart-warming stories of ordinary people in the Heartland of the US). The advertisement appealed to American's nostalgic view of farming. Companies use memories to create nostalgia-steeped consumer products (Havlena and Holak, 1996) and hope to connect the consumer with their brands (Foley, 2009). Others design or revive brands belonging to prior historical time periods such as retro brands. Retro brands cut across all product categories with the goal in mind to evoke strong positive emotions about the past. Generally speaking, marketing efforts eliciting nostalgia engages consumers, influences brand choice and brand loyalty, and nurtures the relationship with the brand (Merchant, Latour, Ford, and Latour, 2013). In the West, also, many subcultures and retro brands cater to nostalgic feelings and have appeared in the marketing literature. For instance, retro brands such as Star Wars and the New VW Beetle provide a sense of Arcadia through their almost utopian sense of past worlds and communities (Brown, Kozinets, and Sherry, 2003). Within the *Burning Man* subculture, an annual art community spectacle for the purpose of gifting and decommodification, some groups crave transient market-emancipatory activities - consistent with the ideal notion of *Gemeinschaft* - where individuals live in close proximity and engage in relationships based on caring and sharing" (Kozinets, 2002).

The importance of social connections, social networks and the longing for someone, someplace or something is strongly related to feelings of nostalgia. Sime (2011) for example found that children who have migrated from Eastern Europe to Scotland miss their friends and relatives the most. These children and their parents find that they connect to their past social networks through the use of technology (e.g. skypeing and emailing friends), buy Eastern products through online marketplaces and engage in the use of transnational services (e.g., visits doctors and dentists in homeland when possible). Sime's (2011) findings illustrate that nostalgia is not only temporal but spatial as well, and that one can long for something that is not completely lost but in essence is still present. Nostalgia can be a powerful emotion directing choices and behaviors. The word nostalgia comes from the Greek words *nostos* (i.e., to return home) and *algia* (i.e., a painful condition); thus, a painful desire to return home (Davis, 1979). Consumer research scholars define nostalgia as a desire to return to the past prompted by objects, pictures, smells, music, or movies (Hirsch, 1992, Holbrook and Schindler, 2003). The meaning of nostalgia has shifted slightly since the 17<sup>th</sup> century. Social science transitioned from a classical definition where nostalgia was used to explain a spatial nostalgia, a form of disease (e.g., classical nostalgia in terms of melancholia,

homesickness, a painful longing for home) or what Hofer (1688/1934) referred to as a pathological condition to more modern and post-modern definitions. Some researchers have recently posited that modern nostalgia is a coexistence of two types of nostalgia; temporal nostalgia (e.g., in terms of reflectiveness, a longing for an irrevocable past, a time that once was) (Higson, 2010) and a-temporal nostalgia, (e.g., a post-modern celebratory nostalgia for the past that still exists) (Higson, 2010).

There are a few studies on nostalgia in transition communities. In their study of post-socialist Russia and how the transition has impacted advertising strategies for Eastern versus Western brands, Holak, Matveev and Havlena (2007) find that four types of nostalgia (e.g., personal, interpersonal, cultural and virtual) (Havlena and Holak, 1996) are present within their participants. Their study illustrates how certain Russian brands use nostalgia in their advertising strategies to create emotional connections to consumers. These brands play on the historical bond and experiences between consumers and the past itself reminding consumers of Russian past times.

Nostalgia in the former GDR is called Ostalgie, a combination of the German words Ost (East) and nostalgie (nostalgia). The term, coined in the early 1990s, permeates contemporary German culture in general and German consumer culture in particular (Cooke, 2005). Prior research has explored Ostalgie from three perspectives: (1) as glamorized resistance to a new market system; (2) as insecurity fomented by migrating from a familiar planned economy to an unfamiliar market economy; and (3) as the abrupt disappearance of longtime national brands (Berdahl, 1999a, 1999b, Betts, 2000, Blum, 2000, Moran, 2004). This research will explore further the ignored role of a loss of social connection and how it contributes to Ostalgie.

## METHODS

The authors conducted eighteen face-to-face, in-depth interviews with long-time residents of several small-to-medium-sized towns near former East Berlin in Germany. We conducted 12 informal interviews prior to collecting 20 formal interviews in 2005. We used purposive sampling when selecting informants (Glaser and Strauss, 1967, Lincoln and Guba, 1985). Participants' ages ranged from 33 to 78 years (pseudonyms are used to protect the informants' real identities). The participants' occupations varied and included a physician; self-employed, government employees, teachers, retirees, and currently unemployed. Participants volunteered their time and insights willingly and shared family photo albums and offered tours of their homes without request.

Insights into themes also emerged from one of the author's participation in the East German community over the course of many years prior to reunification in 1989. These experiences sensitized the authors to the current issue of social interruption and its effect on consumption. The interviews, which lasted from 60 to 150 minutes, were conducted in German, digitally recorded, and immediately translated and transcribed into English. This process yielded several hundred typed pages. Analysis and review of the data were first performed independently by the three researchers through iterative readings in search for emergent and persistent themes. After independent coding of the data, the authors discussed the meaning of the themes. This synergistic cross-examination procedure allowed categories and emergent themes to be compared and refined (Glaser and Strauss, 1967). The rapidity of market and structural change described in the earlier section resulted in a data set with unique dimensions and advantages. See Table 1 for a list of informant descriptions.

Table 1: Participant Profiles

	Pseudonym	Gender	Age	Profession
1	Heinz	M	69	Retired
2	Andy	M	31	Manufacturing
3	Wolfgang	M	52	Self Employed
4	Jan	M	45	Store manager
5	Iris	F	44	Store Clerk
6	Birgit	F	53	Insurance
7	Rainer	M	55	Physician
8	Armin	M	78	Retired Teacher
9	Detlef	M	53	Self Employed
10	Helmut	M	66	Retired Manufacturing
11	Michael	M	46	Teacher
12	Norbert	M	51	School Administration
13	Peter	M	55	Forrest Service
14	Bertram	M	46	Repair service
15	Theo	M	59	Retired Military
16	Margot	F	48	Social Work
17	Mandy	F	31	Administration
18	Ulla	F	45	Insurance
19	Sieghard	M	52	Mechanic
20	Sören	M	27	Military

*This table shows all interview participants' profiles including gender, age, and professional background. All names are pseudonyms.*

## Findings

### Unexpected Trade-Offs

Immediately after unification, East Germans were excited about product availability. For instance, after applying for a new car, the Trabant (often affectionately called the Trabi), Peter, 55, noted that the usual wait time was between 14 and 18 years. Consumers did not have a choice of color, often the cars came in bright yellow. Later, the deluxe version, Trabant Hycomat, was available with an automatic transmission. Consumer choice was limited among consumer durables such as automobiles, appliances, and staple items such as coffee or chocolate. East Germans also knew that these products were more widely available across the border in West Germany. Advanced marketing methods as typically employed by western promotion practices caused a promotional gap and made West German products stand out and appear more sophisticated. For instance, Armin (78) noted,

*Packages were a big deal. For birthdays and Christmas, packages sent from relatives from the West (Germany) got bigger and more abundant every year. In those packages, there were multiple chocolates, sweets, and cacao. Sometimes coffee; Good coffee was very expensive here [in the East] so that you could not afford it very often. I remember that 125 grams would cost 40 marks. There were three brands; Rondo, Costa (which was the cheapest) and then I don't know. (Armin)*

To put the price of coffee in perspective, 40 marks compared to a typical income of 750 marks meant that coffee was indeed a luxury item. Armin remembers spending 7 marks (or 1% of his income) for chocolate for his wife's birthday. Because communication did not stop between relatives across the German border, East Germans knew about the product abundance and low prices through stories and West German TV advertisement. Colorful and novel product promotions of western products triggered the perception for these products to be of higher quality despite limited product experience. Contrary to the abundance of products in the west, purchasing durable goods in the east often required filling out an application form similar to a waiting list. Armin (interview participant) remembers filling out an application for a freezer and having to wait until notified that his freezer was available for purchase. Refrigerators, in the same product category as freezers, on the other hand were widely available. The centrally planned distribution also caused regional differences in product availability. For instance, freezers were available in Berlin,

but they were only available to residents of East Berlin. As a result of the limited availability, when exceptional items did become available, people would think of their close ones and purchase for them or stockpile items until useful in the future. Sieghard elaborated on stockpiling of car parts below:

*One knew people and money was there, so that when car parts became available, we bought more than just one. Either you need one soon again or somebody you knew could need that extra part. (Sieghard)*

Parts were not only in short supply, but also the associated expertise in areas of repair and maintenance was lacking. Strangely enough, TV and refrigerator repair services would do home visits but car repair services were costly and limited. One would expect that finding individuals who can help with one's problem would create a hassle and negative consumer experiences, but Sieghard describes how finding people with car expertise was not such a bad experience after all.

*I needed an electrical specialist for my car. I could put the wiring in myself, but needed someone with knowledge for connecting all the parts. The 12 Volt system is a little bit more advanced than old the system [6Volts]. Then we would have a case of beer and the "ball" started to roll. Seriously, we didn't give any money; he helped me and I'd help him. Money was not really that important. The comradeship was great. (Sieghard)*

From Sieghard's statement, an interesting phenomenon comes to light. Scarcity and comradeship seem to go together. Scarcity led to individuals enjoying new friends and connections and scarce products would provide the bond. After the transition to the market economy, goods were no longer in short supply, and connections lost their unifying bond. East Germans unexpectedly traded comradeship for product abundance not realizing that social connectedness would become the new scarce resource.

### Social Connectedness

All of our informants mentioned the loss of social connection at various levels and integrated ways to cope with this loss. For example, many are still purchasing former East German products to remind them that in some ways, times were better. People such as Theo indulge in Ostalgie, a form of reminiscing about the past by purchasing East German made goods.

*I buy a lot of East German products that recently came back in the stores. Kaufland has many products; Solander Fruits and Lausitzer cherries or strawberries; we buy those relatively often. When East and West products are available I preferred to buy Eastern products. But I think I buy these products more as a sign of protest. But it also tastes good. (Theo)*

Theo buys traditional East German brands to show his solidarity with other East Germans, retain his national identity, and maintain elements of an earlier time. For him, *Ostalgie* "tastes good," which means he associated these old national brands with pleasurable tastes and smells. His laughter had an ironic ring because he disliked many aspects of the communist era yet was compelled to indulge in brands that triggered fond memories. His life was paradoxical because he enjoyed Western brands—a new BMW sat in the garage—yet he openly wished for the social connectedness and social security of the former economic system. Interviewees alluded repeatedly to the rich consumption experiences provided by the GDR's informal economy. Rainer, a 55-year-old physician, stated that the shopping experience in the east felt somewhat enriching. It brought people together by considering others when desirable goods became available but also signaled success and status to others when achieving to find a particularly rare goods. He further states;

*It [shopping] was a little like hunting and gathering. If you were able to get something that was hardly available, either buying it or exchanging it for something else or through good connections, that was great. Radeberger Pilsner for example; wasn't that great to have that for your birthday party? Or Rosentahler Kardarker (red wine), back then that was the hottest Bückware. It was a sign that you had accomplished something. (Rainer)*

Oftentimes, interviewees answered questions about sources for hard-to-get possessions with one word: *Beziehungen* (connections). *Bückware* roughly translated means *bend-over-backwards merchandise* - typically refers to non-essentials such as red wine and beer. Almost daily, East Germans exercised their social ties in pursuing goods that are taken for granted by most Westerners. More valuable *Bückware* often were acquired through bartering, but more everyday *Bückware* was exchanged as gifts. *Bückware's* strong social overtones of wealth and power through social connections support observations that material objects function as dynamic elements of an extended self (Belk, 1988). The dynamics in the chain of exchanges is exposed in Detlef's quote below. Goods were not just exchanged one for one, but seem to serve as enticement for future exchanges.

*Once in Berlin they had peaches. I told my boys to line up at the queue and get a bucketful of peaches. Then we gave some to the neighbor who then thought of us next time...To get a velvet sweater in the Exquisite store you had to give a little bag (present) to the sales clerk; otherwise you would have not been able to get anything. My sister manages a youth fashion store and she has taken new arrivals to the butcher daily in order to get a special meat cut. The situation was terrible. (Detlef)*

Gift-giving was common in socialist countries as a way to maintain a network for the acquisition of *Bückware*. Offering small gifts to neighbors had the advantage of maintaining a close network of people that may be able to help out when aid was needed. The function of gifts have been found to promote remembrance (Otnes, Lowrey and Kim, 1993) thus increasing feelings of belonging. Andy (quote below) shared how small gifts were exchanged on a routine basis fostering cohesiveness between neighbors.

*Even as a child, when I was walking home from school, my neighbors would have fresh tomatoes or strawberries and would give me a basketful to take home to my mother. Things were exchanged over the backyard fence. I can remember when my dad came home from work, the neighbor would come over just to say hello. This is how we maintained friendly relationships. (Andy)*

According to bartering theory the dominant bartering strategy is to know or get to know the people with whom a person bargains (Grabher 1993, Guerin, 2003). As a result of this investment in social capital, one-time barter transactions are therefore rare. Bartering theory pertains to the underground economy of the GDR, which cut across of most goods and services categories. This system allowed barterers either to defer reimbursement of goods or to swap labor, materials, services, or hard-to-find parts. The flexibility and social nature of bartering activities, including establishment of interpersonal trust, meant that transactions tended to please network members (Guerin, 2003). Recent consumer culture research supports bartering and non-monetary exchange as a way to foster social relationships and networks (Albinsson and Perera, 2012). While induced by economic circumstances in East Germany, consumer oriented cultures have picked up on this trend and created events where non-monetary transactions can take place between parties who place high value on social interactions (Kozinets, 2002).

In addition to building relationships through gift giving and bartering, interviewees shared stories about their eagerness to offer simple favors to other network members. These simple exchanges sometimes resulted in long-term cooperation, built a sense of caring and sharing, and enhanced feelings of equality. Subject of these exchanges were not only tangible goods but also preferential treatment as Helmut's excerpt states below. Detlef's excerpt takes it further by hinting towards an unspoken solidarity where

people in need helped each other. He then draws a conclusion that the relationships one once knew have turned into a struggle.

*Connectedness was even stronger. You had to exchange this for that....and when I went up there [store] in order to buy cement, there was a long line and you simply had to wait. But a person there knew me already. When I stood in line he came and said "it's about time that you pick up your cement." It was his way of signaling that I could bypass the line. (Helmut) There was always help without giving anything. All they said was the next time you help me. The solidarity among the 'little' people was great. Now, relationships among people are so that you have to put your elbows out. (Detlef)*

From these social connections a general sense of place-based community developed. This was not a limited-liability community as in brand community, but a community where people felt a genuine sense of obligation.

*I didn't have anything to offer as a teacher. I did not possess the value other people would see as important or something they can use. But I had a lot of help. A lot of teacher colleagues came here to help. People from the soccer club and relatives showed up. My cousin did the heating, my dad the water. But at the end everything was working out. Nothing worked without connection. (Michael)* Stories such as Michael's about homebuilding projects were striking examples of the obligations that existed as well as the needs that were filled through social connections. East Germans like Armin (quote below), now mourn the loss of inter-personal closeness in the community. Such place-based communities were also fostered and encouraged by the strong and influential communist state.

*The collective feeling we had in the GDR is not as strong anymore. Something about the social side of the GDR. My wife was not a member of the LPG (agricultural co-op) but had helped many times when they needed people. They were happy if other people supported them. There were 10 to 12 women that weren't employed there but who went there to work with them. That was one side. The other was the LPG took a trip every year. Busses were ordered and then they drove to the Baltic Sea or the Spree Forest. On these trips the women who helped were invited. Another example is celebrations. Once a year the LPG had a harvesting fest where everyone was invited, but unfortunately this does not exist anymore today....But the stories about the LPG shows togetherness. (Armin)*

The state organization, LPG, facilitated place-based social interaction and fostered the value of community togetherness and security (*Gemeinschaft*). After marketization, consumption patterns changed rapidly. East Germans began to enjoy the benefits of a demand economy, including a wide array of product choices. However, these benefits were obtained at a cost: a loss of social connectedness. This loss may be partial, because old place-based communities were replaced by place-liberated communities. Heinz mitigated this cost by purchasing a BMW motorcycle and joining a motorcycle (place-liberated) community as well as holding on to at least a few of the connections that he established during the socialist era.

*Today it [social connection] is not so strong anymore. Now we are only close with our next-door neighbors. We are still doing stuff for each other, whenever they need something fixed. From what we hear, contacts are not as strong anywhere. But through our motorcycle community (Gemeinschaft) we have met many new acquaintances right after the wall came down, with whom we are still friends today. We take little trips together several times a year. This is a great friendship. (Heinz)*

When a consumer's need for belonging becomes critical, that person is compelled to solve this problem. Ironically, that solution often is searched for and found within the marketplace that caused the problem. Finding a brand community, as Heinz did after acquiring a BMW motorcycle, is typical of many Western consumers (Muniz and O'Guinn, 2001). Heinz struggles to build a new social world consisting of both

place-based and place-liberated relationships. His purchase of a BMW motorcycle symbolizes his unconscious acceptance of the modern world and his willingness to add distal relationships based on a Western brand. As economic conditions improved over a decade after 1989, general levels of social connectedness decreased. With this change, the downside of market capitalism became apparent to East Germans.

*We had to deal with people from the West such as insurance agents. Some of them said “we find it great how you guys are with each other, friendliness and solidarism. Enjoy it while it lasts.” Back then I did not want to believe it and did not really understand it, but already 5 years after the change I knew what they were talking about. (Rainer)*

Concomitant with these changes was increased alienation (Firat, 1997). Alienation extended not only to the loss of social connections but also to the loss of connection between individuals and certain homemade products. Due to shortages, East Germans often built their own goods, ranging from tools (i.e., cement mixers, toolboxes, and lawnmowers) to household accessories (i.e., lamps and candleholders). People even felt more connected to their possessions through productive consumption activities, such as cooking from scratch, construction, washing and mending, and home agriculture. As more goods became available many productive consumption activities ceased. Yet, we find that many chose to hold onto homemade goods, struggling to maintain at least some of the pride and connection that they had with these hard-won items.

### Ostalgie

Another theme emerging from the data is the high levels of nostalgia that respondents felt, a phenomenon that describes the emotional involvement of individuals with their past and re-negotiates it with the individual’s present. We find some similarities in our findings to the results in Holak et al.’s (2007) study of Russian consumers. They found that their respondents “feel a nostalgia for a society that is seen as safer and more caring” and “the feeling of support and security among people that has been lost with the transition to a new society” (Holak et al., 2007: 652). Some respondents felt so strongly about their experiences in the GDR, that they would be willing to make a sacrifice to return to past times. Sieghard, when remembering a road trip he took with his family in the Trabant said,

*Today it is unimaginable that the four of us drove in this little car with a trunk full of stuff. But I tell you something, I would drive that car today. The GDR can come back and I would drive the Trabi again. I don’t need a car from the West. All really we want is security, which you don’t find anymore today. I would still drive it, it was a good vehicle. (Sieghard)*

Feelings of nostalgia are not only limited to the past, but can tell us about the present (Berdahl, 1999b). Ostalgie is as much about resistance to the market based economy as it is about remembering the past. Positive feelings toward the past have gained momentum and many East German brands are thriving (The Economist, 2003). Online retailers such as Ossiversand.de, Kaufhalle-des-Ostens.de, or Ostprodukteversand.de have soared from a few hundred (a few years ago) to more than 3,000 products. What looked like a short lived episode for those that didn’t seem to be able to separate from communist structures now has spread to the generation born after 1989, and even into parts of Western Germany. But ironically this resistance itself is in the market-based form of purchasing former East German Brands (which do not appear to be in shortage any longer). Many East German Brands (Ost-Produkte) and production facilities have been purchased by Western companies but brand preference for East German products returned after a trial period of products from the west.

## DISCUSSION AND CONCLUSION

Changing consumption patterns in post-industrial market economies causes increased feelings of alienation and isolation. Ironically, these feelings create a strong, often unconscious attraction to consumption experiences where social interaction, both proximal and distal, can occur. We find that East Germans tend to place a premium on place-based social networks and Eastern products precisely because greater feelings of social connectedness are created as each individual seeks to strike a balance in this self-adjusting discourse. In the West, and particularly the U.S., cultural convictions about individualism may suppress the need for social connectedness (Lasch, 1984). As need for belonging is a higher order need (Maslow, 1970), and community involvement often is low in the West (see Putnam [2000] for a representative example of a U.S. experience), Westerners may sublimate this need through consumption experiences that increase feelings of social connectedness. As a result, Western respondents may require coaxing - perhaps through less direct projective techniques - to reveal their need for social connectedness. In practice, marketers have found ways to embed social connectedness in which an entire customer experience is built around it. For example, the equity of the Starbucks brand includes the humanity and intimacy as a snapshot of what happens in the larger community. Starbucks' intention to offer a micro-image of the larger community it operates in has become a base for its success; important enough to communicate that Starbucks is not in the coffee business serving people, but rather in the people business serving coffee (Starbucks.com).

For example, Gainer (1995) finds that live performing arts attendance is driven in part by a need for social interaction. Individuals attend these events to pursue interpersonal goals and build bridges to socially distant acquaintances, and manage individual and community identities (Gainer, 1995). Similarly, in the GDR, consumers sought out interaction through their effortful and sometimes cumbersome marketplace experiences. The GDR's rapid shift from a planned economy to a demand economy was reflected in interviewees' responses. The pre- and post-1989 consumption patterns of East Germans reveal the power of social connectedness and nostalgia in consumption behavior. The radical economic transition in the former GDR sensitized its people to their motivations and feelings more so than individuals in non-transitional societies. Currently, all former Eastern Bloc countries, as well as parts of Southeast Asia and China, are in various stages of transitioning to a market economy. The study of transitioning consumers in macromarketing should be encouraged, because cross-cultural comparisons can yield insights into marketing's effect on society.

Social connectedness and Ostalgie represent promising domains for future research. Clearly, social connectedness can help consumer researchers and practitioners understand when and where social interaction is critical to consumption experiences. Social connectedness does not require a brand as a mediator; rather, when people's search for social connectedness, the marketplace provides an opportunity for marketers to create value. Success will require creative partnerships between consumers and producers that yield richer and more meaningful consumption experiences much like reflected in recent consumer driven shared consumption (Albinsson and Perera, 2012).

Other themes that emerged but not further explored within the context of this paper that may prove interesting for future research include: The possibility that a time lag may exist between the occurrence of nostalgia and the resultant demand for former East German products. For example, immediately after reunification, East German products were not available. Certainly the rise of Ostalgie triggered resurgence in demand of East German products, yet to some extent the products (and the marketers of these products) themselves may help to keep Ostalgie as a relevant force in Eastern Germany. Research focusing on this aspect may help to envision similar phenomena in other transitional countries and possible opportunities for marketers.



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## **BIOGRAPHY**

Dr. Marco Wolf is an Associate Professor of Marketing at the University of Southern Mississippi. He can be contacted at the Department of Marketing, 730 East Beach Blvd, Long Beach, MS 39560. Phone: 228214 3441. Email: [Marco.wolf@usm.edu](mailto:Marco.wolf@usm.edu)

Dr. Dennis Kopf is an Associate Professor of Marketing at University of Wisconsin – Whitewater. He can be contacted at the Department of Marketing, Hyland Hall 3422, 800 West Main Street Whitewater, WI 53190-1790. Phone: 262-472-6948. Email: [kopfd@uww.edu](mailto:kopfd@uww.edu)

Dr. Pia A. Albinsson is an Associate Professor of Marketing at Appalachian State University. She can be contacted at the Department of Marketing, Walker College of Business, Peacock Hall 4101A, Boone, NC 28608. Phone: 828.262.6197. Email: [albinssonpa@appstate.edu](mailto:albinssonpa@appstate.edu)



# **DETERMINANTS OF THE INDEX OF PRICES AND QUOTATIONS ON THE MEXICAN STOCK EXCHANGE: SENSITIVITY ANALYSIS BASED ON ARTIFICIAL NEURAL NETWORKS**

Stephanie Valdivia, Universidad Nacional Autónoma de México  
Arturo Morales, Universidad Nacional Autónoma de México

## **ABSTRACT**

*This study applies a neural network (NN) methodology to determine the relative variable impact between variables, established by financial theory, as determinants of Index of Prices and Quotations (IPC) on the Mexican Stock Exchange. A NN model is proposed because these variables have nonlinear and nonparametric behavior. NN models are most appropriate and efficient than conventional linear models in these situations. The architecture used to implement the network was Multilayer Perceptron (MLP) with a hidden layer. The following variables were used in the input layer: Index Dow Jones Industrial Average (DJIA), Consumer Price Index (CPI), International Reserves (RI), Yields on Treasury Certificates (CETES), Monetary Aggregate (M1), and Exchange Rate (TC). The algorithms applied to assess variable contribution were Connection Weights Approach and Garson's Algorithm. Then, a comparative analysis of the results of each algorithm was performed. We conclude the variable International Reserves has the greatest impact. Moreover, results allow quantifying the impact of each proposed variable on the IPC of the Mexican Stock Exchange. This study adds to research that demonstrates the efficiency of artificial neural networks for the simulation and provides a methodology to determine relative importance of financial economic variables.*

**JEL:** E31, C45

**KEYWORDS:** Financial Economic Variables, Mexican Stock Exchange, Artificial Neural Network, Sensitivity Analysis

## **INTRODUCTION**

In most cases, the relationship between financial economic variables are highly complex and display a non-linear behavior. Such is the case of variables that impact the stock market. The market works as an intermediary between debt instruments and actions, increasing the efficiency of funding because of the competition between various sources. It is a means to make long-term investments and for companies to obtain financing to carry out their investment projects. It is of interest identify the origin of variations in yield and the discount rate expected. An efficient method for modeling price indices is artificial neural networks. In this methodology the models are not parametric. This provides an advantage because the input variables should not meet normality or linearity criteria. An artificial neural network (ANN) mimics the structure and behavior of the brain to find a solution to different problems. Its objective is to find the functional relationship between input and output elements by using a set of mathematical algorithms that specify nonlinear relationships between data sets. They are usually used as tools for predicting trends, and to classify and determine the level of association between data sets. (Haykin, S., 1999).

Several studies indicate that neural networks fail to adequately simulate fluctuations in the levels of stock prices over time. But still, one needs further research to know to what extent each of the variables impact

performance of the Index of Prices and Quotations. This study presents an evaluation of two methods of sensitivity analysis, Connection Weights Approach and Garson's Algorithm, applied to variables determining the Index of Prices and Quotations of the Mexican Stock Exchange. These synaptic weights are obtained as output of from an artificial neural network. Comparison of association rates obtained with each of these methods is performed. The remainder of the paper proceeds as follows. In the literature review section, we present the related literature about neural networks applied on financial Economic variables and studies to try to determine factors that affect the behavior of the Index of Prices and Quotations on the Mexican Stock Exchange. The data and methodology section describes the data and defines the variables. It also describe the algorithms used to get the results. In results and discussion section, we show the sensitivity analysis and discussions. The paper closes with some concluding comments.

## LITERATURE REVIEW

This section summarizes the main findings of studies that try to determine factors affecting behavior of the Index of Prices and Quotations on the Mexican Stock Exchange. We describe variables used in studies that use artificial neural networks in financial economics. We also refer to studies that try to prove the superiority of artificial neural networks over other methods of modeling. These are the main studies that have been completed in Mexico. Arellano (1993), using the cointegration technique developed by Engle and Granger, found that movements of the DJIA have a direct impact on the Index of Prices and Quotations. For this reason he concludes that influence of US stock market movements have on the Mexican Stock is of great importance. Ibararán & Troncoso (1998) applied techniques on unit roots and cointegration to determine Granger causality on exchange rate and market indices. They conclude the exchange market is directly related to the stock market. Guzmán, Leyva & Cárdenas (2007) infer by an econometric evaluation, that the Index of Prices and Quotations on the Mexican Stock Exchange is directly explained by market value, exchange rate, and Yields on Treasury Certificates (CETES).

In the international sphere, the following are some of the most relevant studies. Fama and French (1989) conclude that market value and rates of interest have high explanatory power on the expected value of performance. Fernández-Serrano & Sosvilla-Rivero (2003) examines the linkages between US and Latin American stock markets using cointegration techniques and found a long-run relationship for the Dow Jones (DJ) index. Jawadi, Arouri, & Nguyen (2010) used multivariate cointegration tools to show that Argentina and Mexico's markets have a short-term financial dependence on the US Market. On the other hand, Kutty (2010) examined the relationship between stock prices and exchange rates in Mexico and used Granger causality to show that stock prices lead exchange rates in the short run, and there is no long run relationship between these two variables.

The recent increment in papers that use artificial neural networks to model financial economic variables has proven that neural networks have powerful pattern classification and prediction capabilities. Parisi & Guerrero (2003) analyzed the predictive ability of neural network models to predict changes in stock indexes. They conclude that neural network models outperform autoregressive integrated moving average (ARIMA) models. Gonzalez, de Faria & Albuquerque (2009) performed a predictive study of the principal index of the Brazilian stock market through artificial neural networks and the adaptive exponential smoothing method, respectively. The goal is to compare the forecasting performance of both methods on this market index, and in particular, to evaluate the accuracy of both methods to predict the sign of the market returns. They conclude that both methods produce similar results regarding the prediction of index returns. On the contrary, neural networks outperform the adaptive exponential smoothing method in forecasting market movements. They find relative hit rates similar those in other developed markets. Shachmurove (2010) used artificial neural networks to examine dynamic interrelations among major world stock markets, concluding that Multilayer Perceptron models with logistic activation functions were better able to foresee daily stock returns than traditional forecasting models, in terms of lower mean squared errors.

**METHODOLOGY**

From existing studies, the following variables were selected as inputs for the model: 1.) Index Dow Jones Industrial Average (DJIA), 2.) Consumer Price Index (CPI), 3.) International Reserves (RI), 4.) Yields on Treasury Certificates (CETES), 5.) Monetary Aggregate M1, and 6.) Exchange Rate (TC). The database was built with monthly values of variables mentioned from January 2000 to May 2015. To develop the model, nonlinear architecture known as neural network Multilayer Perceptron is used. This architecture came from the evolution of Simple Perceptron. This methodology can only classify linearly separable sets. Its main advantage is that it allows network training to be performed in hidden layers, i.e., layers that do not directly connect the inputs and the outputs.

Architectural alternatives were tested on the MATLAB platform, to find the optimum number of neurons in the hidden layer. By comparing the goodness of fit of each architecture through the correlation coefficient, we determined the most efficient architecture is one of ten neurons in the hidden layer. Therefore, the optimal architecture is, seven neurons in the input layer, one per input variable, ten neurons in the hidden layer, and one neuron in the output layer, the output variable, in this case the Index of Prices and Quotations. The network achieves minimized error within the first ten iterations, stopping its training where the validation reaches the slightest error. There are three stages in the development of neural network models: training, validation and testing. Table 1 shows the results for each stage. Results show the model has a global setting of 0.99595.

Table 1: Goodness of Fit

Stage	Goodness of fit
Training	0.99704
Validation	0.99262
Test	0.99551
Global	0.99595

*This table shows the goodness of fit of each stage of the neural network model.*

Garson’s Algorithm

Garson proposed a method of partitioning neural network weights to determine the relative importance of each input variable in the network. This algorithm, as shown by Equation 1, calculates the relative contribution of each variable by the product of the weights obtained from the input layer to the hidden, and the weights of the hidden layer to the output (Garson, 1998). The next formulas represent calculation of variable importance for predictor variable X (where X = 1 to 7) using the weights connecting each of the input neurons Z (where Z = 1 to 7) to each of the hidden neurons Y (where Y = A to J) to the single output neuron. (Olden, Joy & Death 2004)

$$Input_X = \sum_{Y=A}^J \frac{|Hidden_{XY}|}{\sum_{Z=1}^7 |Hidden_{ZY}|} \tag{1}$$

Connection Weights Approach

Garson’s algorithm, as shown in Equation 2 uses absolutes values of the connection weights, so it does not provide information on the effect of input variables directly or inversely related to the output. Olden et al. (2004) presented a connection weights approach in which the actual values of input-hidden and output-hidden weights are taken. This method sums the products across all the hidden neurons (Olden & Jackson, 2002).

$$\text{Input}_X = \sum_{Y=A}^J \text{Hidden}_{XY} \tag{2}$$

**RESULTS AND DISCUSSIONS**

Values of synaptic weights are summarized in Table 2. Each weight represents the intensity of signal transfer between one neuron and another.

Table 2: Synaptic Weights

Input/Hidden	A	B	C	D	E	F	G	H	I	J
RI	2.97	-0.03	-0.46	-0.04	-0.73	0.17	-0.09	0.07	0.07	0.38
M1	-0.42	-0.10	0.47	-0.02	0.86	0.09	0.00	-0.56	0.16	0.37
DJIA	-0.59	0.08	-0.15	-0.03	0.29	-0.12	-0.07	0.11	0.43	-0.41
TC	0.89	0.15	-0.31	0.02	-0.82	0.06	0.34	-0.06	0.47	-1.07
CETES	0.38	-0.00	0.61	0.04	-0.42	0.00	-0.02	0.17	0.08	0.39
INPC	-0.71	-0.02	0.40	-0.00	-0.07	0.02	0.42	0.32	-0.02	-0.55
CPI	0.35	0.04	-0.10	-0.02	1.23	-0.23	0.10	0.08	-0.30	0.12

*This table shows the synaptic weights between input layer and hidden layer.*

Following the methodology described, the sensitivity analysis is presented in Table 3. According to Connection Weight Approach, the variable International Reserves has the greatest impact (36.8 %) while the Garson’s Algorithm placed second with 16.5%, considering the Exchange Rate in the first place (20%). We see that both results are similar but the Connection Weight Approach has the added advantage of showing the positive or negative effect of input on output.

Table 3: Relative Importance of Inputs

Input	Garson’s Algorithm		Connection Weight Approach	
	Relative Importance (%)	Ranking	Relative Importance (%)	Ranking
RI	16.5	2	36.8	1
M1	15.4	3	13.7	3
DJIA	13.1	5	-7.3	5
TC	20.0	1	-5.5	6
CETES	9.5	7	12.9	4
INPC	12.2	6	-3.5	7
CPI	13.2	4	20.3	2

*This table shows the relative importance of different inputs as per Garson’s Algorithm and the Connection Weight Approach.*

**CONCLUSION**

In this paper, the relationship between main factors, according to economic theory, that act as determinants of Index of Prices and Quotations (IPC) on the Mexican Stock Exchange was analyzed. The goal was to determine the relative variable impact of each variable. We used a methodology based on artificial neural networks because they provide the best approach for this type of variables. The architecture implemented was Multilayer Perceptron with a hidden layer. We used the Garson’s algorithm and the Connection Weight Approach to determine significance of each variable. But, there are other methods that can be applied. From the results of this analysis, we note that behavior of Index of Prices and Quotations is mostly determined by International Reserves. A change of one percentage point in that variable causes a variation of 36.8% in the Index of Prices and Quotation. The same relation applies to the remaining variables according to the sensitivity analysis presented in Table 3. The artificial neural network model allowed us to verify the relationship and determine the significance of each variables proposed. This study adds to research that prove the efficiency of artificial neural networks for simulation and provides a methodology that can be used to determine the relative importance of financial economic variables.



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## BIOGRAPHY

Lic. Stephanie Aracely Valdivia Enríquez has a degree in Applied Mathematics and Computing from the Universidad Nacional Autónoma de México (UNAM) and is working toward the Master in Finance. She can be reached at: [stephanie\\_aracely@hotmail.com](mailto:stephanie_aracely@hotmail.com)

Dr. Arturo Morales Castro has a degree in Economics, Master in Finance and Doctor in Management Sciences from the Universidad Nacional Autónoma de México (UNAM). He professor and full-time researcher at the Faculty of Accounting and Administration in UNAM. He can be reached at: [arturo\\_moralesc@hotmail.com](mailto:arturo_moralesc@hotmail.com)

# **CAREER STRATEGIES OF HOTEL MANAGERS IN CANADA**

Candace Blayney, Mount Saint Vincent University  
Karen Blotnicky, Mount Saint Vincent University

## **ABSTRACT**

*The purpose of this paper is to explore career strategies used by hotel managers in Canada. An online survey was conducted of 60 hotel general managers across Canada, including 30 male and 30 female respondents. The results indicated that gaining experience and mentoring are the main strategies used for career advancement for men and women. Gaining experience was obtained by asking for challenging projects and moving properties. Some personality factors were identified as “willingness to learn” and “determination”. This study allows a better understanding of how men and women develop their careers in the Canadian hotel industry, an important one consisting of over 8,000 properties and generating revenues of \$16.7 billion in 2013 (PKF, 2014). The Canadian hotel industry has little scholarly research. Further research into how work experience can be leveraged more efficiently into career building strategies and how personality factors impact career development is required.*

**JEL:** M12, M50, M51

**KEYWORDS:** Hotel Managers, Career Strategies, Management Development, Canadian Hotel Industry

## **INTRODUCTION**

The hotel industry in Canada is an important part of the economy. It consists of over 8,000 properties and 440,123 rooms, generated revenues of over \$16.7 billion in 2013, and employed 287,000 people directly (PKF, 2014). The properties included in this inventory are over 30 rooms in size and are open on an annual basis. Only 53% of the hotel rooms in Canada are branded which indicates a large number of managers do not have the support or resources of a large hotel company. The hotel industry places great demands on its general managers due to the nature of the work. It is a 24 hour, 365 days a year enterprise, requiring a high level of personal interaction with staff and customers. Hotel managers are required to make fast decisions especially in today’s competitive business atmosphere. Christine Maassen, senior vice-president of Human Resources at SilverBirch Hotels and Resorts, based out of Vancouver, British Columbia, Canada describes the industry as such: “Think about it,” she says, “the hotel industry is all about human interaction and that translates into a daily parade of unpredictability” (Pratt 2012, 23). Hotel properties are high cost real estate and must generate corresponding high revenues to be financially viable. In this complex work environment the hotel general manager (GM) is critical to the success of the business as he/she holds the key executive position (O’Leary and Deegan 2005).

Regardless of the high stress and long working hours in the hotel industry, people still strive to achieve the executive position of hotel general manager. Mkono (2010) found the attractiveness of this position and the industry was due to pleasant environment, challenging work, networking with various types of people, and the glamour/prestige of the position and industry. The global nature and dynamic and exciting characteristics of the industry can be a lure to those who crave stimulating working

environments. If one wishes to reach a certain level of management in a specific professional environment it is important that they become familiar with the appropriate career progression strategies. To enhance and advocate attractive careers, hotel organizations need to create clear career sightlines to the key executive positions. The hotel industry is very traditional in its career progression, demanding entry level experience and slow movement up the corporate ladder. Research on hotel managers in Korea found “The average length of time it took to become a super deluxe hotel GM was 18.4 years after starting a hotel career” (Kim, Chun, and Petrick 2009). The hotel industry is global. Many Canadian managers gain international experience as they develop the competencies required. Therefore, it is important to examine hotel management capabilities and career paths in a global context even though this study is focused on Canada. There is a large gap in research on the hotel industry in Canada. In a search using a Canadian university library database, only six scholarly articles were found on the Canadian hotel industry. In a wider search using Google Scholar only nine scholarly articles were directly related to the Canadian hotel industry. This study explored how hotel general managers in Canada acquire the knowledge and skills required to manage successfully in such a complex and demanding business. Does success depend primarily on education and experience, or are other factors involved? The paper is organized as follows. The next section is the literature review and is followed by the data and methodology that was used in the research. The results are presented next with a discussion and then concluding comments.

## LITERATURE REVIEW

Career progression in the hotel industry usually followed a traditional path based on linear progression usually in one or two companies. However, recently there is research that indicates a more flexible career path may be evolving that includes mobility between organizations, and even mobility between industries. This is referred to as ‘boundaryless’ careers (Ayres 2006). This ‘boundaryless’ may be due to the volatile nature of the industry and one can no longer expect to spend a full lifetime with one organization. Careers can now take different forms rather than be bounded by one organization. Regardless of how one pursues their career, management development occurs as one progresses through different career stages. There are many definitions of management development (aka capability acquisition) (Cullen & Turnbull 2005). As described by O’Connor and Mangan (2004 as cited by Cullen and Turnbull 2005) management development:

*...includes both the personal and career development of an individual manager (i.e. attendance at formal development programmes, seminars, conferences and also informal learning through methods such as coaching and mentoring, etc.). It also includes management education, which is achieved through formal undergraduate/postgraduate qualifications (339).*

To become a proficient manager of a complex business such as a hotel requires competency in a number of areas that Morgan (2002) refers to as Performance Building Blocks as part of the Holistic Career Pyramid Model. These blocks consist of expertise in four areas: technical, aptitude, initiative and relational. As an employee moves from entry-level position to supervisor, management and possibly executive level, these building blocks become developed and lay the foundation for the career. The stronger the blocks’ base, the greater the potential becomes for a higher career possibly leading to the key executive level. See Appendix A for a figure of the Holistic Career Pyramid Model. The Holistic Career Pyramid Model can aptly be used to describe the career progression of a hotel manager as shown in Table 1. The entry-level positions include back of house or non-customer contact areas (housekeeping, accounting, and kitchen) and front of house with high customer contact positions (bell, front desk, and concierge). These positions offer education and professional experience as the groundwork. As the technical knowledge is accrued and aptitude and initiative are exhibited by the incumbent, the next step is the supervisor position where aptitude and initiative can be displayed and relationships are built with customer, peers and managers. The Career Building Opportunities stage occurs when one becomes an

assistant manager of a department, and participates in special teams, such as specialized committees of the hotel. Global assignments occur when experience is gained in all other departments through job rotation, which may occur informally or in a formal management training program. The Leadership Proving Ground occurs upon the promotion to full Department Head where leadership is exhibited in functional, procedural and strategic forms. If one is successful at this stage, the next stage is the position of Assistant General Manager, which requires global knowledge and functionality of all of the departments. The next step in the career ladder is Hotel General Manager, which is the Key Executive position. The most significant challenge within these career stages is the change “from technical, functional, and tactical roles in the career-building band to those requiring strategic, leadership, and general management skills in the leadership-proving band of the career pyramid” (Morgan 2002, 42). Morgan also noted that an asset that will distinguish those who reach the executive level is “the constant pursuit of personal growth” (43). This will be influenced by the person’s career goals as some will not wish to pursue higher positions and may be content at a lower level position. Mentoring and professional coaching are important tools to continue professional development.

Table 1: Holistic Pyramid Model Compared to Hotel Career Pathway

Holistic Career Pyramid Model Stages	Hotel General Manager Career Stages
Market-entry	Entry level position
Performance Building	First line supervisor
Career-building	Assistant Department Head
Leadership Proving Grounds	Department Head
Senior-leadership Role	Assistant General Manager
Key Executive	Hotel General Manager

*This table describes the stages in the Holistic Career Pyramid Model developed by Morgan (2002) and how the career of a hotel general manager follows the same pathway and stages.*

In a review of research on strategies used by hotel managers to achieve career success, Akrivos, Ladkin and Reklitis (2007) found the following seven dominant strategies out of a total of 33 identified by 65 hotel managers of deluxe properties in Greece. They included:

- Keeping informed of the opportunities in the company
- Always trying to improve communication skills and abilities
- Acting with enthusiasm and smile.
- Being flexible and able to adapt to any changes
- Aiming to establish good interpersonal relations with hotel owners and tour operators.
- Paying attention to personal image by caring about presentation and speech
- The ability to handle diversity effectively (112)

Interestingly in this research, the least used strategies included using contacts in the industry (networking), having a mentor, and membership in professional groups. This does not agree with Bailey & Hubbard’s study (2006) on various manager positions in the southeast United States hotel industry where strategies selected affecting career advancement “...included mentoring, networking, and quality of work life factors” (61). Kim, Chuyn and Petrick (2009) found in a study of 34 hotel managers in Korea that being hard-working, honest, and setting long-term career goals, were the main strategies used to reach their positions. Ladkin (2002) in Australia found in a sample of 180 hotel managers that always being prepared to relocate, moving to gain experience, and long-term career goals, were important career strategies. An earlier study of hotel managers in Mauritius (Ladkin and Juwaheer 2000) resulted in the following list of career progression strategies:

- Moving around to gain knowledge and experience
- Continuing to take courses and improve education and skills
- Being prepared to work abroad

Taking opportunities offered by company training schemes  
Having clear long-term career goals  
Learning a foreign language  
Always putting career first  
Being prepared to relocate (124).

The frequent mentioning of moving and relocating from the managers in Mauritius may be due to the small hotel industry located on this island, making it necessary for managers to move off of the island into a larger hotel market in order to obtain the required experience. There does not appear to be agreement on career strategies used but some of the common threads in the research include mobility or moving properties to gain experience, mentoring and networking. As the research has been conducted in various countries including Australia, Greece, southeastern United States, Korea and Mauritius, cultural factors could be at play that influence career progression strategies. Research in China found that organizational factors had greater impact on career competencies as opposed to the Western practice of individual factors (Kong, Cheung and Song 2011). Employees in China depend on their organization to advance their career compared to those in the West who tend to be more independent.

#### Learning from Experience - Challenging Projects and Mobility

Li, Gray, Lockwood and Buhalis (2013) found that hotel general managers learn to manage the hotels mainly through experience. Their experience consisted of four stages: Being Challenged, Information Searching, Information Transformation, and Testing. According to Enos, Kehrhahn and Bell (2003) "...managers consistently reported learning ...core managerial skills mostly from informal learning activities" (377). Informal learning as constructed by Dewey (1938) and then later Kolb (1984) included learning from experiences in their daily work. Kolb's work on experiential learning highlights a very important aspect of professional development in the hotel industry as the general manager is involved in many different working environments that demand multiple priorities. Both the amount and variety of experiences in one's career would lead to greater development of skills and contribute to management competency. When researching experiences that create leaders, De Rue and Wellman (2009) listed work characteristics that creates a developmentally challenging work environment as follows: unfamiliar responsibilities, creating change, high levels of responsibility, working across boundaries, and managing diversity. Mobility in the hotel industry that involves frequent relocation, sometimes including international postings, would certainly encompass these characteristics.

Other projects that may incorporate these work characteristics include: repositioning or rebranding a hotel, working under new ownership, overseeing major renovations, or opening a new property. These experiences are all recognized as major developmental assignments in the industry. An interesting find in the DeRue and Wellman (2009) study was that the "...developmental value of a work experience begins to diminish after an optimal amount of developmental challenge is reached" (869) which may be an explanation for "management burnout" situations in which managers become over challenged. The balance of developmental experience and overly stressful experience would depend on the individual as coping mechanisms vary across individuals. In a study of restaurant managers it was found that individuals with higher levels of optimism were better able to cope with stressful situations (Hayes and Weathington, 2007). Offering developmental experiences can be a strong motivator and may also decrease turnover: a serious human resource constraint in the hotel industry. When researching factors that enhance commitment to organizations, Walsh and Taylor (2007), in their research focusing on factors that enhance commitment to organizations, found the number one response was having challenging jobs that allowed growth. Mobility is used by an individual who wishes to reach the position of hotel manager in two ways. First, the incumbent must ensure their supervisor knows they are willing to move to gain the experience required. This will ensure they are seen to be serious about their careers and identify them as interested in further career opportunities. Second, the mobility itself is accepted as the main learning tool

in the hotel industry as it exposes the individual to new people, new markets and customers, new products, and possibly new cultures.

Mobility as a factor for career development has been researched and found to be used frequently by managers in the tourism industry. Ladkin and Riley (1996) discovered UK hotel managers with seven jobs in their careers, moving every three to four years. Later research found senior managers in tourism with an average of a career mover every three years (Ayres 2006). McCabe (2008) found 45% of individuals working in the convention industry in Australia relocated geographically within Australia and 34% worked in another country. Clearly mobility is seen as a career developer or else the people that work in the industry like to move and visit other areas.

It appears that learning through challenging jobs is very fitting for one who wishes to pursue a career in the hotel industry. High mobility, frequent international movement, and high business volatility can create very challenging situations. Only certain types of individuals would be attracted to this environment. There is little research on personality types in the hotel industry, but an early study found the following traits were identified by hotel general managers as contributing most significantly to their career advancement: hard work, interpersonal skills, determination, fairness, honesty, and integrity (Brownell 1994). Seibert and Kraimer (2001) found extraversion, one five personality dimensions, was related positively to salary level, promotions and career satisfaction in a diverse sample of managers. The other four dimensions of personality are neuroticism, openness to experience, agreeableness, and conscientiousness. Research with international hotel managers identified psychological characteristics of commitment to career and development as important for career advancement (Garavan, O'Brien and O'Hanlon 2006).

### Mentoring in the Hotel Industry

“Sometimes”, sighs Trevor Bracher, director of Service Culture for Stamford, Connecticut, US – based Starwood Hotels and Resorts, “running a hospitality business feels like you’re trying to change a tire while moving 100 miles an hour” (Pratt 2012). Starwood Hotels and Resorts Worldwide, Inc. is one of the largest hotel companies in the world with close to 1,200 properties in 100 countries and 181,400 employees (Starwood 2014). This statement indicates the typical feeling of managing a hotel and how hectic the workday can become. Starwood launched a mentorship program in 2010 to give managers the opportunity to develop necessary skills. High-potential employees are identified and paired with an experienced manager. The mentoring process is described as a relationship between an experienced veteran and one who is interested in progressing in their career. Murphy and Ensher (2001) found mentoring and self-management strategies used together may provide important benefits for employees and entering into a mentoring relationship may be an effective means of taking responsibility for one’s own career. Murphy and Ensher (2001) also found positive benefits in that, “Mentoring and self-management strategies each contributed uniquely to satisfaction and perceived career satisfaction” (p. 229). The research on mentoring describes positive outcomes for both sides of the relationship (D’Abate and Eddy 2008; Ayres 2006; Joiner, Bartram, and Garreffa 2004; Gong, Chen and Yang 2014; Murphy and Ensher 2001). Little research can be found on mentoring in the hotel industry, but it is assumed it would have the same benefits. Garavan, O’Brien and O’Hanlon (2006) did find support in their research that hotel managers who networked and had a mentor achieved higher career advancement.

Many hotel chains have mentoring programs to assist in the development of their managers. Mentoring can be a very cost-effective method of training. “There are so many cheaper, more cost-effective ways of training staff that you should think of first. For example, one that we recommend very highly is a mentoring scheme” says Jane Sunley, CEO, Learnpurple, a hospitality training firm (Vaughn 2012). The Rezidor Hotel Group has the Mentor Mentee Programme, Carlson Hospitality Worldwide has introduced a national mentoring program called Groundhog Job Shadow Day held every February 2, and The Ritz-

Carlton Hotel Company received an award in 2014 from the National Mentoring Partnership and the Corporation for National and Community Service (CNCS) for their mentoring program. However, when one looks closer into the mentoring program of hotels, many are directed to youth and not to current managers within the organization. Due to the close working relationship characteristics of the hotel industry where team work is very prominent, mentoring is often believed to occur informally. There is little recent research on formal mentoring in the hotel industry. However, Ayres (2006) found in that in Australia's general tourism industry mentoring and mobility were key strategies for career success.

### Career Theories

There are many theories that are used to explain how one progresses through their career. 'Boundaryless' careers, coined by Authur & Rousseau (1996), explain how one may opt in and out of organizations and even different industries, linear progression occurs as one climbs the organizational ladder and Social Cognitive Career Theory (SCCT) examines the environmental variables and the person's variables and their impact on their career progression. The Happenstance Learning Theory (HLT) formulated by Krumboltz (2009) attempts to explain how individuals follow their career paths through life. "HLT posits that human behaviour is the product of countless numbers of learning experiences made available by both planned and unplanned situations in which individuals find themselves" (Krumboltz 2009, 135) . This theory takes into account the myriad of unplanned events that occur in one's career path and that it is important to be able to effectively manage these unplanned events as well as have planned ones. Learning to effectively handle a variety of experiences, including quickly emerging challenging situations, is important for hotel GMs. Hotel managers will face many unplanned events due to the very nature of the industry and those who are best prepared to take these events in stride and to see the opportunities created would be the most successful. Taking advantage of planned and unplanned learning experiences and how to capitalize on the opportunity offered is a key part of this theory. This may explain why much of the research on hotel careers in management indicate that challenging projects and experience are keys to career progression.

### **DATA AND METHODOLOGY**

This study employed both qualitative and quantitative methodologies. The goals of this part of the research were to determine how male and female hotel general managers ranked career development strategies, as well as addressing two key research questions that had been developed from the literature review. These research questions were: What do hotel general managers in Canada identify as the most important factors that contributed to their capability development? Do women and men agree on these factors? A link to an online survey was sent to general managers via email. Data was collected 2012 to 2013. Provincial and territorial hotel association web pages from across Canada were used to develop an email list for hotel managers in Canada. Some hotel associations posted a link to the survey on their websites. In other cases, individual hotel managers were emailed directly to invite them to participate in the survey. Approximately 500 invitations were sent to individual hotel managers. The survey was cleared by the university ethics review board prior to data collection. A total of 60 usable surveys were obtained from the general managers resulting in a balanced gender sample of 30 surveys from men and 30 surveys from women. This was a response rate of 12%, resulting in a sufficient sample for an exploratory analysis of the data and an overall margin of error not exceeding plus/minus 13%, 19 out of 20 times.

The survey contained ranking questions that included career development strategies presented in the literature. First, respondents were asked which of six career development strategies listed they used to develop their current capabilities. The list of strategies was developed from the literature and included: used mentor, moved properties/locations, asked for challenging projects, maintained memberships in professional associations, completed management training program within the organization and attended classes at an educational institute. Then respondents ranked the strategies in order of importance from 1,



being the most important, to 6, being the least important. Second, respondents were asked what they believed was the most important factor that helped them to develop the skills and knowledge that they have today. The open-ended question format allowed respondents to list anything they felt was relevant. A median test was used to determine if there were statistically significant differences in the ranking of career development strategies by gender. Due to the qualitative analysis of anecdotal responses, significance tests were not conducted to compare the responses of men and women for individual themes. Instead, the analysis was based on a visual comparison of the responses for each of the career progression factors across all respondents and then by comparing the results for male and female respondents.

Demographic data was collected to obtain a general description of the sample. The strategy ranking question was analyzed to find the median of the rankings for the career development strategies. Content analysis, using qualitative analysis software, was used to examine the statements from the question regarding important factors in capability development. Content analysis is used frequently in the analysis of text from interviews or open ended questions. It is defined as “a systematic analysis of texts (which may be printed or visual) to determine the presence, association, and meaning of images, words, phrases, concepts, and/or themes” (Bryman, Bell, Mills, and Yue 2011, 375). The content analysis resulted in a set of thematic statement groupings. Statements that contained more than one theme were coded more than once, allowing for an increased number of codes. This provided a more comprehensive theme count. The anecdotal responses were coded by two researchers to ensure consistency of the coding. Disagreements between coders were resolved through discussion resulting in consensus on the coding of each theme. The coding was complete when all of the themes were analyzed and consistently coded. .

## RESULTS

The demographic profile of the respondents appears in Table 2. There were an equal number of men and women and the average age was 45.7 years ( $SD = 8.09$ ). The educational level of the overall sample was 37.3% with a college education, 25.4% with a university undergraduate degree and 20.3 % with high school. This indicates that respondents had invested in education. Salary levels ranged from \$30,000 to \$50,000 to over \$170,000 with the majority (24.6%) earning in the \$71,000 to \$90,000 range. The mean number of years in the position of general manager was 8.53 years ( $SD = 6.42$ ) and the mean for years in management was 19.28 ( $SD = 8.91$ ), indicating a fairly high tenure rate. Mobility had a mean of 3.7 ( $SD = 2.99$ ) moves. The size of the hotel properties mainly fell into the under 250 room category with only 17.3% having over 250 rooms.

The results of the career strategy rankings are shown in Table 3. The most important factor that helped to develop current skills and knowledge that was stated most frequently was “experience”, followed by “mentoring” and “training”. There were no significant differences between the median rankings of men and women on these factors. Table 4 contains the themes from the open-ended question indicating the most important factor that contributed to their skills and knowledge. Comparing the ranking list in Table 3 to the open-ended statement list in Table 4 indicates a fairly high level of agreement. “Asking for challenging projects” and “moved properties/locations” are the two highest ranked items, agreeing with “gaining experience,” the number one theme identified as a means of developing their skills and knowledge. “Asking for challenging projects” and “moved properties/location” are recognized by managers as the main methods used to gain the required experience. Mentoring is also agreed upon as a major strategy followed by training and education. The main difference between the two lists is “mobility.” This factor was not mentioned as often in the anecdotal responses, but it was ranked third out of the six career strategy items. This could be due to the respondents assuming that experience is gained by working in various departments within a hotel property as well as by moving properties with possible international relocations.

Table 2: Demographics of Respondents

Variable		%	Mean (Std Dev)
Gender (n=60)	Male	50	
	Female	50	
Education (n=59)	High school	19	
	College (2 year)	37	
	University degree	27	
	Post graduate study	10	
	Other	7	
Salary (n=60) (CD\$)	\$30,000-\$50,000	5	
	\$51,000-\$70,000	18	
	\$71,000-\$90,000	25	
	\$91,000-\$110,000	23	
	\$111,000-\$130,000	7	
	\$131,000-\$150,000	4	
	\$151,000-\$170,000	4	
Over \$170,000	16		
Regions (n=56)	Alberta	36	
	Nova Scotia	29	
	British Columbia	16	
	Ontario	13	
	Newfoundland	5	
	Saskatchewan	2	
Size of property (n=58)	30-125 rooms	43	
	126-250 rooms	40	
	251-475 rooms	12	
	Over 475 rooms	5	
Age (n=58)			45.74 (8.09)
Number of years in current position of general manager (n=57)			8.53 (6.43)
Years in management (n=57)			19.28 (8.91)
Number of positions prior to this one (n=54)			6.43 (3.89)
Number of moves to obtain a higher position or promotion (n=57)			3.7 (2.99)

The table contains the demographic information on the respondents, gender, education, salary, geographic location, size of property, mean age, years in management, position and number of moves.

Table 3: Ranking of Strategies to Acquire Capabilities

Capability	Median Rank	Sum of Scaled Ratings
Asked for challenging projects	2.00	127
Moved properties/locations	2.00	130
Used mentor	2.00	147
Management training or organizations	3.00	189
Classes in educational institute	4.00	200
Membership in professional associations	5.00	212

This table shows how the general managers ranked the list of strategies provided in the survey. There are three strategies that are equally ranked the highest. They are "Asked for challenging projects", "Moved properties/locations", and "Used mentor".

Table 4: Important Themes Identified to Develop Skills and Knowledge

Factor Identified	Total Number	Women	Men
Gaining experience	24	13	11
Mentoring	11	5	6
Training	7	3	4
Education	6	3	3
Mobility	6	2	4

*This table identified the major themes from the open-ended question, "What do you believe is the most important factor that helped you to develop the skills and knowledge that you have today?" The major theme was "gaining experience" which both men and women agreed upon followed by "Mentoring".*

To further explore the theme of "gaining experience", samples of the anecdotal responses within this code are provided below. The statements relate to different locations and exposure to different departments as part of the required experience as well as the need to work hard to and to embrace learning experiences.

*"Working in different locations for various size of hotel and brand"*

*"Years of experience in the business, working closely with some influential mentors"*

*"Experience in as many departments as possible. Willingness and enthusiasm to learn new tasks and skills. Must show initiative and at times making personal sacrifice"*

*"The multitude of jobs and the variety of skills gained in many different divisions and environment."*

*"Working my way through the ranks learning multiple positions gaining knowledge and skill in each area"*

*"Worked hard, watched and learned from those who performed well, developed an excellent work ethic, always applied for advancements"*

The following are examples of statements under "mentoring". Most of the respondents did not reference formal company mentoring programs, instead relating to the mentoring process as more of an informal experience.

*"Working with great General Managers that were before me"*

*"Years of experience in the business, working closely with some influential mentors"*

*"Gaining different experiences from different operations and different mentors/bosses"*

*"Be exposed to great leaders that inspired me at being the best"*

*"On the job training, completing workshops with IHG, learning from mentor"*

*"Chose properties with excellent leaders"*

*"I was fortunate to work with great people in a brand that believed in developing and nurturing its colleagues"*

A number of the anecdotal responses also contained indicators of "willingness to learn" and "determination". These are commonly heard traits required in such a dynamic industry as the hotel

industry and it agrees with previous research by Brownell (1994). Below are examples of the statements related to these strategies.

*“Willing to work and learn on own time. Chose properties with excellent leaders”*

*“Consistently put myself in position to grow personally. Do not allow fear to stop from moving out of comfort zone. Experience and learn at every opportunity”*

*“Search for new ideas, concepts. Be curious, visit high end hotels when traveling. Network, be known. Adaptability and flexibility. Willing to move to key properties around the world”*

*“Having a goal and not accepting that this goal couldn't be reached. I moved internationally also and gained further global knowledge and training which has definitely assisted me. I trained in 4 & 5 star hotels in Europe and focused my career in this hotel sector. Learning each position thoroughly and understanding all roles has given me a better understanding from now GM and I am very hands on”*

*“Type of personality I am. You can learn all you like but if you are not a natural leader, have an engaging personality and enjoy an ever changing environment, you'll find it really hard. Let us not forget luck, being in the right place at the right time!!!”*

*“Not being afraid to ask questions. Not being afraid to take risks and to put myself out there”*

*“Experience in as many departments as possible. Willingness and enthusiasm to learn new tasks and skills. Must show initiative and at times making personal sacrifice.”*

## DISCUSSION

The key research questions for this study were: What do hotel general managers in Canada identify as the most important factors that contributed to their capability development? Do women and men agree on these factors? In response to the first question, the findings indicate that the main factors used by hotel managers for capability development are asking for challenging projects, moving properties, gaining experience and mentoring. In order to gain the highly valued experience in which to learn, working in various departments and in various hotels is key. This explains why opening new properties and mobility is so important in the hotel industry in Canada. These two strategies are perceived as a way of obtaining the required competencies to be a successful hotel manager. Greater experience and in varied situations usually creates greater capabilities. Li, Gray, Lockwood and Buhalis (2013) found the learning process involves being challenged, information searching, information transformation and testing. When general managers are in a situation they have not experienced before, they feel challenged and this initiates the search process. Different channels may be used to find the information required such as approaching their corporate resources, colleagues or experts. This learning process is very much noted in the quotes from this research of willingness to learn. It appears that one must have the desire to learn and enjoy the process for it to be effective.

These findings agree with Li, Gray, Lockwood and Buhalis (2013) and Enos, Kehrhahn and Bell (2003) indicating that hotel managers learn from experience rather than from formal education or training. This is interesting considering that this group of respondents has invested in education. Eighty percent of respondents had a college education, a university degree, or postgraduate study. Burgess (2010) states from her study with hotel financial controllers that “...the move towards being more professional seems to be driven by the desires of the individual rather than by their organizations or their professional association, despite the demands of the stakeholder” (691). Clearly there is an opportunity for hotel organizations to bridge this gap and build on the desire and outcomes of experience. In response to the

second research question there were no apparent differences regarding the factors leading to capability development between men and women. Lyness and Thompson (2000) in their research on multinational financial companies found that female executives had fewer developmental assignments and less mobility than their male counterparts. Later research on the careers of professionals in the United States who made \$100,000 or more in annual personal income found a high degree of similarity between men and women in their career path characteristics (Burke and Attridge 2011). The career strategies of men and women in the hotel industry require further research.

To ensure that experience is appropriate for management development, hotel companies need to track informal learning and create supportive structures to enhance experiential learning. Human resource managers also need to ensure that individuals are not deployed into overwhelming situations where the learning will become diminished or burn-out will occur. Moving managers too quickly into various challenging situations may not allow the time required for reflection, or discussion with others, about their learning experiences. Human resource practices that can facilitate learning from experience may include: initiating projects and encouraging managers to take leadership roles; use of technology to allow sharing of information and possible chat lines for just in time information; and offering a safe arena where testing of new information or new practices could be encouraged. Mistakes need to be made for learning to occur and organizations should "...emphasize that mistakes are an expected and acceptable part of the development process and that individuals should view their mistakes as cues of learning and development" (De-Rue and Wellman 2009, 871). Traditional management development consultant courses can still be valuable but hotel organizations need to be aware that most learning does occur through experience. A manager who has evidence on their resume of experiences in developmental projects such as hotel openings, rebranding of hotels, working with new owners or even the closing of a hotel will have a competitive edge over other candidates.

From analysis of the responses from the open ended question "What is the most important factor that helped you to develop the skills and knowledge that you have today?" three themes emerged: "gaining experience" such as working in different locations, "mentoring" such as "being exposed to great leaders", and the "willingness to learn" and "determination". These responses support the ranking of the strategies. Mentoring was rated third on both the ranking list and in the frequency in the statements from the open ended question in this study. In the hotel industry mentoring programs may not be as prevalent as they could be. One reason for the lack of mentoring programs could be time constraints, as time commitment is required to build the relationship. Another reason may be personality-related, as managers lean towards self-learning actions and do not want to be viewed as needing assistance. Also, there are those who believe the mentoring relationship should be a natural one, and not forced by company policy. With time constraints being so prevalent for those working in the hotel industry, it is not surprising that many relationships suitable for mentoring do not occur naturally. However, some respondents indicated that mentors played an important role in career development and mentoring fits easily within other opportunities for growth. Relocating to learn new opportunities, or working hard to show engagement and responsibility, are excellent opportunities for potential mentors to share their knowledge and experience while also providing guidance and developing in-house managerial talent.

The personality characteristics found in this study were interesting and expected. If experience is the method of choice to learn the skills required to progress, then it would be logical that a person would need to self-direct this activity. This would include applying for various positions both in and out of the current property, often including international postings. This requires a personality characteristic that was described by Brownell (1994) as determination. The statements in this research from the open-ended anecdotal question contained many referrals to this characteristic such as: "Do not allow fear to stop from moving out of comfort zone"; "having a goal and not accepting this goal could not be reached"; "not being afraid to take risks and put myself out there"; taking on extra challenges whenever there was an opportunity"; "willingness to take on bigger projects". This agrees with the scant research on personality

characteristics of hotel managers (Brownell, 1994; Garavan, O'Brien and O'Hanlon 2006; Seibert & Kramer 2001).

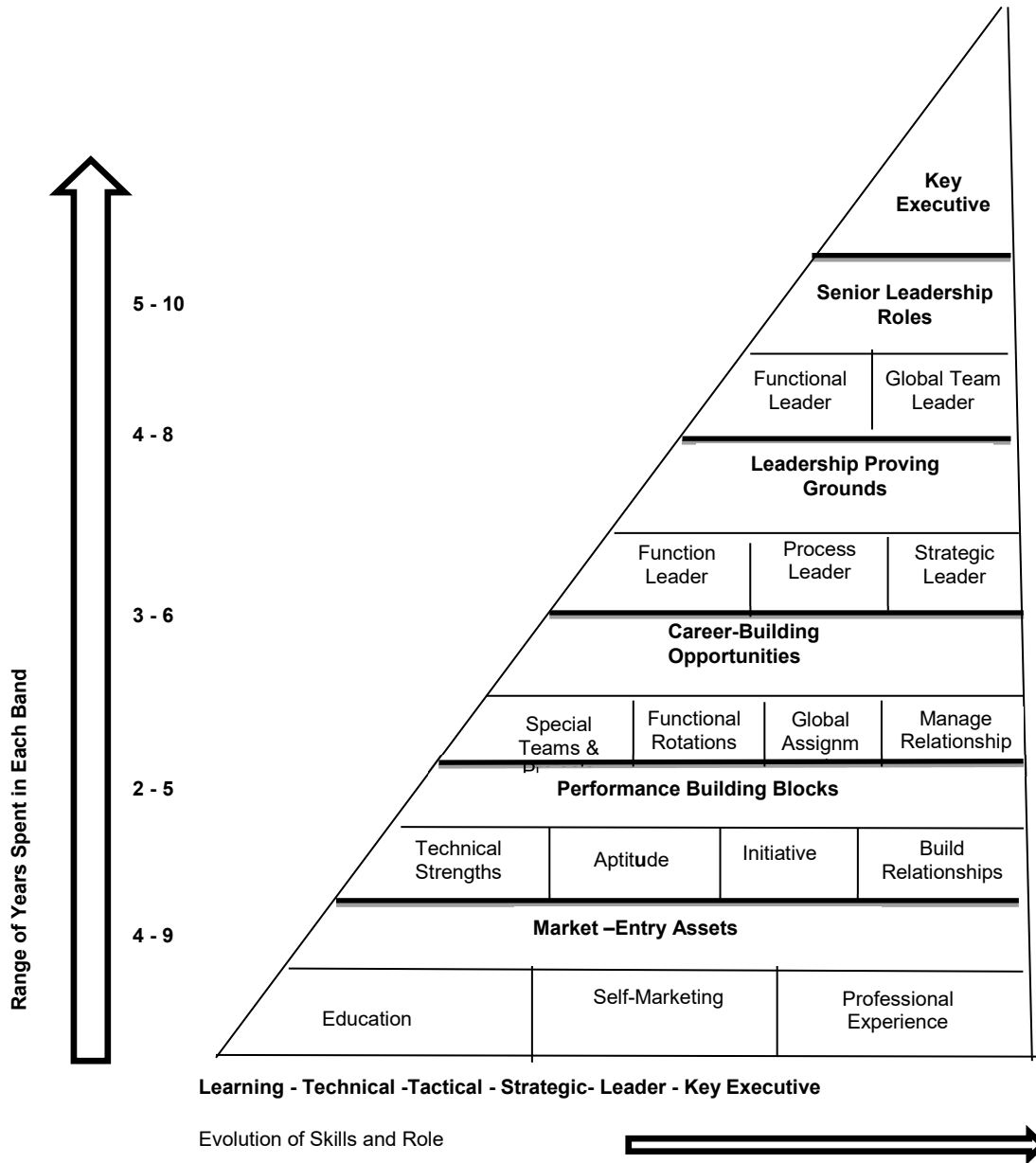
Happenstance Theory was not adequately addressed in the research, or in the literature concerning human resource management in the hotel industry. However, the factors expressed as important by hotel managers could fit well within the Happenstance Theory. Both planned and unplanned experiences helped to shape the capabilities of general managers in the sample. For example, a manager may request an international posting to learn more about the industry and to move up the corporate ladder with the expectation that unplanned experiences in a foreign property will better qualify them to manage a property in a volatile and challenging industry. From this perspective, Happenstance Theory may help to define what helps to create a well-qualified hotel general manager. The career advancement strategies embraced by the men and women in the sample demonstrate that they not only anticipate Happenstance, but that they make conscious decisions to embrace it and to use it as a developmental tool as noted by these statements from the respondents: "Search for new ideas, concepts. Be curious, visit high end hotels when traveling. Network, be known. Adaptability and flexibility. Willing to move to key properties around the world."

## CONCLUDING COMMENTS

The key research questions focused on what are the most important factors that contribute to the capability development of general managers in Canada and did they differ by gender. Using an online survey researchers determined that the main factors for capability development were asking for challenging projects, moving properties, gaining experience and mentoring. Opened ended feedback indicated that three key themes for acquiring knowledge and skills included "gaining experience", "mentoring" and "willingness and determination to learn".

There were no differences regarding the factors leading to capability development between men and women. Limitations of this research include a small sample and a lack of representation for larger hotel properties. Research on managers of larger properties may lead to identifying different methods of acquiring their competences as well as possibly discovering other unique capabilities required. Further research is required to explore how learning from experience can be leveraged more efficiently in the Canadian hotel industry. Also, personality factors and their impact on career success in the hotel industry require more research. Due to the personality characteristics of individuals working in the fast paced hotel industry, mentoring programs need to be introduced or revised. Other methods of capturing the knowledge and skills from highly experienced upper level managers and transferring it to future general managers requires more exploration. The role of Happenstance Theory also bears further study in future research.

APPENDIX A: Holistic Career Pyramid Model, Source: (Morgan, 2002, P. 40)



This figure describes the Holistic Career Pyramid Model developed to highlight the six steps of the vertical career climb to the position of key executive. The most significant challenge is the transition from technical and functional roles to strategic and leadership skills.

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## **BIOGRAPHY**

Dr. Candace Blayney received her PhD in Business Administration with Specialization in Human Resource Management from Northcentral University, Arizona. Candace’s research interests lie in the areas of the hotel industry and human resources and she has ten years experience with an international hotel company at the executive level. She is currently Associate Professor and Tourism Coordinator at the in the Department of Business and Tourism at Mount Saint Vincent University in Halifax, Nova Scotia.

Dr. Karen Blotnicky is Associate Professor in the Department of Business and Tourism at Mount Saint Vincent University in Halifax, Nova Scotia. She specializes in marketing and is also a Principal of TMC, The Marketing Clinic, a full service marketing research and consulting firm. She has worked in applied research for over 25 years. Her current research interests include the role of marketing orientation and its impact on success for both private enterprise and non-profit organizations.

## **ORGANIZATIONAL STRATEGIES FOR SMALL & MEDIUM SIZED ENTERPRISES**

Beatriz Alicia Leyva Osuna, Sonora Institute of Technology  
Héctor Guadalupe Márquez Ortiz, Sonora Institute of Technology  
Sergio Ochoa Jiménez, Sonora Institute of Technology  
Carlos Armando Jacobo Hernández, Sonora Institute of Technology

### **ABSTRACT**

*This paper is a descriptive research to identify the types of strategies used by Small and Medium Enterprises (SMEs), to provide a main competitive factor. Data collection involved two instruments, taken from Vezina (2011). We use an interview guide and questionnaire to directors and/or managers. We used the strategies typology of Miles and Snow (1978). Evidence shows that managers of small and medium enterprises for the most part, adopted a strategy that adapts to the environment. We further find that exploring and analyzing strategies were the most representative for small businesses, defined by staying in a more dynamic environment. Midsize companies adopt further to the analyzing type, characterized by trying to minimize risks and maximize profits in a safer environment and always supported by a administrative management system.*

**JEL:** L10, L25, L60, M10

**KEYWORDS:** Small and Medium Sized Company, Strategy, Organization

### **INTRODUCTION**

The study of small and medium-sized enterprises (SME's) has become in an important area for academics and researchers. The concept of strategy represents a central topic to understand how companies achieve success and how managers achieve goals in the short, medium and long term. This paper provides quantitative and descriptive research using a non probabilistic sample. The main objective was to analyze strategies used by SME's considering decisions taken in these kind of companies in Mexico. Globalization, technology and the information revolution are phenomena that must be considered by companies, especially SME's, to adapt processes, structure and all decisions. Soto & Dolan (2004) argue it is important that SME'S use a strategic methodology to help them compete in the market and obtain better performance. The importance of SMEs' in the world economy has grown constantly in recent years, with special emphasis on establishing an important position in relation to big companies (Irigoyen & Puebla, 1997). This situation is caused in some cases because of specialization in process or specific markets that small companies have compared to big companies that do not have these capabilities. In Mexico there exists 4.4 million enterprises around the country. Some 6.1 % of these enterprises are SME's which generate 20.7% of Gross Domestic Product (GDP) and 32.9% of Mexico's workforce. According to the Secretary of Economy (SE, 2012) In the state of Sonora, where this study was conducted, 50% of the state workforce are generated by SME's. Therefore, these companies represent an important sector in the economy and as such are important for public decisions and academic research.

At the beginning of the XXI century, there is a new interest by the government, civil society, and institutions of higher education for the potential of SME's. Prior to the seventies they were considered marginal in the process of economic development. Two decades later (1980 and 1990) they were revalued for their aptitude

to contribute to the reorganization of production and especially its impact on employment, gross domestic product and equity. Scholars of economic development in Latin America were largely impacted by the emergence of economies of scale and mass production (Rodriguez, 2010). However, there were few Latin American companies that managed the organizational changes needed. For example in Mexico when the country opened negotiations of the Free Trade Agreement (NAFTA) with the United States and Canada, a study reported that companies were operating and starting efforts in preparation for trade liberalization in technological and organizational, marketing, financial and the environmental (De La Cerda, 2009).

The Boston Consulting Group, (1990), cited by Garcia et al. (2004) notes the success of a large or small company involves the use of management tools which help to achieve more effective management of various situations that arise. The development of a strategic business plan, assures better management of uncertainty and involves knowing how to handle risks and new responsibilities. We are aware of the enormous difficulties faced by entrepreneurs of SMEs to access knowledge, training, and ongoing counseling. On the one hand, due to the high costs of these activities, and on the other due to the initiatives which are aimed primarily at large enterprises, which causes them to be ineffective for SMEs.

Unlike more complex organizations with a greater degree of formalization of activities, strategy formulation in SMEs, is not performed explicitly in many cases. The approach to strategy is more a personal view of the owner or owners of the company, than the result of a conscious reflection in the heart of the organization. They do not usually apply specific methodologies to develop courses of action, but rather based their decisions on intuition and experience of the owners. They rely more on measures of emerging strategies rather than deliberate strategies (Santamaria, Sanchez & Almorza, 1997). According to Baker, Addams & Davis (1993), the reasons for this resistance of the SMEs, to formalize the strategic process, are the following: time constraints, market uncertainty, poor level of preparation, budget constraints and resistance to change.

### Problem Statement

SMEs represent the backbone of the national economy, and emerge with the aim of contributing to the local development of the community, being understood as the process of growth, raising the welfare and improving their quality of life. According to Aimar (2000), the economy is in constant motion. Companies cannot afford not to change. But, change not only corresponds to the dictates of the market, transforming losses into profits, maximizing profits, seeking benefits, but goes beyond recurrent spending cuts and restructuring. It goes toward the Business Strategy. According to several investigations, Micro, Small and Medium Enterprises (MSMEs), close mostly due to their ignorance about strategies, programs, training, market, consulting support existence. The businessman with information from studies should get down to work in these areas to insure survival of the firm.

It is uncommon to see how organizations operate in complex and uncertain environments. Organizations become more complex if they do not know how to deal with these uncertain environments. This causes organizations to create their own internal environment with uncertainty that adds to external uncertainty. This causes organizations to become slow to react and confusion prevails. Those in the firing line are frustrated to see that leaders do not make decisions that allows them operate. But, curiously the organization has more activity than before. Many actions are taken without any purpose, which in turn increase the psychological effect of insecurity and distrust in people. Entrepreneurs sometimes do this to take more time in their decision making. But, as the leaders are gaining time, on analyzing a world of information, opportunities leave or threats are made stronger for a company that does not know what to do (Bungay, 2012). That is why SMEs, whether their line of business is service, manufacturing or trade, are still in need of fundamentals and strategic actions that continuously reveal opportunities and the possible strategies to facilitate decision-making. The firm needs to determine and establish successful timely action programs. For this reason, it is necessary to know, what strategies are used in small and medium-sized enterprises?

### Justification

Today, more than ever, entrepreneurs need to think fast because of the constant changes in the external and internal environment. The importance of keeping updated on issues surrounding the company and its management can not be overstated. A fast and safe way to deal with changes is through the design of business strategies that support compromises in the organization, its resources, market, finance, personnel, and operational areas. Radical changes pose a menace to entrepreneurs. They do not adopt administrative adjustments, when they become obsolete and have to make quick and accurate decisions that allow them to at least survive. One strategy can make a company competitive and allow it to face competition. It not only gives the firm opportunity to stay in business but to continue for an extended period of time. Successful SMEs are often characterized by having great professionals with experience and knowledge of the market, the environment, human and technological resources. The benefits of this study are to entrepreneurs. By combining experiences they can adopt strategies to be used in the operation of their business. The contribution of the current study is to provide information to know in a formal and documentary way the perception of entrepreneurs according to the strategies they utilize. We wish to analyze these realities by comparing data and making decisions by different actors. More specifically, the objective is to identify the type of strategy used by small and medium-sized enterprises in Obregon, Sonora, Mexico.

### **LITERATURE REVIEW**

While the importance of changes for companies has been discussed in a practical way, in the same manner these changes are present in the theoretical foundations. We examine these theoretical foundations in this section.

#### Conceptualizing SMEs

The small and medium enterprise, also known by the acronym SME, is a company with distinctive features, and has dimensions with occupational and financial limits preset by states or regions. SMEs are agents with specific logics, cultures, interests and entrepreneurship. Usually the term has also been micro, small and medium enterprises (MSMEs), which is an expansion of the original term that includes the microenterprise. The small and medium-sized enterprise is, at present, the center of our the Mexico economic system. The tremendous growth of the current influence of these companies is due to the need to concentrate large capital and huge technical resources for the proper functioning of production and services, as well as to the high level of perfection achieved by many management standards (Rodriguez, 2005).

Similarly, the Secretariat of Economy (SE, 2012) indicates that for Mexico, and SME is any company with less than 500 workers. Under the new definition, *micro* enterprise includes firms with incomes below four million pesos. The *small* company will be the one that sells between 4.01 and 100 million pesos, and *medium-sized*, the one selling between 100.01 and 250 million pesos. Saavedra and Hernandez (2007) point out that the criteria for classifying companies vary by country, however, the most widely used in Latin America is the number of people employed. In Mexico, classification is based on the number of persons employed. Therefore, it had a single defining criterion (employment). However, the definition changed depending on whether the economic unit is industrial, commercial or a services firm. From 2009, the Secretariat of Economy announced a new system for stratification and determining whether the company is micro, small or medium-sized. In this system it is not enough to know the number of employees. It is also necessary to know the sales. A simple calculation for correct interpretation is essential. This information was published in the Official Journal of the Federation on June 30, 2009, shown in Table 1.

Table 1: Companies' Stratification

Stratification of Companies Published in the Official Journal of the Federation on June 30 <sup>th</sup> , 2009									
Sector	Micro			Small			Medium-sized		
	Personnel	Range of annual sales amount (mp)	Combined maximum limit *	Personnel	Range of annual sales amount (mp)	Combined maximum limit *	Personnel	Range of annual sales amount (mp)	Combined maximum limit *
Industry	From 0 to 10	Up to \$4	4.6	From 11 to 50	From \$4.01 to \$100	95	From 51 to 250	From \$100.1 to \$250	250
Commerce	From 0 to 10	Up to \$4	4.6	From 11 to 30	From \$4.01 to \$100	93	From 31 to 100	From \$100.1 to \$250	235
Service	From 0 to 10	Up to \$4	4.6	From 11 to 50	From \$4.01 to \$100	95	From 51 to 100	From \$100.1 to \$250	235

*Combined maximum limit = (Worker) x 10% + (Annual Sales) x 90. mp = million pesos In 2009 the Secretariat of Economy announced a new system when establishing stratification and determining whether the company is micro, small or medium-sized. It is not enough to know the number of employees. It is also necessary to know sales. This information was published in the Official Journal of the Federation on June 30, 2009.*

### Characteristics of the SMEs

The characteristics of small and medium-sized enterprises are explained below and separately, allowing us to understand the differences between them, even though they are kept in a single category as SME. Jack Fleitman, (cited by Thompson, 2007) mentions notes the main characteristics of the small business are as follows: The growth rate usually higher than the microenterprise and may be even higher than the medium or large enterprise, there is greater division of labor caused by a higher complexity of functions. In addition, the resolution of problems that arise requires a proper division of duties and delegation of authority. Requirement of a greater organization (than the microenterprise) regarding the coordination of personnel and material, technical and financial resources, ability to cover the local, regional and national market, and with the facilities provided by the Internet network. Finally, it cross borders with its products (especially if they are digital, like software and digital books) and services. It is in full competition with similar companies and uses direct labor. In many cases it has a high degree of mechanization and technical improvement. The following are features of Midsize Enterprise, presented by Hernandez (2011), from the Autonomous University of the State of Hidalgo Huejutla: a) Qualitative: Quality of personnel and invoicing b) Quantitative: indicates whether a company is medium sized if it meets two or more of the following characteristics: Independent Management (usually the managers are also owners), Capital is supplied by the owners, it is basically Local Area Operations, it is relatively small size in the industrial sector in which it operates and has between 50 to 500 employees. The medium-sized company has more professionalization in its leaders and employees, and also has more technology, higher production and distribution systems and has greater access to consulting and research, which is still difficult for small companies to access.

### Advantages and Disadvantages of SMEs

Like everything, small and medium enterprises in Mexico, show advantages and disadvantages in their work as set forth below in Table 2. Information provided on the website of Pro Mexico, 2013. The real source of wealth is not measured by the company having excellent productivity levels, but for the intelligence of its people (DEMAC, 1991). This is true because every entrepreneur knows its downsides or can access information where they can study them. If this holds, then why not sit back and take advantage of their strengths to address their weaknesses and threats? It is there, where everything can change, making a thorough analysis of the situation and making the right decision.

Table 2: Advantages and Disadvantages of the Small and Medium-Sized Enterprises of Mexico

Advantages	Disadvantages
They are an important engine of development of the country. Are highly mobile, allowing them to expand or decrease the size of the plant, as well as changing the necessary technical processes. For their dynamism they have growth possibilities and eventually become a big company. They absorb a significant portion of the economically active population, due to their great ability to generate jobs. They assimilate and adapt new technologies with relative ease. They settle in various regions of the country and contribute to local and regional development through its multiplier effects. They have a good management, although in many cases influenced by personal opinion or business owners.	No profits are reinvested to improve equipment and production techniques. It's difficult to recruit skilled and trained staff being unable to pay competitive salaries. The production quality has some shortcomings because quality controls are minimal or nonexistent. They cannot absorb the costs of the staff training and updating, but when they do, they face the problem of leakage of trained personnel. Some other problems arising from the lack of organization as insufficient sales, competitive weakness, poor service, poor customer service, high prices or poor quality, excessive fixed assets, poor location, lack of control of inventories, tax problems and lack of adequate and timely funding.

*This table provides a description of the advantages of small and medium enterprises. It gives them encouragement to continue representing the backbone of Mexico. Their main advantages stem from good management. They have a multiplier effect on the country by providing jobs and helping the economy of each state. SME disadvantages include the lack of investment culture of their profits in equipment and resources for the company. They do not have a high professional level, because they cannot pay wages and there is carelessness in their control systems. They do not have access to training, so can ends up in trouble within their functional and operational areas (Pro Mexico, 2013).*

### Main Causes for the Closing of SMEs

Rodriguez (2002), points out the most important thing about business failures lies in what causes them. A big step towards achieving the success of the small and medium-sized enterprises is to know and understand the reasons underlying the failure to be able to prevent them. The initial duration of companies indicates that of 200 new companies starting operations 80% do not reach the 2 years of life. Despite these data, there are opportunities to invest money and manage small and medium enterprises that are appealing. A high percentage of companies are born and die together. SMEs show a remarkable vitality, affirming its position within our economy. This is based on two reasons: small and medium enterprises covering economic and essential (personal) human needs. Similarly, the author mentions practice and experience provides information about the causes of corporate bankruptcy. Table 3 shows causes which, in nine out of ten of bankruptcies may occur.

Table 3: Causes of Corporate Bankruptcy

Cause	Percentage
-Negligence	1.6
-Fraud	1.3
-Lack of experience in the field.	16.4
-Lack of management experience	14.1
-Unbalanced Experience	21.6
-Incompetence of manager	41.0
- Disaster	0.6

*This table shows the causes of corporate bankruptcy. Nine out of 10 businesses close for one of the reasons cited here. (Rodriguez, 2002).*

Several authors agree that entrepreneurial management is the key to success. Entrepreneurs who take risks should not ignore factors that affect successful risk taking including: experience, knowledge and attitude to the challenges they will face.

### Strategy

According to Krause (2009), the word strategy derives from the latin *strategia*, which at the same time comes from two Greek terms: *stratos* ("army"), *strategos* ("general") and *agein* ("driver", "guide"). Therefore, the primary meaning of strategy is the art of directing military operations. The concept of strategy originated in the military field. It is likely that the first text on the subject is "The Art of War" by Sun Tzu (1963), cited by Krause (2009) where it states: The art of war is of vital importance to the State. It

is the area of life and death of all: civilian and military. It is also considered the way to safety or to ruin, so the study of the strategy cannot be put aside for any reason. Peter Drucker (1999), (quoted by Mannucci, 2006) states that the purpose of strategy is to enable an organization to achieve its desired results in an unpredictable environment. Strategy is also proof of the theory of business that the organization has. His failure to produce the expected results is the first serious indication that it is necessary to reflect again profoundly on that theory.

Koontz, Weihrich and Cannice (2008) indicate that strategy is defined as the way to determine the core long-term objectives within a company and the implementation of courses of action and allocation of resources to achieve those goals. Robbins and Clulter (2010), claim there are three reasons to determine their importance. The most significant is that it can make a difference in how well an organization develops. This reason shows why some businesses succeed while others fail, even when facing the same environmental conditions. Another reason has to do with the fact that managers of an organization of any size or type continually face changing situations. They deal with uncertainty through the strategic management process to analyze relevant factors and decide what action to take. Finally, management through strategies is best because organizations are diverse and complex. Each party needs to work to achieve the objectives. Strategic management helps achieve this.

Considering that business activities are carried out in a dynamic and changing environment, strategies are a key aspect to success and profitability. The strategy analyzes factors that contribute to the competitive environment in terms of time to anticipate the changes of financial, economic, and technological nature that affect business development (Rodriguez, 2005). Such is the influence on companies. (Chiavenato, 2006 ) states that a well-formulated strategy allows the firm to assign and integrate organizational resources into a unique and viable posture based on its internal competencies. Doing so allows the firm to anticipate environmental changes and move in a contingencial way. Under these considerations, the more dynamic and changeable the environment becomes, the more decisive the strategy that is required. This holds especially when other smart players dispute the same customers and suppliers affecting desired organizational objectives.

### Types of Strategies

In search of identifying the strategic behavior in business, the existence or not of strategic plan and the strategy (Miles and Snow, 1978) developed a model of strategies based on the directive orientation by organizations. This model of strategies is known as the Miles and Snow Typology. The authors use a classification criteria based on the way they are adopt and attitudes towards innovation that they present through their managers. The following describes the types of strategies of the prospector, analyzer, defender and reactor, which will be used for the study.

The Prospector acts in an environment that is more dynamic than those in which the other strategies predominate. Its main ability is to find and develop new products and market opportunities for these type of organizations. It is usually more important to maintain an innovative status in the development of products and markets than making huge profits.

Analyzer organization minimize risk while maximizing profits; seeking to develop new products and new markets, but only with the certainty that they are viable. It relies on planning, control and stimulation systems simultaneously, always seeking to maintain a balanced state.

Defender organization deliberately maintain and operates in an environment for which a stable form of organization is the most appropriate. They try to create a relatively stable market. They have little ability to find and develop new areas of opportunity and are not interested in the changes. They focus on



continuous improvement of work within its field of action. Organizations with this type of strategy, are capable of meeting the demands of today's world.

*Reactor* firms lack of mechanisms for responding to an environment of continuous change. Its product and market area is unstable and inconsistent. Typically, their acts are forced by environmental pressures and competition.

In analyzing this typology, the first three are in positive context of the companies. Their control, stability and consistency depend largely on the mastery they have of their adaptation cycle in its three dimensions (business issue, technological issue and organizational issue). A company that maintains a prospector, analyzer or defender strategy will have an advantage and may be driven towards good organizational performance. The reactor is considered deficient in strategic decision making because they focus on a continuously changing environment determined by the behavior of their environment, thus promoting constant uncertainty for the company.

**METHODOLOGY**

The sample constitutes and represent the 418 SMEs in its three sectors: Industry, Commerce and Service of Ciudad Obregon, Sonora, Mexico. The companies in which the study was conducted had more than 10 and up to 250 employees, based on the information submitted by the economic census of the National Institute of Statistics, Geography and Informatics (INEGI, 2009), according to the stratification of companies by sector and number of employees published by the Official Journal of the Federation (DOF, 2009). The distribution of the sample is shown in Table 4.

Table 4: Distribution of Population and Sample

Sector	Total INEGI	Sample	Answered	Did Not Answer	Inexistent
Manufacturing	119	61	38	12	11
Commerce	107	75	37	21	17
Services	192	64	34	19	11
Total	418	200	109	52	39

*The total number of SMEs is 418, from which a selection was made by non-probabilistic method. The main criteria is the geographic location for the application of instruments and visits. The distribution was proportional among the three sectors, with a total of 200. From the sample selected, 52 refused to provide information and 39 of them were not in the address of the database used. Own data and INEGI data, 2009.*

For data collection, the selection of the instrument was based on the questionnaire and interview guide provided by Vezina (2011). The questions were reviewed and translated into Spanish from its original language. It was necessary to make some content adjustments to infer various aspects to be investigated with regard to the strategy, identity and performance. (Hernandez, 2010), argues that data collection involves developing a detailed plan of procedures that lead us to collect data for a specific purpose. We selected the subjects and materials which represent the basis for data collection, The survey was conducted during six months. We visited each enterprise selected. Some 109 firms responded from which 90 were classified as small enterprises (30 trading companies, 30 industrial and 30 services companies). Nineteen were medium size enterprises including 7 trading companies, 8 industrial and 4 services companies. In the application of the instrument, a list was elaborated and the visits to the companies were scheduled. Implementation of the instruments was carried out by students of the Bachelor of Management career of the Sonora Institute of Technology. Upon arriving at each company a letter of introduction was given, in which the entrepreneur is informed of the reasons for the visit and the arguments that led to conducting the investigation. The attention of the instruments by Directors and/or managers had an average duration of about 10 minutes. At the time of application of the instruments, we proceeded to give instructions to fill out the instrument and asked each respondent about possible questions regarding the content of the

questions to resolve any uncertainties. To analyze the data obtained we relied on SPSS, version 15 for Windows, followed by a graphical representation of each response generated. Finally the results of the research were presented.

**RESULTS**

On average, the companies have been in the market for 25 years. The staff responsible for running these companies has an average 10-year experience working and performing the activities in which they are engaged are shown in Table 5.

Table 5: Identification of SMEs by Activity Sector

Characterization of SMEs				
Companies	Distribution by Sector		Total	Percentage
Small	Service	30	90	83%
	Manufacture	30		
	Commerce	30		
Medium	Service	4	19	17%
	Manufacture	8		
	Commerce	7		
	Total	109	109	100%

*Companies in Cd. Obregon, Sonora are included in the present investigation. Sample composition includes 83% small firms: Services 30 companies, Manufacture 30 companies and Trade 30 companies, with a total of 90 small companies. Midsize companies are represented with 17%, which are composed of service with 4 companies, manufacturing 8 companies and Trade 7 companies totaling 19 local companies. (Compilation, 2013)*

Analysis of the Small Enterprise

Table 6, provides results with respect to small firms. The sum of the frequency per question generates a total of 90 small companies analyzed in Ciudad Obregon, Sonora. The percentages total to 100%. Small businesses in Ciudad Obregon, mostly, and in a higher percentage, apply the analyzer strategy by 45%. These organizations seek to minimize the risk while maximizing profits. They seek to develop new products and new markets, but only with the certainty that they are viable. They rely on planning, control and stimulation systems simultaneously. It always seeks to maintain a balanced state. They wish to maintain an image before the competition. They adopt new and innovative ideas, but only after carefully analyzing them. For these firms, a reasonable part of organizational time is spent on monitoring the market. As for the comparison with its competitors, the increases or decreases in demand they have experienced is probably due to the assertive practice of deeply penetrating markets they currently serve, while adopting new services after a careful study of their potential. Finally compared to their competitors, the structure of these organizations is functional, organized by departments, Marketing, accounting, HR, etc.

The other 45% of small companies use the prospecting strategy, which is characterized by companies operating in an environment that is more dynamic than those in which the other strategies predominate. Its main ability is to find and develop new products and market opportunities. It is generally more important to maintain an innovative status in the development of products and markets than making huge profits. This strategy is applied in the following particular situations. Compared to their competitors, the services they offer to the customers are more innovative and in a constant change. The skills that the managers of that area have is characterized by diverse, flexible abilities, that allow for change. Another situation they respond to with this prospecting strategy is that the only thing protecting the company from competitors is that they are able to constantly develop new services and new markets. Unlike most competitors, small businesses are prepared for the future. They identify market trends and opportunities, which can result in the creation of service offerings and programs that are new to the industry or reach new markets. And finally

compared with their competitors, the business structure is characterized as a functional nature. However, it can be extended to new areas of service offering oriented to the service or market.

Table 6: Types of Strategies Utilized by Small Enterprises

Question	Small Enterprises							
	Analyzer		Defender		Prospector		Reactor	
	Frequency	%	Frequency	%	Frequency	%	Frequency	%
Compared to our competitors, the services we offer to our clients are characterized as:	8	8.9	34	37.8	37	41.1	11	12.2
Unlike our competitors, we have an image in the market that:	32	35.6	14	15.6	20	22.2	24	26.7
The time spent in our organization to monitor market changes and trends, can be described as:	44	48.9	11	12.2	25	27.8	10	11.1
Compared to our competitors, increases or losses in demand we have experienced are probably due to:	31	34.4	20	22.2	16	17.8	23	25.6
One of the most important objectives of our organization compared to our competitors is our dedication and commitment to:	36	40	23	25.6	23	25.6	8	8.9
Unlike our competitors, the skills our area managers possess are characterized as:	12	13.3	18	20	45	50	15	16.7
The only thing that protects our organization from our competitors is that we:	22	24.4	13	14.4	41	45.6	14	15.6
Unlike our competitors, our area managers tend to focus on:	26	28.9	28	31.1	21	23.3	15	16.7
Unlike most of our competitors, our company prepares for the future:	17	18.9	27	30	28	31.1	18	20
Compared to our competitors, the structure of our organization is:	25	27.8	21	23.3	25	27.8	19	21.1

*This table displays the type of strategy (Analyzer, Defender, Prospector and Reactor) utilized by small businesses, for each situation represented by an Item. The Analyzer strategy is one of the most commonly used. This strategy tries to minimize the risk while maximizing profits. The other strategy applied by small companies is the prospector strategy. Those businesses act in an environment that is more dynamic than those in which other strategies predominate. Source: Own Elaboration, (2013).*

Only 10% of the sample utilizes to a high percentage the defender strategy. This strategy is characterized by keeping in, and acting in, an environment for which a stable form of organization is the most suitable. Firms of this nature try to create a relatively stable markets. The firms have a little ability to locate and develop new opportunity areas and are not interested in modifications. These firms focus on continuing improvement of the labor within its field of action. Organizations with this type of strategy are able to meet the demands of today's world. Unlike its competitors, managers of these firms focus on maintaining a strong financial position through cost control and quality. None of the companies surveyed used the reactor strategy to a great percentage. Due to its nature, as the company with this kind of strategy lacks mechanisms for response to an environment of continuous change, its product and market area is unstable and inconsistent. These firms typically act as forced by environmental pressures and competition.

Analysis of the Medium-Sized Enterprise

Table 7 shows results for the medium-sized enterprises. A total of 19 medium-sized companies were analyzed in Cd. Obregon, Sonora. The percentages total 100%. According to the information concentrated in Table 7, 60% apply the analyzer strategy for different situations as described below. Unlike competitors, these medium-sized enterprises manage to develop an image in the market through new and innovative

ideas, but only after carefully analyzing them. Another situation where they apply the analyzer strategy is with regard to the time these companies spend monitoring market changes and trends. These firms are characterized by spending a reasonable amount of time monitoring the market.

Table 7: Types of Strategies Used by Medium Sized Enterprises

Question	Medium-Sized Enterprise							
	Analyzer		Defender		Prospector		Reactor	
	Frequency	%	Frequency	%	Frequency	%	Frequency	%
11. Compared to our competitors, the services we offer to our clients are characterized as:	2	10.5	6	31.6	7	36.8	4	21.1
12. Unlike our competitors, we have an image in the market that:	8	42.1	3	15.8	5	26.3	3	15.8
13. The time spent in our organization to monitor market changes and trends, can be described as:	10	52.6	1	5.3	6	31.6	2	10.5
14. Compared to our competitors, increases or losses in demand we have experienced are probably due to:	9	47.4	4	21.1	5	26.3	1	5.3
15. One of the most important objectives of our organization compared to our competitors is our dedication and commitment to:	7	36.8	3	15.8	8	42.1	1	5.3
16. Unlike our competitors, the skills our area managers possess are characterized as:	5	26.3	5	26.3	7	36.8	2	10.5
17. The only thing that protects our organization from our competitors is that we:	5	26.3	3	15.8	9	47.4	2	10.5
18. Unlike our competitors, our area managers tend to focus on:	7	36.8	2	10.5	6	31.6	4	21.1
19. Unlike most of our competitors, our company prepares for the future:	7	36.8	5	26.3	6	31.6	1	5.3
20. Compared to our competitors, the structure of our organization is:	9	47.4	2	10.5	3	15.8	5	26.3

*This table displays the type of strategy (Analyzer, Defender, Prospector and Reactor) utilized by medium-sized businesses, for each situation represented by an item. The Analyzer strategy is one of the most commonly used by the medium-sized companies. This strategy tries to minimize risk while maximizing profits. It looks for the development of new products and markets, but only with the certainty that they are viable. It relies on planning, control and stimulation systems simultaneously; it seeks to always keep a balanced state. Source: Own Elaboration, (2013).*

Compared with their competitors, the increases or decreases in demand they have experienced is probably due to carrying out deep penetration in markets they currently serve, while adopting new services after a careful study of their potential. Unlike their competitors, managers or area managers tend to focus on analyzing market opportunities and select only those opportunities with proven potential, while maintaining a solid financial position. Similar to the analyzer strategy, the companies, unlike their competitors, prepare themselves for the future. They identify trends in the industry, where competitors have shown more potential in the long term. They solve problems related to the current offering of services and the needs of their current customers. In the same way the structure of these organizations is functional, organized by departments, marketing, accounting, HR, etc.

The remaining 40% of the companies in the study expressed using a prospecting strategy, which is characterized by companies operating in an environment that is more dynamic than those in which the other strategies predominate. The main ability is to find and develop new products and market opportunities. For such organizations it is often more important to maintain and innovative status on products and market development than making huge profits. Situations in which companies use this strategy are in relation to

that compared with their competitors. The services they offer are characterized by being more innovative and constantly changing. One of the most important objectives of the company compared to the competition is their dedication and commitment to ensure that people, resources and equipment necessary to develop new services and access new markets are available and accessible. Unlike their competitors the skills that the managers or area managers possess, is characterized as flexible, that generates and allows change. Finally, they are able to constantly develop new services and new markets.

Defender and reactor strategies in medium-sized enterprises are used to a lesser extent, since they do not respond to competition without having a planned strategy (Reactor) and they deliberately do not work to maintain and operate in an environment for which a stable form of organization is the most appropriate, trying to create a relatively stable market, (Defender).

### General Analysis of SMEs

Some 31% and 30% of SMEs follow the prospector and analyzer type strategies respectively. The defender strategy is the next option being used in 22% of companies. The reactor strategy was chosen by 17%. It is found that, considering this typology, the investigated companies tend to adopt some sort of strategy to suit their market. The most recurrent strategy at 83%, is the prospector strategy. Miles and Snow (1978) studied the need for companies to follow certain strategies that will enable them to succeed in their market. They conducted various field and research works covering different organizational types and found something common in the course of the life of different companies. They found the existence of an "adaptation cycle", which should be the main objective of the organization. At the same time, they developed a typology of adaptation strategies (prospector, analyzer, defender and reactor type) that had to do with distinctive mechanisms developed by organizations in the process of adapting to their context. They declare that organizational forms are "a logical way to shape the strategy, the structure and the management processes of an organization into an effective whole." Under this situation, and as discussed above, the organizations in the study also pay attention to different perspectives arising from its context, which is causing the adoption of different strategies. It was possible to check for a relation in the type of strategy adopted by managers in the process of adapting to their environment. Currently, the large number of SME companies that exist in Mexico and in the State of Sonora have the resources needed to solve many of their problems. This favors being an important part in the economy and being socially considered a great source of employment. However, one of the factors that continue to negatively affect them is a lack of professionalization in its administrative activities.

### **CONCLUSIONS**

This project was conceived to identify strategies followed by small and medium enterprises from Ciudad Obregon, Sonora, in the pursuit of achieving adaptation in the market. Based on our findings we concluded that today's strategies help companies to achieve a steady and sustained growth, at the same time they manage to professionalize in the activities that their market environment demands. Managerial ability to manage strategies becomes a transcendental aspect of business life. The most common strategy used by companies surveyed was the prospector strategy (31%), the analyzer strategy is the second option selected (30%), while 22% of SME's apply the defender strategy. In the end, 17% use the reactor strategy. Results support the idea that prospector and analyzer are the strategies selected by the most of companies included in this study. The results obtained imply a theoretical and empirical contribution to these businesses. The position presented in the results identifies, in different ways, the relevance for companies to develop strategies consciously. Doing so is an essential part of a coherent management role in the selection of the strategy that best suits the type of business and provides potential for a competitive advantage.

Also as part of the results, we find that managers from small and medium-sized enterprises for the most part, adopt some strategy to adapt to their environment. Miles and Snow (1978) also identifying that the

prospector strategy was the most representative for small businesses. They argue the prospector strategy is maintained in a more dynamic environment where their capability is oriented to identify and explore new market opportunities. We also found that medium-sized firms tend to adopt the analyzer strategy, which try to minimize risk and maximize profits in a safer environment. These firms are always supported by a system of administrative management. In contrast, the analysis showed that this kind of company still maintains the reactor strategy with a minimal tendency. Future research might consider more variables related with the concepts explored here. For instance, researchers might analyze the management of every type of strategy. In addition, given the relevance of SMEs, it is necessary to implement measures to improve the economic environment and directly support the businesses to create the conditions that contribute to their establishment, growth and consolidation. (Pro Mexico, 2013).

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## **BIOGRAPHY**

Beatriz Alicia Leyva Osuna has a Master's Degree in Management by ITSON. ITSON's Titular Researcher Professor. For contact at ITSON: calle 5 de febrero #818 sur, C.P. 85000; Cd. Obregón, Sonora; México. E-mail: [beatriz.leyva@itson.edu.mx](mailto:beatriz.leyva@itson.edu.mx)

Héctor Guadalupe Márquez Ortiz has a Master's Degree in Management by ITSON, research collaborator and thesis student. For contact at ITSON: calle 5 de febrero #818 sur, C.P. 85000; Cd. Obregón, Sonora; México. E-mail: hmarquez@itson.edu.mx

Sergio Ochoa Jiménez has a Doctorate Degree on Organizational Studies by the Universidad Autónoma Metropolitana (Autonomous Metropolitan University) (UAM), Titular Researcher Professor of the Sonora Institute of Technology (ITSON). For contact at ITSON: calle 5 de febrero #818 sur, C.P. 85000; Cd. Obregón, Sonora; México. E-mail: sergio.ochoa@itson.edu.mx

Carlos Armando Jacobo Hernández, has a Doctorate Degree in Strategic Planning by ITSON. ITSON's Titular Researcher Professor. For contact at ITSON: calle 5 de febrero #818 sur, C.P. 85000; Cd. Obregón, Sonora; México. E-mail: carlos.jacobo@itson.edu.mx



# **THE RELATIONSHIP BETWEEN ENTREPRENEURIAL DRIVE AND CHALLENGES AMONG MINORITY ENTREPRENEURS IN THE UNITED STATES**

Tamara Clark-Gill, University of Phoenix

## **ABSTRACT**

*Research shows that minority entrepreneurs experience challenges with growth of their businesses in the United States. The challenges that minority entrepreneurs experience and the impact of growth in their businesses are not clearly defined. Research explores the levels of entrepreneurial drive among entrepreneurs and the effect of growth in their businesses in the United States. Previous studies about entrepreneurial drives does not provide an in-depth analysis about minority entrepreneurs and the influence of business growth in the United States. This paper shows the existing challenges and various levels of entrepreneurial drive among minority entrepreneurs in the United States. It reveals the relationship of existing challenges and various levels of entrepreneurial drive among minority entrepreneurs and the impact of business growth in the United States.*

**JEL:** P230

**KEYWORDS:** Entrepreneurship, Business, Minorities

## **INTRODUCTION**

Minority entrepreneurs experience unique challenges compared to non-minority entrepreneurs in the United States. Previous research have identified unique challenges as internal challenges, such as a lack of education and motivation classified as entrepreneurial drives, in order to become and maintain as entrepreneurs. Carland Entrepreneurial Index is used to define and measure the levels of entrepreneurial drives among entrepreneurs in previous research, however, it did not measure the levels of entrepreneurial drive of minority entrepreneurs. In fact, Carland's perspective of entrepreneurial drives focused on psychological perspectives as internal factors that contributes to individuals with potential to become and maintain as entrepreneurs. Examples of the psychological perspectives include mental cognition and positive thinking (Carland & Carland, 2000). Additional research was needed to focus on the challenges that minority entrepreneurs experience. Instead, additional research have identified socioeconomical perspectives, such as racism, that minority entrepreneur's experience and hinders their business growth. The root word of racism is race, in order to compete for potential money, resources and opportunities for domination of power and control over different ethnic groups.

The race through socioeconomics continues to remain a serious issue for minority entrepreneurs (Anderson, 1995). Additional research will reveal the impact of psychological and socioeconomical perspectives exhibited through entrepreneurial drives and ways to minimize the challenges as minority entrepreneurs in the United States. Entrepreneurial drives are psychological responses exhibited through internal motivation to fulfill personal needs during the journey of entrepreneurship, despite, race, gender and creed. The psychological focus of entrepreneurship comes from the internal desires and principals of entrepreneurs. Businesses are established based on entrepreneur's values and beliefs from their frame of reference within their professional and personal lives. In many organizations, whether large or small, entrepreneur's values

and beliefs are classified as core values, in order to follow and execute in daily activities with peers, vendors, management, and customers. Entrepreneurship is a continuous and evolving process that changes with successes and lessons learned through entrepreneurial drives and practical experience.

High levels of entrepreneurial drives that entrepreneurs possess creates desires to fulfill internal motivational factors within their environment. Examples of internal motivational factors include self-actualization and esteem needs. The five entrepreneurial drives include mental cognition, ability to create new ideas, take risks, identify one's abilities through challenges, and possess entrepreneurial vision known as having faith beyond one's current situation into future (Ensley, Carland & Carland, 2000).

In spite of entrepreneurial drives, minority entrepreneurs experience additional concerns, such as socioeconomic issues through the entrepreneurship process. Socioeconomic perspective focuses on external needs within the environment, in order to initiate, and sustain business growth. It has a tremendous impact with the success and growth of minority-owned businesses. Socioeconomic status is the integration of sociological and economic factors that are controlled for power, wealth and resources. The historical perspective of socioeconomic status derives from the need of minorities that were considered as people of color in the United States. The establishment of the United States Constitution excluded Non-Whites, especially Blacks for opportunities to increase financial opportunities through land and employment before 1865. Instead, the content of the United States Constitution identified Blacks as opportunities to increase financial gains, power and wealth. In the late 1800-1900's, immigrants settled and were used for cheaper labor rather than using Blacks for cheaper wages. Since the establishment of the United State Constitution, the competition has been classified as a race between Whites and Non-Whites, in order dominate for control of money, power and resources. According to Anderson (1995), Whites control the majority of wealth, power and resources compared to Non-Whites.

## LITERATURE REVIEW

The psychological perspective of individuals becoming entrepreneurs derive from innate responses to fulfill. Entrepreneurs desire the need to create unique possibilities into execution of products or services for a financial exchange with potential customers (Iyigun & Owen, 1999). Innate responses comes from internal stimuli, such as mental cognition. Cognition are mental processes and thoughts that are exhibited through one's behavior. For example, positive thinking among entrepreneurs are classified as predicting high levels of self-confidence. The levels of confidence enable entrepreneurs to believe the positive perspectives about the purpose of starting their businesses into manifestation, despite the circumstances. In fact, entrepreneurs that possess high levels of confidence believe positive thoughts despite one's ability to make decisions. (Saravathy, Memon and Kuechle, 2013). Additional research supports that entrepreneurs possess in high levels of positive thinking about opportunities and expectations of their business, despite the actual performance or status of the company. The positive thinking is a great attribute, however, it can lead to inaccurate point of view and problems with realistic expectations, financial status and important decisions to implement based on existing circumstances of businesses or decisions to start business. Bergen & Bressler (2011). Also, entrepreneurs seem to possess high levels of confidence that can hinder decision making processes, in order to start and maintain growth of their businesses (Holland and Garrett, 2015).

The high levels of confidence derive from a well-known psychological theory, Vroom's Expectancy Theory that focuses on the quality of input toward the fulfillment of a goal, such as time, hard work and effort that leads to output, such as, growth and success in areas of revenue, quality, customer retention, and expansion of services or products. The foundation of the entrepreneurial drives are contributed to Maslow's Hierarchy of Needs. The model focuses on motivation to fulfill external and internal needs. Initially, one's desires is to fulfill external needs, such as physiological needs, including food, water and air. Once the physiological needs are met, then one is motivated to fulfill the next external need, safety. Examples of safety needs include the ability to maintain a secure environment and maintenance of personal health. When safety needs are met, then an internal need, belongingness is desired to become fulfilled. Examples of

belongingness needs include the need to become a part of a group, maintenance of friendships and relationships. When belongingness needs are met, then esteem needs are desired to fulfill. Examples of esteem needs include self-esteem, self-confidence, and respect from others. When esteem needs are met, then self-actualization are desired to fulfill. Examples of self-actualization is the highest level to fulfill. Examples of self-actualization include the ability to understand one's purpose, problem solving and creativity. Maslow's Hierarchy of Needs demonstrates that low levels of needs, such as physiological and safety needs are classified as external needs, because they are needed for survival purposes from the environment. As the lower needs are fulfilled, then a person is motivated to fulfill internal needs, such as esteem and self-actualization (Gordon Rouse, 2004).

Based on Maslow's Hierarchy of Needs, Carland suggests that entrepreneurs with low entrepreneurial drives focus on fulfilling lower level needs, such as physiological and safety needs. Entrepreneurs that possess high entrepreneurial drives focus on fulfilling internal needs, such as esteem and self-actualization, because they have fulfilled the lower level of needs (Carland & Carland, 2000). Additional research supports that successful entrepreneurship leads to internal factors, such as mentally transitioning from employees to employers, consider ventures that solves issues or needs in society, previous experiences, and resources to possess a solid network of resources. Most importantly, they are able to recognize and execute their opportunities to market through entrepreneurship (Singh & Gibbs, 2013).

Based on the socioeconomic perspective, the term racism is not used to define one group of people versus another, however, it is process of competing for power, money and the ability to access resources (Anderson, 1995). As time progressed, the Civil Rights and Affirmative Action programs were established to include Non-Whites, especially Blacks for the perception of equality with employment, financial and educational opportunities that started in 1964. Based on the changes for equality, the jargon was modified to provide politically correct identification of other races, such as Pacific Islanders, Hispanics, African Americans, Asian Americans, Native Americans, as well as the term, Minorities. Women were included as minorities for the perception of equality with employment, financial and educational opportunities, as well. Throughout decades to the present, the race continues for socioeconomic status through domination of power, wealth and use of resources between Caucasians and Minorities (Lottie & Clemens Noda, 2003).

Socioeconomic circumstances have motivate people to become entrepreneurs when they are unable to obtain gainful employment, despite the competitive job market. Statistics have shown that unemployment rates and length of unemployment are twice as high for Minorities compared to Caucasians. African Americans compared to any other minority group are more likely to experience increase levels of discrimination and stigmatization in financial, legal and educational sectors (Hirsh & Jack, 2012). As a result, Caucasians are motivated to start businesses based on opportunities of personal pursuit (internal motivation) however, African Americans are motivated to start businesses due to the shortage in the job market (external motivation). Therefore, individuals who are start businesses based on internal motivational factors exceed in longevity and growth in businesses, revenue and human capital compared to individuals who start businesses for external motivational factors (Singh & Gibbs, 2013).

Despite previous research, Minorities, especially African Americans possess higher levels of positive thinking, attitude, and greater desire toward entrepreneurship than non-minority people, however, positive attitudes and excitement about entrepreneurship do not reflect the actual amount of minorities that have started businesses. In fact, minority owned businesses usually abandoned their entrepreneurial venture at a higher rate than non-minority owned businesses. The reasons for abandonment of businesses include a lack of education. Most minorities have a high school diploma and a limited college education. Higher education is a key factor toward entrepreneurship, because individuals are expected to analyze and synthesize information in depth, in order to plan and execute (Singh & Gibbs, 2013).

In the United States, entrepreneurs usually possess positive attitudes about businesses, because the framework of business owners are usually Caucasian males who are classified as Baby Boomers. Minority entrepreneurs, despite their age, are not typically considered the majority to become entrepreneurs. If minority owned businesses exist, then they are classified as small businesses with limited profit, marketability of products and services. As a result, minority entrepreneurs usually experience discrimination from banks and limited experience as business owners. (Schultz & Achtenhagen, 2013). Minorities experience discrimination and receive limited revenue from loans or similar programs that hinders future success (Singh & Gibbs, 2013). Minorities are usually denied business loans, because they have no or low credit scores along with no collateral. Additional issues include a lack of knowledge about desired business industries, operational activities, inability to market, plan and forecast (White, 2010).

Women, especially minority women entrepreneurs usually have challenges with raising children, caring for aging parents while maintaining households, as well as, maintaining the success of their businesses. Occasionally, the family obligations hinders potential growth of businesses and minority women simply prefer to remain small (White, 2010). Disadvantages of minorities, especially with women, have challenges with their businesses based on discrimination, inadequate startup money, limited access of resources and limited business support that leads to business growth (Davison, Fielden, Omar, 2010). Businesses owned by minority women are usually smaller than those in retail related or service industries. The businesses usually generate lower customer and revenue performance due to a smaller network of resources, in order to start, market, and sustain business growth. Women usually focus more non-monetary goals, such as opportunities to balance home, work and autonomy rather than focus on finances and growth of their businesses. Whereas, men usually own large companies that are not in retail and service industries. They have a larger network of resources, in order to start, market, and increase revenue of their businesses. Men are able to focus on monetary goals, because most of them are not primary caretakers of children, aging parents, and households (Robinson & Stubberud, 2011). Business owners with large firms can focus on more profit, and executing additional markets for future revenue, whereas, smaller firms are content with receiving salaries from their businesses, maintaining operational activities, and job satisfaction from their businesses (Saravathy, Memon and Kuechle, 2013).

## **METHODOLOGY**

There are two (2) surveys that required completion from participants, including the Carland Entrepreneurship Index and the Demographic Survey. The Carland Entrepreneurship Index focuses on 33 questions regarding preferences on internal and external needs. The questions are used to determine levels of entrepreneurial drives among entrepreneurs. A cumulative score of thirty-three (33) is classified as high levels of entrepreneurial drive and a cumulative score of one (1) is classified as low levels of entrepreneurial drive (Carland & Carland, 2000). The Demographic Survey completed by the researcher included questions about ethnicity, age, education and gender. Additional questions included types of industries, annual gross, legal structure and location of businesses. The survey included additional questions, regarding their existing challenges with their businesses and needs for their businesses within the next six (6) and twelve (12) months. The collection of the surveys were completed in traditional and non-traditional settings from April through August 2015. Two (2) small minority owned businesses invited other entrepreneurs to attend network events, in order to complete the surveys. The researcher explained the nature of the surveys, provided each participant an informed consent form, and the surveys. Upon completion, the participants placed the surveys in an anonymous box. The non-traditional approach enabled the researcher to send emails to entrepreneurs through social media, such as LinkedIn, Facebook and Twitter. The surveys and informed consent forms were sent to entrepreneurs who expressed an interest in participating in the study. Verbal and written forms of appreciation were provided to entrepreneurs who completed the surveys. All of the surveys were used for the study based on the responses from the participants, because entrepreneurs completed the surveys thoroughly through social media. Whereas, some entrepreneurs during the face to

face meetings had questions about confidentiality concerns and instructions were reviewed before participants completed the surveys.

**RESULTS AND DISCUSSIONS**

Table 1 shows the total amount of sixty-one (61) completed surveys, Carland Entrepreneurship Index from the traditional setting, such as, face to face meetings and non-traditional setting, such as, social media. The mean (2.17273) reflects the results were significant, although the sample size of sixty-one (61). Entrepreneurship drives from the survey ranged from zero (0) as the lowest and thirty-three (33) as the highest score. In the study, participants ranged from twelve (12) as the lowest level through twenty-one (21) as the highest score of entrepreneurial drive.

Table 1: Carland Entrepreneurship Index

N	Valid	61
	Missing	0
Mean		17.5082
Std. Deviation		2.17273
Minimum		12.00
Maximum		21.00

Table 1 shows that Table 1 shows the completed responses of surveys were sixty one (N= 61; Mean 17.5). The standard deviation was (2.17273) that demonstrated that results are significant, despite the sample of the population. The lowest score of entrepreneurship drive among entrepreneurs were twelve (12) and the highest score was twenty-one (21) out of a score of thirty-three (33).

Table 2 shows each entrepreneurial drive score reflected from each participant. The lowest response rate of one (1) participant scored in the lowest categories, twelve (12) and fourteen (14) out of a possible score of thirty-three (33). The largest response rate of twelve (12) participants scored in the highest category, eighteen (18) out of thirty-three (33).

Table 2: Frequency Distribution of Entrepreneurial Drives

		Frequency	Percent	Valid Percent
Valid	12.00	1	1.6	1.6
	13.00	2	3.3	3.3
	14.00	1	1.6	1.6
	15.00	9	14.8	14.8
	16.00	6	9.8	9.8
	17.00	9	14.8	14.8
	18.00	12	19.7	19.7
	19.00	9	14.8	14.8
	20.00	7	11.5	11.5
	21.00	5	8.2	8.2
	Total		61	100.0

Table 2 shows the highest entrepreneurial drive among entrepreneurs was eighteen (18) (12; 19.7%) out of a total score of thirty three (33). Immediately following the highest score of eighteen (18), participants responded equally between the entrepreneurial drives of fifteen (15), seventeen (17) and nineteen (19) with (9; 14.8%). The lowest scores among participants were levels of twelve (12) and fourteen (14) with (1; 1.6%).

Figure 3 shows the highest score of entrepreneurial drive was eighteen (18) from twelve (12) participants. The lowest scores from the survey, twelve (12) from one (1) participant and fourteen (14) from one (1) participant. Interestingly, twenty-seven (27) out of sixty one (61) participants scored between fifteen (15), seventeen (17) and nineteen (19).

Table 4 shows that fifty-two percent (52%) female entrepreneurs compared to forty-seven (47%) male entrepreneurs responded to the survey. One hundred percent (100%) of the participants completed the Carland Entrepreneurship Index through face to face meetings and social media. However, fifty-three percent (53%) completed the demographic survey. All of the participants successfully completed the demographic surveys through social media. Some of the participants from the face to face meetings were

reluctant answering questions about their annual revenue and location of their businesses due to confidentiality concerns.

Figure 3: Entrepreneurial Drives from Participants

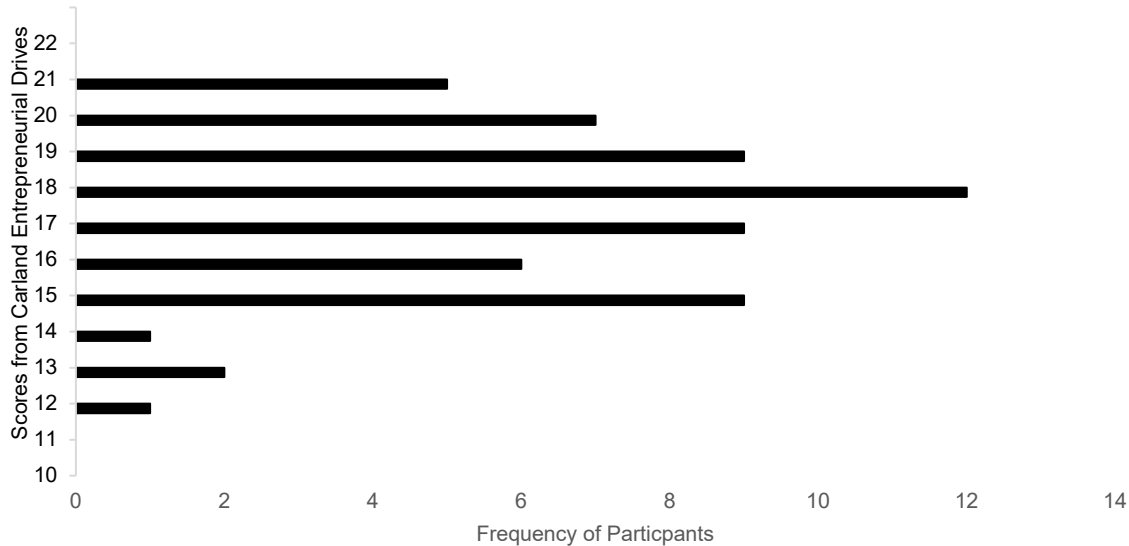


Figure 3 shows that eighteen (18) was the highest level of entrepreneurial drives from participants. The lowest entrepreneurial drives are equally distributed between levels of twelve (12) and fourteen (14) from Carland Entrepreneurship Index. The level of entrepreneurial drives ranges from one (1) as the lowest score and thirty three (33) as the highest score from Carland’s Entrepreneurial Index. Most of the participants scored high at eighteen (18) and the lowest scores ranged at twelve (12) and fourteen (14).

Table 4: Gender Percentages of Participants

Males	Females
47 %	52%

Table 4 shows that fifty-two percent (52%) females and forty seven percent (47%) male entrepreneurs who participated during the study. There were sixty-one (61) participants that completed the Carland Entrepreneurship Index and fifty-three percent (53%) of participants that completed demographic surveys.

Table 5 shows the distribution among participants were African American with sixty-six percent (66%), Caucasians with twenty eight percent (28%), Hispanics with six percent (6%) and no Pacific Islanders (0%). Also, it shows the largest amount of entrepreneurs ranged between 31-41 years of age and accounted for forty percent (40%) and classified as Generation Y. There was an equal distribution between twenty-five percent (25%) in 41-51 years old as Generation X and twenty five percent (25%) of Baby Boomers from 51-61years (25%). The lowest response of two percent (2%) was among entrepreneurs who were 62 years and older while classified as Baby Boomers. Additional information shows fifty-one percent (51%) of entrepreneurs were college graduates. Twenty-one percent (21%) entrepreneurs graduated from graduate school. The lowest amount were thirteen percent (13%) of entrepreneurs with a high school diploma. It shows the highest percentage of responses were seventy nine percent (79%) in Service industries that included businesses in Training, Consulting, Cosmetology, Health Care, Retail, Music, Law and Education. The lowest responses from entrepreneurs were in Construction at four percent (4%).

The highest annual gross of businesses ranged between 0-50,000.00 was forty-seven percent (47%), and twenty-five percent (25%) ranged between 100-150,000.00 per year. There were no responses for

businesses that earned annual revenue between 150-200,000.00. However, there were nine percent (9%) of businesses that generated over 250,000.00 (see table 9). Entrepreneurs had eighty three percent (83%) of employees ranging between 0-5 within their businesses. The lowest amount of responses were three percent (3%) with 17-22 employees working in businesses among entrepreneurs. Also, forty-seven percent (47%) of entrepreneurs have their businesses structured as LLC's and forty percent (40%) of entrepreneurs have their businesses structured as sole proprietors. Two percent (2%) of entrepreneurs have their businesses structured as partnerships. The study shows that most of the responses of entrepreneurs ranged in the Northeast of the United States, such as, seventy percent (70%) in New Jersey, ten percent (10%) in New York and twelve percent (12%) in Connecticut. The lowest responses of entrepreneurs were two percent (2%) in Georgia.

Table 5: Demographic Information of Participants

Ethnicity of Participants					
<b>Caucasians</b> 28%	<b>African Americans</b> 66%	<b>Hispanics</b> 6%	<b>Pacific Islanders</b> 0%		
Age of Participants					
<b>Under 30 years</b> 8%	31-41 years 40%	41-51 years 25%	51-61 years 25%	62+ years 2%	
Education of Participants					
<b>Some College</b> 13%	<b>College Graduate</b> 51%	<b>Completed Graduate School</b> 21%	<b>High School</b> 15%		
Types of Industries of Entrepreneurs					
<b>Service</b> 79%	<b>Technology</b> 11%	<b>Construction</b> 4%	<b>Real Estate</b> 6%		
Annual Gross Revenue of Businesses					
<b>0-50,000</b> 47%	<b>50-100,000</b> 15%	<b>100-150,000</b> 25%	<b>150-200,000</b> 0%	<b>250,000 +</b> 9%	
Number of Employees Employed in Businesses of Entrepreneurs					
<b>0-5</b> 83%	<b>6-10</b> 8%	<b>11-16</b> 6%	<b>17-22</b> 3%		
Legal Structures of Businesses					
<b>Sole Proprietor</b> 40%	<b>Non Profit</b> 6%	<b>S Corporation</b> 4%	<b>Partnership</b> 2%	<b>LLC</b> 47%	
Location of Businesses					
<b>New York</b> 10%	<b>New Jersey</b> 70%	<b>Georgia</b> 2%	<b>North Carolina</b> 3%	<b>Connecticut</b> 12%	<b>California</b> 3%

Table 5 shows responses from the demographic survey from participants. Most of the participants were sixty six percent (66%) African Americans and the lowest participants were Hispanics at six percent (6%). Most of the participants, forty percent (40%) ranged between thirty-one through forty one years old (31-41). Most of the participants; fifty one percent (51%) were college graduates. Most of the participants, seventy-nine percent (79%) businesses focuses in the service industry. Most of the participants, forty-seven percent (47%) generated 0-50,000.00 as annual revenue. Eighty-three percent (83%) of the participants had 0-5 employees employed in their businesses. Forty percent (40%) of employees were sole proprietors and seventy percent (70%) lived in New Jersey.

Table 6 shows existing challenges despite the demographics of entrepreneurs. Forty-three percent (43%) of entrepreneurs identified that money was the largest existing challenge. Following money, thirty-six percent (36%) participants identified a lack of customers and thirty-four percent (34%) participants identified a lack of resources, in order to increase growth within their businesses.

Table 6: Existing Challenges Among Entrepreneurs

<b>Lack of Resources</b>	<b>34%</b>
Issues with Competent Employees	19%
Not enough Customers	36%
Lack of Marketing	30%
Borrowing Money	23%
Technology	28%
Social Media	28%
Government Restrictions	21%
Fear of Success	13%
Training	17%
Money	43%
Education	6%
Management	13%

Table 6 shows entrepreneurs responded with external needs rather than internal needs as challenges within their businesses. Forty three percent (43%) of entrepreneurs responded with concerns about money as existing challenges within their businesses. Also, thirty percent (36%) of entrepreneurs responded that insufficient amount of customers was a concern, in order to survive, sustain and increase business growth. The lowest challenge reported was education at six percent (6%) among entrepreneurs

Table 7 shows the needs of entrepreneurs in six (6) months of the survey. Thirty percent (30%) participants stated the need of additional resources for business growth potential. Following the need for resources, nineteen (19%) percent of participants identified that money was needed for business growth potential. The lowest response, two percent (2%) of participants stated the need of support groups for business growth potential.

Table 7: Needs from Entrepreneurs in Six (6) Months

<b>Money</b>	<b>19%</b>
Resources	30%
Training	9%
Networking	8%
Marketing	9%
Motivation	8%
Support Groups	2%

Table 7 shows the highest need among entrepreneurs within six (6) months included the need to access resources at thirty percent (30%). The ability to access resources included the knowledge of processes, systems and positions to enhance the status of their businesses. The outcome to effectively use resources can increase opportunities for additional revenue, grants, marketing, networking and potential partnerships. The lowest response regarding the need of support groups was 2 percent (2%) among entrepreneurs.

Table 8 shows that fifty three percent (53%) of entrepreneurs need additional resources to increase business growth. Following the need for resources, forty- two (42%) percent of entrepreneurs need money to experience business growth. Following the need for money, forty percent (40%) of entrepreneurs need to increase networking opportunities for potential business growth. The lowest needs among entrepreneurs were zero percent (0%) for motivation and two (2%) percent for training.

Table 8: Needs from Entrepreneurs in twelve (12) Months

Money	42%
Resources	53%
Training	2%
Networking	40%
Marketing	28%
Motivation	0%
Support Groups	6%

Table 8 shows two highest needs among entrepreneurs within twelve (12) months included the need to access resources at fifty three percent (53%). The ability to access resources included the knowledge of processes, systems and positions to enhance the status of their financial and operational activities in their businesses. The lowest response regarding the need of motivation was 0 percent (0%) among entrepreneurs.



## CONCLUSION

Minority entrepreneurs experience challenges compared to non-minority entrepreneurs in the United States. Carland Entrepreneurial Index was used to define and measure the levels of entrepreneurial drives among entrepreneurs and it did not measure the levels of entrepreneurial drive of minority entrepreneurs. Carland's point of view on entrepreneurial drives focused on psychological perspectives, such as mental cognition and positive thinking that are needed to become and maintain as successful entrepreneurs (Carland & Carland, 2000). However, the research on entrepreneurial drives did not include or measure psychological perspectives of minority entrepreneurs. Additional research was needed to focus on the levels of entrepreneurial drives and the additional challenges that minority entrepreneurs experience. Additional research have identified socioeconomical perspectives, such as racism, that minority entrepreneur's encounter in relation to potential business growth. The root word of racism is race and it is used to compete for money, resources and opportunities, in order to dominate and control based on previous research. The race of money and resources to remain dominant through socioeconomics continues to remain a serious issue for the establishment and potential growth of minority entrepreneurs (Anderson, 1995).

The Carland Entrepreneurial Index and Demographic Survey were distributed to sixty-one (61) entrepreneurs through traditional and non-traditional approaches. The traditional approach focused on meetings with entrepreneurs face to face, in order to complete the surveys. The non-traditional approach focused on entrepreneurs completing the surveys on-line through social media sites, such as Twitter, Facebook and LinkedIn. Surprisingly, fifty-three percent (53%) of participants during the face to face meetings were reluctant to complete the Demographic Survey, because they were concerned about their confidentiality of annual revenue and location of their businesses, despite the provision of permission and explanation of confidentiality through verbal and written form. However, all of the participants during the face to face meetings completed the Carland Entrepreneurship Index. One hundred (100%) of the on-line participants completed the Demographic Survey and Carland Entrepreneurship Index.

The study revealed interesting results regarding entrepreneurial drives and challenges of minority owned businesses in the United States. Most entrepreneurs possessed moderate levels of entrepreneurial drive, however, their challenges and needs were not focused on internal motivation, such as esteem and self-actualization. Instead, the challenges focused on external motivational factors, such as, money, lack of resources and not enough customers in each scope of their businesses. The needs among entrepreneurs within six (6) months were external needs, such as money, resources, training and marketing. The needs of entrepreneurs within twelve (12) months were external needs, such as, resources, money and networking. All of their challenges and needs are the foundation to start, maintain and sustain business growth, despite the competitive markets, industries and demographics. Another interesting finding showed that most of the participants were from the Northeast region of the United States. The perceptions and attitude of entrepreneurs from the area, despite race, gender and creed has significance, because the cost of living is similar to the West and higher than the Southeast of the United States.

As far as socioeconomic perspective, the results showed that most of the entrepreneurs generated between 0-50,000.00 that clearly demonstrated money is a significant factor, in order to start and maintain growth through entrepreneurship. Despite individual biases that are exhibited through discrimination and the competitive race for resources and wealth, it is vital as minority entrepreneurs to explore various non-conventional opportunities for funding, in order to start and maintain business growth. For example, peer to peer financing enables entrepreneurs to borrow money online with less than perfect personal credit history. The interest rates of peer to peer financing are less than traditional lenders and the administrative processes are not as challenging compared to traditional lenders. The opportunity of peer to peer financing can improve entrepreneurs' personal credit, as well. Another option for funding, crowdfunding enables entrepreneurs to generate revenue based on various types of startup endeavors and ongoing projects in their businesses. The fundraising goal must be moderate, in order to expect to receive funding from donors. If

the fundraising goal is not achieved, then all of the donations are not provided for funding purposes. The third option for funding, micro financing, enables entrepreneurs to borrow fifty thousand dollars (50,000.00) or less and pay it back within a shorter period time. Similar to peer to peer financing, micro financing is easier to secure compared to traditional banks. A fourth option, 401(k) retirement funds, enable entrepreneurs to borrow against their plan without any penalties and taxes. However, entrepreneurs must have a 401(k) plan from their previous jobs (Bruton, Khavul, Siegel & Wright, 2015). A fifth option includes the use of government loans or grants for minority-owned businesses, however, there are several types of criteria in addition to being a minority (Geho & Frakes, 2013).

Additional resources can be obtained by joining associations, such as Minority Business Development Agency, (MBDA) and Minority and Women Business Enterprise (MWBE). Both associations are able to offer assistance, and support with access to capital and resources. The services extend to Women, African Americans, Asian Americans, Hasidic Jews, Hispanic Americans, Native Americans, Pacific Islanders and Veterans. As a result, the creative ways to secure revenue and opportunities to network through minority associations can lead to marketing and access to additional resources for business growth (White, 2010). . Additional revenue and resources can help minority entrepreneurs focus on other areas, such as relationships with employees and customers. Entrepreneurs must invest in professional training themselves, however, it is equally important to provide professional training to employees and contractors, in order to excel professionally and financially. At the same time, entrepreneurs must cultivate positive relationships with employees through incentives to increase revenue, quality with customer service, in order to increase long term customers and employees (Iyigun & Owen, 1999). As a result, the ability to hire competent employees can enable minority entrepreneurs to operate their existing business. Meanwhile, they are able to increase growth with other business opportunities through effective planning.

The need to increase and improve business growth creates a balance of positive emotional thinking with realistic goals, planning and projections, in order to experience effective results (Saravathy, Memon and Kuechle, 2013, Bergen & Bressler 2011). The limitations of the research focused on the need to obtain a large sample of the population from face to face meetings and on-line. Most of the entrepreneurs derived from Northeast of the United States, such as New York, New Jersey and Connecticut. A larger sample of entrepreneurs from various states would reflect various levels of drives and unique challenges. Another limitation focused on not asking participants about the amount of established months or years of their existing businesses. Additional and similar challenges are present based on the longevity of new versus seasoned entrepreneurs. Future research is needed to obtain feedback from a larger sample of the population through face to face meetings and on-line, in order to explore an in-depth analysis of entrepreneurial drives among minority entrepreneurs and their business challenges. Also, the duration and longevity of their status as entrepreneurs are needed, in order to minimize unique challenges, review their levels of entrepreneurial drives as new versus seasoned minority entrepreneurs in the United States.

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## BIOGRAPHY

Tamara Clark-Gill, Ph.D. serves as a College Campus Chair for the School of Business at the University of Phoenix. She has over 14 years of experience teaching Business and Psychology Graduate and Undergraduate programs in various colleges and universities within New York and New Jersey. Also, she has worked in various industries, such as Human Resources, Vocational Education and Non Profit Organizations. She can be contacted at University of Phoenix, 535 Connecticut Avenue, Suite 400 Norwalk, CT 06854, tamara.clark@phoenix.edu and tamaracklarkphd@gmail.com.



# **CHINESE ENTREPRENEURS IN SMALL AND MEDIUM ENTERPRISES (SMES)– AN EMIC VIEW**

Yunke He, Okanagan College  
Heather Banham, Okanagan College

## **ABSTRACT**

*In-depth personal interviews are conducted with nine Chinese entrepreneurs. They are located in three different geographical regions from coastal to interior. Their businesses span eight sectors from clothing to industrial automation. This article focuses on their motivations to start new businesses, and introduces their educational and working background as well. The interview results show that eight out of nine entrepreneurs resigned from their stable or even enviable positions to pursue their personal dreams - from creating own brand in men's suits to commercializing research findings from own PhD dissertation in industrial automation. The research findings have some important implications on engineering education, female entrepreneurship, and forms of business ownership for SMEs.*

**JEL:** M190

**KEYWORDS:** Chinese Small and Medium Enterprises (SMEs), Chinese Entrepreneur

## **INTRODUCTION**

The increasing importance of Small and Medium Enterprises (SMEs) is a global phenomenon brought about by market forces, technological advances, personal career aspirations and underlying demographic changes in the population. In the Organization for Economic Cooperation and Development countries, SMEs account for 95 percent of the enterprises and 60 to 70 percent of the employment. The transformation of the economy in China is also relying on the role of entrepreneurship and the development of a strong SMEs sector. SMEs are drivers of employment, innovation, exports and gross domestic product. Despite the importance of SMEs to the economies worldwide and their resilience to economic downturns, there has been a shortage of data concerning SMEs which is partly attributable to the fact that it is a very challenging area for researchers (Curran & Blackburn, 2001). Country differences including those in relation to the role of government and other independent bodies such as banks impact the establishment and growth of SMEs (Uhlener, Wright & Huse, 2007). It is also extremely challenging for researchers to undertake research in China due to language and cultural barriers. This research project intends to contribute to the body of knowledge on SMEs with this exploratory research on SMEs in China.

SMEs provide investment opportunities and attract the attention of policy makers to foster growth and increase resilience in national economies. This is also the case in China where SMEs are significant contributors to economic growth, employment creation, exports and technology innovations (Chen, 2006). While an increasing amount of research is being undertaken on SMEs in China (Cunningham & Rowley, 2010) focusing on finance, marketing and ownership, there is a gap in relation to entrepreneurial motivation and background. The goal of this research is to contribute to the body of knowledge on SMEs by undertaking in-depth interviews with entrepreneurs in the changing economy of China. The specific scope of the study includes the motivation of the Chinese entrepreneur to start a business and the ownership forms of the Chinese SMEs. In accordance with best practice guidelines for this type of research, the investigators conduct interviews in China as an exploratory and descriptive research project. The principal investigator is originally from China and connects with two potential subjects (his high school classmate and university

classmate). These two potential subjects are successful entrepreneurs in SMEs. Other seven subjects are recommended by his friends. It is a convenience sample but due to the high degree of trust between the researcher and the subjects it yields valuable insights. The shortcomings of this type of non-probability design and the limitations are disclosed.

## LITERATURE REVIEW

The historical development of SMEs in China is explored from a policy making perspective in “Development of Chinese small and medium-sized enterprises” (Chen, 2006) and is summarized in three phases: 1978 to 1992 – expansion in number and scale; 1992 to 2002 reform of state owned SMEs and development of the non-public sector; and 2002 onwards with the implementation of the SME promotion law to improve the policy environment for SMEs aimed at optimisation of the industrial structure and enhancing the quality and competitiveness of the enterprises. By 2003, China had established more than 100 high tech incubators, 20 enterprise parks for returning overseas students and over 40 service centres for SME technology innovations (Chen 2006, p.141). Taxation policy provides exemptions and preferential rates and fiscal policy provides encouragement for technology innovation including emphasis on high-tech agricultural activities. Financing the start-up and expansion of businesses in China is discussed in The Economist article, “Let a million flowers bloom; Entrepreneurship in China” (March 12, 2011). Loans to SMEs comprise less than 4% of total loans made by the largest banks in China and 57% of the enterprises in Wenzhou have borrowings outside the conventional banking system. In part this has been encouraged by the credit guarantee system of the Peoples Bank of China described in the Chen (2006) article.

In examining entrepreneurial strategy in small textile manufacturing firms the results show that development and maintenance of network ties, attention to customers and innovation are three factors critical to successful entrepreneurial activity (Kotey, Sharma and Gao, 2013). They also emphasise the strong connection between planning and small business success. In exploring the relationship between market and legal institutions and entrepreneurial investment in China’s transition economy, Zhou (2010) concluded that political connections substitute rather than complement the market and legal environment. Such political connections are able to protect property rights and provide more security enabling higher reinvestment rates in the small firms that have these connections. In the study of small Chinese high-technology firms, stronger networks and more social contacts provide the entrepreneurs with more information and greater capacity to recognize opportunity (Siu & Bao, 2008). Resource allocation to the non-market activities of gift giving, banquets, and donations are essential to building the personal networks to mitigate the impact of governmental and non-market decisions on entrepreneurial businesses (Tang & Tang, 2010). Further, motivation and willingness to grow and expand are constrained by the unpredictable environment (Busenitz & Lau, 2001). In the article “Chinese entrepreneurship and small business development: an overview and research agenda” (2006), Li and Matlay called for research adding quality and depth to the understanding of the growth and development of Chinese entrepreneurship (p. 260). This research is aimed at contributing to that understanding and to an exploration of entrepreneurial motivation. The research objectives are described in the next section.

## DATA AND METHODOLOGY

The following research questions (RQ) are formulated to gain a greater understanding of Chinese entrepreneurs and their role in SMEs and in the whole economy.

- RQ1 What motivates entrepreneurs in China to take on the challenge of SMEs in a changing economy?
- RQ2 What are their backgrounds in age, gender, education and work history?
- RQ3 What forms of ownership do Chinese entrepreneurs prefer?
- RQ4 What is the future outlook for these SMEs?

Qualitative research design using in-depth interviews is holistic. It begins with a search for understanding the whole (Denzin & Lincoln, 2006) and is therefore selected as the appropriate basis for this research. The interview questions are formulated to allow for disclosure and discussion of motivations of entrepreneurs, their backgrounds, preferred forms of ownership, and the outlook of the business. To explore the above research questions, primary data are collected using the structured interview research technique. Componential and content analysis is used to analyze the data; and the findings are organized to address the research questions. The advantages of using the case study method include its sensitivity to the cultural context of secrecy and the keeping of a low profile normally adopted by owner-managers in China (Siu & Bao, 2008). Obstacles in data gathering include the fact that asking questions is frequently viewed with suspicion and the importance of connections and trust, hinder academic research in SMEs in China (Cunningham & Rowley, 2010). Therefore this research utilizes a convenience sample in which trust is already established with a long-term relationship between the academic researcher and the participants either directly or indirectly. This approach is adopted to gather an emic view of entrepreneurs in China. This is a rare view since trust, cultural sensitivity, and language differences normally provide barriers to data gathering and data integrity. Summary data from the interviews with nine entrepreneurs follows.

#### Entrepreneur A

Mr. A grew up in a poor family in a rural area. He did not finish his high school due to financial difficulty. As a teenager, he took his father's advice – "learn some useful trades so that you can make living in the future". He was apprenticed to a tailor and the pair carried their sewing machines to serve local families from door to door. He was smart and hardworking. After four years, he learned skills and was able to work independently. However, he was not satisfied with the work in the local area: same simple style of clothing for almost every one and serving people from house to house. In 1985, a clothing factory in a neighboring city wanted to recruit a skilled tailor. Mr. A applied and was hired. He gradually moved up to the chief tailor's position in the factory of more than three hundred employees. The life was good but he felt something was missing. After deep personal reflection, he realized that he was somewhat bored with the mass production and his real interest was in customized clothing design. It was simple - he needed freedom to do whatever he liked to do without restrictions. Then the only solution would be to have his own business. In 1991, Mr. A decided to leave the factory and start his own business.

His goal was to create his own brand of men's western-style suits. At the beginning, he had a small group of three people including himself. Just like any other start-ups, he faced many difficulties in financing, marketing, designing, technology, and other areas. After eight years of persistent effort, he established his own factory and retail stores in more than a dozen of cities. In his retail stores, sample suits are on display; a variety of materials are available for customers to choose; more importantly, knowledgeable service personnel advise each customer on the style based on his preference, figure, age, education background, occupation, wearing habit, and other factors. They also accommodate any particular needs of their customers. The measurements are taken and immediately sent to the factory. The try-on and final adjustments are made at each retail store. An order can be completed in a week or less. Today Mr. A is still the sole owner of the business and has more than one hundred employees. His business is steadily growing and has no financial problems. Their current focus is on forecasting the changing trend and acquiring the specialized equipment.

#### Entrepreneur B

Mr. B graduated with a bachelor degree in mechanical engineering and was immediately hired after graduation by an affiliated teaching factory to a technical school. However, it did not take long for Mr. B to realize that this job did not make any financial sense to him: his monthly salary was about 400 yuans per month, but he spent 16 yuans and two hours to commute for each working day. His wife did not have a job and they had a new born baby in the first year working for the factory. After staying there for less

than two years, he resigned. Mr. B and his brother started their own business. They bought a machine tool and manufactured parts for other small factories. Unfortunately, it was difficult for them to secure enough orders to survive. This brotherly partnership only lasted for less than a year. At that time, their second child was born, which was a violation of the government's "one child family" policy. The consequences of this action are severe such that it would be very unlikely that any employers would be willing to hire him. The only way for Mr. B to make living was to be his own boss.

In exchanging information with former classmates, Mr. B noticed that contractors and project managers in construction were in high demand. He decided to say good-bye to his mechanical engineering and to become a contractor in the construction industry. Luckily, he successfully bid a project within a short time, recruited workers, and completed the work in time and within the budget. That was the first time he made good money in his working life. In four years as a contractor, he saved enough money for his future adventure; more importantly, he spotted a promising business opportunity – making a non-traditional type of bricks. Traditionally, bricks were made from clay. However, in one project contracted to Mr. B, bricks made from coal cinders were used. Mr. B was curious about this type of brick and spent a lot of time and effort researching relevant literature. From the learning process of the new material, he understood the inevitable change in the brick industry in the future. Firstly, the massive use of clay to make bricks is not sustainable in China because of its very limited agricultural land per capita; secondly, making clay bricks consumes large amount of coal and consequently pollutes the environment. This was the reason why the cinder bricks were called "environmentally friendly bricks" (EFBs) in China. He also believed that the quality of EFBs could be significantly improved by adding other ingredients.

Mr. B moved back to his hometown and started an EFB factory in 2009. That was a good timing – the provincial government was requiring industries to reduce the CO<sub>2</sub> emissions. Therefore the approval of his business was not an issue. He also experimented with different mixes of coal cinders and other materials and as he wanted to have top quality products to compete in this new market. Experiencing many ups and downs, Mr. B and his two partners were determined to carry on despite the many difficulties facing them. He felt a sense of satisfaction to have established the business and have finally achieved a strong business. Now they have more than 100 employees and many of them appreciated the opportunities of their employment. Mr. B was proud of his contributions to the society. They plan to expand from the one production line currently operating to two production lines whenever financing at a reasonable cost becomes available.

### Entrepreneur C

Mr. C received his bachelor's degree in textile engineering in 1996. After graduation he worked as an engineer for a state owned company and then as a public servant for a government agency. While the work was easy on these two jobs, he kept thinking he should do something when he was still young and energetic; otherwise he would feel that the four years he spent at the university were wasted. At that time, many state owned enterprises (SOE) were facing bankruptcy due to their own mismanagement and the country's centralized planning system. It was impossible for governments to bail all of them out and therefore the only option was to privatize or reform some of them. In 2000 a textile factory in a neighboring province was in financial distress. They wanted to outsource the management team on a contract basis. Mr. C and a few of his friends successfully won the contract. The deal was that Mr. C's team was appointed to manage the factory with full authority and responsibility. Financially, the management team must contribute 2.5 million yuan to the state each year and they can keep the rest of profits. In the previous year the factory lost several million yuan. In the first year under the new management, the state received 2.8 million yuan from the factory and the management team members made significant profit. In addition, these young people gained valuable management experience in learning by doing.



In 2004, Mr. C heard that an SOE in his hometown went bankrupt. All employees left the factory and all fixed assets were stolen including the doors and windows in the building. The local government called for purchase of the factory by private entrepreneurs. Mr. C knew the area very well and he had his plan to build a ramie textile factory on that site. He liked the location which was very close to local ramie producers. He made good money in the past four years and saved it. By negotiating a bargain price, he bought the factory as a sole owner without any financing. Timing for Mr. C to start his business was perfect. He received strong support from the local government because he created employment opportunities for the area. His ramie textile products were sold abroad - Europe, the US and South-East Asia, and the market demand for his products was also strong. He had a very good run for four years and everything was going smoothly. However, the financial crises in 2008 and continuing appreciation of the Chinese currency had hit his business hard. Export sales were severely affected by poor economic conditions in foreign countries and the adverse foreign exchange rates. At the peak he had 146 employees but now only about 90. There was no sign of immediate recovery. As the sole owner of the business, Mr. C is under tremendous pressure due to the lack of orders and difficulty to obtain financing. He is worried about the future of the factory and pondering what to do next. One option is to improve productivity by modernizing the production process and offsetting the increasing labor cost and instability. The problem is that he is unable to obtain a large amount of financing from banks and the underground financing is simply unaffordable.

#### Entrepreneur D

Mr. D completed his undergraduate studies in Accounting in 1966. Then the Chinese Cultural Revolution began. Like any other young graduates, they were treated as dangerous intellectuals and were sent to factories and farms for “reeducation” according to Mao’s doctrine. He worked as a blue collar worker for several years and later had a chance to do his accounting work. In 1976 the Cultural Revolution ended after Mao’s death. When the universities reopened in 1978, Mr. D successfully passed the national entrance exams for graduate studies and was admitted to one of the top universities. He earned his master’s degree in business administration in 1981. There was an acute shortage of graduates at that time and Mr. D could choose any employers he wished. However, he wanted to end the long distance relationships with his wife and two children. Then the only choice for him was to go back to his home city. Furthermore, he only wanted to work for an employer who was willing to provide a two bedroom apartment to house his family of four. As a result, he became a faculty member at a university.

Mr. D enjoyed his academic life and published several books. He was also frequently invited as a guest speaker. His research interest was in small and medium size banks, which were in their infancy in China at that time. In 2001 he launched the Research Centre for Small and Medium Banks at the university. However, the lack of sufficient funding prevented him from implementing his research plan. To solve this problem, Mr. D led his research team to look for other channels to raise funds. Soon he found that there was a high demand for training personnel for small and medium banks. It was a big success. They had 14 training projects in 2003 and 33 in 2004. The amount of revenue they made for the university stunned the administration. Ironically, there was no way for them to spend the money on research because the signing authorities were limited to a few thousand yuan under the strict central planning system. Mr. D realized it was unrealistic to see any reforms of the system in the foreseeable future. Besides, he not only discovered his own potential as an educational entrepreneur but also tasted the earning power in this area. He reached his mandatory retirement age in 2004 but the university extended his position for two years as an exception. It was time for him to retire in 2006; he left the university happily and started his own private enterprise to train managers for small and medium banks. With an excellent personal reputation and well-built clientele base, Mr. D’s training institute experienced an exponential growth. As a sole owner, he now has 110 employees and owns a building which has capacity to host more than 500 training cohorts annually. He provides trainees with classrooms, full room and board accommodations, and other facilities. He is over 70 but still full of energy; and is looking forward to further expanding the business.

### Entrepreneur E

Dr. E earned his bachelor degree in electrical and electronic engineering, master degree in computer science, and Ph.D. in electrical and electronic engineering. His first position after graduation was working for one of the Fortune 500 companies. It was a very highly paid position. However, Dr. E often felt that he wanted to do things which he was unable to do in this large state owned enterprise. He became quite pessimistic that, under the structure of the corporation, he was not and perhaps would never be able to put his creative ideas in practice. It was an enviable position but restricted his personal dream. After four years, he shocked all his colleagues, friends and family members – he resigned. Many people thought he must have had mental problems to take such an action. Dr. E's goal was to commercialize some results in his Ph.D. dissertation in the area of industrial automation using information technology. He firmly believed that it would have broad applications in industrial management, even though corporations were not eager to move in this direction at that time. It seemed like good timing to start a high tech or new tech business because all levels of government encouraged and supported entrepreneurs in this area. On April 1, 2009, Dr. E and his partner registered their business after months of preparations. However, the only financial support he received from the government was a chair and a desk in a room shared with others in an industrial park. Fortunately, his business did not require a large initial investment for fixed assets. He used his own savings and bought some computer equipment and software. What he urgently needed was to find a corporate client who was interested in automating their industrial management system. Then he could provide consultation, design a system, outsource manufacturing, and install it. Unfortunately, there was no luck in his first year. Worse, his partner decided to leave because he needed income to support his family.

For a while, even the management of the industrial park was doubtful about the future of Dr. E's new venture because it was difficult for them to understand what he was doing. The turning point occurred in the second year when he had a contract from a local company. He did an outstanding job and his client was extremely satisfied. As a result, the client company improved its management system and productivity significantly. Their testimonial became an effective marketing tool for Dr. E. In the past four years, Dr. E's business has been growing rapidly. As the sole owner, he now has 18 employees and most of them are highly educated, creative engineers and scientists. They have secured several large contracts with large state owned enterprises for the coming year. Dr. E has become a rising star in the industrial park and has already started construction to have his own new office building outside the park.

### Entrepreneur F

The 2010 Copiapó mining accident in Chile was closely watched by the world. Magically, 33 miners were rescued after staying in the emergency underground mine refuge chambers (EUMRC) for 69 days. It was a wake-up call for the Chinese mining industry, which experienced many tragic mining accidents and deaths. Recognizing the safe haven function of the refuge chamber, the Chinese government required all mining companies to install EUMRCs to protect miners from potential accidents. At that time, Ms. F and her three friends were working as engineers and executives for a family owned company, which manufactured service equipment for mining companies. They did not really feel that they belonged to the company. The company was firmly controlled by family members and other non-family member executives had no say in decision making; and they were also concerned about the direction and the future of the company in an increasingly competitive environment. After the Chile mine disaster, Ms. F and her three friends were excited by the newly emerging opportunity to provide EUMRCs for the Chinese mining industry. Soon they collectively decided to resign and start their own business as a team. After several months of preparations, they registered their new company in May 2011. The start-up financing was from their own savings and bank loans using their residences as collateral.

In collaboration with a local university research team, they developed, designed and manufactured the first unit of their own EUMRC in February 2012. Unfortunately, the response to government's safety

regulations from the mining industry was lukewarm because there was no required deadline for implementation of the regulations. The existing refuge chambers were provided by a major manufacturer in the industry, which had its own extensive marketing and sales network. After visiting several mines, Ms. F and her team found that the major manufacturer's EUMRCs were inferior to their product. However, as a small player, it was perhaps not wise to directly challenge the giant competitor because of its monopolistic power and long established close relationships with mining companies. Instead, they formed a win-win strategy and convinced the giant to accept them as a subcontractor. The result was a great success. Sales were growing exponentially. In just one year, the workforce increased from 6 to 59. The management team members have a common vision and work together very well; the employees' morale, loyalty and spirits are high; the potential market for EUMRCs is huge, and the company continues investing in R&D to improve its products. The outlook is very positive.

### Entrepreneur G

After completing his bachelor of Electrical Engineering degree, Mr. G was offered a position at a state owned enterprise. He started as an assistant engineer and was promoted to a managerial position. In those eight years, he was moving up smoothly on his career path; he married a lawyer working for the government and they had a child. However, he felt somewhat empty. He wanted to be more motivated and do something more meaningful. With his wife's support, Mr. G resigned and joined a few friends in a southern coastal city. They started their own business. They designed and made mechanical molds for industrial clients. The demand for their molds was strong because of the good quality and timely delivery of their products. In less than five years, Mr. G gained valuable experience as an entrepreneur and saved some money for future investment. It was time for him to go back to the city where his wife and son lived. Luckily, there was an opportunity awaiting him in his home city. A small factory was closed due to the lack of orders. He moved back without any hesitations and wanted to own the closed business.

He was facing various issues: all former employees wanted to get their jobs back; the transfer of fixed assets to his ownership was difficult to complete due to many levels of approvals by the government; public relations were not his strength, and others. At the end, Mr. G decided to abandon this plan to acquire the closed factory and felt relieved at the decision. Shortly thereafter Mr. G found another opportunity. A public technical school wanted to establish a teaching factory and invited a private partner for a joint venture. The school would provide the buildings and the private partner would provide equipment. After rounds of negotiations, the school administration and Mr. G quickly reached an agreement. In the past four years the public and private joint venture has been working smoothly. They make various types of surgical instruments for hospitals, personal rescue kits for mining companies, and industrial battery shells for ports. The diversified combination of products has helped them weather the changes of demand in each product market. Now they have a stable work force of about 50 employees. In addition to the domestic markets, their products are also exported to the Americas and Europe. Mr. G has been constantly studying the advanced technology and the market, which has helped improve the quality and marketability of their products. He feels very happy that he can concentrate on the real work and realize his personal dream as an entrepreneur.

### Entrepreneur H

While studying computer science at a top university, Mr. H impressed his professors with his elegant style in writing computer programs. Being a student in the undergraduate program, however, he was hired as a teaching assistant in a graduate program. As an exception, he was offered a teaching position to stay after receiving his bachelor degree of science. It was a great honor and Mr. H accepted offer with mixed feelings. He knew that he would have a smooth career path – from a lecturer to an assistant professor, then a full professor at such a famous university, envied by many graduates with PhD degrees. He also believed that he would be able to excel in both teaching and research. However he had some personal goals in mind. He

liked to develop new technologies and products with direct applications in and contributions to the society and the economy. Ultimately, he would like to have a group of colleagues working together, exchanging ideas, and doing creative things without worrying about income to support their families. Obviously, these goals would not be realistic at a huge university with an administrative hierarchy.

Mr. H was grateful to his professors and worked at the university for two years. Then he felt that he had returned the support and it was time to move on to realizing his dreams. He and two friends started a small company and soon they developed a non-traditional network broadcasting system to be used in language laboratories, music classrooms and internal information channels at universities and schools. The happiness from their success in developing the new product was quickly overshadowed by the reality – users hesitated and were unwilling to accept the new product despite their offer of a free trial period. The reason for this was because all universities and schools were publicly funded at that time and they had their traditional supply systems relying on those state owned enterprises which were not very innovative. Therefore they were not only afraid to use products from such a tiny and unknown company but also suspicious about them. Mr. H and his team could not figure out why users were not willing to accept their wonderful products. It was a painful lesson. Only later they learned: in the information industry you would become a “martyr” if you are one step or more than one step ahead of your competitors; but a winner if you are only a half-step ahead. The following years were very difficult for Mr. H and his partners.

They experienced financial distress, loss of employees, misunderstanding and humiliation by potential clients, and isolation. At their lowest moment, there were only three of them in the company. Mr. H’s extremely strong will and exceptional learning abilities made it possible for them to survive. Gradually they identified and overcame their weaknesses in the non-technological aspects of the business such as marketing. After more than five years of struggling Mr. H and his team developed well-rounded entrepreneurial and business skills. They established strategic alliances with Mr. H’s Alma Mater in research and development, and with a major national company in marketing and distributing products. In 2010 they launched Cloud Broadcasting which was well received by the market. Now Mr. H has more than 130 employees who are well educated and bright young men and women. They have common interest and goal in research and innovation. It is Mr. H’s hope that he will eventually be able to fund a research team and let members freely explore their ideas and advance knowledge.

### Entrepreneur I

Mr. I is a lawyer by training. He started his career as Assistant to the President at a medium size company. His work required a large amount of his time to deal with other companies; and many of them were SMEs. Gradually, he found that SMEs were facing many difficulties and in need of services and support – legal, product development, financing, management, marketing, etc. When his company decided to relocate to another city Mr. I decided to stay with his family. He started a consulting business providing legal services to SMEs. It was perfect timing – at that time there were initiatives by all levels of government to promote and support SMEs. Responding to a high demand for services from SMEs, Mr. I and his two partners established Service Centre for SMEs in 2010. They planned to offer services in various areas such as management, financing, marketing, technology innovation, employee skill training, legal services, etc. It was a non-profit organization with the financial support from the municipal government. However, the government support was not in a form of direct subsidy to the center; instead, it was provided as subsidies to those SMEs who needed services from the center.

The center’s core services are based on the expertise of the staff in the areas of financing, management consulting and legal affairs; and services in other areas rely on outsourcing. They believe it is an efficient and effective model. They outsource services from consultants with good reputations and strong track records after a strict assessment process and feedback evaluation. They not only guarantee the good quality of services but also reasonable fees. In fact, all their service fees are only paid to the center and consultants

when the SME clients are satisfied with the services; otherwise accounts receivable are not collected. The funding agency of the municipal government has been satisfied with the operation model. At the beginning, the center had approximately 10 staff members and served more than 30 SMEs in the first year. Two years later, the center has expanded significantly – with 30 employees and more than 300 clients.

**RESULTS**

Analysis of the in-depth personal interviews conducted with these nine Chinese entrepreneurs is provided in this section. The entrepreneurs are located in three different geographical regions from coastal to interior locations and they operate across a range of industries. Table 1 presents an overview of the industries, their years in the current business and the number of employees in each operation. The businesses span eight different sectors: clothing, construction, textile, education, industrial automation, manufacturing, information technology, and consulting services. These entrepreneurs have been in their current businesses for time periods ranging from two years to nine years with one exception of 22 years as indicated in Table 1. There are more than 687 employees working in these nine SMEs demonstrating the capacity of entrepreneurship as a generator of employment and the fulfilling of the expectation on the SME sector to create jobs. Table 1 summarizes the industry, years in business and number of employees for each of the nine SMEs which cover a wide range of industries and strong employment generation over two to 22 years. Responses to the four research questions are provided by summarizing and presenting the data from the interviews.

Table 1: Business Profile – Industry, Years in Current Business and Number of Employees

Entrepreneur	Industry	Years in Current Business	Number of Employees
A	Clothing Manufacturing	22	100+
B	Brick Manufacturing	4	100+
C	Textile Manufacturing	9	90
D	Education Services	7	110
E	Industrial Automation	4	18
F	Emergency Mining Equipment	2	59
G	Surgical Instruments and Safety Equipment	4	50
H	Information Technology (Cloud Broadcasting)	8	130
I	Business Consulting for SMEs	3	30

RQ1: What Motivates Entrepreneurs in China to Take on the Challenge of SMEs in a Changing Economy?

The prime motivations for undertaking these business ventures are summarized in Table 2.

Table 2: Entrepreneurial Motivation for formation of SMEs

Entrepreneur	Motivation
A	Desire to create own brand of men’s western style suits
B	Insufficient income to support family, first business failure, violation of one child policy, and opportunity identification
C	Desire to apply knowledge gained in university
D	Reached retirement age as an academic and wanted to continue work in training managers in small and medium banks
E	Motivated to commercialize research findings from PhD thesis
F	Opportunity identified as a result of Chilean mining disaster and group of friends dissatisfied with employment conditions
G	Government employment not meaningful combined with desire to return home
H	Desire to develop applied technologies and have funds for creative research and development
I	Did not want to relocate with existing employment and identified market opportunity for services to SMEs

Table 2 identifies the entrepreneurial ambition of these nine entrepreneurs particularly in relation to opportunity identification and personal aspirations. Five of the nine entrepreneurs (B D F G and I) have

personal motivators coincidental with opportunity identification; and four entrepreneurs (A C E and H) were inspired to pursue a dream. Three of these four (C E and H) possessed unique knowledge that they believed was the foundation for a successful business. In terms of motivations for these entrepreneurs to start their own businesses, the interview results show that eight out of nine entrepreneurs resigned from their stable or even enviable jobs to pursue their personal dreams.

RQ2 : What Are Their Backgrounds in Age, Gender, Education and Work History?

The backgrounds for these nine entrepreneurs in relation to age at which they started their businesses, gender, educational background and work history are presented in Table 3.

Table 3: Demographic Profile of the Nine Entrepreneurs

Entrepreneur	Age at Start Up	Gender	Education	Work History Prior to Current Business
A	26	Male	High School Drop out	Tailor to Chief Tailor
B	29	Male	Bachelor of Mechanical Engineering	Factory, partnership with brother making machinery parts, then managerial contractor
C	30	Male	Bachelor of Textile Engineering	Assistant Engineer in state owned company, public servant, then managerial contractor
D	62	Male	Master of Management and Bachelor of Accounting	Blue collar work during the cultural revolution then professor at university
E	32	Male	PhD and Bachelor of Electrical Engineering and Master of Computer Science	Engineer in a Fortune 500 company for four years
F	Late 20s	Female	Bachelor of Management	Engineer and executive for family owned company
G	35	Male	Bachelor of Electrical Engineering	Assistant engineer to manager in state owned enterprise, then partnership with friends
H	24	Male	Bachelor of Computer Science	Lecturer at a top university for two years
I	Late 20s	Male	Law Degree	Assistant to President of medium size company

Table 3 presents the age, gender, educational background and work history of the entrepreneurs which is predominantly male, well-educated and well-employed. Five of the entrepreneurs embarked on their business venture when they were in their late twenties and three were in their 30’s. The one noticeable outlier is the one who was 62 after retiring from an academic career. There are eight male entrepreneurs and only one female entrepreneur. While the sample is not statistically validated there is no direct intent to reduce female participation in the interviews. This raises an area for further research and for policy makers which is discussed further in the implications and conclusions. Eight of the nine have post-secondary education and only one did not complete high school. One has a PhD and one has a Master’s degree. This indicates that these entrepreneurs are well educated and in reviewing their work experience they had good employment situations. This is a strong profile in relation to education and experience. The dominance of engineering educational backgrounds raises another interesting question as to whether engineering education fosters entrepreneurship.

RQ3: What Forms of Ownership Do Chinese Entrepreneurs Prefer?

The current organizational structure of these SMEs is shown in Table 4. They are all engaging in business with forms of organizational structure which means they are bearing the full risk of gains and losses. Five are in partnerships and four are operating as sole proprietors. Whether this is by deliberate choice or by lack of options is an area that warrants further investigation. Availability of limited-liability alternatives has not been reviewed for this research however based on the results shown in the Table it is an area that warrants additional research and may also be an area for policy development.

Table 4: Business Structure of Nine SMEs

Entrepreneur	Initial Entry Into Business	Changes in Form
A	Sole Proprietorship	
B	Partnership	Sole Proprietorship, Partnership
C	Partnership	Sole Proprietorship
D	Sole Proprietorship	
E	Sole Proprietorship	
F	Partnership	
G	Partnership	Sole Proprietorship
H	Sole Proprietorship	
I	Partnership	

Table 4 demonstrates the dominance of sole proprietorships and partnerships in the organizational structure.

RQ4: What Is the Future Outlook for These SMEs?

The entrepreneurs are asked about their outlook for the future viability, growth and success and asked to describe it in terms ranging from Very Negative to Very Positive. Five of the nine indicated they are “Very Positive”, three are ‘Positive’ and only one described the future as ‘Uncertain’. These results are shown in Table 5.

Table 5: Business Outlook for Nine SMEs

Entrepreneur	Business Outlook
A	Positive
B	Positive
C	Uncertain
D	Very Positive
E	Very Positive
F	Very Positive
G	Positive
H	Very Positive
I	Very Positive

Table 5 shows an overall positive outlook for these entrepreneurs in China with only one expressing uncertainty with all the rest being predominantly very positive. This positive outlook combined with the success and viability of these businesses over the years they have been in business augers well for SMEs in China. They are owned and operated largely by well-educated entrepreneurs who have gained experience over their years in other employment and business. In summary the data collected and analyzed shows a strong SMEs operating across a range of industries with entrepreneurs who are well-educated with strong employment backgrounds. They employ a total of 687 workers across the nine enterprises and hold a very positive outlook on the future of their endeavors. While this is not a statistically defensible view, it provides insight to the development and growth of SMEs in the emerging and changing economy of China.

**CONCLUDING COMMENTS**

This exploratory research does not answer all questions in relation to entrepreneurial motivation, ideal educational and experience background for entrepreneurial success. However, it has raised these research areas and more for potential researchers. This exploratory research on the Chinese entrepreneurs has raised these and more as areas for potential researchers. Furthermore, a future longitudinal study of these entrepreneurs would help to assess the growth from SME to larger businesses and long run sustainability of entrepreneurial ventures. In addition, the specific barriers faced by female entrepreneurs should be explored to tap that potential for personal accomplishment and societal advantage. Finally, to overcome the limitations of convenience sampling, developing and implementing a research design that would enable

the survey of a larger number of SMEs to gather more extensive data is a challenge for researchers in SMEs, entrepreneurship and cultural understanding.

The research findings have some important implications. Firstly, during the interviews the seven engineer entrepreneurs recalled their successes in product development and the tremendous difficulties in business aspects they faced at the start-up such as financing, marketing, recruitment, etc. This has important implication for engineering education. Perhaps it is a good idea to enhance the existing engineering education by adding business components so that engineering graduates will be better equipped with business skills in pursuing their entrepreneurial dreams. Secondly, the representation of female entrepreneurs is very small in this sample even though the authors did not intend to choose more male research subjects. How to realize the economic benefits of the untapped potential of female entrepreneurship is a question not only for policy makers but also for the whole society. Finally, by operating either as sole proprietorships or partnerships, all nine entrepreneurs have each assumed the full risk of success or failure. During interviews, all of them expressed their desires to have firm controls over their businesses. However, it is not clear whether they have fully looked into advantages and disadvantages of all forms of business ownership. It is very beneficial for an entrepreneur to choose the most suitable form of business ownership based on the growth stage, the strategic plan, and other relevant factors in an SME.

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Dr. Yunke He is a College Professor of Finance at Okanagan College. He can be contacted at: Okanagan School of Business, 1000 KLO Road, Kelowna, BC, Canada, V1Y 4X8. Phone: 250-762-5445, ext. 4368. Email: yhe@okanagan.bc.ca.

Dr. Heather Banham is Dean of Okanagan School of Business at Okanagan College. She can be contacted at: Okanagan School of Business, 1000 KLO Road, Kelowna, BC, Canada, V1Y 4X8. Phone: 250-762-5445, ext. 4350. Email: hbanham@okanagan.bc.ca.



# **THE EFFECT OF KEY FACTORS ON GREEN CONSUMPTION INTENTION IN THE GREEN HOTEL INDUSTRY**

Chin-Hung Liu, National Chin-Yi University of Technology  
Cheng-Yih Hong, Chaoyang University of Technology  
Jian-Fa Li, Chaoyang University of Technology

## **ABSTRACT**

*Brand image is established to create an environment for customers living in green hotels. Customers can participate in environmental protection measures away from home. The goal is to help consumers generate a positive green perceived value, green trust, and green consumption attitude toward green hotels, thereby improving green consumption intention. The present study explores relationships between brand image, green perceived value, green trust, green consumption attitude, and green consumption intention for the green hotel industry. We find significantly positive correlations and impacts among brand image, green perceived value, green trust and green consumption attitude, and green consumption intention. These findings provide perspectives and insights into the impact on green consumption intention. The environmentally friendly hotel industry might use this information to implement environmental protection measures and make strategic suggestions to promote public green consumption.*

**KEYWORDS:** Brand Image, Green Perceived Value, Green Trust, Green Consumption Attitude, Green Consumption Intention

**JEL:** Z31, Z32, Z39

## **INTRODUCTION**

**D**ue to the rise of environmental protection consciousness, many countries have developed the concept and policy of environmentally friendly hotel or eco-hotel. The service provider creates better brand image by marketing strategies, thereby increasing perceived value. Therefore, the good brand image of the eco-hotel promotes sentiments of popular, distinguished, or positively impressive. This kind of green hotel is regarded to be valuable for lodgers. Environmental protection consciousness of consumers could affect customers' green perceived values, and consequently the attitudes and intentions of purchasing green products (Yu, 2009). Monroe and Krishnan (1985) proposed customer's perceived value of the product or service could affect his purchase intention. In other words, good products and services combine with the brand image to retain key consumers and acquire sales performance. Therefore, it is important for consumers to perceive the value of green products and to cause green hotels to provide better services to them.

A hotel enterprise could increase customer's trust and establish a good relationship with the customer by creating a good physical environment and training outstanding sales staff. Trust has positive direct impacts on future commitments of the customer and the enterprise as well as customer voluntary behaviors. However, the symbolic and experiential benefits of the enterprise could be maintained. This implies it could prompt enhanced customer trust to generate participation, cooperation and loyalty behaviors through the promotion of social status, value identity and pleasure service experience. Trust is regarded as the basis of continuing to maintain relations between enterprises and customers. Therefore, green hotels must establish long-term, interactive and trustful relationships with customers to increase

customer consumption intention and retain customers.

The objectives of this study are to construct dimensions to measure brand image of green hotels, green perceived value, green trust, green consumption attitude, and green consumption intention. We explore the relations and effects between brand image of green hotel, green perceived value, green trust, green consumption attitude, and green consumption intention, and examine whether there are significant perceptions on brand image of green hotel, green perceived value, green trust, green consumption attitude, and green consumption intention.

## LIERATURE REVIEW

Brand image can be viewed as the image or position of the brand in the mind of consumers and also as a source of information for them. It can influence consumers to perceive higher and more persistent stability of a brand. A successful brand depends on a good brand image and a fit between the brand and its extension category (Hagtvedt and Patrick, 2008). According to Mariola and Elena (2005), brand image can be created through sales promotions. Brand image is a bundle of associations with the brand within the mind of consumers. Brand image consists of brand beliefs, which consumers develop on various attributes of the brand. It can help differentiate the product or service of a brand from that of its competitors (Kotler, 1996). Porter and Claycomb (1997) measured brand image by functional qualities and symbolic attributes. Functional attributes refer to the physical properties of the brand, such as utility. Symbolic attributes include status, reputation, and recognition. User characteristics are usually described by adjectives such as simple, romantic, successful, ordinary, compliant and elegant. Brand image is a perception created by marketers based on consumer needs and benefits. Three concept benefits which are functional benefits, symbolic benefits and experiential benefits are usually employed for creating brand image (Park et al., 1986; Bhat and Reddy, 1998; Putrevu and Lord, 1994; Belen et al., 2001).

Green products are referred to as environmentally friendly products or environment conscious products. Green product is a newly coined term. Since the scope and diversity of green products are wide, a globally consistent definition for this term has not been established. Currently, most nations have their own definitions and development of green products. According to Environmental Protection Agency, Executive Yuan (2010, 2013), green product refers to any product which, from its manufacture to use and disposal, conforms to the general requirements of environment protection. These characteristics include being recyclable or energy saving, low pollution or low carbon emission. Perceived value is the difference between the perceived benefits and costs of a product or service (Chen, 2004). Cheng (2010) indicated that significant differences exist between innovation-oriented, utility-oriented, and price-oriented consumers in their perception of functional value, social value, time risk, functional risk of green products, and in attitude and intention toward buying green products.

Morgan and Hunt (1994) described trust as the perception of confidence in the exchange partner's reliability, customer orientation, re-patronage intention, and integrity. Trust reduces customers' perceived risk of being loyal to a product, brand or business. Customers with more trust in a business are more willing to maintain their relationship with the business and less likely to switch to other businesses. Trust mitigates customer anxiety and can be a predictor of customer behavioral intention. Deng et al. (2010) stated that trust can be regarded as a belief or an intention.

According to Kotler (2003), attitude is a general and rather persistent evaluation about a person, an article, an advertisement or an issue. Chen (2004) defined green consumption attitude as the consumer's consistent perception of a green behavior. Such perception can be positive or negative. It consists of three elements, including cognition, affection and behavioral intention. Cognition is an individual's belief or knowledge about a specific person or object. Affection refers to an individual's feelings, emotions or overall evaluation about a specific person or object. Behavioral intention is one's propensity to take a specific action toward a specific person or object. It is more persistent and general in nature (Ajzen and Fishbein, 1980; Taylor and Todd, 1995).

Hawkins et al. (1992) also identified three components of attitude, including cognitive, affective, and intentional. Based on semantic differential method, Taylor and Todd (1995) measured green consumption attitude on a seven-point scale. Yang (2011) found that green consumption information was influential to students. Shim and Eastlick (1998) proposed that people with power orientation tend to hold an opposing or doubtful attitude toward green appeals. Those with no particular orientation tend to have no special preference. Those with a self-actualizing or social affiliation orientation tend to hold a positive attitude toward green consumption (Peng, 2003).

Green consumption intention refers to the consumer's likelihood of engaging in green consumption. Intention, such as repurchase intention or intention to recommend, can be a predictor of a specific behavior. For example, customer's post-purchase intention is an important index for businesses. For any business, increasing the buying intention of consumers is an important goal. The stronger their buying intention is, the more likely they are to stay with the business. Chen (2003) mentioned that green consumption covers a wide range of activities from pre-purchase to post-activities activities. These activities include evaluating the necessity of buying, recyclability or waste classification of the product to buy, and providing green needs to the manufacturer. All of these activities are intended to help protect the environment. Wei and Ko(2008) found a positive relationship between green consumption attitude and green consumption behavior among 464 adults.

## RESEARCH METHODOLOGY

The present study investigated the green hotel industry in Taiwan from a customer perspective. Based on previous literature, this study attempted to explore the impacts among brand image, green perceived value, green trust, green consumption attitude, and green consumption intention in the context of green hotels. The research structure was developed based on variables discussed in the literature review. This study also explores the differences in each of these variables across demographic variables.

### Hypothesis Development

Juhl et al. (2002) stated that customer expectation and perceived quality positively affect perceived value through brand image. Higher perceived value results in higher customer satisfaction. Brand image is the sum of information about a product or service. It consists of various associations in consumers' mind. Hence, brand image is an important element of brand equity. A positive brand image can enhance perceived product quality and further affects consumers' purchase intention (Biel, 1992; Romaniuk and Sharp, 2003). Accordingly, we propose the following hypothesis.

*H1<sup>1</sup>: Brand image is significantly and positively related to green perceived value.*

Chen (2009) empirically showed that green brand image has a positive effect on green trust. He suggested that businesses should invest more resources in green brand image, green satisfaction, and green trust, because green brand image, green satisfaction, and green trust are positively related to green brand equity. Hsieh (2002) mentioned that brand image helps consumers differentiate a specific brand from its competitors. Consumers tend to have a better attitude toward, or more trust in, products or services which they are familiar with and have a better brand quality. Brand image and trust are positively related mainly because brand image can reduce perceived risk and further increase purchase intention (Flavia'n et al., 2005). It can be inferred from the above findings that a better brand image can contribute to higher green trust. Therefore, we propose the following hypothesis:

*H1<sup>2</sup>: Brand image is significantly and positively related to green trust.*

According to Hoeffler and Keller (2003), the marketing activities of strong brands, such as advertising,

promotion, and philanthropic events, contributed to higher customer loyalty and buying intention. In other words, brand image has a positive relationship with advertisement, sales, consumption attitude and behavior. Zeithaml and Bitner (1996) pointed out that brand image affects perceived value, consumption attitude, and consumption behavior. Yu (2006) also found a positive relationship between brand image and consumption attitude. It can be inferred from the above findings that brand image affects green consumption attitude positively. A better brand image helps create a better green consumption attitude. Therefore, we propose the following hypothesis:

*H13: Brand image is significantly and positively related to green consumption attitude.*

Li (2009) examined green consumption behavior among Taiwanese consumers. He empirically showed that green perceived value is positively related to green consumption intention. In other words, consumers have higher green consumption intention when they perceive a higher value of green products. Lien et al. (2011) found a significant relationship among online service quality, perceived value, satisfaction, and behavioral intention in an online shopping context. They suggested that better online service quality helps enhance customer perceived value, which in turn will positively affect behavioral intention. Therefore, we propose the following hypothesis:

*H1<sup>4</sup>: Green perceived value is significantly and positively related to green consumption intention.*

Kai (2004) noted that consumers are willing to accept unknown risks when shopping in an online store they trust. Trust has a significant and positive effect on behavioral intention. Behavioral intention increases with the increase of trust. Swan et al. (1999) found, in a review of empirical literature, that trust can lead to higher behavioral intention and further stimulate buying behavior. Therefore, we propose the following hypothesis:

*H1<sup>5</sup>: Green trust is significantly and positively related to green consumption intention.*

Han et al. (2010) showed that attitude, subjective norm, and perceived behavioral control are determinants of behavioral intention. That is to say, consumers' green consumption attitude and concern for the environment are positively related to their green consumption intention (Chan, 1999; Straughan and Roberts, 1999). Mostafa (2007) showed a strong and positive relationship between consumers' attitude toward green purchase and actual green purchase behavior. Li (2009) empirically found that green consumption attitude has a positive effect on green consumption intention. For businesses of green products or services, it is important to monitor whether consumers continue to hold a positive attitude toward green consumption so as to avoid and quickly react to any decline in their green consumption. Accordingly, we propose the following hypothesis:

*H16: Green consumption attitude is significantly and positively related to green consumption intention.*

Demographic differences exist in Brand Image, Green Perceived Value, Green Trust, Green Consumption Attitude, and Green Consumption Intention. Ou (2007) pointed out consumers' perception of brand image and repurchase behavior would significantly vary across some demographic variables, including gender, age, education, and income. Both Chang (2005) and Chen (2009) also note that perception of brand image would vary across background variables. In Van Liere and Dunlap (1981), environmental attitude varied from one region to another. Therefore, we propose the following hypothesis.

*H1<sup>7</sup>: Demographic differences exist in perception of brand image, green perceived value, green trust, green consumption attitude, and green consumption intention.*

Sampling Design and Survey

The questionnaire was administered in two stages. In the first stage, a pretest of the questionnaire was conducted. The questionnaire was distributed on site during June, 2013~ July, 2013. A total of 30 acceptable responses were obtained. This pretest was intended to evaluate the accuracy, appropriateness, and necessity of each questionnaire item. The pretest results were the basis for modification of the questionnaire. After reliability analysis, we deleted inappropriate items to obtain a formal questionnaire for the second stage of questionnaire administration. Participants were selected from consumers living in northern, central, southern, and eastern Taiwan based on the convenience sampling method. The sampling period spanned from August, 2013 to October, 2013. Because a heterogeneous sample would be more favorable, we used a close-ended questionnaire to get answers evaluated on a specific scale.

**DATA ANALYSIS**

Data were collected using the survey producing a total of 537 usable questionnaires. The sample comprised of 43.5% males and 56.5% females, most aged between 21-30 (41.6%) or above 41 (25.2%). The majority of the respondents were unmarried (53.1%) and had a college degree (74.4%). In terms of occupation, those working in the commercial/banking/service industries (43.2%) represented the largest share, followed by students (24.1%). Respondents living in northern areas of Taiwan (43.5%) and those having a monthly income of \$30,001~40,000 (31.3%) constituted the majority.

Reliability

Internal consistency of the questionnaire was tested using Cronbach's  $\alpha$  and correlation coefficient. The higher the two coefficients, the more consistent and reliable the measurement results are. Before proceeding to the subsequent analysis, we first analyzed the overall reliability of the questionnaire. The result showed a Cronbach's  $\alpha$  coefficient of 0.915, which met the 0.7 requirement recommended by Devellis (1991). In other words, the questionnaire was developed with high reliability. The reliability of each dimension of the questionnaire is explained as follows. All these coefficients conformed to the 0.7 requirement suggested by Devellis (1991), meaning that all the dimensions were developed with high reliability. Besides, all the item-to-total correlation coefficients were above the 0.3 requirement suggested by Kerlinger (1999), indicating all the items were important and adequately correlated. Table 1 presents the reliability analysis of this study.

Table 1: Reliability Analysis

Dimensions	Cronbach's $\alpha$
Brand image	0.865
Green perceived value	0.887
Green trust	0.764
Green consumption attitude	0.718
Green consumption intention	0.747

*This table indicates the reliability analysis. Column 2 shows Cronbach's  $\alpha$  for different dimensions.*

T Test

The null hypothesis of  $H_0: \mu \leq 3$  and the alternative hypothesis of  $H_1: \mu > 3$  were used to test and show there were almost significantly higher agreement levels on brand image, green perceived value, green trust, green consumption attitude, and green consumption intention.

Factor Analysis

Based on the dimensions introduced by Park et al. (1986), Bhat and Reddy (1998), Putrevu and Lord (1994) and Belen et al. (2001), we performed principal component analysis to extract three dimensions of brand image, respectively named “experiential benefits”, “symbolic benefits” and “functional benefits”. According to the dimensions proposed by Sweeney and Soutar (2001) and Li (2009), principal component analysis is conducted to extract four dimensions of green perceived value, respectively named “monetary value”, “emotional value”, “quality value”, and “social value”. On the basis of the dimension developed by Morgan and Hunt (1994) and Chen (2009), we performed principal component analysis to extract one dimension of green trust, named “green trust”. Based on the dimension proposed by Ajzenand Fishbein (1980) and Taylor and Todd (1995), principal component analysis is performed to extract one dimension of green consumption attitude, named “green consumption attitude”. Based on the dimension developed by Lai (2006), Mostafa (2007), Fraj and Martinez (2006), we performed principal component analysis to extract one dimension of green consumption intention, named “green consumption intention”.

Structural Equation Model

This study tested whether there were significant causal relationships between the factors, and how many differences between the data of the theoretical model and actual observation were through structural equation mode.

Effect Analysis

Table 2 reports the result in which brand image had a direct effect of 0.942, 0.876, and 0.764 on green perceived value, green trust, and green consumption attitude respectively, indicating that brand image had a direct and positive impact on green perceived value, green trust, and green consumption attitude. Green perceived value had a direct effect of 0.262 on green consumption intention, meaning that green perceived value would directly and positively affect green consumption intention. Green trust had a direct effect of 0.366 on green consumption intention, meaning that green trust was positively and directly related to green consumption intention. Green consumption attitude had a direct effect of 0.287 on green consumption intention, suggesting that green consumption attitude had a direct and positive effect on green consumption intention. The results of effect analysis are shown in Table 2 and Figure 2.

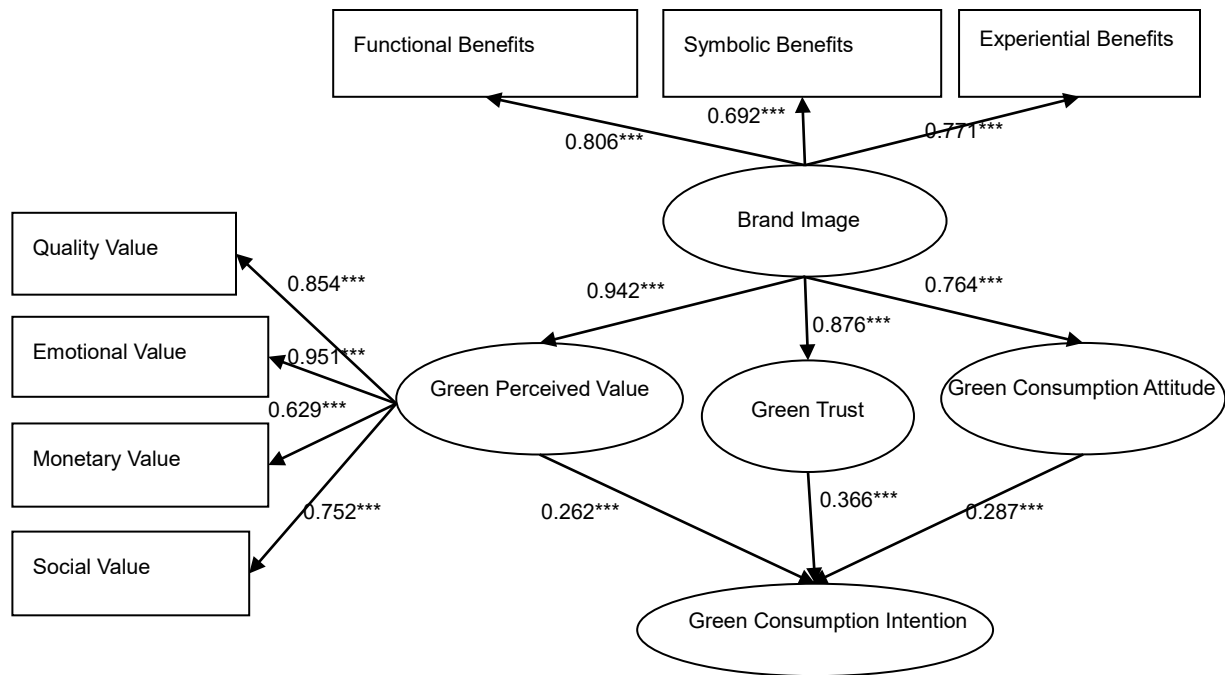
Table 2: Effect Analysis (Linear Structural Relation Model)

<b>Paths (Variables)</b>	<b>Direct Effects</b>	<b>Indirect effect</b>	<b>Total Effects</b>
Brand image→Green perceived value	0.942***	----	0.942***
Brand image→Green trust	0.876***	----	0.876***
Brand image→Green consumption attitude	0.764***	----	0.764***
Green perceived value→Green consumption intention	0.262***	----	0.262***
Green trust→Green consumption intention	0.366***	----	0.366***
Green consumption attitude→Green consumption intention	0.287***	----	0.287***

*This table shows effect analysis. Column 2 shows direct effect for different paths. Column 4 shows total effects for different paths. \*\*\*indicates significance at the 1 percent levels.*



Figure 2: The Effect Analysis of the Goodness-of-Fit Structure



This figure demonstrates the effect analysis of the goodness-of-fit structure of the overall model. \*\*\*indicates significance at the 1 percent levels.

Accordingly, brand image could significantly and positively affect green perceived value, green trust, and green consumption attitude. Moreover, green perceived value, green trust, and green consumption attitude could significantly and positively affect green consumption intention. Therefore, the results of this study supported hypotheses  $H_1^1$ ,  $H_1^2$ ,  $H_1^3$ ,  $H_1^4$ ,  $H_1^5$ , and  $H_1^6$ .

### Independent t Test

This study explored differences in perception of brand image, green perceived value, green trust, green consumption attitude, and green consumption intention by gender through independent-sample *t* test analysis. The test for homogeneity of population variances shows that all were greater than the level of significance of  $\alpha=0.05$ . In other words, the differences in population variances were not significant, and the null hypothesis of homogeneity was not rejected. The p-value of brand image, green perceived value, green trust, green consumption attitude, and green consumption intention were 0.164 ( $t=1.408$ ), 0.978 ( $t=-0.054$ ), 0.291 ( $t=-1.072$ ), 0.924 ( $t=0.122$ ), and 0.306 ( $t=1.055$ ), which was greater than the level of significance of  $\alpha=0.05$ . The statistics indicate that despite having different genders, the respondents did not have significantly different perceptions of brand image, green perceived value, green trust, green consumption attitude, and green consumption intention. Based on the above analytical results, consumers with various genders had no significant differences on perceptions of brand image, green perceived value, green trust, green consumption attitude, and green consumption intention.

### One-Way Analysis of Variance (ANOVA)

The test for homogeneity of population variances shows that the p-values of brand image and green consumption attitude were 0.402 and 0.166 respectively, which was greater than the level of significance of  $\alpha=0.05$ . In other words, the differences in population variances were not significant, and the null hypothesis of homogeneity was not rejected. The data were good for one-way ANOVA. The p-values of green perceived value, green trust, and green consumption intention were 0.022, 0.000, and 0.001 respectively, all of which were less than the level of significance of  $\alpha=0.05$ . In other words, the null

hypothesis was rejected, and the data were not good for one-way ANOVA. The p-values of brand image and green consumption attitude were 0.002 ( $F=4.084$ ) and 0.017 ( $F=2.996$ ) respectively, which was less than the level of significance of  $\alpha=0.05$ . The statistics indicate that despite having different occupation, the respondents had significantly different perceptions of brand image and green consumption attitude. Consumers in the commercial/business/service industries were most agreed with brand image, followed by those in the agricultural/forestry/fishing/husbandry and information technology industries, students, housewives, retirees, military/police/public servants, those in the manufacturing/engineering industries. Consumers in the commercial/financial/service industries also showed the highest agreement level of green consumption attitude, followed by those working as housewives, retirees, military/police/public servants, those in the manufacturing/engineering industries, students, those in the agricultural/forestry/fishing/husbandry, and information technology industries.

The test for homogeneity of population variances shows the p-values of brand image, green trust, and green consumption intention were 0.258, 0.478, and 0.589 respectively, all of which were greater than the level of significance of  $\alpha=0.05$ . The differences in population variances were not significant, and the null hypothesis of homogeneity was not rejected. The data were good for one-way ANOVA. The p-values of green perceived value and green consumption attitude were 0.002 and 0.014. The null hypothesis was rejected, and the data were not good for one-way ANOVA.

The p-values of brand image, green trust, and green consumption intention were 0.0077 ( $F=4.878$ ), 0.012 ( $F=4.304$ ), and 0.011 ( $F=4.324$ ) respectively. The statistics indicate that despite having different education levels, the respondents had significantly different perceptions of brand image, green trust, and green consumption intention. Green consumers with education levels of Bachelor degree had higher agreement levels on brand image and green consumption intention than those with education levels of Master or Ph.D. degree under Bachelor degree. Green consumers with education levels of Master or Ph.D. degree had higher agreement levels on green trust than those with education levels of under Bachelor degree (including itself). The test for homogeneity of population variances shows that the p-values of brand image, green perceived value, green trust, green consumption attitude, and green consumption intention were 0.197, 0.534, 0.993, 0.202, and 0.184 respectively. The differences in population variances were not significant, and the null hypothesis of homogeneity was not rejected. The data were good for one-way ANOVA. The p-value of brand image was 0.038 ( $F=3.89$ ). This result indicates that despite having different average monthly income, the respondents had significantly different perceptions of brand image. Green consumers with average monthly income of above NT\$ 45,001 had higher agreement levels on brand image than those with average monthly income of under NT\$ 45,000. Moreover, the p-values of green perceived value, green trust, green consumption attitude, and green consumption intention were 0.081 ( $F=2.23$ ), 0.084 ( $F=2.224$ ), 0.479 ( $F=0.828$ ), and 0.498 ( $F=0.805$ ) respectively. These statistics indicate that despite having different average monthly income, the respondents did not have significantly different perceptions of green perceived value, green trust, green consumption attitude, and green consumption intention.

The test for homogeneity of population variances shows that the differences in population variances were not significant, and the null hypothesis of homogeneity was not rejected. The data were good for one-way ANOVA. The p-values of brand image, green perceived value, and green consumption intention were 0.000, 0.001 and 0.001 respectively. The null hypothesis was rejected, and the data were not good for one-way ANOVA. The p-values of green trust and green consumption attitude were 0.22 ( $F=1.431$ ) and 0.923 ( $F=0.079$ ) respectively. The statistics indicate that despite having the different marital status, the respondents did not have significantly different perceptions of green trust and green consumption attitude.

The test for homogeneity of population variances shows that the p-values of brand image, green perceived value, green trust, green consumption attitude, and green consumption intention were 0.008, 0.001, 0.002, 0.000, and 0.000 respectively. The differences in population variances were significant, and the null hypothesis of homogeneity was rejected. The data were not good for one-way ANOVA. The test for homogeneity of population variances shows the p-values of brand image, green perceived value, green trust, green consumption attitude, and green consumption intention were 0.001, 0.003, 0.000, 0.000, and

0.002 respectively, all of which were less than the level of significance of  $\alpha=0.05$ . In other words, the differences in population variances were significant, and the null hypothesis of homogeneity was rejected. The data were not good for one-way ANOVA. Based on the above research analysis, there were significantly various perceptions of occupation on brand image and green consumption attitude. There were significantly different perceptions of education level on brand image, green trust, and green consumption intention. There was significantly the various perception of average monthly income on brand image. Finally, there were not significantly different perceptions of marital status on green trust and green consumption attitude. Therefore, hypothesis  $H_1^7$  was partially supported.

## CONCLUSIONS AND IMPLICATIONS

The results of this study indicate that brand image was positively related to green perceived value, green trust, and green consumption attitude. Green perceived value, green trust, and green consumption attitude were positively related to green consumption intention. There were significantly positive effects among brand image, green perceived value, green trust, green consumption attitude, and green consumption intention. This study also finds that green consumers had various perceptions on brand image and green consumption attitude through the occupation of demographic variables to acquire better market segmentation. It is not only good for the green hotel industry to retain the old customers, but also it can develop new market opportunities to enhance their business performance.

Green hotel management can concentrate their focus on items with lower agreement ratings for brand image, green perceived value, green trust, green consumption attitude, and green consumption intention. They should pay attention to factors such as green perceived value, green trust, and green consumption attitude affecting green consumption intentions of their consumers. The analysis of differences across demographic variables performed in this research examines differences in perception of brand image, green perceived value, green trust, green consumption attitude, and green consumption intention between different types of green consumers. Based on the results of this study, we suggest green hotels focus their attention on the last few items sorted by customer agreement.

The empirically found relations between brand image, green perceived value, green trust, green consumption attitude, and green consumption intention are meaningful. Hotel operators can use these empirical findings to develop effective marketing strategies that can not only help expand their customer base but also increase environmental consciousness among the general public. The green hotel industry should improve items with lower agreement ratings for brand image, green perceived value, green trust, green consumption attitude, and green consumption intention. The items with lower agreement ratings in each dimension are such as: “Green hotels have environmental protection measures that meet my requirements”. We suggest hotel operators set up an exhibition space in their hotel to display environmental protection measures and products they are using or have implemented as well as the effectiveness of their effort. For instance, they can show the public power-saving electric appliances and water-saving devices they use, their frequency of changing bed sheets, waste classification and recycling methods. They might also include adoption of paints with low volatile organic compounds, locally produced organic vegetables, replacement of halogen light bulbs, adoption of low toxic detergents, and proper handling of kitchen waste.

Through this kind of exhibition, they can increase customers’ environmental consciousness and make them believe they also make some contribution to environmental protection by staying in a green hotel. Green perceived value measurement: “The extra charges of services offered by green hotels are reasonable (e.g., SPA, oil massage)”. We suggest hotel operators form cross-industry alliances to avoid customer dissatisfaction with extra costs of green services. For instance, hotel operators can offer a 200-dollar discount coupon to guests, allowing them to use the optional services at will. This way, the guests will not feel coerced to buy any additional service, and they will be less likely to have negative sentiment about extra cost incurred. Our green trust measure was: “Green hotels offer reliable services”.

We suggest hotel operators invest more time and cost in some more important aspects of employee

training, such as service operation management, customer relationship management, crisis handling, and scenario simulation training. They cannot fully achieve customer-oriented management if their employees have not gone through sufficient training. Employees' understanding of customer needs is important for the hotel to provide better services and also for the customers to get most satisfactory and reliable services. The green consumption attitude measure was: "Doing green consumption in a green hotel gives me a sense of achievement".

We suggest hotel operators place a slip of paper that shows the environmental protection measures and effectiveness of the hotel at the hotel counter, room desks, and in the toilets. This piece of paper can help increase customers' understanding of and identification with the hotel. Moreover, it can give consumers involved in green consumption a sense of achievement. We suggest the government promote the concept of green hotels in school education. For instance, schools can organize green activities or environmental protection related competitions on Earth Day or World Environment Day to advocate the importance of green consumption. By providing environmental education to students in the adolescent or childhood period, we can develop a sense of responsibility for the environment and green values in them. In the future, students will have a correct attitude toward green consumption and feel proud of being involved in green consumption; green consumption intention: "I am still willing to stay in a green hotel for the sake of slowing global warming and reducing carbon emission, no matter how much it costs". We suggest hotel operators provide a price discount to guests who are willing to put some effort in environmental protection. For instance, they can offer a small discount to guests who use their own toilet articles or guests who reserve the room from green hotels that partner with a certain credit issuer. This kind of discount saves the expenditure of customers and also serves as an incentive to increase consumers' green consciousness.

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## BIOGRAPHY

Chin-Hung Liu is chair and professor in the Department of Business Administration at National Chin-Yi University of Technology. He received his Ph.D. degree in industrial & manufacturing systems engineering from the University of Texas at Arlington, U.S.A., in 1996. His research areas include service management, tourism management, and management science. He can be reached in the Department of Business Administration at National Chin-Yi University of Technology, No. 57, Sec. 2, Zhongshan Rd., Taiping Dist., Taichung 41170, Taiwan, ROC, E-mail: chungl@ncut.edu.tw.

Cheng-Yih Hong is an associate professor in the Department of Finance at Chaoyang University of Technology. He received his Ph.D. degree in agriculture and resource economics from the University of Tokyo, Japan, in 1995. His research areas include industry correlation analysis, service management, tourism management, monetary finance theory, agricultural economics, and East Asian regional economics. He can be reached in the Department of Finance at Chaoyang University of Technology, Taichung, Taiwan; Address: 168 Jifong E. Rd., Wufong District, Taichung, 41349, Taiwan, E-mail: hcyih@cyut.edu.tw

Jian-Fa Li(Corresponding Author) is an associate professor in the Department of Finance at Chaoyang University of Technology. He received his Ph.D. degree in economics from West Virginia University, U.S.A., in 2003. His research areas include microeconomics, econometrics, service management, and tourism management. He can be reached in the Department of Finance at Chaoyang University of Technology, Taichung, Taiwan; Address: 168 Jifong E. Rd., Wufong District, Taichung, 41349, Taiwan, E-mail: jfli@cyut.edu.tw





# **REDESIGN OF THE SUPPLY CHAIN OF A RESTAURANT FRANCHISE IN THE FOOD INDUSTRY**

Erin Chancey, Universidad Popular Autónoma del Estado de Puebla

José Luis Martínez Flores, Universidad Popular Autónoma del Estado de Puebla

Maricarmen Báez Palma, Universidad Popular Autónoma del Estado de Puebla

Omar David Badillo Valenzuela, Universidad Popular Autónoma del Estado de Puebla

María Arlethe Sánchez Cabrera, Universidad Popular Autónoma del Estado de Puebla

## **ABSTRACT**

*This research analyzes the problem of facility location and vehicle routing for an efficient logistics system in a practical case study application. It is intended to redesign the logistics network of a franchise company in the food industry in the city of Puebla, Puebla (Mexico). First, facility location is analyzed and two scenarios are presented, installing one new distribution center, and installing two new distribution centers, by the means of the P-median model. Subsequently, a new distribution route between the depots (distribution centers) and demand points (restaurant franchises) will be proposed by means of a Capacitated Vehicle Routing Problem, to satisfy demand and operational constraints of the customer. The objective of this study is to minimize costs through a reduction in delivery times and distances. Exact facility locations are presented along with a vehicle route scheduling, followed by a cost analysis to help in the ultimate decision of the logistics network redesign.*

**JEL:** C6

**KEYWORDS:** Facility Location, P-median, Capacitated Vehicle Routing Problem, Logistics, Distribution

## **INTRODUCTION**

Given that logistics activities have always been vital to companies and organizations, the fields of logistics and supply chain management represent a synthesis of various concepts, principles, and methods, from the traditional areas of marketing, production, accounting, warehousing, and purchasing, to the disciplines of applied mathematics, organizational behavior, and economics. Logistics revolves around creating value, principally for the customers, as well as for suppliers and shareholders of the company. The value created by logistics activities is expressed fundamentally in terms of time and place; an efficient logistics administration visualizes each activity throughout the supply chain as a continuous contribution to the process of added value (Ballou, 2004). The vulnerability of the supply chain increases with the rise in uncertainty (Svensson, 2000), and the vulnerability increases even more if the companies, through outsourcing or external contracting, have become dependent upon other organizations. The greatest uncertainties in supply and demand, increased globalization of the market, product life cycles, faster technology, increased use of manufacturing, distribution and logistics partners resulting in complex international relations of supply networks have led to an increase in exposure to risks throughout the supply chain. Many problems of economic decision concern the selection and/or placement of determined facilities to serve the given demand in an efficient manner (Vygen, 2005), as well as the coordination and control of adequate routes for the optimal provision from the suppliers to the point of consumption. Seeing as transportation and distribution processes tend to represent from 10% to 20% of the final cost of goods, having an efficient logistics system can produce substantial savings for the company.

The objective of this article is the practical application and proposal of adequate locations for new distribution centers and the redesign of the corresponding distribution routes between the restaurant franchises and the distribution centers that complies with the capacity and schedule restrictions for a supplier in the food industry by means of mathematical models, resulting in efficiency and cost savings. In the following section, a literature review is introduced presenting related articles on the topics in question and real-life applications. Next, data for the case study is provided, followed by methodologies of the tools to be implemented. The *P-median* model will be utilized to provide two new distribution center scenarios, and then the *Capacitated Vehicle Routing Problem (CVRP)* will be utilized to propose logistics vehicle routes for the selected distribution centers. Results for the proposals of a new facility location and vehicle routing are discussed, including a cost analysis table to demonstrate the feasibility of the proposal. Closing are the conclusions and future work to be applied to this case study.

## LITERATURE REVIEW

Facility location and logistics network planning are well-known, yet critical problems in the efficiency of the supply chain of a company. When these logistics systems are not optimized, additional costs can be incurred as well as interruptions to the flow of materials throughout the supply chain. By optimizing logistics concepts, a competitive advantage can be obtained for all agents involved in the supply chain. Mathematical approaches have been extensively researched for facility location and vehicle routing problems, having proposed many heuristic methods and algorithms for solving these optimizations. Because of the extensive variants of the CVRP, depending upon the operational constraints of each particular situation, this subject is one of great interest for researching and industrial purposes.

Problems addressing facility location tend to deal with the decision making of new facilities or installations that need to be optimally positioned to serve supply and demand. Mladenović, Brimberg, Hansen, and Pérez (2007) describe that “location models may be divided into three groups: *continuous* ( $X \subseteq \mathbb{R}^q$ ), *discrete* ( $X$  is finite) and *network* models ( $X$  is a finite union of linear and continuous sets)”. Mladenović et. al (2007) also mention that location models may be deterministic or stochastic, linear or nonlinear, single or multi criteria, etc. Rolland, Schilling, and Current (1997) present a new heuristic solution for the P-median problem through an efficient Tabu search procedure, while Resende and Werneck (2004) use a hybrid heuristic approach combining elements of traditional metaheuristics to find near-optimal solutions to facility location problems. Dantzig and Ramser (1959) first proposed the Vehicle Routing Problem (VRP) in 1959, introducing it as the truck dispatching problem. This real-world application dealt with the delivery of gasoline to gas stations, proposing a mathematical programming formulation and algorithm to optimally resolve the problem (Toth & Vigo, 2014). Following this seminal paper, Clarke and Wright (1964) proposed an effective greedy heuristic to approximately resolve VRP applications. These two publications gave way to numerous investigations and publications on a variety of VRP applications in the field of operations research. Daza, Montoya, and Narducci (2009) studied the CVRP with a homogenous fleet.

The authors proposed a two-phase metaheuristic algorithm including route design and fleet scheduling. The objective of their work was to minimize the fixed cost of using installed capacity. The proposed methodology for the route design included a greedy heuristic, an Or-opt algorithm, and a Tabu search. The second phase involving the fleet scheduling used an algorithm addressing a sequencing problem on identical parallel machines. The resources used were available vehicles, required jobs, and the routes to be assigned between each vehicle and job. Kim, Kim, and Sahoo (2005) present a real life waste collection Vehicle Routing Problem with Time Windows (VRPTW) considering multiple disposal trips and drivers' lunch breaks, using Solomon's insertion algorithm (Solomon, 1987). The objective function of this work is minimizing the number of vehicles and total traveling time, while improving route compactness and workload balancing. In order to optimize these processes, a capacitated clustering-based waste collection VRPTW was developed. Baldacci, Mingozzi, and Roberti (2012) studied exact algorithms proposed for the CVRP and VRPTW, and state that many formulations have been proposed, but the most successful exact

methods are based on the *two-index flow formulation*, the *two-commodity flow formulation* proposed by Baldacci et al. (2012), and the *set partitioning formulation* proposed by Balinski and Quandt (1964). Branch-and-cut algorithms and exact algorithms are further discussed and reported as a computational comparison on six well-known classes of CVRP instances. These *compact formulations* are (mixed) integer programming models with a polynomial number of variables (Toth & Vigo, 2014). The two-index flow formulation, as will be discussed as part of the methodology of the CVRP, has an exponential number of constraints. Laporte, Mercure, and Nobert (1986) introduced a directed CVRP model with integer decision variables indicating how often a vehicle travels between nodes  $i$  and  $j$  (hence the two indices). Reviewing these publications on the P-median problem and the VRP and its variants has provided expertise insight into algorithms for exact and approximate applications to solving these operational research problems.

## DATA AND METHODOLOGY

### Case Study

The present case study considers the analysis and design of the logistics system of Antigua Taquería S.A. de C.V., a company in the food industry located in the city of Puebla, Puebla (Mexico) that initiated its operations 77 years ago with three restaurant franchises. Over time, Antigua Taquería has expanded its operations considerably, currently managing 27 restaurant franchises in the state of Puebla. However, Antigua Taquería has not made sufficient modifications to its logistics strategy, and being solely dependent on one meat supplier has created much vulnerability in its supply chain. Its greatest problem has been identified as the distribution of meat, this product being the most critical and demanded of Antigua Taquería. Presently, Antigua Taquería intends to open its 27 restaurant franchises at 12:00pm, the principal problem being that the supplier does not distribute the meat in a timely manner, delaying the opening of the stores. The meat supplier currently receives all the meat demand for the 27 restaurant franchises at its only distribution center located on Avenida Valsequillo, in the city of Puebla. Currently, the meat supplier has three distribution trucks at its disposition to distribute the meat to the 27 restaurant franchises. Each distribution truck has a maximum capacity of 500 kilograms; the average daily meat demand for the restaurant franchises is 50 kilograms. Nonetheless, the meat supplier begins daily deliveries at 8:00am, not providing sufficient time to adequately distribute the meat demand to each restaurant franchise according to the time restriction set in place.

### Models

The selected mathematical model for this case study that will be utilized for the proposal of facility location for new distribution centers is the *P-median*. The objective of this model is to find the location of a fixed quantity of facilities that are found within the network of nodes that satisfy the demand of the customer, always minimizing distances travelled and associated costs (Daskin, 1995). P-median can be used to find the optimal location of only one facility or various facilities. The P-median model is considered a *discrete* method since the facility locations are being selected from a list of possible alternatives that have been identified in accordance with specific criteria (Ballou, 2004). Discrete facility location methods are more frequently used especially when looking to install multiple facilities. The mathematical model formulated by Daskin (1995) can be defined as follows:

Minimize:

$$\sum_i \sum_j h_i d_{ij} Y_{ij} \tag{1.1}$$

Subject to:

$$\sum_j Y_{ij} = 1 \quad \forall i \tag{1.2}$$

$$\sum_i X_j = P \tag{1.3}$$

$$Y_{ij} - X_j \leq 0 \quad \forall i, j \tag{1.4}$$

$$X_j = 0, 1 \quad \forall j \tag{1.5}$$

$$Y_{ij} = 0, 1 \quad \forall i, j \tag{1.6}$$

Where:

$h_i$ : demand in node  $i$ .

$d_{ij}$ : distance between the demand in node  $i$  and the potential facility  $j$ .

$P$ : number of facilities to locate.

$$X_j: \begin{cases} 1 & \text{if facility is installed at candidate node } j \\ 0 & \text{otherwise} \end{cases}$$

$$Y_{ij}: \begin{cases} 1 & \text{if the demand in node } i \text{ is served by the facility located in node } j \\ 0 & \text{otherwise} \end{cases}$$

The objective function minimizes the distance between each demand node and the closest installed facility. The restriction (1.2) indicates that each demand node  $i$  is assigned to only one facility  $j$ . The restriction (1.3) makes sure that exactly  $p$  facilities are located. The restriction (1.4) makes reference to the fact that demand nodes are only assigned to a facility when such has been selected to be installed by the decision variable  $x_j$ . The restrictions (1.5) and (1.6) indicate the binary variables. It is important to make note that this mathematical model assumes that all of the facilities are located within a network of existing nodes (Daskin, 1995). CVRP are optimization methods that are being increasingly utilized for the effective management of the provision of goods and services in logistics systems. According to Toth and Vigo (2014), the solution to a CVRP calls for the determination of a set of routes, each performed by a single vehicle that starts and ends at its own depot, such that all the requirements of the customers are fulfilled, all the operational constraints are satisfied, and the global transportation cost is minimized. In particular, for this case study, a CVRP is utilized to propose new distribution routes for the selected distribution centers. In a CVRP, demands are deterministic and may not be split, such that capacity restrictions are imposed upon the vehicles. The CVRP is known to be *NP-hard* (in the strong sense) calling for the determination of a minimum-cost simple circuit visiting all the vertices of  $G$  and arising when  $C \geq d(V)$  and  $K = 1$  (Toth & Vigo, 2014). The following integer linear programming formulation is proposed by Toth and Vigo (2014) indicating if a vehicle traverses an arc in the optimal solution. This model is a *two-index vehicle flow formulation*.

Minimize:

$$\sum_{i \in V} \sum_{j \in V} c_{ij} x_{ij} \tag{2.1}$$

Subject to:

$$\sum_{i \in V} x_{ij} = 1 \quad \forall j \in V \setminus \{0\} \tag{2.2}$$

$$\sum_{j \in V} x_{ij} = 1 \quad \forall i \in V \setminus \{0\} \tag{2.3}$$

$$\sum_{i \in V} x_{i0} = K \tag{2.4}$$

$$\sum_{j \in V} x_{0j} = K \tag{2.5}$$

$$\sum_{i \in S} \sum_{j \in S} x_{ij} \geq r(S) \quad \forall S \in V \setminus \{0\}, S \neq \emptyset \tag{2.6}$$

$$x_{ij} \in \{0, 1\} \quad \forall i, j \in V \tag{2.7}$$

Where:

$$x_{ij}: \begin{cases} 1 & \text{if arc } (i, j) \in A \text{ belongs to the optimal solution} \\ 0 & \text{otherwise} \end{cases}$$

Restrictions (2.2) and (2.3) are the impositions that one arc enters and leaves each vertex associated with a demand point. The restriction (2.4) references degree requirements for the depot vertex. The restriction (2.6) is the capacity constraint that imposes connectivity of the solution and vehicle capacity requirements.

**RESULTS AND DISCUSSION**

The P-median model was utilized to propose and compare two location scenarios for new distribution centers for the supplier: (1) the proposal of one new distribution center, and (2) the proposal of two new distribution centers. A cost analysis was realized to compare and discuss the efficiency and gains of installing new distribution centers based on existing assets and inversion. Using the previous mathematical model proposed by Daskin (1995) for P-median as a basis, the provided data and latitude and longitude coordinates for each restaurant franchise (demand point) were programmed in the software Lingo 10. In Table 1, the coordinate results produced by the P-median model for the proposals of locations to install new distribution centers are presented. The present distribution center on Avenida Valsequillo is first referenced with its respective latitude and longitude coordinates, subsequently followed by the proposed distribution center locations for proposal 1, installing one new distribution center, and proposal 2, installing two new distribution centers.

Table 1: Latitude/Longitude Coordinates For New Distribution Center Locations

Proposal	Street	Coordinates
Proposal 0 (Current Location)	Avenida Valsequillo	(19.009, -98.208)
Proposal 1	Avenida 31 Poniente	(19.045, -98.230)
Proposal 2	Avenida 31 Poniente	(19.045, -98.230)
	Camino Real	(19.051, -98.278)

Table 1 shows the latitude and longitude coordinates for the current distribution center and subsequently, the two proposed locations of new distribution centers. The column labeled STREET indicates the name of the street of the location in the city of Puebla, Puebla (Mexico) The column labeled COORDINATES shows the latitude, longitude of each point.

The principal elements and associated costs that were identified and analyzed in this facility location and distribution logistics proposal were the customers (restaurant franchises), distribution centers (existing and new), transportation, and delivery. The proposals for installing one and two new distribution centers were based on existing assets and the need to avoid installing too many new distribution centers because inventory costs and variability would increase. Since the meat supplier already had three distribution trucks, as well as necessary industrial freezers that could be transferred to new installations, for this reason one and two new distribution centers were proposed. Considering the facility location proposal 2 of installing two new distribution centers, the first located on Avenida 31 Poniente and the second located on Camino Real, plus the existing distribution center on Avenida Valsequillo, the 27 restaurant franchises (demand points) were a priori partitioned among the distribution centers. The existing distribution center on Avenida Valsequillo was partitioned few demand points because they are the most distant nodes, being located in the outskirts of the city of Puebla. Table 2 presents the restaurant franchises that were assigned to the distribution centers and their respective distances in kilometers from the depots. The restaurant franchises are numbered from 1 to 27 and are not listed in a particular order other than corresponding to the assigned distribution center.

Table 2: Allocation of Franchises to Distribution Centers

Distribution Center	Restaurant Franchise	Distance (Km)	
Avenida 31 Poniente	1. Humboldt	7.65	
	2. Boulevard Norte	1.47	
	3. Avenida 25 Poniente	7.24	
	4. Centro	4.98	
	5. Avenida 31 Poniente	1.50	
	6. Plaza Sur	4.02	
	7. Plaza Dorada	0.59	
	8. Plaza Centro Sur	2.15	
	9. Plaza Loreto	1.52	
	10. Angelópolis	2.76	
	11. Avenida Juárez	1.96	
	12. Avenida 4 Poniente	4.23	
	TOTAL DISTANCE	40.07	
	Camino Real	13. Plaza San Diego	2.03
		14. Plaza Express	3.90
15. Plaza América		4.13	
16. Camino Real		1.97	
17. Cuautlancingo		3.78	
18. Recta Cholula		2.44	
19. Plaza Cruz del Sur		4.36	
20. Plaza Mazarik		5.58	
21. Plaza CAPU		2.82	
22. Cholula		8.70	
23. Mayorazgo		4.21	
24. Zavaleta		4.56	
TOTAL DISTANCE	48.48		
Current Distribution Center (Valsequillo)	25. Valsequillo	0.54	
	26. Atlixco Centro	25.32	
	27. Gran Plaza	1.28	
TOTAL DISTANCE	27.14		

Table 2 presents the 27 restaurant franchises a priori partitioned between the two proposed distribution centers and the existing distribution center on Avenida Valsequillo. In the column RESTAURANT FRANCHISE, the points are numbered 1 to 27 corresponding to the assigned distribution center. In the column DISTANCE (KM), distances between the restaurant franchise and the corresponding distribution center are reported and measured in kilometers.

Theoretically having three installed distribution centers to draw a new logistics system, a CVRP was modeled and programmed in the software Lingo 10 to find the most optimal solution in the vehicle scheduling between the distribution centers and the allocated restaurant franchises, minimizing distances and associated costs. Capacity requirements were taken into account considering the determined demand at each restaurant franchise. Table 3 presents the designed distribution routes between each distribution center and its respective demand points. The number to the left of the name of the restaurant franchise refers to its assigned number in Table 2; how they appear listed in Table 3 is the designed route the vehicle will take to deliver the demanded meat to each restaurant franchise. The first point listed is the depot from where the truck will begin and end its distribution route. To verify if incrementing two additional distribution centers is beneficial to both Antigua Taquería and the meat supplier, a cost analysis is required where current costs incurred by the supplier are compared with the costs that would originate when installing two additional distribution centers on Avenida 31 Poniente and Camino Real. Fixed and variable costs of installations are considered. At the moment the supplier has sufficient personnel, equipment, and infrastructure to supply the capacity of three industrial freezers, so that when increasing two more distribution centers, the current resources were divided between three. An important cost to consider for the supplier is the price of fuel, as the original routes of the distribution trucks were not assigned on the basis of any optimization technique or mathematical model.

Table 3: CVRP Allocated Distribution Routes to Each Distribution Center

Avenida 31 Poniente Distribution Center	Camino Real Distribution Center	Current Distribution Center (Avenida Valsequillo)
5. Avenida 31 Poniente	16. Camino Real	
11. Avenida Juárez	19. Plaza Cruz del Sur	25. Valsequillo
10. Angelópolis	22. Cholula	
1. Humboldt	23. Mayorazgo	
3. Avenida 25 Poniente	13. Plaza San Diego	
2. Boulevard Norte	21. Plaza CAPU	27. Gran Plaza
9. Plaza Loreto	20. Plaza Mazarik	
4. Centro	14. Plaza Express	
12. Avenida 4 Poniente	24. Zavaleta	
6. Plaza Sur	15. Plaza América	26. Atlixco Centro
8. Plaza Centro Sur	17. Cuautlancingo	
7. Plaza Dorada	18. Recta Cholula	

Table 3 shows the allocated distribution routes for each proposed distribution center using mathematical programming of the CVRP. Each column represents one of the three distribution centers: the two proposed distribution centers, Avenida 31 Poniente and Camino Real, and the existing distribution center, Avenida Valsequillo. The restaurant franchises are numbered 1 to 27 corresponding to the respective distribution center.

With the proposed CVRP routes, it is guaranteed the minimization of distances and therefore a reduction in the cost of consumed fuel. On the other hand, a penalization cost could be incurred if the demanded product is not delivered on time to the restaurant franchises. This penalization would be at the cost of Antigua Taquería because opening hours would be delayed causing a loss in sales. Antigua Taquería has calculated this penalty cost at \$2,000MXN per hour of delaying restaurant opening. In Table 4, actual costs for the current and proposed situations are presented to realize a cost analysis. The cost of fuel being utilized is \$13.40MXN per liter of gasoline. In the penalty costs of the current situation, an average cost is determined of what the meat supplier incurs with its current delivery delays.

Table 4: Actual Costs for Current and Proposal Situations in Mexican Peso (MXN)

Situation	New + Existing Distribution Centers			
	Current Situation	New + Existing Distribution Centers		
Locations	Current distribution center (avenida valsequillo)	Current distribution center (avenida valsequillo)	Distribution center avenida 31 poniente	Distribution center camino real
Electricity	\$18,000	\$6,000	\$6,000	\$6,000
Rent	\$28,000	\$13,000	\$16,000	\$18,000
Freezers	\$42,000	\$14,000	\$14,000	\$14,000
Equipment	\$9,000	\$3,000	\$3,000	\$3,000
Inputs	\$18,000	\$6,000	\$6,000	\$6,000
Administrative Personnel	\$24,000	\$8,000	\$8,000	\$8,000
Cutting Boards	\$30,000	\$10,000	\$10,000	\$10,000
Drivers	\$36,000	\$12,000	\$12,000	\$12,000
Penalties	\$30,000	-	-	-
Gasoline	\$36,000	\$2,296	\$2,414	\$3,998
TOTAL	\$271,000		\$232,708	
SAVINGS			\$38,292	

Table 4 shows a cost analysis comparison for the current situation with one distribution center located on Avenida Valsequillo and the proposed situation with two additional distribution centers to make a total of three working distribution centers for the logistics system of the meat supplier of Antigua Taquería.

A savings difference can be inferred from the cost analysis shown in Table 4. A savings of \$38,292MXN is presented which represents a 14% savings between the current one distribution center scenario and the proposed three distribution centers scenario. In addition to cost savings for the meat distributor, the customer is receiving a more efficient, on-time service, therefore not having to charge penalty fees. Ultimately, value from these logistics activities is being created on both ends, for the supplier and the customer, in terms of timely deliveries and more efficient placing of distribution centers, diminishing vulnerability in the supply chain, minimizing costs and reducing routing distances.

## CONCLUDING COMMENTS

In this article, a real-life application of optimizing facility location and distribution routes of a logistics system by the means of mathematical modeling has been analyzed and discussed. A P-median model was presented to propose locations of installing new distribution centers, subsequently followed by the application of a CVRP to determine the optimal distribution routes between the initial depot and corresponding demand points. An optimized vehicle routing was developed considering the proposal of opening two additional distribution centers. Having a total of three distribution centers available for service cuts down on inventory and costs, especially gasoline as routes have been optimized and there should not be any more late penalties incurred. A savings of \$38,292MXN has been determined through the realization of a cost analysis for the current situation and the proposed situation. These solutions and cost analysis of this proposal have been presented to the management of Antigua Taquería to rethink their current logistics system and make necessary changes for higher efficiency and cost savings. Future work for this case study could be the determination of an adequate inventory system for each distribution system, based on the demand of the corresponding franchises, to ensure appropriate inventory levels and minimize associated costs. Also, the expansion of new restaurant franchises in optimally located coordinates not currently covered could be considered.

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## BIOGRAPHY

Erin Chancey is a master's student in the Logistics and Supply Chain Management program at the Universidad Popular Autónoma del Estado de Puebla. She can be contacted at [erinelizabeth.chancey@upaep.edu.mx](mailto:erinelizabeth.chancey@upaep.edu.mx).

José Luis Martínez Flores is a professor and director of the Logistics and Supply Chain Management program at the Universidad Popular Autónoma del Estado de Puebla. He can be contacted at [joseluis.martinez01@upaep.mx](mailto:joseluis.martinez01@upaep.mx).

Maricarmen Báez Palma is a master's student in the Logistics and Supply Chain Management program at the Universidad Popular Autónoma del Estado de Puebla. She can be contacted at [maricarmen.baez@upaep.edu.mx](mailto:maricarmen.baez@upaep.edu.mx).

Omar David Badillo Valenzuela is a master's student in the Logistics and Supply Chain Management program at the Universidad Popular Autónoma del Estado de Puebla. He can be contacted at [omardavid.badillo@upaep.edu.mx](mailto:omardavid.badillo@upaep.edu.mx).

María Arlethe Sánchez Cabrera is a doctorate student in the Logistics and Supply Chain Management program at the Universidad Popular Autónoma del Estado de Puebla. She can be contacted at [mariaarlethe.sanchez@upaep.edu.mx](mailto:mariaarlethe.sanchez@upaep.edu.mx).



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