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LETTER FROM THE EDITORS

Welcome to the *International Journal of Entrepreneurship.* We are extremely pleased to be able to present what we intend to become a primary vehicle for communication of entrepreneurship research throughout the world.

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MANUSCRIPTS

DEMOGRAPHIC CORRELATES OF LOCUS OF CONTROL AND PERCEIVED LADDER OF SUCCESS: A STUDY ON WOMEN ENTREPRENEURS

R. Ganesan, Indian Institute of Technology
Dilbagh Kaur, Indian Institute of Technology
R.C. Maheshwari, Indian Institute of Technology
Sujata Satapathy, Indian Institute of Technology

ABSTRACT

The study examined some important demographic correlates such as, age, education, social category, year of experience, husband's and parents' education, previous occupation, and present occupation, family's income, membership in associations and training of locus of control of 32 women entrepreneurs in two metro cities in India. Locus of Control Scale (Rao, 1985), self-constructed scale to measure perceptions of present ladder of success and success rate were used for the present study. Results on Pearson's correlations revealed that a majority of women entrepreneurs had internal perceptions about taking up a challenging task and success in it. Only age had significant and positive correlation with locus of control. Perceptions of ladder of success at present had significant inverse correlations with father's previous and present occupation and significant positive correlations with success rate perceived by women entrepreneurs.

INTRODUCTION

Locus of Control (Rotter, 1966) is treated as an enduring individual characteristics. People with internal locus of control believe that they themselves are primarily responsible for what happens to them and people with external locus of control believe that major events in their lives are mainly determined by other people or forces beyond themselves. Their beliefs are assumed to be stable over time

and situations and can affect strain and stress relationship. Some studies, (Halpin, Harris & Halpin, 1985; Lester, 1982; Reiche & May, 1986; Storms & Spector, 1987; Vredenburgh & Trinkaus, 1983) have shown main effects of locus of control involving such stresses as role conflict, role ambiguity and overload, which can alternatively affect one's performance or success in life particularly, of women's. The concept of internality or externality orientation of control is both a property of the person and situation, hence, success of any product can be affected by this.

Locus of control is a learned behaviour and behaviour is shaped through the socialization process and family background. Locus of control of women in developing countries, like India, could affect their performance accordingly. Many studies have shown relationship between locus of control and performance is agro-businesses (Box, White & Barr, 1993; Govindarajan, 1988; Miller & Toulouse, 1986; Miller, Kets & Toulouse, 1982). Box, Beisel and Watts (1995) reported that successful entrepreneurs tend to be internal and have high for achievement. It was found that entrepreneurs having previous experience were more satisfied and successful than those who did not have. Similar findings reported by Hisrich & Peters (2000) and Box, White and Barr (1993) indicated the impact of experience in this field on performance. In addition, age and level of education also correlated (Birley & Norburn, 1987; and Hisrich & Brush, 1984), with performance in the enterprise. However, hardly any study is reported in India showing relationship between background variables and locus of control particularly, in women entrepreneurs.

Thus, studies varied from perspective to perspective but gave a global picture of the positive impact of background and locus of control on entrepreneurial performance. However, keeping inequalities in socialization process, sex-role stereotypes and distribution of societal resources on the basis of gender, very few researchers focus on women entrepreneurs. Most of the research on women entrepreneurs have focused on demographic, family, occupational and educational backgrounds as well as any differences between male and female entrepreneurs. Especially when we take age, education and community into account according to Indian context different researchers have reported differently, Generally male entrepreneurs tend to start their significant venture in the early 30s, while women entrepreneurs tend to do so in their middle 30s (Ronstadt, 1983)

The typical woman entrepreneur is the first born; from a middle or upper class family; has a self-employed father' has a college degree; is married with children; starts their significant entrepreneurial career between the ages of 40-45; has previous experience in the venture; and independence, achievement and job

satisfaction are the strongest motivations to starting their own business (Hisrich and Brush, 1985).

Rani (1986), found in her study that most of the women entrepreneurs were in the age group of 21-30 years, have come from middle class families and belonged to nuclear families (76.7%) as against only 23.3 percent from joint families. She went on further; saying that majority of the respondents thought of taking up entrepreneurship on their own and was not influenced by others.

Anna (1990) in his study found that majority of women entrepreneurs entered the business in the age-group 30-40, at a time when they had attained self-confidence and decision making capacity, majority hailed from lower and middle income groups. He stressed that low level of education did not inhibit entrepreneurs from entering into trade.

Nigam (1995) in her study reported that a good many women entrepreneurs were in the age-group of 31-40 years (42.5%) and a majority were married (79.5%), were drawn from nuclear families (60.3%), belonged to middle and upper middle class (86.3%), lived in big cities (70%), were graduates (50.7%), 'often' took the risk in making decisions (63%) perceived their enterprise as fairly successful (57.5%), did not receiving any training (59.0%), went for face to face communication (82.1%) or used magazines, circulars and newspapers in the mass media and communication and also indicated that the biggest problems during 'starting-up' were lack of business training and obtaining lines of credit.

Rani (1986) reported that majority of women entrepreneurs were in the age group of 21-30 years. In contrast, Anna (1990), found that the age group to be between 30-40 years, which was again supported by Nigam (1995), but it was contradicted with the study by Hisrich and Brush (1986) found in their study on women entrepreneurs that the age-groups 40-45 years for right for start-up which contradicts with the study by Rani (1986) and Anna (1990) and Nigam (1995). In our study majority of the women entrepreneurs lie in the age group of 30-50 years.

Entrepreneurs generally hail from communities, which have been traditionally practicing entrepreneurial activities thus imbibing the entrepreneurial qualities (Anna, 1990). Caste is one of the important factors, which helps the emergence, and growth of entrepreneurs (Manimekalai, 1998).

Chandra (1991) revealed in her study that majority of women entrepreneurs belonged to the educated class. Azad (1989) found that conflict or the difficulty in managing both the home and the job as experienced by married women, has a negative influence over Indian women entrepreneurs. Singh and Singh & Singh (1992) found that the problems and difficulties of working women are

multi-dimensional i.e., environmental, social and psychological and emerge under two situations - home and work. While, women entrepreneurs are still very small part of all entrepreneurial activity, their absolute member is substantial and increasing in all enterprising areas in India. Very few studies have been done on women entrepreneurs and no studies focused on the relationship exists between women entrepreneurs and locus of control, their locus of control and perception of success in entrepreneurs and how the demographic variables are related to their of locus of control and success in their ventures. The present study tried to find out all these queries in Indian food processing enterprises, as they not only accelerate the pace of any rural industrialization and economic growth, also uplift women's role and status in society. This study aimed to find out locus of control orientation of women entrepreneurs and addressed the issues related to the relationship among their background, locus of control orientation and perception of success they have achieved so far.

METHODOLOGY

Sample

Thirty-two (32) women entrepreneurs were selected randomly from two metro cities (16 each, Bangalore and Chennai) in India. The women were between 30 - 60 years of age and a majority of them were graduates. All were married.

Variables and Tools

Locus of control (LOC): Locus of Control scale by (Rao, 1985), consisting of 20 statements was used. High score (greater than 3.0) indicated that entrepreneurs are more inclined towards internality. Low score (less than 1.0) indicated that entrepreneurs are more inclined towards externality and medium score (1.0 - 3.0) indicates that entrepreneurs tend towards internality (i.e., they will be internal with time).

Ladder of Success (LASP) and Success Rate (SR): 'Ladder of success at present' and 'Success rate' questionnaires were developed to measure perceptions of success rate of women entrepreneur. The ladder of success at present scale consisted of ten steps in which the entrepreneur rated herself in steps they are currently operating with respect to their enterprise, likewise the success rate was ranged between 10 percent to 100 percent.

Demographic Variables

A personal proforma including Age(A), Education(E), Category(C), Self Previous occupation(O), Year of experience(Y), Husband's Education(HE), Training received(ETTT), Parents occupation(Father's Previous and Present Occupation(FOPV) and (FOPR) and Mother's Previous and Present Occupation(MOPV) and (MOPR), Husband's Previous and Present Occupation(HOPV) and (HOPR), Family Income(FI) and Membership Associated(MA) was prepared to collect demographic information.

Objective

The objective of this study is to find out the correlation between the demographic and psychosocial variables.

Assumption

The assumption behind it was as social learning, maturity and problem solving skills are enhanced with age and person's (women entrepreneur's) experience in her life, self-belief and one's own conviction about her own control over the event also increase due to this fact. Therefore, person's perception about attributions could also change with time.

Hypotheses

H_1:	Locus of control (LOC), ladder of success at present (LASP) and success rate (SR) would be significantly correlated with background variables.
H_2:	Perceptions of ladder of success at present (LASP) and success rate (SR) would be significantly related with each other.

PROCEDURE

As all the measures were of self-reported type, questionnaires were administered to all agreed entrepreneurs. Initially, about 80 women entrepreneurs were contacted among whom only 32 entrepreneurs agreed to participate in the

study. Measuring tools along with the instructions were administered individually in the enterprise setting only. Statistical analyses were done by using Mean, Standard Deviation and Pearson's Correlation coefficients.

RESULTS AND DISCUSSION

It was revealed from table-14, that locus of control had significant positive correlation($r = .37$, $p<.05$) with age only, which indicated that older women entrepreneurs had more internal perceptions of locus of control. As locus of control was shaped through learning and one's experience of perceptions of success or failure and her attitude to attribute it to external and internal factors, those who were older in age due to their experience in this line they developed external orientation towards their success or failure. It was found from the percentage table (Table-1) that more than 50% of women were between the age of 30-40 years and the next largest group constituted 38% was between 40-50 years of age. 97% of the total women were found to have a tendency towards increasing internal locus of control perceptions.

Table - 1:Distribution of Respondents according to Age (n = 32)	
Age Group in Years (A)	Percentage
30 and Below	1
	3.13%
31 - 40	17
	53.13%
41 - 50	12
	37.50%
51 - 60	2
	6.25%

This indicated that with increasing age, hence, more number of years in a particular line enhanced internal orientation in perceptions and thus, fostered their actual rate of success. This was substantiated by the result which revealed significant positive correlation ($r = .42$, $p<0.5$) between locus of control and perceptions of success rate

(Table-11). 60.5% of women entrepreneurs rated their success rate or growth rate over the years in this industry as 60%, which can be considered as more than average growth in the enterprise. This finding was partially in support of the studies done by Box, Beisel and Watts (1995) reporting successful entrepreneurs tend to be internal and have high for achievement and by Hisrich & Peters (2000) and Box, White and Barr (1993), who found that entrepreneurs having previous experience were more satisfied and successful than those who did not have. In addition, this was in line of the studies finding age and level of education correlating (Birley & Norburn, 1987; and Hisrich & Brush, 1984) positively with performance in the enterprise. However, locus of control did not correlate significantly with any other demographic variable. It could be due to the small size of the sample or as the total sample were from south Indian region they constituted more or less a homogenous group (socially and culturally), hence their control perceptions remained more or less equal.

Table- 2: Distribution of Respondents according Social Category (N = 32)	
Category(C)	Percentage
General	25
	78.13%
Other Backward Class	7
	21.87%

Women's perceptions about their present ladder of success correlated significantly and inversely with fathers previous (r= -.45, p<.05) and present (r= -.37, p<.05) occupation. This indicated that women whose fathers did not have better occupations perceived themselves more successful in their enterprises. From percentage analyses (Table-12) it was found out that 59.59% of fathers were government salary class people and 71.87% were presently not in any occupation. Again it was found out that (Table-10) 56.25% of these women entrepreneurs perceived themselves in the fifth and 18.75% in the sixth ladder of success in a scale of 10. This showed that their perceptions and expectations of self-growth in this line was quite encouraging for others want to pursue this as a career. This finding could be attributed to the fact that perceptions about oneself takes shape into a positive whole on the basis of social comparison (Festinger, 1954), basically in a close social

circle like family, relatives and friends. When these women entrepreneurs compared their performance including earning, social status, reputation, etc with their elders they found themselves in a better position in each sphere, which affected their perceptions of success or failure, hence, they perceived themselves as more successful.

Table- 3: Distribution of Respondents according to Education (N = 32)	
Educational Level (E)	Percentage
Primary	1
	3.13%
Secondary	-
	0.00%
Higher Secondary	6
	18.75%
Graduate	23
	71.87%
Post Graduate	1
	3.13%
Others/Technical	1
	3.13%

Another plausible explanation could be that in families where parents were from middle socio-economic status, gender inequality could be more prevalent. Fathers are typically unsupportive whereas mothers were devoted to and mostly relied on the son, which could have deeply influenced women's personality. This could have made them more interested in achievement, independent, autonomous and self-reliant, hence, perceived themselves as more successful. In line of the above result, expectedly those who perceived themselves are more successful and they also ranked more to the percentage scale of growth of their enterprises.

Table- 4: Distribution of Respondents according to Experience (N = 32)	
Years of Experience (Y)	Percentage
2 - 4	16
	50.00%
5 - 7	12
	37.50%
8 - 10	1
	3.13%
11 - 13	1
	3.13%
14 - 16	1
	3.13%
16 and Above	1
	3.13%

Table -5: Distribution of Husbands' Education (N = 32)	
Educational Level (HE)	Percentage
Primary	1
	3.13%
Secondary	0
	0.00%
Higher Secondary	6
	18.75%
Graduate	23
	71.87%
Post Graduate	1
	3.13%
Others /Technical Degree	1
	3.13%

According to Timmons (1978), the entrepreneur does not believe in success or failure of a new business venture depends mostly upon luck or fate, or other external, personality uncontrollable factors. Rather, the entrepreneur tends to believe that one's personal accomplishments as well as setbacks lie within one's personal control and influence. This sense of personal causation as the determinant of success or failure is linked to the entrepreneur's achievement motivation and preference for moderate risk-taking. Several researches have reported to a positive correlation between one's entrepreneurial activity and the entrepreneur's belief that the locus of control over these entrepreneurial events is internal rather than external and just a matter of luck or circumstances. This has been found from the table-14 that success rate has been positively correlated with locus of control.

Table - 6: Distribution of Respondents according to Family Income (N = 32)	
Family Income (FI)in Rs.	Percentage
< 3500	3
	9.37%
3501 - 5500	25
	78.13%
5501 - 7500	0
	0.00%
7501 - 9500	2
	6.25%
9501 - 11500	2
	6.25%

Nonetheless, in this study, there were many correlations found to be insignificant despite the fact that they were approaching towards the level of significance could be due to the small size of the sample or as the total sample were from south India they constituted more or less a homogenous group (socially and culturally), hence the variations were statistically not significant. Again not using a more comprehensive tool to collect socio-economic data could also be another reason for these results.

CONCLUSIONS AND SUGGESTIONS

The following conclusions were drawn from the study:

- ♦ Age had significant positive correlation with locus of control (LOC) and locus of control had positive correlation with the success rate (SR).

- ♦ Father's previous and present occupation and perceptions of ladder of success at present (LASP) were inversely correlated.

- ♦ Perceptions of ladder of success and success rate in percentage were positively correlated.

This study achieved its initial purpose of beginning to understand Indian women entrepreneurs, the relationship between their psychological profiles, their perceptions and performance. This demanded more researches to be done in this line in developing countries to widen the generalizability of the findings. Future research could be done, wherein a larger sample of female entrepreneurs from different parts of the country (with cultural variations) should be included. A longitudinal study could also show the impact of age on locus of control perceptions (LOC) and ladder of success at present (LASP).

Table - 7:Distribution of Respondents according to Membership in Associations (N = 32)	
Membership in Associations(MA)	Percentage
One	10
	31.25%
Two	8
	25.00%
Three	8
	25.00%
Four	2
	6.25%
Five	4
	12.50%

Table - 8: Distribution of Respondents according to Training (N = 32)	
Training (ETT)	Percentage
Yes	26
	81.25%
No	6
	18.75%

Table- 9: Distribution of Respondents according to Locus of Control (N = 32)	
Locus of Control(LOC)	Percentage
< 1.0	1
	3.13%
1.0 - 3.0	31
	96.87%
> 3.0	0
	0.00%

Table 10: Distribution of Respondents according to Ladder of Success at present (N = 32)	
Ladder of Success (LASP)	Percentage
One	0
	0.00%
Two	1
	3.13%
Three	0
	0.00%
Four	4
	12.50%
Five	18
	56.25%

Table 10: Distribution of Respondents according to Ladder of Success at present (N = 32)	
Ladder of Success (LASP)	Percentage
Six	6
	18.75%
Seven	3
	9.37%
Eight/ Nine/ Ten	0
	0.00%

Table - 11: Distribution of Respondents according to perceived Success Rate at present (N = 32)	
Success Rate (SR)	Percentage
Ten/ Twenty/ Thirty/ Forty	0
	0.00%
Fifty	2
	6.25%
Sixty	20
	62.50%
Seventy	9
	28.13%
Eighty	1
	3.13%
Ninety/ Hundred	0
	0.00%

Table - 12:Distribution of Respondents According to Occupational Background (n = 32)							
Occupation	Self Previous (O)	Father's Previous (FOPV)	Father's Present (FOPR)	Husband's Previous (HOPV)	Husband's Present (HOPR)	Mother's Previous (MOPV)	Mother's Present (MOPR)
Agriculture	0 0.00%	2 6.25%	1 3.13%	0 0.00%	0 0.00%	0 0.00%	0 0.00%
Business	1 3.13%	6 18.75%	7 21.87%	5 15.63%	5 15.63%	0 0.00%	0 0.00%
Service	0 0.00%	5 15.63%	0 0.00%	1 3.13%	1 3.13%	0 0.00%	0 0.00%
Salaried Private	23 71.87%	0 0.00%	0 0.00%	9 28.13%	9 28.13%	0 0.00%	0 0.00%
Salaried Government	0 0.00	19 59.39%	1 3.13%	17 53.13%	17 53.13%	3 9.37%	1 3.13%
No Occupation	8 25.00%	0 0.00%	23 71.87%	0 0.00%	0 0.00%	29 90.63%	31 96.87%

Table - 13:Mean and Standard Deviation on measured variables (n = 32)		
Dependent Variables	Mean	Standard Deviation
Locus of Control (LOC)	1.87	.4762
Ladder of Success Present(LASP)	5.16	.9873
Success Rate(SR)	62.5	6.2217

Table - 14: Correlations between demographic and measured variables										
	A	E	C	O	Y	HE	ETT	FOPV	FOPR	MOPV	MOR
LOC	0.37*	0.08	-016	-0.17	0.06	0.06	.32	-0.04	-0.09	0.07	0.19
LASP	0.18	0.03	0.07	0.26	0.19	-0.05	.34	-0.45*	-0.37*	0.05	0.03
SR	0.1	0.19	-0.1	0.13	0.24	-0.04	.07	-0.11	-0.03	-0.04	0.07

Table - 14: Correlations between demographic and measured variables (Continued)					
	HOPV	HOPR	FI	MA	LASP	SR
LOC	-0.18	-0.18	-0.12	-0.04	.01	.42*
LASP	-0.16	-0.164	.27	.43*	1.0	-.62**
SR	-0.01	-0.01	.12	.275	.62**	1.0

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INFORMATION LIMITS ON ENTREPRENEURS: AN ECONOMIC PERSPECTIVE

Michael M. Tansey, Rockhurst University

ABSTRACT

Formal economic models of entrepreneurship have been rare because so much of Economics has been developed under the assumption of perfect information. However, two economists, Casson and Hayek, have explored the assumption of imperfect information and the limited capability to process information. Their contributions are extended and integrated to develop a description of entrepreneurial behavior and the institutions that accommodate such behavior.

Specifically, an entrepreneur is viewed as a specialist who learns to be parsimonious in decision making by depending on intuition and making choices with little information. The institutions that accommodate entrepreneurs are capable of a delicate balance between letting entrepreneurs protect their commercial information while simultaneously making it easy to coordinate resource reallocation. Entrepreneurs can be expected to play roles in the early history of a product as they help create a market and then to exit as competition arrives. Entrepreneurs develop new niches closely related to their own experience but new enough to avoid competitors.

INTRODUCTION

Early economists (Cantillon, Say, and Mill) called enterprising people who undertook projects "entrepreneurs." However, through the end of the twentieth century, economic theory developed without including a formal analysis of the entrepreneur. With respect to developing "an illuminating formal analysis of entrepreneurship," William Baumol (1968) stated "I shall conclude it is unlikely to do so for the foreseeable future." While Baumol has been correct for the last thirty years, several economists have productively focused on the information constraints facing the entrepreneur. This paper integrates contributions of several major

economists to outline a theory of entrepreneurial institutions and behavior based upon such information constraints.

ENTREPRENEURS AS SPECIALISTS IN DECISION MAKING

A decade after Baumol's pessimistic forecast about formal analysis of entrepreneurship, Mark Casson has outlined a formal economic theory of the entrepreneur which encompasses contributions by many earlier economists (Casson, 1987). Consistent with the fundamental economic problem of resource scarcity, Casson (1982) defines an entrepreneur in terms of a resource reallocation role:

> An entrepreneur is someone who specializes in taking judgmental decisions about the coordination of scarce resources (Casson, 1982).

As a specialist in decision-making, Casson's entrepreneur does not necessarily own the institutions or resources upon which the entrepreneur makes decisions. The entrepreneur's role in coordinating resources is a dynamic search for opportunities to change how resources are being used:

> Coordination may be defined as a beneficial reallocation of resources. Coordination is thus a dynamic concept, as opposed to allocation, which is static one. The concept of coordination captures the fact that the entrepreneur is an agent of change (Casson, 1982).

In this way, he is consistent with Schumpeter's (1934) distinction between the capitalists who own resources and entrepreneurs who make decisions about how to reallocate resources.

An entrepreneur has to interact, communicate, and bargain with a community of resource owners for the "market right" to use the property rights of others. With those "market rights" it is then possible to make decisions for the purpose of building a "market-making firm." The "market-making firm" is more than the neoclassical economic firm that converts resources into goods and services. The entrepreneur coordinates the use of resources, not only to produce goods or

services, but also to create the market in which to sell those goods and services. But what decides which entrepreneur achieves a successful market-making firm? Casson finds the answer in differences in access to information. The importance of information becomes clear when he defines the "judgmental decisions" in which entrepreneurs specialize:

> The essence of a judgmental decision is that there is no decision rule that can be applied that is both obviously correct and involves using only freely available information (Casson, 1987).

Because information is costly, entrepreneurs have access to different information, choose different decision rules, and end up with different decisions. To build a theory about entrepreneurs that explain their behavior and institutions, it is essential to know how entrepreneurs are constrained (a) in their access to information and (b) the way they decide about decision rules.

ACCESS TO INFORMATION

While Casson's definition of entrepreneurs is general enough to encompass definitions by many economists, the investigation of access to information and deciding about decision rules has largely been the province of the Austrian school of economics, particularly Hayek. Perhaps the most promising extension of Casson's approach to entrepreneurship is to be found in Hayek's analysis of the internal constraints on human capacity to process information (referred to as "mental processing"), rather than the external availability and transaction costs of obtaining information (Casson, 1982; Williamson 1985). While several economists have referred to constraints on mental processing (Loasby, 1976; Williamson, 1985), Hayek describes extensively how mental processing places high demands on time, physical endurance, wakefulness, mental capability, and the senses (Hayek, 1952). While many economists have recognized optimization with respect to the use of time (Arrow, 1994; Mises, 1994; Sharp, 1981; Yeager, 1997), Hayek goes a step further and recognizes that decision makers economize on decision making itself.

It is a truism to go from the description of constraints on mental processing to Hayek's fundamental starting point in his economic theorizing, the limited knowledge thesis, for which Hayek was well known (Parsons, 1997):

> The crucial fact of our lives is that we are not omniscient, that we have from moment to moment to adjust ourselves to new facts which we have not known before, and that we can therefore not order our lives according to a preconceived detailed plan in which every particular action is beforehand rationally adjusted to every other (Hayek, 1967).

Since people can't know everything, they must depend upon institutions with which they can share what they do know:

> The price system is just one of those formations, which man has learned to use (though he is still very far from having learned to make the best use of it) after he had stumbled upon it without understanding it. Through it not only a division of labor but also a coordinated utilization of resources based on an equally divided knowledge has become possible (Hayek, 1948).

In other words, no master planner must design or understand markets in order for markets to work. With an analogy to the division of labor, Hayek believes that institutions or "formations"

> …Spontaneously self-organize to allow participants to communicate, coordinate, and share knowledge and information. The concept of spontaneous self-organization of institutions has gained an important following and agenda of research in evolutionary economics since Hayek's work (Nelson, 1995).

Hayek's contribution to Casson's foundation on entrepreneurs is the connection of constraints on information processing to the spontaneous, self-organization of institutions to overcome these constraints. To the extent these institutions allow information to be shared and retrieved efficiently, the penalty for ignorance can be

reduced and entrepreneurs can focus on decision-making. The differences in their choices will reflect the information they choose to retrieve.

DECIDING HOW TO DECIDE

Casson makes an entrepreneur a specialist in judgmental decision-making where "there is no decision rule that can be applied that is … obviously correct." Not only does this idea help to explain why different entrepreneurs facing the same fact situation can make different decisions, but also it explains why the same entrepreneur can make different decisions in the same fact situation.

Deciding the decision rule implies a hierarchy of decision-making. First the decision rule must be chosen. Then the decision must be made using the decision rule. Economics has confronted such hierarchies in a variety of areas. In the theory of the firm, a two level hierarchy exists when an entrepreneur makes a long run decision such as entering a market and then makes a short run decision about production rates. In social choice theory a three level hierarchy appears as a polity determines its constitution, then decides an agenda according to the procedures in the constitution, and finally makes specific choices on the issues on the agenda. Such hierarchical decision-making can be represented with decision trees. In game theory when learning is introduced, players have rules at a higher hierarchic level than the decision rule of a specific game, and these rules allow decisions to be made after playing many games (Fudenberg & Levine, 1998). In the software used for simulations of agency theory, a hierarchy of levels at which rules for agent behavior is defined often reflect a hierarchical structure (Terna, 2000). However, deciding about decision rules is ultimately a sophisticated construct of the mind.

Few economists have pursued a model of how the mind might actually make choices at what hierarchical level to consider choices. For example, with respect to long run and short run decision-making, economics has been silent about how an owner chooses whether to make a long run or short run decision. While economists often categorize such problems as reflections of "bounded rationality," Hayek and the Austrians seek for the answer in "organic rationality" (Williamson, 1985). Hayek, trained in Psychology, has developed a physiological model that describes (a) a hierarchy of mental processing and (b) how the mind abstracts to higher levels of mental processing while economizing on mental processing. Although his psychological work, The Sensory Order (Hayek, 1952), has not been frequently cited by economists it is shown in the next two sections to be very helpful in extending Casson's model of the entrepreneur.

A HIERARCHY OF MENTAL PROCESSING LEVELS

Hayek (1952) provides a physiological description of how the mind can itself learn to reach higher levels of mental processing. He conceives of a hierarchy of mental processing from unconscious states through sub-consciousness, semi-consciousness and ultimately, consciousness. Within consciousness, Hayek (1952) distinguishes higher- from lower-conscious mental processing. With higher-conscious mental processing or "abstraction," the mind is more capable of fixing its position spatially and temporally, discriminating among sensory stimuli more carefully, communicating to others, focusing more narrowly, generalizing more broadly, initiating new behaviors, remembering, and making more comprehensive associations from experience from a single point of view (Hayek, 1952). For example, when an entrepreneur achieves a broad enough perspective to develop a "vision" of how an enterprise might be set up, the entrepreneur is abstracting to a higher level of mental processing than would be involved in just imitating what is being done by other firms.

However, higher mental processes - particularly conscious mental processes - are more constraining in terms of time, energy, and the amount of stimuli that can be processed. After becoming familiar with a pattern of stimuli, the mind learns automatically to mentally process such a pattern at lower and lower mental processing levels. The mind naturally is parsimonious in choosing what mental processing levels to use.

There is a particular kind of conscious thinking that enables the mind to search for information or knowledge that is externally available. Hayek refers to "attention" as a form of conscious mental processing which focuses "only with regard to events which are in some sense expected or anticipated" (Hayek, 1952) and which allows a directed search of the environment for certain anticipated stimuli. Such attentiveness focuses perception extremely narrowly by excluding other stimuli (Hayek, 1952) and places the mind in an "excitatory preparedness" (Hayek, 1952), which can trigger higher mental processing. If an entrepreneur finds the decision rule to be inadequate, the entrepreneur's mind might trigger a search for a new, previously unknown decision rule and become attentive to any available resources that would help find such a rules. Hayek even describes how the mind adjusts experience to encompass its new rules.

MODELS AND ABSTRACTIVE MANEUVERS

A mind must learn a procedure, which is referred to here as the "abstractive maneuver," to trigger when to decide as well as to choose a higher mental processing level at which to make a decision. While the mind is always capable of receiving some sensory information, the abstractive maneuver triggers the mind to reach a higher mental processing level to make sense of the information and to respond to it.

Hayek (1952) describes this trigger in cybernetic terms as a gap between what is desired and what is anticipated. The mind anticipates by using models of an environment. Hayek uses the term "model" in a way quite familiar to all economists: for predicting what is to happen in an environment based on a simplified version of how the environment works (Hayek, 1952). He does not limit the concept of "model" to conscious thinking. Although Hayek does not use the term, it will be useful here to think of unconscious modeling as "intuition." The model provides an individual with motivation for action based on the gap between what is expected in an environment (as determined by a model) and what is desired from the environment:

> …The sensory representation of the environment, and of the possible goal to be achieved in that environment, will evoke a movement pattern generally aimed at the achievement of the goal. (Hayek, 1952).

The gap between what is expected and what is desired creates an "excitatory state of the higher centers which will decide whether the evaluation of the new impulses will be of the kind characteristic of attention or consciousness." (Hayek, 1952). The gap between what is expected and what is desired triggers a higher level of mental processing with which to decide what action to take. While the mind may do so unconsciously, this "abstractive maneuver" chooses at what mental processing level the entrepreneur decides to search for more information, a new decision rule or a vision.

Because Hayek believes the mind is parsimonious in using higher mental processing levels, an entrepreneur wants to avoid frequent abstractive maneuvers. With experience an entrepreneur can reduce them by developing better models for setting expectations, setting more attainable goals, or increasing the tolerance for the

gap between expectations and goals. In more common parlance, the ideal entrepreneur respectively has a good "gut feel," "low expectations," and "thick skin." With such a "cool" attitude, the entrepreneur is parsimonious in triggering higher mental processing. Hayek's physiological description of the mind of any decision-maker shows how the mind does more than choose the decision rules for choices, but that it creates and decides whether it will use those decision rules. In the case of the entrepreneur who specializes in decision-making, parsimonious decision-making may often mean "snap decisions" or no decisions at all.

ENTREPRENEURIAL INSTITUTIONS AND BEHAVIORS

Hayek's understanding about parsimonious decision-making can be integrated with Casson's description of the entrepreneur. According to the Austrians, particularly Mises, there is a bit entrepreneurship in everyone (Kirzner, 1997). What results is a dynamic theory of the institutions and behaviors in which all decision makers, as entrepreneurs, thrive.

INFORMATION AND INSTITUTIONS

An entrepreneur faces a precarious balance between (a) the easily accessible information that the entrepreneur needs to implement commercial plans and (b) privacy of commercial information that prevents others from competing. While the former point may be apparent, Casson explores the latter point at length. Casson focuses on the entrepreneur's need to find information that no one else knows:

> If two or more entrepreneurs compete to exploit the same opportunity, then normally neither of them will obtain any reward…competition between entrepreneurs bids down the reward for information to zero (Casson, 1982).

A long literature exists on the chilling effect of competition on entrepreneurial effort at the early stages of a new product (Makowski & Ostroy, 2001). To achieve a monopoly of information the entrepreneur strives to achieve two conditions: a) the information must be discovered before anyone else discovers it, and b) when it has been discovered other people must be excluded from it (Casson, 1982).

Casson's first condition is referred to as gaining information "priority" and the second condition necessitates the establishment of barriers-to-entry that prevents anyone from exploiting the information. Today, Casson's points about priority and barriers-to-entry such as product differentiation and economies of scale are viewed as important to an entrepreneur's ability to appropriate a reward for entrepreneurial services (Makowski & Ostroy, 2001).

In examining the importance of gaining information priority, Casson describes an equilibrium in which entrepreneurs have an incentive to discover commercial information before anyone else:

> Under the equilibrium allocation, the number of able entrepreneurs in each area is directly proportional to the potential reward available. This means, of course, that in areas where pre-emption by priority is impossible, no able entrepreneurs will be found at all This simple result … accords with the view that the ability to pre-empt by priority - a principle enshrined in the patent system, for example - is crucial in attracting entrepreneurial activity. Thus, other things being equal, able entrepreneurs will be attracted to areas where patent and other forms of barrier to entry are available, and will avoid areas where patent protection is not available or where, in general, followers can undermine the leader's position Casson, 1982).

Casson refers to the information that must be protected as "commercial information." He describes the fundamental tactical problem facing an entrepreneur in appropriating a reward from the use of such information in the following way:

> … He can only obtain underwriting by persuading someone else that he is right. And therein lies the catch, for anyone else who believes the entrepreneur is right is ipso facto a potential competitor. As we shall see, it may be possible to establish special institutions to resolve this problem. But it should be apparent that, in the absence of such institutions, access to capital might prove a substantial barrier to entry into entrepreneurship (Casson, 1982).

Casson is providing an essential insight into the importance of institutions that specialize in funding entrepreneurial projects. In other words, a society can enhance the availability of entrepreneurial services when venture capitalists can be professionally trusted to maintain secrecy and not to compete with the entrepreneur. But it is not just the venture capitalist that must be trusted to stay out of the entrepreneurial specialty. Casson describes in detail many other institutions that must similarly be trusted to maintain secrecy while providing resources including insurance companies, investment trusts, and underwriters. In general, an entrepreneur must have trust that all suppliers, the media, the government, and any other stakeholders avoid disclosures before the entrepreneur can make the market for a firm. Without being able to trust such customary discretion, the entrepreneur faces the risk of being unable to appropriate a reward for entrepreneurial activity.

Once the entrepreneur begins to implement a vision of how to reallocate resources, the commercial information finally becomes apparent to everyone. Now the entrepreneur faces imitators or entrepreneurs with competitive ideas. Now the very ease of gaining resources that enabled the entrepreneur to start an enterprise allows competitors to start a competitive enterprise. Ease of access to these resources is now a threat to the entrepreneur.

It is possible visually to represent the information asymmetries upon which an entrepreneur depends. In this diagram, easier access to information enhances the entrepreneur's capability in coordinating resources and increases entrepreneurial services. However, easier access to the entrepreneur's own commercial information by others impairs the entrepreneur's ability to appropriate a reward and decreases entrepreneurial services. In the implementation stage, easier access to information threatens the entrepreneur with more efficient competitors and decreases the entrepreneur's services. On the other hand, easier access to the commercial information of the competitors may increase the entrepreneur's services. With the passage of time and the accompanying greater accessibility of information, the entrepreneur's advantage from the discovery of commercial information wanes (Makowski & Ostroy, 2001).

From Figure 1 it is apparent that rewards depend upon information asymmetries erected by entrepreneurs and protected by institutions. An entrepreneur must depend upon institutions not to disclose the entrepreneur's commercial information. This is more likely when suppliers are specialized and stay within their specialties, rather than offering potential competition. It is more likely when an entrepreneur has an established relationship to suppliers and can be expected repeatedly to bring business to them in the future. It is more likely in

environments where contracts for resources are enforceable and are traditionally kept. The ability to contract in a wide variety of different kinds of exclusive and semi-exclusive relationships such as "sole provider," franchising, and joint venture arrangements may be crucial to the ability to appropriate rewards for entrepreneurial activity.

Fig. 1: How Changes in Access to Information Affect an Entrepreneur
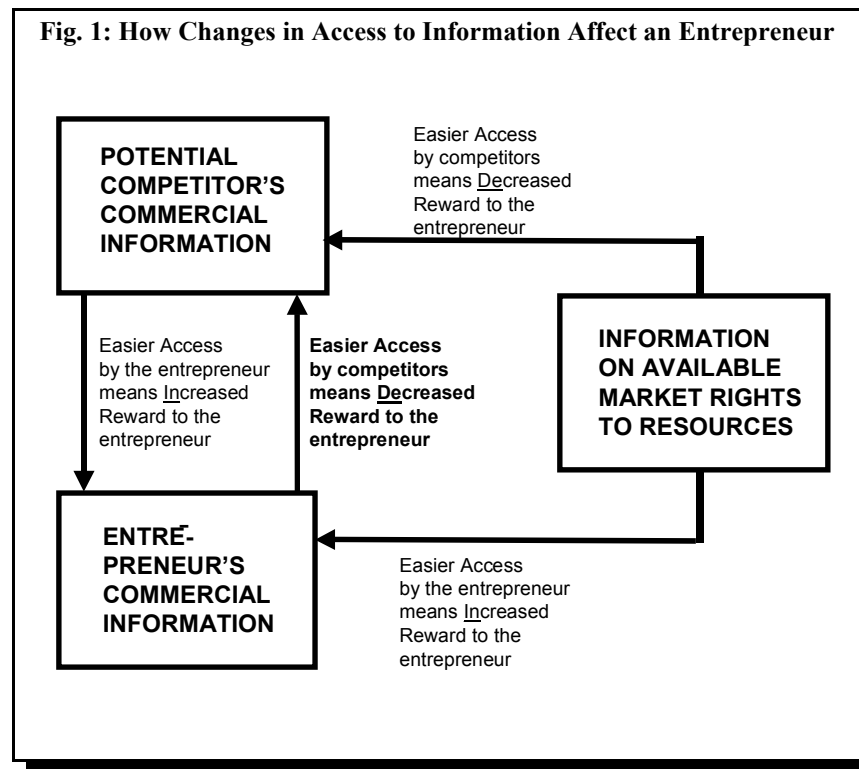
Of course, the potential competitors of the entrepreneur can protect themselves through these same institutions. To find their commercial information, an entrepreneur has an incentive to break down these very institutions upon which the entrepreneur also relies. A legal system which is not firm and equal-handed in protecting these institutions effectively may hand an entrepreneur a monopoly by exposing commercial information of any potential competitors. Unequal ability to protect commercial information is a form of information asymmetry, which can compromise the potential for competition within a market.

ENTREPRENEURIAL BEHAVIOR

Because secrecy of commercial information and the opportunities to reallocate resources last only for a short time, an entrepreneur typically has only a short window of opportunity in which to achieve rewards. A parsimonious entrepreneur is able to respond faster to such opportunities and being the first or gaining "priority" in finding ways to reallocate resources. A parsimonious entrepreneur can also be more successful in appropriating rewards by using "intuition" about where to look for opportunities.

The entrepreneur can increase the chances of gaining "priority" by searching in areas not being searched by others. Casson develops a theory about how entrepreneurs distribute themselves in an environment. His conclusion:

> By and large, entrepreneurs wish to avoid searching areas of information that other entrepreneurs are searching into… the greater the number of entrepreneurs searching in a given area, the lower the probability that any given one of them will be the first to make a discovery (Casson, 1982).

While Casson justifies entrepreneurs' tendencies to avoid each other on the basis of the probabilities of making a given discovery, such a tendency is reinforced by the difficulty of achieving any reward when it is not possible (a) to prevent competitive discoveries or (b) to preempt imitators. Because even two competitors in the same area can eliminate each other's rewards when they implement competing re-allocative plans, they can be expected to avoid searching in the same area.

Using Hayek's description of how the mind works, it can be presumed that entrepreneurs develop a model for choosing where to search that avoids any area that others might choose. If Hayek is right about the desire to minimize conscious decision-making, we can presume that entrepreneurs develop an intuitive sense that pushes them away from searching in places where others might search. We might call this intuitive mental modeling "contrarian." Such a contrarian intuition might come from early experience of being unwilling to compete in the same areas with others. For example, a poor student might learn very early to avoid becoming the victim of academic competitions and develop the entrepreneurial intuition to focus

on non-academic pursuits. Many stories of entrepreneurs begin with poor grades in school.

While entrepreneurs are contrarian, they are not misanthropic. Ultimately their enterprises depend upon making a market for the firm that exploits any commercial information they might discover. That means they must understand their potential customers and what their customers need. Such knowledge would not contradict an entrepreneur's desire to avoid competition and adopt a contrarian position. The contrarian position might well be a second best response adopted after very careful study and experience of the way a community works and an acceptance of the need to maintain distance and independence from the community. With such study and experience of a community an entrepreneur might well gain the knowledge that would be invaluable in establishing a successful market-making firm.

Casson recognizes that "followers" of entrepreneurs undermine the entrepreneur's ability to achieve rewards for discovery. The role of the followers is to fill niches left by the entrepreneurs who have made the discoveries of commercial information. Such followers intuitively mimic the entrepreneurs' actions rather than being contrarian. Casson describes the role they play:

> The less able entrepreneurs, when in competition with the more able entrepreneurs, stand no chance of achieving priority in discovery…their main economic function is to act as potential followers. Occasionally they may act as leaders in areas where pre-emption of discoveries is impossible. In either case they will, of course, obtain no reward. Their only chance of reward lies in areas that offer gains to priority, but provide too little opportunity to attract any of the more able entrepreneurs. Here, less able entrepreneurs may be found sheltering under the disinterest of the more able entrepreneurs (Casson, 1982).

Consistent with Hayek's limited knowledge thesis, entrepreneurs can be expected to rely heavily on their own experience and the information that they are learning in their current activities. Since entrepreneurs coordinate resources, the focus of their entrepreneurial discoveries is likely to be in the area of resource coordination, specifically the constraints preventing successful resource coordination. To the extent they are blocked from achieving success, entrepreneurs

have to focus their activity and spend time to relieve the blockages. In doing so they are likely to discover opportunities that will relieve the blockages that face other entrepreneurs. For example, Casson indicates that market-making firms rely heavily on communication and transportation assets. If some flaw prevents quick communication, entrepreneurs will find they are blocked by the flaw and will attempt to relieve it. In doing so, their solution may be marketable to others whom need a design cure for the same flaw. While an entrepreneur has an incentive to avoid competitors, an entrepreneur developing a market-making firm, may want to serve a critical mass of other entrepreneurs. In other words, entrepreneurs can be expected to relieve the constraints facing other entrepreneurs, a behavior we might call "opportunity from the ashes."

There is little to keep an entrepreneur loyal to the entrepreneur's own enterprise. As a firm ages it is likely to become more complex, require a greater information and knowledge base, involve more stakeholders and stockholders, require more time and energy, face greater competition that eliminates the rewards of the enterprise, and experience diminishing returns to the search for new information. All of these changes work to repel the entrepreneur who has limited desire or capability to acquire information, unwillingness to face competition either internal or external to the firm, and a desire to economize on decision-making. The market provides many ways for the entrepreneur to sell an enterprise and to move on to new discoveries. The entrepreneur can even sell off an enterprise to the imitators who would otherwise be the very people to eliminate the entrepreneur's ability to appropriate a reward for services.

MACROECONOMIC AND MICROECONOMIC PERSPECTIVES OF ENTREPRENEURIAL BEHAVIOR

Entrepreneurial behavior can be described both from a macroeconomic and microeconomic perspective. This paper is consistent in describing an evolutionary pattern of growth of a growing economy. Where successful entrepreneurial activity appears, it will tend to disperse as entrepreneurs initially avoid searching in each other's areas. Nevertheless their discoveries of "opportunities from ashes" are likely to relieve the very constraints they and other entrepreneurs face which will facilitate more entrepreneurship. Growth due to entrepreneurial activity is dendritic as "linkages" develop in the kind of unbalanced growth postulated by Hirschman, 1958. As entrepreneurs succeed, they sell their enterprises to followers and move on to search and link to areas of discovery that are close to what they already know.

From a microeconomic perspective, the dynamic entrepreneurial behavior defines a short product cycle that precedes traditional paradigms of product cycles. The entrepreneurial product cycle begins before a market has been created at a time when a market has not been envisioned and a product is not yet commercially viable- a condition which is conducive to an entrepreneur who has great tolerance for decision-making with limited information. The entrepreneur discovers the commercial information, which can be used to create a market-making firm. As the entrepreneur contracts for the market rights to resources required to implement the market vision, the commercial information becomes more widely known. As the market develops, more and more information is amassed, there is less to discover, the rewards to discovery diminish, and the followers who only succeed in mimicking what is already in the market compete away the rewards.

The entry of imitators and the awareness of the discoveries of other entrepreneurs may lead an entrepreneur to exit the market even before the product is commercially viable. The entrepreneur may move into tangentially rewarding related areas, particularly those that ease the constraints facing the entrepreneurs who remain in the original market. But as a market reaches maturity, even the followers of the entrepreneurs disappear from the market and belatedly seek what the original entrepreneurs are now doing elsewhere.

CONCLUSION

This paper has focused on the information capabilities and constraints facing an entrepreneur. It is quite consistent with subjective economic models by Schumpeter, 1934 and Hirschman, 1958 about the role of the entrepreneur in growing economies.

The entrepreneur, as viewed by this extension of Casson's and Hayek's work, may sound like many of the entrepreneurs about whom an extensive literature already exists. The early avoidance of school generally develops into a contrarian approach to competition. The entrepreneur specializes in making decisions, by economizing on decision-making. The entrepreneur is heavily dependent upon excellent intuition, is quite comfortable making choices with a minimum of information, and is likely to be perceived as making "snap judgments." However, an entrepreneur is not so much critical of abstraction and conscious thinking as parsimonious in using them.

Entrepreneurs develop and support spontaneously generating institutions that meet each other's information needs. The institutions that accommodate

entrepreneurs are capable of a delicate balance between letting entrepreneurs protect their commercial information while simultaneously making it easy to coordinate resource reallocation. With easy entry and exit and the means to protect commercial information, entrepreneurs can be expected to play roles at the earliest stage of a new product as they help create a market and then to exit as competition arrives. As competitors enter markets created by entrepreneurs, entrepreneurs often sell their enterprises to allow them to explore new discoveries. As they cycle through many markets, entrepreneurs disperse (a) to niches closely related to their own experience but gradually and dendritically (b) throughout a growing economy.

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THE VALUES OF SAFETY FACTOR OPTIMIZATION AND COORDINATION UNDER RANDOM SUPPLY AND DEMAND

Liu Jian
Huazhong University of Science & Technology, P.R. China
Yi Weiming
Huazhong University of Science & Technology, P.R. China

ABSTRACT

The classic inventory management dominantly pays attention to the internal inventory control of business, and is neglectful of supply chain coordination and partnering. The local optimization approach results in impeded logistics, cost increase, lack of business and supply chain competitiveness. Supply chain coordination and partnering become significant means to improvement of supply chain performance, enhancement of business competitiveness. The paper introduces concept of effective inventory level, which is used to evaluate upstream shortage's impact on downstream inventory, models the inventory at warehouse and retailer under random lead time and demand, and makes the global optimization of safety factor to minimize channel inventory cost. It is shown that optimization and coordination of safety factor lead to inventory cost savings at two sites, especially under large lead time variability and stock value-adding rate. Meanwhile, authors present the coordination mechanism of global optimization of safety factor, i.e., cost-sharing contract, which makes both supplier and buyer benefiting from global optimization. Finally, this paper makes sensitivity analyses on value of global optimization.

INTRODUCTION

Inventories exist throughout the supply chain in various forms for various reasons. At any manufacturing point, distribution warehouses and retailers, they may exist as raw materials, work in progress, or finished goods. Ballou (1992) estimates

that carrying these inventories can cost anywhere between 20 and 40% of their value per year. Inventory cost is a key factor that influences supply chain performance. Lee and Billington (1992) site several opportunities that exist in managing supply chain inventories. Among them are making coordinated decisions between the various echelons, incorporating sources of uncertainty, and designing proper supply chain performance measures. The central premise here is that the lowest inventories result when the entire supply chain is considered as a single system. Such coordinated decisions have produced spectacular results at Xerox (Stenross and Sweet, 1991), and at Hewlett Packard (Lee and Billington, 1995), which were able to reduce their respective inventory levels by over 25%.

Inventory systems are often subject to randomly changing environmental conditions that may affect the demand for the product, the supply, and the cost structure. The environment represents various important factors such as the randomly changing economic conditions, market conditions for new products or products that may be obsolete or any exogenous condition that may affect the demand as well as the supply and the cost parameters. Supply chain models in the literature that are related to uncertain environment mostly concentrate on the demand process, which may vary stochastically in a random environment. In most of the inventory models that involve uncertainties in the environment, the attention has been focused on the probabilistic modeling of the customer demand side. For example, large amount of literature have made qualitative and quantitative research on Bullwhip Effect of demand variability (Lee et al., 1997a, 1997b; Chen, 2000) and inventory collaboration under non-deterministic demand [Kefeng Xu and Yan Dong, 2000]. However, with economic globalization and intensification of competition, supply uncertainty increases apparently, which causes more and more important effect on supply chain performance. In previous literature, the uncertainty in the supply side has not received the amount of treatment it deserved. Up until the recent years supply uncertainty has received greater attention. In the literature, there is growing interest in models where an order that is placed may not be received due to uncertainty involved in the supply process. Parlar and Berkin (1991) propose an EOQ-type formulation where the supply is available or disrupted for random durations in the planning horizon. Parlar et al. (1995) consider a periodic review model with set-up costs using a Markovian supply availability structure in which the supply is either available or completely unavailable. They show the optimality of (S, s) policies where S depends on the supply state in the previous period. Gupta (1993), Parlar (1997) make extensions of the supplier reliability model incorporating random demand and multiple suppliers. Süleyman Özekici and Mahmut Parla (1999)

study infinite-horizon periodic review inventory models with unreliable suppliers where the demand, supply and cost parameters change with respect to a randomly changing environment. Bookbinder et al. (1999) probe into lead-time variability between successive stages in supply chain and effect of expedited orders on supply chain performance. Andersson and Marklund (2000) consider a model for decentralized inventory control in a two-level distribution system with one central warehouse and N non-identical retailers under random supply and demand. However, previous literatures assume that safety factor is given by the local optimization and have not studied safety factor's global optimization in supply chain. In addition, there is little literature on relationship between safety factor and supply uncertainty, demand uncertainty, inventory cost at different sites. Meanwhile, for making models tractable, some researches neglect variability in random delay caused by upstream shortages, and assume that shortage delay is constant. However, the approach impairs upstream shortage's influence on downstream inventory and reduces model effectiveness.

Our work differs from the previous ones in the sense that the effect of the upstream backorder viability on downstream inventory is considered and the global optimization of safety factor is made for reduction of supply chain inventory cost. Moreover, authors present cost-sharing contract, which ensures that both suppler and buyer benefit from the global optimization, and make sensitivity analyses on value of global optimization.

This paper is organized in the following way. In section 2, we pose all assumptions and notations. Section 3 describes two-level supply chain inventory model and section 4 approaches local and global optimization of safety factor. We put forward safety factor coordination mechanism in section 5. The numerical results are given in Section 6, which include model solution and sensitivity analyses. In section 7, we give some conclusions and point out some possible directions for future research.

MODEL ASSUMPTION AND NOTATION

The inventory system under consideration consists of one warehouse and one retailer. The replenishment lead-time for the warehouse and demand for the retailer are assumed to be normally distributed stochastic variables. Moreover, demands per period are independent. The transportation time between the warehouse and the retailer is assumed to be constant. When shortages occur at the warehouse, all demands from the retailers are fully backlogged and the backorders are filled

according to a FIFO-policy. We consider a stationary base stock (order-up-to) control system in which each site reviews its inventory level at the beginning of each period and replenishes its inventory from the upstream site to bring the inventory level to the base stock level. For clarity in the remainder of this paper, we refer to the length of a review period as one period (R: =1), which is regarded as time unit. Let us introduce the following notation:

μ	mean of demand during unit time for the and retailer	SW, SR	order-up-to level at warehouse retailer,
σ	standard deviation of demand during unit time for the retailer,	BW	backorders at warehouse,
		hw, hr	holding cost per unit per time unit at warehouse and retailer,
L	lead time for warehouse with mean L_0, standard deviation σ_L	pw, pr	penalty cost per unit per time unit at warehouse and retailer,
Y	demand during lead time at warehouse with Mean Y_0, standard deviation, σ_Y,	ICW, ICR	expected inventory cost at warehouse and retailer,
T	transportation time from the warehouse to the retailer,	TIC	expected channel inventory cost.
DT	demand during transportation time for the retailer,	SLW, SLR	service levels at warehouse and retailer.

MODEL DESCRIPTION AND ANALYSIS

Warehouse's Inventory Model

First of all, we analyze warehouse's demand process. Under stationary base stock policy, retailer's order per period is equal to downstream buyer's demand for it when the demands per period are independent and identically distributed (i.i.d.) random variables (Lee, 2000). Hence, demand process for warehouse is the same as one for retailer. Therefore, warehouse's demand during unit time is normally distributed with mean and variance 2. According to base stock policy, we obtain warehouse's expected inventory cost:

$$ICW = h_w \int_0^{SW} (SW - y) f_Y(y) dy + p_w \int_{SW}^{+\infty} (y - SW) f_Y(y) dy \qquad (1)$$

where *fY (y)* is probability density function for *Y*.

As demand during unit time for warehouse is normally distributed, demand *Y* during lead-time is normally distributed with mean Y_0, standard deviation σ_Y :

$$Y_0 = \mu L_0, \sigma_Y = \sqrt{L_0 \sigma^2 + \mu^2 \sigma_L^2} \qquad (2)$$

Order-up-to level at warehouse is

$$SW = \mu L_0 + k \sqrt{L_0 \sigma^2 + \mu^2 \sigma_L^2} \qquad (3)$$

where *k* denotes warehouse's safety factor.

Note that safety factor is the critical fraction of No stock-out. Safety factor *k* and service level (*SLW*) have the following relation:

$$k = \Phi^{-1}(SLW), \qquad (4)$$

where service level (*SLW*) denotes probability of No stock-out and $\Phi(\cdot)$ is standard normal cumulative distribution function. Substituting (3) into (1), we get (ref. Appendix):

$$ICW = [(h_w + p_w)k\Phi(k) - (h_w + p_w)G(k) - p_w k]\sqrt{L_0 \sigma^2 + \mu^2 \sigma_L^2} \qquad (5)$$

where

$$G(k) = \int_{-\infty}^{k} x f(x) dx < 0 \qquad (6)$$

f (x) is standard normal probability density function.

From expression (5), we know that warehouse's inventory cost increases in μ , σ , L_0, σ_L, which means that warehouse can reduce inventory cost through

partnering with external supplier to compress lead time or adding order frequency
to decrease demand during unit time.

Retailer's Inventory Model

For exactly showing impact of shortages at warehouse on retailer inventory,
we consider not only expected shortages but also shortages viability at warehouse.
So we propose the heuristic concept, i.e., effective inventory level (*EIL*), which is
defined as order-up-to level at retailer minus backorders at warehouse. *EIL* is
expressed as

$$EIL = SR - B_W. \tag{7}$$

Due to warehouse shortages, demand during transportation time *T* is only covered
by effective inventory level. So retailer's inventory cost is

$$
\begin{aligned}
ICR &= h_r E(EIL - D_T)^+ + p_r E(D_T - EIL)^+ \\
&= h_r E(SR - Z)^+ + p_r E(Z - SR)^+ \\
&= h_r \int_0^{SR} (SR - z) f_Z(z) dz + p_r \int_{SR}^{+\infty} (z - SR) f_Z(z) dz
\end{aligned}
\tag{8}
$$

where $x^+ = \max(0, x)$, $Z = B_W + D_T$, $f_Z(z)$ is probability density function of random
variable Z.
Note that demand D_T during transportation time is normally distributed. Moreover,
generally speaking, B_W is relatively small in comparison with D_{Tz}. So we regarded
Z as approximately normally distributed random variable with mean Z and standard
deviation Z (ref. Appendix):

$$\mu_Z = r(k)\sqrt{L_0\sigma^2 + \mu^2\sigma_L^2} + T\mu \tag{9}$$

$$\sigma_Z = \sqrt{U(k)(L_0\sigma^2 + \mu^2\sigma_L^2) + T\sigma^2} \tag{10}$$

where
$$r(k) = k\Phi(k) - G(k) - k \quad U(k) = 1 - H(k) + k^2\Phi(k) - k^2\Phi^2(k) - G^2(k) + 2k\Phi(k)G(k) \tag{11}$$

$$H(k) = \int_{-\infty}^{k} x^2 \varphi(x)\, dx \tag{12}$$

Retailer's order-up-to level is

$$SR = \mu_Z + l\sigma_Z \tag{13}$$
$$= r(k)\sqrt{L_0\sigma^2 + \mu^2\sigma_L^2} + T\mu + l\sqrt{U(k)(L_0\sigma^2 + \mu^2\sigma_L^2) + T\sigma^2},$$

where l is safety factor at retailer. Substituting (13) into (8), we get

$$ICR = [(h_r + p_r)l\Phi(l) - (h_r + p_r)G(l) - p_r l]\sqrt{U(k)(L_0\sigma^2 + \mu^2\sigma_L^2) + T\sigma^2} \tag{14}$$

From (14), we know that retailer's inventory cost increases in $\mu,\ \sigma,\ L_0,\ \sigma_L$. Note that $U(k)$ decreases in k. So retailer's inventory cost decreases in safety factor at warehouse. Therefore, inventory at retailer is affected by not only demand for itself but lead-time and safety factor at warehouse. Retailer's partnering with warehouse plays important role in reduction of its inventory cost.

POLICY OF SAFETY FACTOR OPTIMIZATION

Safety Factor Local Optimization

This section studies two kinds of safety factor optimization policy, i.e., local optimization and global optimization. We will compare the two policies to verify value of global optimization.

In the past, each business in supply chain makes the local optimization of safety factor to minimize its inventory cost, only attaches importance to its own inventory and doesn't pay attention to global performance in supply chain. Based on the local optimization policy, we use the first order condition for expression (5), (14) to get safety factors at warehouse and retailer under local optimization, denoted by $k^+,\ l^+$, respectively:

$$k^* = \Phi^{-1}[p_w/(p_w + h_w)] \tag{15}$$

$$l^* = \Phi^{-1}[p_r/(p_r + h_r)] \tag{16}$$

From (4), (15), (16), service levels at warehouse and retailer are respectively:

$$SLW^* = p_w/(p_w + h_w) \tag{17}$$

$$SLR^* = p_r/(p_r + h_r) \tag{18}$$

Under local optimization policy, service level at each site increases in penalty cost and decreases in holding cost. Substituting (15) into (5) to get warehouse's inventory cost under local optimization:

$$ICW^* = -\frac{G(k^*)h_w}{1 - \Phi(k^*)}\sqrt{L_0\sigma^2 + \mu^2\sigma_L^2} \tag{19}$$

Substituting (16) into (14) to get retailer's inventory cost under local optimization:

$$ICR^* = -\frac{G(l^*)h_r}{1 - \Phi(l^*)}\sqrt{U(k^*)(L_0\sigma^2 + \mu^2\sigma_L^2) + T\sigma^2} \tag{20}$$

Channel inventory cost is

$$TIC^* = ICW^* + ICR^* \tag{21}$$
$$= -\frac{G(k^*)h_w}{1 - \Phi(k^*)}\sqrt{L_0\sigma^2 + \mu^2\sigma_L^2} - \frac{G(l^*)h_r}{1 - \Phi(l^*)}\sqrt{U(k^*)(L_0\sigma^2 + \mu^2\sigma_L^2) + T\sigma^2}.$$

Because channel inventory cost TIC^+ is obtained by each site's local optimization of safety factor minimizing its inventory cost, in general, the optimal safety factors can't minimize channel inventory cost. This causes us to seek another safety factor optimization method, i.e., the supply-chain-oriented global optimization of safety factor.

Safety Factor Global Optimization

Since local optimization policy doesn't pay attention to supply chain coordination and partnering, it may result in high supply chain cost. With intensification of competition, competency of supply chain affects business' maintenance and development. Market competition has turned into one among supply chains. Improvement of supply performance becomes prevalent topic in business management. Therefore, it is necessary to study safety factor global optimization and coordination. The global optimization of safety factor is determination of suitable safety factor to minimize supply chain inventory cost, which is an effective approach to improvement of performance of entire supply chain.

From (5) and (14), we get supply chain inventory cost:

$$TIC = ICW + ICR$$
$$= [(h_w + p_w)k\Phi(k) - (h_w + p_w)G(k) - p_w k]\sqrt{L_0\sigma^2 + \mu^2\sigma_L^2}$$
$$+ [(h_r + p_r)l\Phi(l) - (h_r + p_r)G(l) - p_r l]\sqrt{U(k)(L_0\sigma^2 + \mu^2\sigma_L^2) + T\sigma^2} \qquad (22)$$

We regard the warehouse and the retailer as a system. This system aims at minimizing system cost on condition that system service level, i.e., retailer's service level is ensured.

For convenience, we assume that system service levels toward external customers under local and global optimization policies are the same. So retailer's service level and safety factor under global optimization are respectively

$$SLR^{**} = SLR^* = p_r/(p_r + h_r), \qquad (23)$$

$$l^{**} = l^* = \Phi^{-1}[p_r/(p_r + h_r)]. \qquad (24)$$

We want to minimize supply chain inventory cost, given system service level *SLR*. According to the first order condition, we have

$$\frac{\partial}{\partial k}(TIC) = 0. \qquad (25)$$

Subsisting l^{++} into (25), we get following equation:

$$\frac{((h_w+p_w)\Phi(k)-p_w)\sqrt{U(k)(L_0\sigma^2+\mu^2\sigma_L^2)+T\sigma^2}}{\Phi(k)r(k)}+\frac{G(l^{**})h_r}{1-\Phi(l^{**})}\sqrt{L_0\sigma^2+\mu^2\sigma_L^2}=0. \tag{26}$$

Solution of above equation, denoted by k^{++}, is optimal safety factor that minimizes channel inventory cost. However, we cannot get analytic expression of optimal safety factor k^{++} from equation (26). Therefore, we only find numerical solution of the equation when other parameters' values are given. In section of number study, we will calculate values of optimal safety factor through computer program, and make analysis on relation between optimal safety factor and other parameters. Based on equation (26), channel inventory cost can be reduced through global optimization of safety factor when system service level doesn't change.

Note that $G(l^{++})<0$. From (26), we get:

$$\Phi(k^{**})>p_w/(h_w+p_w)=\Phi(k^*). \tag{27}$$

so $k^{++}>k^+$. Therefore, Heightening safety factor at warehouse contributes to reduction of supply chain inventory cost while system service level is preserved.

SAFETY FACTOR COORDINATION MECHANISM

The global optimization of safety factor requires warehouse's heightening safety factor, which lead to increase of warehouse's inventory cost. For urging warehouse to participate in global optimization, retailer must make compensation for warehouse's cost increase. In other word, warehouse and retailer must make a cost-sharing contract so that both parties benefit from global optimization (Cachon et al., 2000; Moses et al, 2000). We assume that channel inventory cost is shared by fraction *a*, called as sharing factor. After sharing, inventory costs that warehouse and retailer really bear, denoted by $RICW^{++}$, $RICR^{++}$ respectively, are

$$RICW^{**}=a\Pi C^{**} \tag{28}$$

$$RICR^{**} = (1-a)\Pi C^{**} \tag{29}$$

For making both parties to participate in global optimization, sharing factor a must satisfy

$$\begin{cases} RICW^{**} < ICW^{*}, \\ RICR^{**} < ICR^{*}. \end{cases} \tag{30}$$

From (28), (29), (30), we get sharing factor 's feasible interval:

$$(1 - \frac{ICR^{*}}{TIC^{**}}, \ \frac{ICW^{*}}{TIC^{**}}) \tag{31}$$

Sharing factor's feasible interval length is

$$d = \frac{TIC^{*} - TIC^{**}}{TIC^{**}} \tag{32}$$

The expression (32) shows that sharing factor's feasible interval length increases in savings of channel inventory cost under global optimization. Therefore, the larger cost savings under global optimization is, cost-sharing contract has more choices. The compensation that retailer pays warehouse is

$$t = RICR^{**} - ICR^{**} = (1-a)\Pi C^{**} - ICR^{**} \tag{33}$$

After sharing, savings of inventory cost at warehouse and retailer are respectively

$$\Delta ICW = ICW^{*} - RICW^{**} = ICW^{*} - a\Pi C^{**} \tag{34}$$

$$\Delta ICR = ICR^{*} - RICR^{**} = ICR^{*} - (1-a)\Pi C^{**} \tag{35}$$

Based on cost-sharing contract, global optimization benefits both warehouse and retailer. So cost-sharing contract ensures that global optimization becomes a practicable means to reduction of inventory cost.

NUMERICAL STUDY

Value of Safety Factor Optimization

Through numerical study, this section reports the results that evaluate value of global optimization and its sensibility to related parameters.

Let

$$\mu=12, \sigma=3, L_0=16, \sigma_L=4, h_w=1, h_r=2, p_w=3, p_r=8, T=4 \tag{36}$$

We use above model to get the results in table 1.

Table 1: Value of Safety Factor Optimization							
Local optimization	k^+	l^+	SW^+	SR^+	ICW^+	ICR^+	TIC^+
	0.67	0.84	225	72	62.9	52.3	115.2
Global optimization	k^{++}	l^{++}	SW^{++}	SR^{++}	ICW^{++}	ICR^{++}	TIC^{++}
	1.22	0.84	252	62	71.0	33.2	104.2
Cost sharing	a's feasible interval			a	t	$RICW^{++}$	$RICR^{++}$
	(0.50,0.61)			*0.55*	*13.7*	*57.3*	*46.9*
Notion: a. authors assume that a is equal to 0.55, which depend on negotiation between supplier and buyer in practice. b. k^{++} is numerical solution of the equation(26), which is obtained through Mathematica program.							

From table 1, warehouse's order-up-to level increases and retailer's one reduces after global optimization. In particular, channel inventory cost reduces through global optimization. The declining-rate of channel inventory cost is:

$$r = \frac{TIC^* - TIC^{**}}{TIC^*} = 9.5\% \qquad (37)$$

From(34), (35), savings of inventory cost at warehouse and retailer are: ΔICW=5.6 □, ΔICR=5.4. Inventory costs at warehouse and retailer reduce by 8.9% and 10.3%, respectively. This shows that the global optimization based on cost-sharing contract can reduce inventory cost at warehouse and retailer.

Effect of Lead-time and Demand Uncertainties

We set $\sigma = 1, 3$; $\sigma_L = 2, 4, 6$. Values of other parameters are the same as ones in expression (36). Note that safety factors at retailer and locally optimized safety factor at warehouse aren't affected by σ, σ_L. So $l^{++} = l^+ = 0.84$, k^+=0.67. According to above model, we get the computational results in table 2. From table 2, declining-rate r of chain inventory cost increases in σ_L and decreases in σ. This means that the larger lead-time uncertainty is and the smaller demand uncertainty is, the larger values of safety factor's global optimization is. Moreover, the global optimization still has superiority over the local one under small demand uncertainty. For example, when $\sigma = 3$, $\sigma_L = 2$, channel inventory cost reduces by 6.9%, which is advantageous to improvement of business performance and competitiveness.

σ	σ_L	k^{++}	SW^+	SR^+	SW^{++}	SR^{++}	TIC^+	TIC^{++}	ΔTIC	r (%)
1	2	1.26	208	62	223	57	55.9	50.0	5.9	10.6
	4	1.29	224	71	254	61	109.8	97.4	12.4	11.4
	6	1.30	240	81	286	65	164.1	145.3	18.8	11.5
3	2	1.14	210	63	223	58	65.8	61.2	4.6	6.9
	4	1.22	225	72	252	62	115.2	104.2	11.0	9.5
	6	1.26	241	82	284	66	167.8	150.1	17.7	10.5

Table 2: Effect of Lead-time and Demand Uncertainties

In addition, effect of lead-time variability on order-up-to level at warehouse and retailer is larger than that of demand variability. Therefore, control of lead-time variability is especially important to reduction channel inventory cost. This shows that warehouse must partner with its external supplier to reduce lead-time uncertainty.

Effect of Warehouse's Cost Parameters

Let h_w = 0.5, 1; p_w = 1, 3, 5. Similarly, values of other parameters are assumed to be the same as ones in (36). Safety factors at retailer are: $l^{++} = l^{+} = 0.84$. The computational results corresponding to different cost parameters at warehouse are shown in table 3.

From table 3, declining-rate r of channel inventory cost decreases in holding cost per unit h_w and shortage penalty cost per unit p_w at warehouse. Therefore, when cost parameters are fixed, the smaller cost parameters at warehouse are, the more effective global optimization is. In addition, order-up-to level at warehouse decreases in holding cost per unit at warehouse and increases in shortage penalty cost per unit at warehouse, whereas order-up-to level at retailer increases in holding cost per unit at warehouse and decreases in shortage penalty cost per unit at warehouse. This indicates that effect of cost parameters on order-up-to level at warehouse is contrary to that on order-up-to level at retailer.

Table 3: Effect of Warehouse's Cost parameters											
h_w	p_w	k^+	k^{++}	SW^{++}	SR^+	SW^{++}	SR^{++}	TIC^+	TIC^{++}	ΔTIC	$r\ (\%)$
0.5	1	0.43	1.50	213	78	266	59	89.7	65.8	23.9	26.6
	3	1.07	1.64	245	64	273	58	76.7	68.2	8.5	11.1
	5	1.34	1.74	258	60	278	57	74.6	70.1	4.5	6.0
1	1	0.00	1.00	192	93	242	65	122.0	97.6	24.4	20.0
	3	0.67	1.22	225	72	252	62	115.2	104.2	11.0	9.5
	5	0.97	1.36	240	65	259	60	115.0	108.7	6.3	5.5

Effect of Retailer's Cost Parameters

Let h_r = 2, 3; p_r = 3, 5, 7. Values of other parameters are the same as ones in expression (36). Since cost parameters, lead-time and demand standard deviation at warehouse are fixed, safety factor and order-up-to level under global optimization are: $k^+ = 0.67$, $SW^+ = 225$. The computational results corresponding to different cost parameters at retailer are shown in table 4.

Table 4: Effect of Retailer's Cost Parameters										
h_r	p_r	k^{++}	l^{++}	SR^+	SW^{++}	SR^{++}	TIC^+	TIC^{++}	ΔTIC	$r\ (\%)$
2	3	1.08	0.25	60	245	55	98.9	93.3	5.6	5.7
	5	1.16	0.57	67	249	59	107.5	99.2	8.3	7.7
	7	1.21	0.77	70	252	61	113.2	102.9	10.3	9.1
3	3	1.16	0.00	55	249	51	107.7	99.3	8.4	7.8
	5	1.26	0.32	62	254	54	119.7	106.9	12.8	10.7
	7	1.32	0.52	66	257	56	127.7	111.8	15.9	12.5

From table 4, declining-rate of channel inventory cost increases in holding cost per unit hr and shortage penalty cost per unit pr at retailer, which is contrary to that at warehouse. Hence, the larger ratio of retailer's cost parameters to warehouse's ones is, the larger value global optimization has. Note that cost parameters generally increase in value of stock. So global optimization is especially suitable to supply chain down that stock value-adding rate is comparative large. As postponement policy is increasingly applied to supply chain management practice, customizing activities are more and more close to end customers (Hoek, 1997). The distribution system will undertake more final processing and manufacturing activities, which make stock value-adding rate increasing. Therefore, under postponement policy, global optimization of safety factor is extremely contributive to reduction of distribution chain inventory cost. In addition, cost parameters at retailer affect order-up-to level. The larger cost parameters at retailer are, the higher order-up-to level at warehouse is. This means that warehouse not only want to control its cost parameters but also devote its energies to reducing cost parameters at retailer through the parties partnering.

CONCLUSION AND FUTURE RESEARCH

This study is mainly focused on values of safety factor optimization and coordination in two-level supply chain. We introduce definition of effective inventory level to incorporate upstream shortage's impact on downstream inventory into two-stage inventory model. Through modeling warehouse and retailer inventory, authors analyze relation between warehouse and retailer. From model analyses, it is known that safety factor, lead-time mean and variability affect inventory at retailer while demand at retailer impact inventory at warehouse. This

reveals that supply chain partnering and coordination are key means to reduction of both parties inventory cost. In traditional inventory policy, determination of safety factor is business-oriented local optimization, which doesn't pay attention to supply chain coordination to rest in high channel inventory cost. Therefore, we develop the global optimization approach to selecting safety factor. The optimal safety factor can be obtained by solving the equation (26) through Mathematica program. In comparison with the local optimization, the global optimization has apparent advantages in reduction of channel inventory cost, especially under large supply uncertainty or high stock value-adding rate in supply chain. For realization of global optimization, we propose the cost-shaving contract to ensure that both warehouse and retailer benefit from global optimization. Length of feasible interval of sharing factor increases in declining-rate of channel inventory cost. This means that the more effective global optimization is, the more choices cost-sharing contract has. In a word, Safety factor optimization and coordination will be effective in reducing inventory cost for the system of buyer-supplier channel as a whole, even without changing any cost characteristics of the channel or service level at the end market. Global optimization provides business manager with more opportunities for improvement of business performance. Nowadays, with intense global competition and quick change of economic environment, supply and demand uncertainty increases rapidly. Therefore, safety factor coordination will play important role in supply chain inventory control. Authors believe that it will receive surely more and more attention.

Just like most research, our analysis has limits. For instance, this paper assumes that demand and lead-time are stationary. In future, we will relax this assumption and study safety factor coordination under non-stationary demand and lead-time. In addition, we will extend two-level series supply chain to multi-level network supply chain, and further explore value of safety factor optimization and coordination.

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APPENDIX

Proof of Expression (5)

Proof. Let

$$\frac{Y - \mu L_0}{\sqrt{L_0 \sigma^2 + \mu^2 \sigma_L^2}} = X \tag{A.1}$$

Apparently, X follow standard normal distribution. Substituting (3) into (1) to get

$$ICW = (h_w \int_{-\infty}^{k} (k-x)\varphi(x)dx + p_w \int_{k}^{+\infty} (x-k)\varphi(x)dx)\sqrt{L_0 \sigma^2 + \mu^2 \sigma_L^2} \tag{A.2}$$

$$= (h_w k \int_{-\infty}^{k} \varphi(x)dx - h_w \int_{-\infty}^{k} x\varphi(k)dx + p_w \int_{k}^{+\infty} x\varphi(x)dx - p_w k \int_{k}^{+\infty} \varphi(x)dx)\sqrt{L_0 \sigma^2 + \mu^2 \sigma_L^2}$$

$$= (h_w k \Phi(k) - h_w G(k) + p_w (-G(k)) - p_w k (1 - \Phi(k)))\sqrt{L_0 \sigma^2 + \mu^2 \sigma_L^2}$$

$$= ((h_w + p_w)k\Phi(k) - (h_w + p_w)G(k) - p_w k)\sqrt{L_0 \sigma^2 + \mu^2 \sigma_L^2}.$$

Proof of Expression (9) and (10)

Proof. Note that

$$B_w = \max(0, y - SW) \tag{A.3}$$

From (1), (A.2), we readily get expected backorder at warehouse:

$$E(B_w) = \int_{SW}^{+\infty} (y - SW)f_Y(y)dy \tag{A.4}$$

$$= [k\Phi(k) - G(k) - k]\sqrt{L_0 \sigma^2 + \mu^2 \sigma_L^2}$$

$$= r(k)\sqrt{L_0 \sigma^2 + \mu^2 \sigma_L^2}.$$

So

$$\mu_Z = E(B_w) + E(D_T) \tag{A.5}$$

$$= r(k)\sqrt{L_0 \sigma^2 + \mu^2 \sigma_L^2} + T\mu.$$

From (A.3), we have

$$E(B_w^2) = \int_{SW}^{+\infty} (y - SW)^2 f_Y(y) dy \tag{A.6}$$

Similarly, substituting (3) into (A6) to get

$$\begin{aligned}
E(B_w^2) &= (L_0 \sigma^2 + \mu^2 \sigma_L^2) \int_k^{+\infty} (x-k)^2 \varphi(x) dx \\
&= (\int_k^{+\infty} x^2 \varphi(x) dx - 2k \int_k^{+\infty} x \varphi(x) dx + k^2 \int_k^{+\infty} \varphi(x) dx)(L_0 \sigma^2 + \mu^2 \sigma_L^2) \\
&= (1 - \int_{-\infty}^k x^2 \varphi(x) dx - 2k(-\int_{-\infty}^k x \varphi(x) dx) + k^2(1 - \int_{-\infty}^k \varphi(x) dx))(L_0 \sigma^2 + \mu^2 \sigma_L^2) \\
&= (1 + k^2 - H(k) + 2kG(k) - k^2 \Phi(k))(L_0 \sigma^2 + \mu^2 \sigma_L^2).
\end{aligned} \tag{A.7}$$

Variance of B_W is

$$\begin{aligned}
Var(B_w) &= E(B_w^2) - [E(B_w)]^2 \\
&= (1 + k^2 - H(k) + 2kG(k) - k^2 \Phi(k))(L_0 \sigma^2 + \mu^2 \sigma_L^2) \\
&\quad - (r(k)\sqrt{L_0 \sigma^2 + \mu^2 \sigma_L^2})^2 \\
&= U(k)(L_0 \sigma^2 + \mu^2 \sigma_L^2).
\end{aligned} \tag{A.8}$$

So

$$\begin{aligned}
\sigma_Z &= \sqrt{Var(B_w) + Var(D_T)} \\
&= \sqrt{U(k)(L_0 \sigma^2 + \mu^2 \sigma_L^2) + T\sigma^2}.
\end{aligned} \tag{A.9}$$

A MULTI-TIER STRATEGY FOR EDUCATING WEST AFRICAN YOUTH TO BUSINESS AND ENTREPRENEURSHIP

James R. Maxwell, Buffalo State College, SUNY

ABSTRACT

At the beginning of the new Millennium the problem of economic poverty which engulfed the continent of Africa through the entire 19th Century still exists. Traditional and modern scientific management theories still coexist with the belief that in a booming or normal economy, there should be high employment, economic wealth, growth, self-reliance, and very minimal poverty. However, the truth remains that significant global poverty still exists. The current employment rate of youth in West Africa is at a very high proportion compared to many other economic regions of the world. African governments have attempted to address this problem, but are always coming up short. Finding solutions to poverty problems will rid global society of its major problem. One of the enduring barriers to prosperity in an open-market economy is the failure to master the skills of Entrepreneurship. Therefore, prosperity for disadvantaged youths depends on, at the most basic level, an adequate supply of youth entrepreneurs. The purpose of this paper is to look at various options for creating youth entrepreneurial employment and to recommend viable strategies for implementation, micro-entrepreneurism, micro-credit/finance, non-governmental organizations (NGO's), and cooperative education.

INTRODUCTION

At the threshold of a new millennium, humankind remains confronted with unacceptable disparities in levels of economic and social development. Disparities and inequalities constitute a primary source of conflict and threaten peaceful relations between and within countries. These conditions must lead to a fundamental

rethinking of current approaches to development. The United Nations Department of Economic and Social Affairs recently collected data (United Nations Development Programme [hereafter, UNDP] 1997) which reveals the horrific extent of human poverty within the global community:

* Approximately 1.3 billion people are income poor, surviving on less than $1 a day;
* Almost 1 billion people are illiterate;
* More than 1 billion people do not have access to safe drinking water;
* Some 840 million people lack food security and must go hungry;
* Nearly 100 million people are homeless; and
* Approximately 800 million people are unable to receive health services.

The UNDP has posited that certain factors facilitate or inhibit human development or poverty. The women and youth issue suggests that nations that fail to provide opportunities for the advancement of its women and young generation doom them (as well as a significant portion of the nation's population) to relative poverty (Anand & Sen, 1995). For example in the case of women, the Report (UNDP, 1997) notes that fewer women than men worldwide have access to the institutions necessary to provide them with the land and capital required to establish a livelihood that supports them or their families (also see UN Chronicle, 1996). Research within the public policy and marketing field supports the contention that the poor often are deprived of resources (Hill, Hirschman & Bauman, 1996) and that poor women are subjected to negative stereotypes that exacerbate this deprivation (Hill & Macan, 1996). This discussion intimates that lower gender equity is associated with decreases in human development and increases in poverty.

West African youths are of no exception to the statistics. They are unemployed at alarming rates. African governments' have tried to address or solve this problem by promoting small business and entrepreneurial development enterprises (UNESCO, 1994). The problem with this tactic is that for small businesses and entrepreneurial firms to be successful they need one of the most precious resources available to businesses today, human resources. West African governments should be applauded for their efforts so far with the discovery and implementation of programs to initiate and develop entrepreneurial firms and small

businesses. These efforts however, are not enough. It is imperative that these governments provide the appropriate skills and training to the youth which favor entrepreneurship and small businesses.

Even though many West African countries have gained political independence, there continues to be widespread unemployment. Of the West African countries, Nigeria has the largest population in Africa (Rao, 1991). Approximately 11 million people work in the entrepreneurial and small business community. Nigeria established approximately sixteen Industrial Development Centers whose purpose is to develop and initiate entrepreneurs and small businesses (Tunde, 1991). Many other efforts have been made by African governments to provide vocational training and technical skills (Mbanda, 1991). The scorecard so far has been continued unemployment in these countries even with the vocational and technical training made available by their individual governments (Kao, 1991).

In 1997 there were over a billion people around the world living in poverty (UNDP, 1998). The poor economic deprivation among the "hyper poor" and hundreds of millions who try to survive on less than a dollar a day - are related complications. These include one or more of the following correlates: disease, political conflicts, little or no formal education, and environmental problems such as polluted water, toxic air, and so on (Brown, 1998; Byram, 1997; PAHO, 1998). While Americans in the 1990s have enjoyed a remarkable rise in income levels, lower unemployment rates, and cleaner air and water, many nations around the globe are worse off now than a decade ago.

To understand the relationship between poverty and living conditions, a multifaceted understanding of what it means to be poor is required. In one sense, the answer to the question "What does it mean to be poor?" is straightforward-having cash income below the official poverty line for a given family size. In a broader sense, the living conditions of the poor are difficult to measure both because annual cash income is only one factor related to living conditions, and because the poor are quite heterogeneous. For example, poor children have higher rates of various health problems and living and educational deficiencies, such as, inferior housing, inferior schools, less access to computers and educational materials at home. Inferior child care, higher rates of child abuse, higher rates of parental substance abuse, more frequent moves, more exposure to toxic chemicals and pollution, higher rates of lead poisoning, and other disadvantages define poverty.

In the United States, the poor are individuals and families whose incomes are below the poverty line, an amount defined as the annual proceeds required for meeting minimal material needs and creating opportunities for social participation

(Alwitt & Donley, 1996). As Blank (1997, 10) describes: The calculations of poverty lines [are based on the minimal amount of money that the U.S. Department of Agriculture estimate[s] a family of a given size need[s] to spend in order to maintain adequate nutrition, multiplied by a factor of three. Within the UN, the UNDP is charged by the Economic and Social Council to investigate poverty worldwide (Patterson, 1995). The UNDP (1997, p. 5) has championed a multidimensional approach to defining poverty and recognizes that it can mean more than a lack of what is necessary for material well being. It can also mean the denial of opportunities and choices most basic to human development which may lead to a long, healthy, creative life. Developing a multi-tier strategy for educating West African youth to business and entrepreneurship opportunities will help them to enjoy a decent standard of living, freedom, dignity, self-esteem and the respect of others. Poverty is tied to the concept of human development or advances within nations by the quality of life of their citizens.

FAILED STRATEGIES TO ALLEVIATE POVERTY

Traditional strategies for assisting the poor in West Africa have produced only fair results. The modernization programs of the 1960s in which industrialized nations attempted to economically ignite the Third World often failed because they contradicted indigenous cultures and values or they were too capital intensive to even succeed. For example, the Green Revolution of the 1970s attempted by the Nigerian government to superimpose Western agriculture methods by using large tractors and chemical fertilizers on less-developed countries, resulted in unintended outcomes such as rising cancer rates and depleted soil. In the 1980s, the World Bank, United Nations, and others emphasized a Bare Needs approach - health care, access to clean water, housing, and education. However, these efforts were enormously expensive and hard to sustain.

Rather than assume that the traditional Third World culture is a barrier to development, more recent thinking suggests that the old culture and the modern are not mutually exclusive. Not only might they co-exist, but they may interface and interact to the benefit of one another. Tradition may be a useful component in the process of change, modifying the methods of the change agent to achieve greater congruence and success in the end.

NEW MODELS OF ERADICATING YOUTH POVERTY
IN WEST AFRICA

Instead of the large-scale development strategies of the last 40 years, a new model has been to emphasize small, focused attempts. Huge, macro solutions are seen as inefficient, costly, and often wasteful when failure eventually occurs, exemplified by the problematic results of major donors such as the World Bank or the United Nations. Experts from such institutions often describe their projects in high-level abstractions, which seem ethereal to indigenous groups in the Third World. The new strategy carries out small, concrete projects, which the community can manage, grow, and improve, thereby impacting the members.

Over time, traditional development models have tended to be administered in top-down, extremely paternalistic, fashion in which experts act as custodians of the projects, treating participants as second class citizens, or mere charity cases. The result tended to be dependence, whether economic, industrial, or technical. Elites and their relatives generally perceived the community as a whole enjoying any improvements in quality of life.

CRITERIA FOR SUCCESS

Thus far, the traditional and current scientific management techniques have failed or yielded minimum results. Existing poverty alleviation strategies need to be reviewed in order to propose new models that will help the West African youths. For the purpose of this paper, a combination of strategies will be proposed. The micro-entrepreneurism, micro-credit/financing, non-government organizations (NGO's), and Cooperative Education need to be examined.

Micro-entrepreneurism

The first recommended strategy is to encourage micro-entrepreneurism, which differs from the everyday run of the mill factory, government worker, or non-governmental worker in an office to street survivors or street vendors providing goods and services. The micro-entrepreneurism should include the development of technical assistance centers that can provide training and consulting to potential micro-entrepreneurs, people in the informal economy who cannot obtain regular

employment in large companies, and particularly youths who demonstrate entrepreneurial spirits. It is a bottom-up method for generating an income, self-reliance and a new innovative path to earning a living and caring for oneself.

Even though many economists believe that this lead to underground or informal economy that is insignificant to a country's economy, it is in fact a growing phenomenon in certain emerging markets (DeSoto, 1989).

Social scientists have conceptually divided societies' economic activities into formal and informal sectors. The formal sectors are such activities as labor in a factory or government employment. On the other hand, the informal sectors are survival activities on the street as vendors or service providers. Historically, the informal or underground economy was essentially considered clandestine, operated by individuals or as family-based economic activities that provide little or no direct taxes to the state. These street vendors or so-called entrepreneurs make up for the lack of formal jobs in small businesses, Entrepreneurship, private industry or government.

The traditional economists view this type of economic activities as a phenomenon or a temporary reaction to natural or financial disasters (De Soto, 1989). Much research over the past decade points to the increasing significance of the informal economy as the vital means through which masses of the poor attempt to cope with life's unfairness by feeding their hungers and surviving one day at a time. The primary tool for self-reliance in the informal economy is training, consulting, and providing small amounts of credit. Even a small loan can make a significant difference.

Micro-credit/finance

The second recommendation of this multi-tiered strategy is micro-credit/finance. Micro credit/finance may be classified as small-scale loans of $30 to $100 that are accessible to the very poor, primarily in the less developed economy. With even a small amount of such capital, micro-entrepreneurship may be started, or perhaps expanded. According to a major World Bank study of global micro credit schemes there are in excess of nine hundred institutions in 101 nations today that offer micro credit to the poor. The organizations studied had been in existence at least three years and each had over a thousand clients. They include banks, credit unions, and numerous non-governmental organizations. Clearly, there are thousands more of newer, smaller such programs not included in the bank's analysis. But a sample of 206 of these 900 institutions indicated an aggregate loan

portfolio of almost $7 billion, totaling over 14 million small loans to people and their organizations, 53 percent of whom reside in rural regions around the globe. Within the sample group studied, 48 percent had been established in the 1980s and 21 percent since. Sixty organizations offered only individual loans, 42 offered loans only to solidarity groups of two to ten people, and 59 provided loans to village lending groups (10-50 people). The remaining institutions used a mix of target groups. On average, 65 percent of borrowers were females and 35 percent males. With respect to loan size, the average micro credit loan in Asia is $94, while those in Africa are just below $200, and just under $900 in Latin America. These findings thus reflect the GNP levels of various regions. By extending micro-credit capital to the poorest of the poor, millions of new jobs have been created among those languishing in extreme circumstances, thereby empowering individuals and families to gain a greater degree of control over their respective destinies (Paxton, 1995).

The method for obtaining credit is often referred to as Grameen or "village banking," as pioneered by a creative economist, Muhammad Yunus, in Bangladesh. In this strategy a non-governmental organization essentially offers small or "micro" loans for $25 to $50 to groups of villagers at market interest rates. They need no collateral, nor are they required to have a strong credit history. Instead, the borrowers as a group are jointly liable for paying off the interest and principal. Social pressure and trust function as powerful incentives for assuming one's own financial responsibility and personal accountability. In order for the directors to accomplish their goal of expansion, they decided to explore the possibility of creating a bank. The bank's primary purpose would be to serve the poor. The bank would also legally allow them to capture the funds required for rapid expansion. Funds could be generated from client savings accounts that would act as capital for expansion and at the same time offer a wider range of services to the customers (Glosser, 1994). Savings, as well as credit, is an essential part of development. Individuals, who cannot gain access to traditional financial institutions, because they lack the literacy to fill out the lengthy application forms or the minimum deposits for savings accounts, need a place to put their money. They too would like to have savings for a time of financial crisis. In a country where the inflation rate is between 10 and 20 percent, the poor need a secure place where their money can draw a reasonable rate of interest. This second strategy will provide the benefits.

Non-governmental organizations (NGO's)

The third strategic recommendation is the use of non-governmental organizations, to raise funds from private industry through donations and funnel them through various countries. For example, Enterprise Mentors International in Saint Louis, Missouri, run by American volunteers, who raised funds from private donations in the U.S. and channel them to Manila, Philippines. A U.S. board was established, largely consisting of Americans who had spent time in the Philippines and were concerned about the nation's future. At another level are small NGO's like Philippine Enterprise Development Foundation (PEDF), a non-profit technical assistance organization that this author helped establish in 1990 in Metro Manila. A PEDF board was simultaneously created in Manila made up of native executives, bankers, academics, and economists. It oversees a technical assistance center, hires indigenous staff members, and sets policy and strategy for the organization.

Based on a series of interviews in the U.S. and several in-depth trips to observe and provide training in the Philippines, the following picture emerges of how this NGO operates - a small-scale alternative to Grameen and Banco Sol. PEDF's focus is to enhance sound business practices among the urban poor so that participants will be able to create jobs and provide for their families. PEDF services include small business training, start-up assistance, referral services, field consulting, business environment analysis, walk-in services, the creation of business plans, and micro credit. Whether helping a potential client launch a new business or strengthening the capabilities of micro-entrepreneurs already opening, the primary issues addressed are growth, productivity, and profitability. The ultimate goal is to develop self-reliance of the poor, who previously had neither business training nor access to credit.

Likewise, similar structures were established in Guatemala City, a fresh change after decades of internal struggle, political oppression, and civil war. This NGO structure is known as Mentores Empresariales and it currently has a staff of six, including director, secretary, trainers, and consultants. While both NGOs in Latin America face the daunting task of combating ever-increasing poverty by millions of poor families, the gradual change is occurring for the better. These interventions in Latin America are attempting to discover new methods for developing the poor in the informal economy.

The third part of the strategy is co-operative education for a school-to-work transition program. The nature of this co-operative education program is to combine academic study with paid monitored and credit bearing work. It is based upon

experienced-based education (Bailey & Merritt, 1993). This co-operative education would be concentrated in the vocational areas of business, marketing, management, and industry. The program could be arranged to accommodate the individual, employer, and school staff. These co-operative programs would alternate days of the week of school with work. Students could work in the morning or afternoon being paid for their time and work. The co-operative youth or students would take traditional academic and vocational classes with non-co-operative education students, although particular courses may be recommended to the students by the co-operative coordinator. In addition, a good co-op program must include special related classes, in which students are able to reflect on and integrate their job experiences.

The funding for this would be specifically designed for the co-operative education program which could be minimally supported by NGO's, International Monetary Fund and the World Bank. In the most effective and common co-operative education model, a teacher/coordinator handles all the work placements, and teaches a course related to the students' work assignment. If apprenticeships or other school-to-work programs are to be a serious option, existing teachers must be trained for the coordinator role. This means creating in-service courses in African schools, which incorporate the content of the pre-service vocational education courses that were once delivered in teacher training institutions. These courses would give teacher/coordinators the skills to connect schools to the workplace, and would teach them how to develop objectives for curriculum, materials, student behavior, and institutional links, as well as their own effectiveness in all these areas (Armstrong, 1988).

Another viable option is creating in-service courses' which incorporate the content of the pre-service vocational education courses. These courses would give the productivity, and profitability. The ultimate goal is to develop self-reliance of the poor, those who previously had no business training or access credit.

CONCLUSION

The concept of three-tier strategy towards alleviating poverty and creating employment among youths in West Africa is a step to increase their likelihood of becoming successful entrepreneurs and small business owners. This would not only reduce unemployment, but increase the economic wealth of West Africa as its youth progresses. This is bound to have a positive domino effect on everything else within

the country (Todd, 1996). Micro-entrepreneurship and credit have definitely increased employment, women's and youth's upward mobility in many other developing countries. The potential downside is the possibility of increased workloads for youth and women working as micro-entrepreneurs in the underground and informal economy. This three-tiered approach of microism, microcredit and coop/school-to-work programs could be another solution to other serious social problems. The author recognizes that for entrepreneurship and small businesses to flourish, a reasonable infrastructure of service institutions in the financial, administrative, legal, and educational fields need to exist. Unfortunately, these and other social ills circumvent well throughout economic plans and strategies.

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NOTE

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STUDENT PERCEPTION OF ENTREPRENEURS: A CULTURAL PERSPECTIVE

W. Benjamin Martz, Jr.
University of Colorado at Colorado Springs
Thomas C. Neil, Clark Atlanta University
Alessandro Biscaccianti, Groupe ESC Dijon
Robert J. Williams, University of Plymouth

ABSTRACT

The purpose of this study is to compare the perception of entrepreneurs held by students across three cultures: America, France and United Kingdom. The 2002 Global Entrepreneurship Monitoring (GEM) Total Entrepreneurship Activity (TEA) report suggests that the three countries have different cultures concerning entrepreneurship. The basic conjecture is that if the entrepreneur activity is different across these countries, then the perception of entrepreneurs across these cultures will differ also. A questionnaire was created and distributed to students in the three countries under study as part of their curriculum. The resulting analysis of 258 questionnaires found support for the basic conjecture that the perception of entrepreneurship differs between countries and in the direction predicted by the TEA report; the US students perceived the entrepreneurship lifestyle better and aspired more to that lifestyle than did students from the France or the UK.

BACKGROUND

Overview

The Global Entrepreneurship Monitor (GEM) program is a truly ambitious project undertaken to "describe and analyze entrepreneurial processes within a wide

range of nations." (Reynolds et al. 2002). The 2002 GEM report gives some hints to the vastness of the sphere considered entrepreneurship. Data for the report was collected from 37 countries representing about 62% of the world's population. Interviews, surveys and compilation of standardized information contributed to the database. The objective of the GEM study is to provide a summary report on differences in global entrepreneurship activity at a national aggregate level.

The GEM researchers have created a composite index, Total Entrepreneurship Activity (TEA), to help with the comparison of entrepreneurship activity. The TEA is made up of nascent entrepreneurs (those workers involved with a start up) and of managers in companies that are less than 42 months old. This TEA index has been shown to correlate strongly with a whole battery of alternate measures for entrepreneurship including, but not limited to, actual number of start-up efforts, start up efforts creating new markets, opportunity-based entrepreneurship. In 2002, the US rated 11th, France rated 34th and United Kingdom rated 16th on the TEA.

The summary report includes a generic profile for an entrepreneur and a discussion of factors that seem to motivate entrepreneurs. In a ratio of 2:1, men are more likely to be involved with entrepreneurship than women. The most active age for entrepreneurs is 25-34 followed by the 18-24 when looking at those entrepreneurs that choose to enter entrepreneurship (opportunity entrepreneurs). The results of the expert focus groups used in the study show that three areas; government policies, cultural & social norms, and education & training dominated the discussions. The statistical results of the expert's data showed significant correlations (both negatively correlated) for only two areas; financial support and protection of intellectual property rights. Three socio-demographic characteristics that immerged, as indicators of likely entrepreneur activity were 1.) knowing someone that had started his or her own business in the past two years 2.) low fear of failure, and 3.) having the skills and ability to undertake a startup.

Defining Entrepreneur

Clearly, the GEM report defines entrepreneur activity with an extremely broad definition. However, there is no clear, consistent use of entrepreneur in the research. At least two scales, the Entrepreneurial Quotient (EQ) and the Entrepreneurial Attitude Orientation (EAO) (Huefner et al. 1996) have been developed to identify potential entrepreneurs. Some researchers simply equate new venture creation with entrepreneurship (Timmons et al. 1985). Others suggest that

there exists a fundamental distinction between entrepreneurs and small business owners (Carland et al. 1984). While profitability is a key in both psyches, confounding personal goals also influence the business owners. Begley and Boyd (1987) draw a distinction between the small business owners that created the new business and those that did not create, but have been hired to run the new business.

Several researchers suggest that entrepreneurs and managers differ in areas of basic personality traits, business competence and risk taking. Reynaise (1997) reports that entrepreneurs were generally more flexible to change than their manager counterpart. For Chandler and Hanks (1994), entrepreneurs excelled in identifying and taking advantage of opportunities while a competent manager did better delegating and coordinating tasks than did the entrepreneur. With regard to risk taking, Hisrich (1990) found managers operating to minimize mistakes while entrepreneurs were more willing to accept the risks associated with aggressive business decisions. Envick and Langford (2000) used the Five-Factor Model personality model to compare entrepreneurs and managers. Ultimately, they found managers to be more cautious and more team-oriented than entrepreneurs.

In reality, it seems more likely that there are ways to categorize entrepreneurs into subsets. Vesper (1980) uses potential entry strategies as a categorization tool to develop eleven potential categories. These include categories for entrepreneurs such as independent innovators, economy of scale exploiters and value manipulators. Shuman et al. (1982) produced a ten-category classification scheme based around how the entrepreneur gained control of the business. Some of their categories included successor in family business; independent, started from scratch, and acquirer. Rogoff and Lee (1996) synthesized their topology down to three categories: creators, inheritors and operators. For the purposes of this study, the definition of entrepreneur was simplified to: "a person who starts and runs their own business."

Culture

While the GEM studied operates at the global level, there have been several studies that deal with entrepreneurship at more narrow level of analysis. Fleming (1996) looked at the impact of entrepreneurial education in Ireland over a four year span. Characteristics such as "attitudes toward entrepreneurship" and "personal and family background" were evaluated. The results found that the students surveyed moved slightly toward a more entrepreneurial attitude and the levels of self employment (and those in smaller firms of less than 50 employees) had increased.

Abbey's (2002) cross-cultural study on motivation for entrepreneurship found significant differences between two cultures, one defined as individualist and the other collectivist, on desire for independence and need for economic security.

Box et al. (1995) evaluated Thai entrepreneurs by the performance of the companies they ran. This performance was significantly correlated with previous experience in entrepreneurial management; number of previous attempts, successful or not; and industry experience. Koiranen et al. (1997) analyzed the risk taking propensity between Finnish and American entrepreneurs and business managers. The results showed that Americans in the study were more willing to take risks than the Finns. Comparisons between American and Egyptian entrepreneurs (Parnell, et al. 1995) showed that American students had greater levels of perceived entrepreneurial education, entrepreneurial opportunities and confidence in taking advantage of the opportunities.

Cultures evolve as a consequence of other changes. Two such changes that impact entrepreneurship are technological change and business organizational change. Shane (1996) suggests the first and supports his contention with research that shows changes in the rate of entrepreneurship can be explained by corresponding rates of change in technology. Schrage (1990) suggests that managers need characteristics of the entrepreneur and the entrepreneur needs characteristics of the manager. He cites Robert Reich's (1987) proposition that challenges the myths about entrepreneurs being the "heroes" in today's business world. Reich suggests that there is no one best attitude or characteristic make-up for entrepreneurs. Furthermore, he argues the dichotomy is even more inappropriate as the business world moves to more of a team-based environment.

So, in total, entrepreneurship has been defined in broad and ambiguous ways. There have been many instruments with many more characteristics used to help categorize and compare entrepreneurs. The comparisons have been conducted at global levels and at country levels. The comparisons have been made looking for unique characteristics of entrepreneurs. Throughout the comparisons, several areas of interest have emerged. These include demographic characteristics such as gender, education level and age and cultural characteristics such as the perceived ability to succeed as an entrepreneur, the overall impression of entrepreneurs, the positive impression of the entrepreneurial lifestyle, and family experience.

RESEARCH STUDY

The purpose of this study is to look for cultural differences in the perception of entrepreneurs between American, French and United Kingdom cultures. The subjects are students and so, the primary area of interest centers on their perceptions of entrepreneurs. The perceptions of entrepreneurs will be influenced by the way a culture rewards or encourages entrepreneurship. The basic speculation then is that the more positive a culture supports entrepreneurship the more likely students will gravitate toward it as a career choice. This can be translated into more specific conjectures for further study.

-       Conjecture: If the GEM, TEA index is an accurate reflection of social characteristics of culture, then students from countries with higher TEA should score higher the perception concerning entrepreneurs and the entrepreneurial lifestyle.

-       Conjecture: Those students with higher ratings on entrepreneur lifestyle will aspire more to be an entrepreneur.

The research methodology used a questionnaire that was developed based upon several of the characteristics from the previous studies mentioned. Appendix A is a facsimile of the questionnaire with question numbers added for referencing purposes. The first section gathers information on gender, age and family experience with entrepreneurs. The second section contains twenty-nine statements requesting the subject to rate his or her level of agreement to the statement. These statements related to entrepreneurial lifestyle, education and ability, acceptance of risk, reputation of entrepreneurs and aspiration to become an entrepreneur. A 7-point Likert scale ranging from low, no agreement, to high, absolute agreement is used to record the rating. The statements were translated and checked for consistency.

The characteristics are more socially oriented than the GEM composite measure, TEA. The statements make claims about characteristics concerning the culture of entrepreneurship and were greatly influenced greatly by statements and questions used in the previous research cited. Culture includes norms based around beliefs and perceptions. Therefore, the questions were phrased in an attempt to extract the beliefs and perceptions students held about entrepreneurship.

All of the subjects responding to the questionnaire were in business school classes. These subjects were juniors, seniors and first year graduate students representing a wide variety of majors or areas of emphasis. The questionnaire was administered as part of general class discussions around the topic of entrepreneurship. However there are some differences.

The 66 US responses are from students at two different business schools in the United States. Both are four-year, AACSB accredited schools of business. One school is characterized, as a commuter-oriented while the other is more residential in nature. One is located in a major metropolitan center in the southeast United States and on its webpage claims to be, "a comprehensive, private, urban, coeducational institution of higher education with a predominantly African American heritage." The other is a member of a four-campus, statewide university system and has been ranked as one of the top Western-United States public universities.

There were 146 responses from French students. These students are all 1st year students; the US equivalent of junior year in an undergraduate program, enrolled in the course of entrepreneurship at ESC Dijon. The school is accredited by Conference des Grandes Ecoles, the French Council of the major Schools of Business and Management. The ESC Dijon curriculum is design to provide students with an international exposure to international business cultures, and two thirds of the courses are thought in one of the following three foreign languages: English, Spanish, or German.

The survey respondents from the United Kingdom were 2nd year undergraduate students studying at the University of Plymouth's small rural campus that accommodates the Faculty of Land, Food and Leisure. The University is rated as one of the top "new" universities in the U.K. and the faculty has received excellent ratings in its independent Teaching Quality Assessments. The students studying here, major in a diverse range of mostly rurally based subjects ranging from agriculture through environmental studies to international tourism management. Thus, their management modules are generally a minor component of their main programs of study.

The questionnaire was completed at the time of their final assignment for an autumn semester module entitled "Financial Management 2" which had combined a series of lectures, workshops and invited "expert" guest speakers related to developing a business plan for a new business venture. Thus, whilst the context was enterprise, the content related to business planning, budgeting, risk evaluation and raising finance.

RESULTS

After allowing for incomplete response sheets and removing those students from countries other that US, France, United Kingdom, the data set contains 258 usable questionnaires. There were 66 US, 146 French, and 46 UK responses. Overall, 58% of the responses were from males and 88% of the respondents were between the ages of 18 and 23. This age breakdown is slightly different that the GEM-TEA but given the purpose of the study, perception of students, it is appropriate.

The data was subjected to a one-way ANOVA and the results are displayed in Table 1. When categorized by nation, the responses for 19 of the questions proved significantly different (p. < .05) and their significances have been bolded in the table. This measure of significance means that there is enough difference between at least two of the categories to indicate that the answers from these three groups are different.

However, it is also important to know whether the higher (or the lower) value is significantly different from the other two. With SPSS, a Bonferroni Post Hoc test was run to compare all pairs of categories (US to France; Us to UK; and UK to France) and to determine if the values of one category were significantly different from the other two. Twelve of the 19 had one category that was significantly different from each of the other two. In the future these responses will be referred to as double-significant responses. These are identified in the table with a two-caret suffix (<< or >>). The two right-pointing carets (>>) are used to show that the value is significantly higher than both of the other two values when evaluated through the Bonferroni test. Conversely, the two left-pointing carets (<<) are used to designate a value that is significantly lower than the both of the other values for that question. For example, the responses creating the 5.03 value in Q8 was compared against the responses creating the 4.09 and the 3.87 values and was found to be significantly different from both and therefore has the 5.03>> designation.

Finally, where one category did not show statistical difference to both of the other categories, the two categories that did show a significant difference are marked with asterisks. These responses will be labeled single-significant. So, Q6 shows a significant difference (.000) between categories and the asterisks signify that the difference is mainly between the US and France categories.

In summary, the results show that the responses from 20 questions differ significantly between the three nation categories. In 13 of the 20, the difference

between one category is significant from each of the other two, implying a dominant (or recessive) double-significant response. In the other 7 questions showing significant differences, the difference can be attributed to a difference between two of the three categories. The responses to these 20 questions provide the information for discussion that follows.

Table 1: Three-way comparison of perception of entrepreneurs				
Variable	Nation			ANOVA (Signif.)
	US	France	UK	
(Q6) I believe being an entrepreneur would provide a good living	5.11*	4.24*	4.53	**.000**
(Q7) I believe becoming an entrepreneur would be easy	2.02	2.08	2.35	.392
(Q8) I aspire to be an entrepreneur	**5.03>>**	4.09	3.87	**.002**
(Q9) In general, I have heard good things about entrepreneurs	**4.88>>**	4.28	4.09	**.002**
(Q10) I would be comfortable running my own business	**5.30>>**	3.97	4.48	**.000**
(Q11) I believe that someone who runs his own business is successful	4.30	4.03	4.09	.542
(Q12) I believe there is a lot of risk in starting and running your own business	6.45	5.92	**5.20<<**	**.000**
(Q13) I believe an entrepreneur always has to be an inventor	3.42	**4.20>>**	3.37	**.004**
(Q14) I believe that entrepreneurs have to suffer a high number of failures before they are successful	3.67*	4.32*	3.65	**.009**
(Q15) I believe being a successful entrepreneur is just luck	2.24	2.20	2.61	.234
(Q16) I believe becoming a successful entrepreneur is simply having enough money to start	2.88	2.48	2.83	.125
(Q17) I believe it is too difficult for me to succeed as an entrepreneur	2.24*	2.86*	2.85	**.022**
(Q18) I believe there exists a standard entrepreneurial profile into which I have to fit	2.83	2.90	2.72	.775

Table 1: Three-way comparison of perception of entrepreneurs				
Variable	Nation			ANOVA (Signif.)
	US	France	UK	
(Q19) I believe the characteristics of entrepreneurs are innate traits and therefore cannot be taught or learned	3.33	3.64	3.52	.529
(Q20) I am willing to put the time in that it takes to be an entrepreneur	**5.03>>**	4.84	4.11	**.008**
(Q21) I would enjoy the lifestyle provided by being an entrepreneur	5.17*	4.30*	4.54	**.002**
(Q22) Being an entrepreneur would better my lifestyle when I retire	4.71*	3.82*	4.07	**.003**
(Q23) Being a successful entrepreneur would increase my wealth	**5.44>>**	4.36	4.43	**.000**
(Q24) Being an entrepreneur would positively impact my current lifestyle	**5.24>>**	4.63	4.13	**.001**
(Q25) I believe that being an entrepreneur would have a positive impact on the welfare of the region/country	4.85	4.64	**3.57<<**	**.000**
(Q26) I do not know anyone who could mentor/help me be an entrepreneur	2.52	2.75	2.74	.673
(Q27) I do not know any institutions within the university that could educate/qualify me be an entrepreneur	2.85	2.57	2.87	.442
(Q28) I do not know how I would get money to start a business	3.41*	2.89	2.28*	**.004**
(Q29) I believe that one needs a higher level of education than I have to be an entrepreneur.	2.17	2.64	2.43	.145
(Q30) I believe that one needs a specific education to be a successful entrepreneur	2.29	**3.23>>**	2.57	**.001**
(Q31) Someone who fails in starting a business is not an entrepreneur	1.70	1.55	**2.54>>**	**.000**
(Q32) I believe I should not rely too heavily on the government for my retirement	**6.06>>**	4.27	4.80	**.000**
(Q33) I expect to change jobs and occupation many times before I retire.	4.95	5.05	**3.93<<**	**.001**

Table 1: Three-way comparison of perception of entrepreneurs				
Variable	Nation			ANOVA (Signif.)
	US	France	UK	
(Q34) I prefer to work for well-established organizations rather than new firms	4.24*	3.54*	3.93	**.018**
>> (or <<) - This category is significantly higher (or lower) than BOTH of the other two				
* - These two categories are significantly different from each other but not from the third category				

DISCUSSION

First, items on the questionnaire hold together well. The reliability index, Cronbach's Alpha, shows a rating of .7045 for all 29 items, just over the minimum acceptable level of .7000. Second, the results track pretty well with the TEA ratings. The United States, which has the highest TEA rating of the three, 11th, does in general, have the highest ratings for perceived lifestyle and aspiration. Although it is interesting to note that the UK ratings appear closer the French ratings than to the US ratings as the TEA scores would predict. It also seems that the French and the UK subjects each have cultural factors on which they are the dominant player; education and risk-payback respectively.

Second, the responses to seven of the questions (Q8, Q10, Q13, Q14, Q22, Q33, Q34) straddle the scale's midpoint with at least one group on each side. Those averages less than 4.00 signify non-agreement and those averages over 4.00 suggest agreement. This dichotomy points a general disagreement on these topics and should be a source for future research.

Third, there are quite a few areas in which no differences were found. In general, the responses show that all three groups of students: see entrepreneurship as a challenging choice (Q7) but not too difficult to accomplish (Q17); see entrepreneurship more than just luck (Q15) or just having enough money (Q16); do know where to seek educational help (Q27); and, believe that they can find a mentor (Q26) but will have a tougher time finding the start up money (Q28).

The questions qualifying the three cultural perspectives are discussed next.

From the US Perspective

US responses represent 7 of the 13 double-significant responses and are part of all 7 single-single significant responses. Clearly, the US students are not relying too heavily on their government for retirement. The US students also believe that they world be comfortable running their own business. This result coincides well with two other significant responses (Q17 and Q20). The single-significant response (Q17) shows US students responded with lower perception of "difficulty to succeed as an entrepreneur" and Q20 indicates that they are more "willing to put in the time to be an entrepreneur." The US students prefer to work in well-established companies more so than the French students but, not more than the UK students (Q34). Interestingly, when compared to UK students, the US students report that they do not know where to secure money to start a business (Q28).

Six questions; Q6, Q9, Q21, Q22, Q23, Q34, revolve around the perceptions of the entrepreneurial lifestyle. In general, these questions reflect that US students had a more positive impression of the entrepreneurship lifestyle than the other two sets of students. In three issues; having heard good things about entrepreneurs (Q9), being a entrepreneur increasing wealth (Q23), and being an entrepreneur would have a positive impact on lifestyle (Q24), the US responses dominate both of the other responses. Finally, US students "aspire" to become an entrepreneur (Q8) more so than the other students report. It seems that the lifestyle factors may help encourage the US students toward a career in entrepreneurship.

This impression is supported with additional analysis. Using SPSS, the questions Q6, Q9, Q21, Q22, Q23, Q34 were combined into a single construct - LifeStyle. The reliability of this construct measured .8207 well above the .7000 suggested threshold (Kline, xxx). A correlation of LifeStyle to the responses on the aspire question (Q8) proved both strong (.650) and significant (p. < .000). In addition, the ANOVA analysis confirmed that LifeStyle was a double-significant response in favor of the US (Table 3).

Table 2: Three-way Comparison of LifeStyle - Composite Construct				
Variable	Nation			ANOVA (Signif.)
	US	France	UK	
LifeStyle - Composite of Q6, Q9, Q21, Q22, Q23, Q24	30.50>>	25.63	25.80	.000
>> (or <<) - This category is significantly higher (or lower) than BOTH of the other two				

From the French Perspective

The responses for the French students produce two dominate responses: Q13 and Q30. These two questions seem to measure more objective issues than some of the other questions. The French student believes, more so than both the US and the UK students, that entrepreneurs should be inventors (Q13) and that entrepreneurs need a specific education or curriculum to become entrepreneurs (Q30). Neither question Q13 or Q30 correlated significantly with the responses to the "aspire to be an entrepreneur" question (Q8) indicating that while significantly different they do not help a French student aspire to become an entrepreneur.

Other questions wherein the French responses were significant include Q14, Q17, and Q34. Interpreting these questions, French students believe that entrepreneurs are characterized by a high number of previous failures before they become successful (Q14); it would be difficult for them to succeed as entrepreneurs (Q17); and, they are less interested in working for well established companies (Q34). Finally, the lifestyle questions that showed the US students more positive (Q6, Q9, Q21, Q22, Q23, Q24), in turn, show the French students significantly less positive.

From the UK Perspective

The UK answers produced 4 double-significant responses; Q12, Q25, Q31, Q33 and 1 single-significant response. The double-significant responses imply that the UK students see less risk (Q12) and entrepreneurs producing less impact on region/country (Q25). The UK students seem less willing to accept failure for a successful entrepreneur (Q31) and from the results of Q33, UK students expect to change jobs during their careers less than the US and French students in this study. The single-significant response (Q28) implies that UK students are more aware of how to raise money for a new venture. Finally, none of the questions (Q12, Q25, Q28, Q31, Q33) proved significantly correlated to the "aspire to be an entrepreneur" question (Q8). Again, the analysis extracts responses that are unique to UK students, however, these items do not seem to influence a student's aspiration to become an entrepreneur.

The results support the two conjectures. US students report a more positive impression of entrepreneurship and aspire more to the life of an entrepreneur. While they acknowledge the risk of taking on starting a new business and do not seem sure of where to find venture capital, the US students still aspire to become entrepreneurs

more and are more willing to put in the time than their UK and French counterparts. French students recorded less positive results on the lifestyle questions in both the double-significant and single-significant responses. French students also believe that entrepreneurs need specific education to be successful and that entrepreneurs will tend to be investors. This implies a more limiting view of entrepreneurs by the French students. The UK students saw less risk in running a business and see less potential impact on the region/country from successful entrepreneurs. Interestingly, they consider starting a business a key determinant of an entrepreneur more than the other two groups. Finally, UK students expect to change jobs less often during their career than do students from the US or France. In total, the results unique to the UK imply that the students see less risk in starting a business but do not consider someone failing in starting a business as an entrepreneur. Table 3 summarizes the previous discussion and the next section of the paper provides observations.

Table 3: Summary Descriptors		
US	UK	France
More aspiration to be entrepreneur	Less perceived risk	Less positive on entrepreneurial lifestyle
Better perception of entrepreneurial lifestyle	Less potential positive impact on region	Entrepreneurs need special education
Less reliance on government	Desire less job change	Entrepreneurs should be inventors
More willing to put in time	Less forgiving of business failure	Many failures have to be experienced before being successful

Observations on Summary Descriptions

US - More aspiration to be an entrepreneur and Better perception of entrepreneurial lifestyle: The media hypes the entrepreneur in the US culture. Magazines such as Forbes, Inc. and Fast Company promote the individualism found in entrepreneurs. The icons of successful business entrepreneurs are everywhere. Since the 1990's entrepreneurship has been incorporated into business school curricula throughout the country. Organizations such as Junior Achievement and Students in Free Enterprise help students organize and plan startup businesses. All

of this activity certainly exposes the US student to more positive views of entrepreneurs. In turn, the aspiration level should increase.

US - Less reliance on government: US political parties have been discussing the Social Security program and its ongoing viability for decades. A 1998 national opinion poll (Bositis, 1998) found that 67% of the population thought the Social Security benefits would decrease by the time they retried and 72% believed that they would not see the money that they had paid into the system. This ongoing debate and perceptions of the availability of Social Security for retirement could help explain the responses found.

US - More willing to put in time: According to the US Bureau of Labor (2000), the average workweek in the US is now 42.1 hrs. Interestingly, over 30% of the "professionals and managers" worked more than 49 hours. It is easy to envision that US students would suspect an entrepreneur workweek to fall into this category. The fact that the responses show a willingness to put in this amount of time can only mean that the perceived value must outweigh any inconvenience this may cause.

France - Entrepreneurs should be inventors: This result could come from a way of thinking common to Latin people, that the condition to be successful (and to make money) is to do what has never been done before. In fact, when an individual fails in his/her business, the consequence is often social "marginalization." In addition, the legal system in Latin countries is designed to prohibit people from returning to business after bankruptcy. Another possible explanation is that starting a business based upon an invention may be seen as a sort of insurance.

France - Entrepreneurs need special education: This result may stem from the French elite educational system, organized around the Grandes Ecoles, which aim to train the top managers of the French private and public sector. Since Grandes Ecoles are usually specialized in a very specific field (civil engineering, business and management, agriculture, telecommunications etc…), students may believe that one condition to be successful in business it is to earn a diploma from a famous school specialized in the sector of interest. Therefore, to be an entrepreneur it would be necessary to be specifically trained in entrepreneurship.

France - Less positive on entrepreneurial lifestyle: This lifestyle issue may show differences based on the fact that an entrepreneur has to work a lot, and must devote his/her best energies to the new venture. This works against the French value of free time, as demonstrated by the 35 hours week working time. So,

entrepreneurship may be seen as more stressful for the individual and her/his family and therefore less appealing.

France - Many failures have to be experienced before being successful as an entrepreneur: In France, entrepreneurs face many difficulties in starting his/her business: red tape, regulations, lobbies, access to financial resources, social climate etc… Moreover, the French educational system does not encourage individuals who take initiative and behave in deviant ways, which is a main feature of an entrepreneur! Combined, the French students may see the chance of failure more likely and therefore more failures would occur before an entrepreneur becomes successful.

UK - Less perceived risk: A large part of the module content that preceded the survey was about how to develop a successful venture with presentations by bank managers and business advisors about the reasons for business failure etc. Many of the discussions were about good planning and management skills, developing a comprehensive business plan to judge the proposed venture before making the decision to proceed, and risk appraisal techniques for managing and limiting risk. This may have made the UK subjects more sensitive to this question: They understood there is risk (5.20 out of 7.00), but also understood how to work with it thereby dampening their response. It would be interesting to compare this group both at the beginning and at the end of the module.

UK - Less potential impact on region/country: Perhaps this indicates a perception of a more selfish personal gain rationale for being enterprising born of the Thatcher generation wherein personal gain drove motivation more so than did the wider benefits to society. Just as likely, it may indicate a less developed understanding of economics and the circular flow of money. Regardless of the underlying root cause, any positive economic impact from entrepreneurship has not registered as well with the UK subjects as it has with US and French subjects.

UK - Less forgiving of failures: In general Q31 (a single failure) and Q14 (multiple failures) join together to produce this impression. One explanation may tie back to the low risk factor. It may well be that the UK students believe that rigorous planning and management of the new business venture is more likely to lead to success than having an innovative business idea. This would mean that they consider a "failed" business is, and certainly multiple failures are, more likely due to poor management than because of a flawed business idea. As such, the unsuccessful person would not necessarily be perceived as an entrepreneur. The cultural difference in this case being that the subjects see running their own businesses as a

means of pursuing an interest in their subject area rather than running any business simply because it looked like a good business opportunity.

UK - Desire less job change: Q33 and Q34 combine to create this impression. This outcome may indicate a difference in beliefs about well-structured career pathways in the industries the subjects are likely to enter. The UK subjects see less job change and are more willing to work for large, well-established companies. This would reinforce the notion that they see their environment with more stable careers.

SUMMARY

In summary, a research project was undertaken to look for differences in student perceptions of entrepreneurship based upon culture. The Entrepreneurship Monitoring (GEM) Total Entrepreneurship Activity (TEA) report and other previous cultural research on entrepreneurship provided for the development of a questionnaire. The basic conjecture was that students in different cultures would show differences in their perception of and aspiration for entrepreneurs. The premise of the conjecture is that the TEA ratings show the level of activity within a country and the higher this activity the more likely the positive perception of entrepreneurs.

Students from three countries: United States, France and United Kingdom responded to the questionnaire producing a 258-response data set. Through statistical analysis, significant differences were found between the responses by the three groups on 20 questions. Thirteen of the 20 had one of the three groups significantly different from the other two thereby producing a clear difference. The other seven questions showed a significant difference due to only one pair of comparisons being significant. These questions were the basis for a discussion around cultural differences.

More detailed analysis found support for the conjecture that US students viewed the entrepreneurial lifestyle in a more positive way than either the French or UK students. US students also rated higher on their aspiration to become, and their willingness to put in time to become an entrepreneur, than the students from the UK or France. The lifestyle construct was found to be strongly and significantly correlated to the aspiration response.

Future research will need to tease out the relationships between the lifestyle and the other cultural differences suggested by the results. In addition, the finding is simply that higher TEA level of activity implies a higher perceived value of entrepreneurship. There is no claim that one culture or one level of activity is better

than another. Finally, it is left to speculation as to whether the country's culture drives the activity or the country's entrepreneurial activity drives the culture.

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APPENDIX A: Entrepreneur Questionnaire
This questionnaire is designed to help determine your impression of being an entrepreneur. These are your perceptions and cannot be judged right or wrong. All information is compiled at the aggregate level with no way of determining the identity of respondent.

Demographics:
(Q1) Sex (Circle) M F
(Q2) Age (Circle) <18 18-23 24-29 30-35 36-41 42-47 47+

(Q3) I have relatives who run/ran their own business (circle) [Yes] [No] If yes, how many (Q3a) _____			
Relationship 1. _____ 2. _____ 3._____ 4. _____			
Were/Are they successful (circle) Y N Y N Y N Y N			

(Q4) Number of friends/acquaintances you know who run/ran their own business _____
(Q5) Number of friends/acquaintances you know who would like to run their own business _____

Questions: For our purposes, an entrepreneur is defined as a person who starts and runs their own business. On the scale below, please register your agreement with the statements about entrepreneurs. A one (1) means no agreement; a seven (7) means absolute agreement

Statement	Agreement (circle)
(Q6) I believe being an entrepreneur would provide a good living	1 2 3 4 5 6 7
(Q7) I believe becoming an entrepreneur would be easy	1 2 3 4 5 6 7
(Q8) I aspire to be an entrepreneur	1 2 3 4 5 6 7
(Q9) In general, I have heard good things about entrepreneurs	1 2 3 4 5 6 7
(Q10) I would be comfortable running my own business	1 2 3 4 5 6 7
(Q11) I believe that someone who runs their own business is successful	1 2 3 4 5 6 7
(Q12) I believe there is a lot of risk in starting and running your own business	1 2 3 4 5 6 7
(Q13) I believe an entrepreneur always has to be an inventor	1 2 3 4 5 6 7
(Q14) I believe that entrepreneurs have to suffer a high number of failures before they are successful	1 2 3 4 5 6 7
(Q15) I believe being a successful entrepreneur is just luck	1 2 3 4 5 6 7
(Q16) I believe becoming a successful entrepreneur is simply having enough money to start.	1 2 3 4 5 6 7
(Q17) I believe it is too difficult for me to succeed as an entrepreneur	1 2 3 4 5 6 7
(Q18) I believe there exists a standard entrepreneurial profile into which I have to fit	1 2 3 4 5 6 7
(Q19) I believe the characteristics of entrepreneurs are innate traits and therefore cannot be taught or learned (i.e. initiative, willingness to take risks, creativity, innovative attitude)	1 2 3 4 5 6 7
(Q20) I am willing to put the time in that it takes to be an entrepreneur	1 2 3 4 5 6 7
(Q21) I would enjoy the lifestyle provided by being an entrepreneur	1 2 3 4 5 6 7

APPENDIX A: Entrepreneur Questionnaire	
(Q22) Being an entrepreneur would better my lifestyle when I retire	1 2 3 4 5 6 7
(Q23) Being a successful entrepreneur would increase my wealth	1 2 3 4 5 6 7
(Q24) Being an entrepreneur would positively impact my current lifestyle	1 2 3 4 5 6 7
(Q25) I believe that being an entrepreneur would have a positive impact on the welfare of the region/country	1 2 3 4 5 6 7
(Q26) I do not know anyone who could mentor/help me be an entrepreneur	1 2 3 4 5 6 7
(Q27) I do not know any institutions within the university that could educate/qualify me be an entrepreneur	1 2 3 4 5 6 7
(Q28) I do not know how I would get money to start a business	1 2 3 4 5 6 7
(Q29) I believe that one needs a higher level of education than I have to be an entrepreneur.	1 2 3 4 5 6 7
(Q30) I believe that one needs a specific education to be a successful entrepreneur	1 2 3 4 5 6 7
(Q31) Someone who fails in starting a business is not an entrepreneur	1 2 3 4 5 6 7
(Q32) I believe I should not rely too heavily on the government for my retirement	1 2 3 4 5 6 7
(Q33) I expect to change jobs and occupation many times before I retire.	1 2 3 4 5 6 7
(Q34) I prefer to work for well-established organizations rather than new firms	1 2 3 4 5 6 7

NOTE

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EFFECTS OF THE HISPANIC POPULATION
ON ARKANSAS SMALL BUSINESS

Don B. Bradley, III, University of Central Arkansas
Stephen Fryar, University of Central Arkansas
Damon Van Riper, University of Central Arkansas

ABSTRACT

The growth in population of Hispanics in Arkansas is a trend that business simply cannot ignore. Many businessmen are afraid to respond to the new market because they do not understand it or the people within it. Some Arkansans do not welcome these new guests. But, like it or not, Hispanics are here, and they are planning to stay. Not only are they working in our factories and production plants, they are starting their own businesses, buying our products, viewing real estate, and looking to start a new life in this land of opportunity. Instead of being uneasy, business should be excited at the influx of new customers. However, entrepreneurs should also be aware that while these people from Latin American may learn our language, live in our country, go to our schools, salute our flag and trade with U.S. dollars, they are different from us, and the differences affect how they will do business in Arkansas.

INTRODUCTION

The importance of the Hispanic population in Arkansas has recently increased as more immigrants from Latin America have come to the state seeking jobs. There are a myriad of aspects associated with the increased importance. In regard to the economic impact, the significance can be attributed to two considerations.

First, many of the Hispanic immigrants are willing to do work that many nonHispanic American citizens are not willing to do. To the Hispanic laborers, this

"undesirable" work is a better opportunity than they could have attained in their native countries. The second consideration is related to the growing Hispanic population and their purchasing power. Sales to Latinos contribute economically because members of the Hispanic population are likely to have a high Marginal Propensity to Consume (MPC).

The following study will focus on the Hispanic population in the state of Arkansas. This includes focus on the growth of this group of immigrants, public perception, the Hispanic labor force, and opportunities for small business.

GROWING HISPANIC POPULATION IN ARKANSAS

The Hispanic population in Arkansas is increasing dramatically. This fact has been studied, but perhaps the most definitive recent work is Jeralynn S. Cossman and Edward L. Powers' Winter 2000 article, "Dynamics of Hispanic Population Growth in Arkansas." According to the article, the 2000 Census showed there are approximately 86,866 Hispanics living in Arkansas, and this statistic is a dramatic increase over the 19,876 Hispanics counted during the 1990 Census (Cossman & Powers, 2000). The most recent numbers reveal a population that is almost four and a half times larger than counted in 1990 (Cossman & Powers, 2000). Therefore, a departure from the rest of recent history exists because the 19,876 Hispanics counted in 1990 represented a population only 1.1 times as large as the 17,904 counted in 1980 (Cossman & Powers, 2000). Nationally, Arkansas' 337 percent increase in total Hispanic population was second only to North Carolina's increase (Greico, 2003). The total U.S. Hispanic population increased from 22 million in 1990 to 35.2 million in 2000 (Grieco, 2003). Immigrants were 47 percent of the 13.3 million increase (Grieco, 2003).

The best way to assess the Hispanic population in Arkansas is to look regionally within the state. As of 2000, the largest Hispanic concentrations were located in the Northwest, Central, and Western regions (Cossman & Powers, 2000). The following Table 1 lists the populations in these regions. As indicated by the Table, more than 50% of Arkansas' Hispanics live in these three regions (Cossman & Powers, 2000).

Table 1: Hispanic Population in Three Arkansas Regions	
Region	Population
Northwest	30,354
Central	12,546
Western	11,372
Total	54,272
Source: US. Census Bureau; Cossman & Powers, 2000	

The next step is to analyze the Hispanic population in regard to Arkansas counties. Cossman and Powers (2000) state, "From a policy orientation, a better indicator of Hispanic impact might be found by considering the `saturation rate' or the proportion of the population who claim Hispanic ethnicity. In general, saturation rates tell a more moderate tale about Hispanics in Arkansas" (Cossman & Powers, 2000). Table 2 displays the counties with the highest saturation rates, and Table 3 lists the counties with the least saturation rates.

Table 2: Arkansas Counties With Highest Hispanic Saturation Rates	
Counties	Saturation Rate
Sevier	19.7%
Yell	12.7%
Carroll	9.7%
Benton	8.8%
Bradley	8.3%
Source: U.S. Census Bureau; Cossman & Powers, 2000	

Another method used to look at Hispanic growth in Arkansas counties is to analyze the impact of the Hispanic population on the population changes over the decade (1990-2000). For the decade, 55 of Arkansas' 75 counties experienced a net growth in population (Cossman & Powers, 2000). "Hispanic growth accounted for 100% of the net growth for four of these 55 counties (Bradley, Prairie, Sevier, and St. Francis)" (Cossman & Powers, 2000). For the remaining 51 counties, the average of new population growth in these counties that is attributed to new Hispanic

residents is 18.7% (Cossman & Powers, 2000). The following Table 4 displays the results for the 51 counties.

Table 3: Arkansas Counties With Lowest Hispanic Saturation Rates	
Counties	Saturation Rate
Arkansas	0.8%
Marion	0.8%
Ouachita	0.7%
Lawrence	0.7%
Fulton	0.5%
Source: U.S. Census Bureau; Cossman & Powers, 2000	

Table 4: Hispanic Growth as a Percentage of Total Growth, 2000		
Less than 10% of total growth	Between 10% &, 20%	20% or greater
Marion (1.8%)	Garland (10.1%)	Conway (20.3%)
Fulton (2.1%)	Craighead (10.3%)	Clark (20.7%)
Baxter (3.0%)	Independence (11.5%)	Benton (21.7%)
Perry (3.3%)	Cleveland (11.6%)	Cross (23.9%)
Izard (3.3%)	Crawford (11.9%)	Poinsett (25.5%)
Boone (3.3%)	Madison (12.4%)	Washington (25.7%)
Sharp (3.7%)	Montgomery (12.7%)	Pike (28.5%)
Saline (3.7%)	Searcy (12.9%)	Johnson (28.6%)
Cleburne (3.8%)	Lincoln (13.8%)	Carroll (34.0%)
Grant (4.3%)	Polk (14.1%)	Sebastian (41.0%)
Faulkner (4.5%)	Miller (16.8%)	Crittenden (41.4%)
Randolph (4.5%)	Drew (17.5%)	Pulaski (47.2%)

Table 4: Hispanic Growth as a Percentage of Total Growth, 2000		
Less than 10% of total growth	Between 10% &, 20%	20% or greater
Franklin (4.6%)	Lawrence (19.1%)	Scott (74.1%)
Stone (4.8%)		Yell (74.4%)
Greene (4.8%)		Hempstead (84.2%)
Lonoke (5.0%)		Howard (86.6%)
Newton (5.3%)		
Van Buren (5.4%)		
Hot Spring (6.3%)		
Logan (6.7%)		
White (7.1 %)		
Pope (8.2%)		
Source: U.S. Census Bureau; Cossman & Powers, 2000		

Sixteen Arkansas counties showed population growth at over twenty percent, while four counties had over seventy percent. Counties with the greatest growth were not necessarily the counties with the highest Hispanic populations. This seems to suggest that the growth is expanding into new areas of the state.

The distribution of Hispanic nationalities in Arkansas needs to be addressed. "While `Hispanic' may be a solid distinction for a small group it begins to lose its explanatory usefulness as the group increases in size" (Cossman & Powers, 2000). The 2000 Census determined Hispanic status nationwide, and by states. Table 5 lists results for Arkansas.

As indicated by the Table, the predominant Hispanic ancestry in Arkansas is Mexican. However, many of those of Mexican heritage did not come to Arkansas directly from their respective countries. Gazi Shbikat and Steve Striffler (2000), in their article "Arkansas migration and population," state "However, the vast majority came to Arkansas after having spent considerable time in other states, particularly California". This held true for the case study conducted on a Hispanic owned business.

Table 5: Self-Reported Ancestry of Hispanics in the U.S. and Arkansas		
Hispanic Ancestry	U.S. %	Arkansas %
Mexican	58.4	70.5
Puerto Rican	9.6	2.8
Cuban	3.5	1.1
Other	28.4	25.6
Source: U.S. Census Bureau; Cossman & Powers, 2000		

PUBLIC PERCEPTION

No matter where you go throughout the state, and in some areas in :particular, you can hear Spanish spoken and see "tiendas" catering to Hispanic tastes. Hispanics are a growing part of Arkansas' human landscape. But are they a welcome one?

Arkansas has many distinctions as a state in the U.S.A. We have been home to a former U.S. President, we are the birthplace of the world's largest retailer Wal-Mart, and have established ourselves in agriculture by being one of the top rice producers globally. But along with our good points are few bad ones. We have a heritage that could include a strong tradition of prejudice against people of other races. The 1957 Little Rock Central High School lockout is an example. The governor kept out black students at the time in an effort to prevent desegregation of public schools (http://www. centralhigh57.org/ 1). Racism and prejudice continued from that time through the 60s and 70s with public mobs protesting integration, and many cases of discrimination against African-Americans. Even today some underlying prejudice may exist, particularly toward Hispanics. On Nov. 3, 1998, Rogers gave the boot to 17-year incumbent Mayor John Sampier, a backer of innovative efforts to harmoniously integrate thousands of immigrant Mexican and Central American poultry workers into a previously all-white community. Challenger Steve Womack, a veteran of two terms on the city council, took 56 per cent of the vote after campaigning on a platform of "zero tolerance" toward illegal immigrants and insistence that legal newcomers "speak the language" and conform to community norms (http://www.steinreport.com/sampierl.htm 1). Womack's campaign strategy, while not necessarily racist, was a disturbing one for Hispanics, especially because it occurred in northwest Arkansas where Hispanic population growth has been the highest. Maria Hinojosa, a CNN correspondent who specializes

in urban affairs highlighted some of the difficulties faced by Hispanics after her visit to Rogers, Arkansas in 2001. Hinojosa reported that the growth of the Hispanic population in Rogers has been so rapid that it has given the native population very little time to adjust to the new demographics of their town. On the one hand, this means that they have not had time to organize against it, but on the other hand neither has there been time to adjust (http://www.cnn.com/COMMUNITY/ transcripts/2001/04/12/hinojosa/1). Surveys conducted by the University of Arkansas of families living in Northwest Arkansas show that the growth of Hispanics in their area is not necessarily appreciated. When asked about whether the growth in Hispanics in their area had been good for the area, not good for the area, or had not made a difference, 35.2% said bad while another 20.5% say both good and bad (http://www.uark.edu/misc/family/survey/survey. html 1).

Communications has been one of the primary areas of difficulty for Hispanics in Arkansas. "Well if their going to live in our country, they should learn to speak our language," is a common phrase heard among Arkansans across the state. And, although most Hispanics who move to Arkansas say that they want to learn English, they do not have very many resources available to do so. To their credit, some towns in Arkansas have stepped up the plate to help by offering English as a Second Language (ESL) courses at local community centers and within large businesses.

BUSINESS EFFECTS/ASPECTS

With the increasing Hispanic population, there are a multitude of effects on business. These effects are generally categorized as human resource, legal, ethical, and marketing concerns. Both small businesses and large corporate businesses are impacted in these areas. Therefore, business leaders need to be knowledgeable and proactive with their business practices as they relate to significant Hispanic demographics.

Human Resources

In regard to human resource concerns, the outreach, employment, and retention of Hispanics in corporate business needs to be addressed. Failure in this effort early on means that corporate businesses are "playing catch-up" at all levels

of their organizations. There have been studies conducted that have focused on Corporate America and their Hispanic human resource practices. An organization that has researched the aspect is the Hispanic Association on Corporate Responsibility (HACR).

A corporate culture that fosters Hispanic representation is developed at the top levels of corporate organizations. Therefore, it is useful to focus on the highest levels of corporate organizations. If Hispanic representation is not a top priority at those levels, then Hispanic representation will more than likely not be a top priority at other corporate levels. "Since 1993, the Hispanic Association on Corporate Responsibility has examined Hispanic representation at the highest levels of Corporate America" (Cabral, 2001). On October 18, 2001, the HACR released a study titled "2001 HACR Corporate Governance Study" (Cabral, 2001).

The HACR study revealed that there are more of the largest companies in the nation (Fortune 1,000 companies) are recognizing the need for Hispanic inclusion (Cabral, 2001). The study showed that 146 of the Fortune 1,000 companies have Hispanics on their boards (Cabral, 2001). This was an increase from 120 companies the previous year (Cabral, 2001). In terms of percentage, the study showed that Hispanics hold only 1.7 percent of all board seats in the Fortune 1,000 companies, up by one percent since 1993 (Cabral, 2001). The President of the HACR states:

> "In addition, 85 percent of all Fortune 1,000 companies have no Hispanic representation in their governing bodies - 854 of the largest companies in America doing business in our communities on a daily basis. And if we look at entire industries, 20 key industries have no Hispanic board members. Some of them include health care, sporting goods, food and grocery wholesalers, and securities firms. These industries represent 5 million employees and $1 trillion dollars in annual revenues" (Cabral, 2001).

An additional and interesting aspect indicated in the HACR study pertains to Hispanic women. According to the study, there has not been any real progress in the improvement of Hispanic women representation (Cabral, 2001). The rate of Hispanic women board members decreased from the previous year (Cabral, 2001). The percentage rate for the previous year was 15 percent, whereas the decreased rate was 14.5 percent (Cabral, 2001). There are large corporate businesses that are at the forefront in regard to Hispanic human resource practices. In 2002, the HACR

released another study titled. "HACR Corporate Best Practices: 2002 Hispanic Workforce." This study identified successful models to improve Hispanic representation that have been implemented by some of the largest companies in the nation (Hispanic Heritage,2002). Three of the thirteen companies included in this best practices study were McDonald's Corporation, Bank of America, and General Mills (Hispanic Heritage, 2002). There are numerous McDonald's restaurants in Arkansas, and additionally Bank of America has business operations in the state. "According to the study, McDonald's strategic approach to hiring, retaining, and promoting Hispanics has resulted in greater representation at all levels of the company" (Hispanic Heritage, 2002). McDonald's has developed groups that support Hispanic employees (Hispanic Heritage, 2002). These groups are the Hispanic Employee Networks, Hispanic Leadership Council, Hispanic Summits, and Hispanic Steering Committee (Hispanic Heritage, 2002). "All of these groups in one way or another support Hispanic employees with career development, and provide the company with valuable information on Hispanic issues" (Hispanic Heritage, 2002).

At the time the study was released, McDonald's efforts had outstanding results. Hispanics represented 29.3 percent of its workforce and 18 percent of its restaurant managers (Hispanic Heritage, 2002). "In addition, two of the three McDonald's USA presidents, and three of six McDonald's global presidents, are Hispanic" (Hispanic Heritage, 2002). The company also boasts representation in its governance (Hispanic Heritage, 2002). "Enrique Hernandez, Jr., chairman and chief executive officer of Inter-Con Security Systems, is a member of the board of directors" (Hispanic Heritage, 2002).

At Bank of America, corporate executives are increasing the Hispanic representation in their workforce pipelines through a job training and scholarship program (Hispanic Heritage, 2002). "The program has succeeded in bringing Hispanic talent as permanent employees and in encouraging low-income students to pursue a college degree" (Hispanic Heritage, 2002). Additionally, Bank of America's Youth Job Program brings together students with company executives and assigns them to a banking center where they receive job training. (Hispanic Heritage, 2002). "Upon completion of the program and graduation from high school, they receive a four-year $10,000 scholarship" (Hispanic Heritage, 2002). At the time of the HACR study, the program had served 315 students, of which 77 were currently enrolled, and among the program graduates, 26 percent were Hispanics (Hispanic Heritage, 2002).

Lastly, the number one cereal maker in the United States, General Mills, believes Hispanic representation in its workforce is imperative to ensure the continued success of the company (Hispanic Heritage, 2002). General Mills' successful recruitment strategy results from Chairman and CEO Steve Sanger's active and vocal support, the participation of Hispanic senior level employees, and the Hispanic employee network (Hispanic Heritage, 2002). General Mills emphasizes clear accountability on each human resource function in order to ensure the development of the Hispanic employee pipeline to higher-level positions, and the accurate measurement of results (Hispanic Heritage, 2002).

General Mills also has co-mentoring programs, and their Hispanic revisit weekend program encourages potential new hires to join the General Mills family of employees (Hispanic Heritage,2002). According to the HACR best practices study, a sound strategy for Hispanic inclusion in Corporate America's workforce should include the following aspects:

1.	Company CEO and senior management's commitment to Hispanic inclusion
2.	An articulated and well communicated rationale linking Hispanic inclusion to the company's vision
3.	Accountability measures for managers in meeting Hispanic inclusion goals
4.	Use of a measurement system to determine gaps and monitor progress in Hispanic inclusion
S.	Career development programs for high-potential Hispanic candidates to address pipeline issues
6.	Support of mentoring and Hispanic employee networks to boost recruitment and career development efforts
7.	A communication plan that explains Hispanic inclusion goals at all levels of the company
8.	Strong partnerships with Hispanic community organizations to further employment efforts
Source: Hispanic Heritage, 2002	

Hispanic representation in governance and at all levels of the workforce is an essential business practice (Cabral, 2001). Companies that have diverse executive

teams are more inclined to find business opportunities that are not obvious (Cabral, 2001). "Additionally, Hispanic consumers are more likely to purchase goods and services from companies that have embraced Hispanic inclusion" (Cabral, 2001).

Legal

Another feature associated business and Hispanics legal aspect. One such issue pertains to illegal Hispanic immigrants. Determining an actual number of illegal immigrants in a given locale is an extremely difficult undertaking. This is due to the fact that no documentation exits in regard to individuals who are illegal immigrants. According to the Immigration and Naturalization Service (INS) estimates, there were 27,000 illegal immigrants residing in Arkansas as of 2000 (FAIR, 2003). This was also shown in the year 2000 census. Many of these illegal immigrants are Hispanic, and are arriving to work in the poultry industry and construction jobs (FAIR, 2003). Arkansas' poultry industry is the largest industry in the state.

Organizations in Arkansas' poultry industry and construction businesses have to be very cognizant of the legal ramifications of hiring illegal immigrants. The Immigration Reform & Control Act of 1986 (IRCA) made it illegal for employers to "knowingly" hire undocumented workers (National Immigration Law Center, 2003). Tyson Foods, Inc., the world's largest poultry producer based in Springdale, Arkansas, has learned that the lack of due diligence in its hiring practices with Hispanics is a costly mistake. On December 19, 2001, Tyson Foods, Inc., and six of its managerial personnel were indicted by a Chattanooga, Tennessee Federal Grand Jury. The charge was conspiring to smuggle illegal immigrants across the Mexican border to work in Tyson's processing plants (Barboza, 2001). On March 26, 2003, a federal jury acquitted Tyson Foods and three of the managers of the charges in spite of the fact that two of the other three managers reached a plea agreement and testified that they were doing what the company demanded by hiring illegal immigrants (Poovey, 2003). Even though Tyson Foods was acquitted, there was a cost associated with the ordeal. Tyson Foods incurred significant legal bills and negative publicity.

There are several reasons for the growing number of Hispanic immigrants (both legal and illegal). Growth of the poultry industry in Arkansas may be one. The consumer demand for poultry products is high, leading to an intense rivalry for market share among producers in the industry. The fight for profits means that poultry producers are focused on distinctive competitive advantages. One key

advantage is being the organization with the lowest operation costs. Since poultry processing is relatively labor-intensive, there is a propensity to "slash" labor costs. One way to do this is to hire immigrant workers. "Today, the processing and packing plants are largely staffed by low-paid non-union workers from places like Mexico and Guatemala. Many of them start at $6 an hour" (Barboza, 2001).

Another reason for the Hispanic immigrant (legal and illegal) growth in the poultry industry is associated with the fact that poultry producers have a difficult (if not impossible) time finding workers to work at certain "undesirable" jobs that are a part of the poultry production process. One such job is "live hanging." Non-Hispanic citizens simply do not want to do this type of work. Hispanic immigrants are willing to work at "undesirable jobs" because Hispanic immigrants are seeking "opportunity," and even though certain poultry jobs are "undesirable," the job attractiveness aspect is more than likely outweighed by the "opportunity" aspect. Hispanic immigrants usually have migrated from zero to very little opportunity, so the burgeoning Arkansas poultry industry consisting of producers desperate for workers, provides a level of opportunity for Hispanic immigrants. Enrique G. Murillo, Jr., in his essay, "Only the Labor is Welcome Not the Entire Human Being: The Racialized Experiences of the New Latino Diaspora," covers the poultry producers/Hispanic immigrants aspect. Murillo, Jr., states:

> "Latino immigrant laborers have filled the gap in needed unskilled labor due primarily to the local large-scale poultry-processing industry's responses to the processes of national and global restructuring that have transformed occupational structures. As previously noted, it is these economic processes, fostered by a changing configuration of immigration legislation that encourage and sustain immigration, rather than the influx of immigrants themselves, that has created the concentration of immigrant workers in certain industries and jobs" (Murillo, 2001).

The large meatpacking organizations stated on December 21, 2001 that they would work to ensure that they were not hiring illegal immigrants (Barboza, 2003). The organizations have always maintained that it is a difficult task to accomplish (Barboza, 2003). Industry experts though, have asserted that it has long been believed that American food companies recruit in Mexico and knowingly hire illegal workers (Barboza, 2003). "But industry and government officials say that, for better

or worse, foreign-born workers are now one of the most vital elements in the American food and agriculture system" (Barboza, 2003).

Ethical

There are ethical considerations when dealing with Hispanic immigrants. One ethical concern involves the working conditions that Hispanic immigrants encounter. The poultry industry in Arkansas and other states is notorious for having sub-par working conditions in terms of safety and cleanliness. "The poultry industry's illness and injury rate is more than twice the national average" (Poultry.org, 2003). "According to the United Food and Commercial Workers (UFCW), one in five poultry workers is seriously injured on the job" (George, 2000). Many Hispanic immigrants take some of the nation's most dangerous jobs because those jobs were the only jobs they could get (Hopkins, 2003).

Besides the poultry industry, another industry in Arkansas that Hispanic immigrants (legal and illegal) are increasingly working in is the construction industry. With the economic "boom" in Northwest Arkansas and Central Arkansas, construction of highways and buildings has exponentially increased. Nationally, by 2001, Hispanics11% of all workers-held 17.4% of construction jobs (Hopkins, 2003). According to the Pew Hispanic Center, about 57% of the USA's estimated 1.1 million Hispanic construction workers are illegal immigrants (Hopkins, 2003). This industry needs to be scrutinized because of the alarming Hispanic immigrant fatality rate. According to the Occupational Safety and Health Administration (OSHA), nationwide construction-related accidents accounted for 31.5% of Hispanic fatalities in 2001, up from 20.3% in 1992 (Hopkins, 2003).

There are reasons for the high Hispanic fatalities in the construction industry that need to be addressed. First, inadequate training of Hispanic immigrants occurs because of language barriers. Many construction business owners and supervisors do not know how to effectively communicate with Hispanic workers. Another reason is the fact that Hispanic immigrants are often too scared of losing jobs to press for safer working conditions (Hopkins, 2003). "They also worry about employers making threats, such as `be quiet or we'll turn you in' for deportation" says Peg Seminario, director of safety and health at the AFL-CIO (Hopkins, 2003).

The construction industry and governmental agencies are starting to take notice of the alarming fatality rate, but it is very unfortunate that action had not occurred earlier. Utility Contractors, a construction business in Wichita, Kansas, has seen the need, and taken action. (Mazzullo, 2001). The President, Chuck Grier, has

made a point to learn Spanish, and since he is not fluent, he has hired an assistant who speaks Spanish (Mazzullo, 2001). Patti Sullivan, director of human resources for the company, says "it's gone beyond speaking the language. Newsletters and birthday cards are sent to native speakers in Spanish; insurance and 401 (k) paperwork is translated; and all safety meetings are held with Spanish available" (Mazzullo, 2001). In February of 2003, Labor Secretary Elaine Chao announced that her department will seek $13 million to promote and facilitate better training of workers who are faced with language barriers (Wist, 2003). Most of these efforts will initially focus on the construction industry (Wist, 2003). OSHA's web site contains a Spanish-language page with information about OSHA's mission, how to electronically file work-related complaints, worker and employer rights and responsibilities, and a list of resources (Pittman,2003). Another ethical aspect concerning Hispanic immigrants regards wages. Since many Hispanic immigrants are working in the poultry industry in Arkansas (and other states), the Hispanic immigrants encounter unethical pay practices. In Abosede George's article, "UFCW Joins Alliance Seeking Justice for Poultry Workers," George states:

> "Workers throughout the poultry industry, mostly African American, Latinos, and increasingly immigrants, are routinely cheated out of already meager wages (usually less than $7 an hour) by supervisors who fail to pay for the time it takes to put on, take-off and clean required safety and sanitary gear. This time amounts to about one hour per day, per worker, and totals about $100 million a year in lost pay" (Geroge, 2000).

In 2000, the U.S. Department of Labor's Wage and Hour Division (WHD) conducted an investigation-based survey of 51 randomly selected poultry processing plants located throughout the U.S., which led to the finding that there was across-the-industry non-compliance under the Fair Labor Standards Act (FLSA) (National Interfaith Committee, 2003, 1-2). The following were the results of the survey:

Type of Violations	Percentage of Plants in Violation
1. Unpaid hours of work	100%
2. Mis-classified exemptions	65%
3. Impermissible deductions from pay	35%
4. Bonus payments not included in OT	8%
5. Child labor violations	4%
6. FMLA violations	4%
Source: National Interfaith Committee, 2003	

Poultry producers have made denials in the past, but the above results show that the denials were more than likely incorrect. The court system has been involved with this matter. The U.S. Supreme Court decided the *Hoffman Plastic Compounds, Inc. v. National Labor Relations Board* case (March 27, 2002) (National Immigration Law Center, 2003). As a result of the decision, undocumented immigrants have limited remedies available (National Immigration Law Center, 2003). One year since the decision, the following is the status of undocumented immigrants' rights:

Right to Unionize - Undocumented workers/immigrants continue to be employees under the NLRA and thus enjoy protections from unfair labor practices, but they are not entitled to back pay, regardless of whether the employer knew the worker/immigrant was undocumented at the hiring stage.
Right to Minimum Wage and Overtime - Undocumented workers/immigrants continue to be protected by the Fair Labor Standards Act (FLSA) and state wage and hour laws for "work already performed."
Right to Be Free From Workplace Discrimination - Undocumented workers/immigrants continue to be protected by the American with Disabilities Act (ADA), Age Discrimination in Employment Act (ADEA), Equal Pay Act, and Title VII of the Civil Rights Act prohibiting employment discrimination based on race, national origin, gender, and religion.
Right to a Healthy and Safe Working Environment - Undocumented workers/immigrants continue to be protected by the Occupational Safety and Health Act (OSHA) and the Mine Safety and Health Act.
Source: National Immigration Law Center, 2003

Marketing

Marketing to Hispanics is also a very important business activity. As of 2001, the annual purchasing power of Hispanics was $560 billion (Cabral, 2001). "The Santiago Solutions Group reports that Hispanic purchasing power is expected to hit the $675 billion mark in 2003, $928 billion by 2007, and $1.2 trillion by 2010" (Association of Hispanic Advertising Agencies, 2003). According to the Selig Center, the top ten states as ranked by the rate of growth of Hispanic buying power over 1990-2002 are as follows:

1.	North Carolina	912%
2.	Arkansas	778%
3.	Georgia	711%
4.	Tennessee	655%
5.	Alabama	466%
6.	South Carolina	463%
7.	Nevada	443%
8.	Minnesota	418%
9.	Kentucky	415%
10.	Iowa	370%
Source: Association of Hispanic Advertising Agencies, 2003		

As shown by the table, Arkansas is second nationwide in rate of growth and buying power of Latinos. Additionally, according to a study conducted by the Selig Center, the top areas where Hispanics spend more than non-Hispanics are: groceries, telephone services, furniture, men's and boys' apparel, children's clothing, and footwear (Association of Hispanic Advertising Agencies, 2003).

Although the Hispanic advertising industry has grown at a healthy rate since the late 1990s, there is room for significant growth (Valdes, 2003). "A 2002 study released by the Association of Hispanic Advertising Agencies (AHAA) reveals that the majority of America's top advertisers are significantly under-investing in their efforts to reach Hispanic consumers" (Valdes, 2003). The study indicates that in the past three years, nearly two-thirds of top companies targeting the Hispanic market invested on average less than 3.2 percent of their overall advertising budgets on

reaching the Hispanic market (Valdes, 2003). The organizations in the study that received the top scores approached or exceeded the recommended level of eight percent of their total advertising budget (Valdes, 2003).

There are organizations in Arkansas that have realized the significant and growing Hispanic market provides a tremendous marketing opportunity. One organization that has implemented a proactive strategy is the world's largest retailer, Bentonville, Arkansas based Wal-Mart Stores, Inc. Recently, Wal-Mart Stores, Inc., reached an agreement with Alliance Group Services Inc., a wholesale network provider (Long & Seals, 2003). The agreement is to market co-branded prepaid cards to Hispanics who want to call Mexico (Long & Seals,2003). Sales of the prepaid cards have taken off at Wal-Mart since they were introduced in south Texas on June 28, 2003 (Long & Seals, 2003). "The cards cost $10 for 103 minutes, and there are no additional fees or connection charges" (Long & Seals, 2003, 1). The cards are tailored specifically to Hispanics with Spanish instructions on the card and voice prompts "en Espanol" (Long & Seals,2003, 1). "The card is being sold at WalMart checkout counters and in the clothing, auto and food sections, with the latter being particularly significant" (Long & Seals, 2003, 2).

Wal-Mart has taken other steps to build brand equity among Hispanics. "WalMart began printing bilingual circulars and providing in-store translators" (Phillips, 2003, 2). Additionally, Wal-Mart analyzes the cultural breakdown of the communities it serves, and wisely tailors its merchandise selection (Phillips, 2003). For instance, Wal-Mart opened a Neighborhood Market on West New Hope Road in Rogers, Arkansas (WSL Strategic Retail, 2003). The Spanish influence is very evident, and can been by the selection of canned goods, sauces and flavorings, and even the decorations in the store (WSL Strategic Retail, 2003). The store speaks to the local community, which is heavily Hispanic; an example of Wal-Mart's Store of the Community strategy (WSL Strategic Retail, 2003).

There are other businesses in Arkansas that are focusing on the Hispanic market. One group of businesses are Arkansas grocers (businesses that totally sell grocery items). Arkansas grocers are carrying authentic Mexican products, cutting prices to rates significantly lower than the competition, and hiring bilingual clerks (O'Reilly, 2003). Meriam Turner, Affiliated Foods' manager of Hispanic marketing, states that 130 of Affiliated Foods' 400-plus stores target the Hispanic population (O'Reilly, 2003). Randy Weiss, director of marketing for Affiliated Foods Southwest Inc., states that Hispanic customers don't want the Americanized Mexican-food brands like Old El Paso (O'Reilly, 2003, 1-2). Weiss states, "The Hispanic customers we have are looking for the authentic brands they grew up with in

Mexico" (O'Reilly, 2003, 2). "Large grocery operations, such as Affiliated Foods' Harvest Foods outfit, stock more than 25,000 items, including up to 500 authentic Mexican items" (O'Reilly, 2003, 2). Lastly, smaller Arkansas discount grocers focus on the Hispanic market. Shane Vance, assistant manager at Save-A-Lot on Pike Avenue in North Little Rock, states, "If you look at all Save-A-Lot stores, they are basically in lower income areas; they are designed to appeal to that lower income market..." (O'Reilly, 2003, 2).

Lastly, Arkansas' banks focus on Hispanic consumers. Art Morris, President and CEO of Arkansas State Bank, hosted a cultural diversity workshop for the financial professionals at his Siloam Springs, Arkansas bank (Bemis, 2002). Morris states,

> "Cultural diversity training is important to our bank in order to give the proper service to all people, regardless of race. We are here to serve and that means service to everyone. People from other countries need assistance, many times more than those that are familiar with our customs" (Bemis, 2002, 1).

Bill Bowden's 2000 article, "Businesses Benefit from Hispanic Integration," addresses how First National Bank and Trust in Rogers, Arkansas, is targeting Hispanics. Roland Goicoechea, then vice president for mortgage lending, set up a system to give Hispanics credit (Bowden, 2000). "He establishes a $560 certificate of deposit in the name of the bank and the customer. The money stays in the bank, and the customer makes payments on it for six months. After that time, the loan is paid off, and the CD is available for the customer to use as a down payment on a house or for other purposes" (Bowden, 2000, 3). Goicoechea states, "They created their first credit history, and they have a CD that's worth $500" (Bowden, 2000, 3). The system has been lauded by the American Bankers Association and the Fannie Mae Foundation (Bowden, 2000, 3). "It's now being imitated by banks in other parts of the country" (Bowden, 2000, 3). Goicoechea further stated that First National Bank of Rogers makes a priority to see that 15 percent of its employees are bilingual (Bowden, 2000, 4).

The next section in this work will place a major focus on small businesses. Particularly, there will be coverage of the opportunities for small businesses in regard to the significant Hispanic population.

OPPORTUNITIES FOR SMALL BUSINESS

Case Study

On July 29, an impromptu interview was conducted by Stephen Fryar (co-author), of a Latino storeowner in Russellville, AR. The purpose of the interview was to obtain general information about small business for Hispanic oriented businesses, markets, and clientele. The owner of the Latino Market, Humberto Portillo, moved from El Salvador to California, and then to Arkansas several years ago. He first started as a worker on a chicken farm in Arkansas. He has built his business over the past year. Mr. Portillo's store is like many "tiendas" in Mexico or other parts of Central America. It is also reminiscent of the neighbor grocer in Middle America in the 1950s and earlier. The variety of goods included produce like Mangos and sliced prickly pear cactus (which are eaten in Mexico), spices used in typical Mexican dishes (e.g. azafran), Mexican candies, a wide selection of Hispanic music, cheeses, home baked breads, phone cards, and, Mexican laundry products (e.g. detergent). Based upon the conversation that ensued, and the inventory on hand, some general market characteristics were noted. His clientele, according to the storeowner, were all Spanish-speaking working class immigrants from many different countries in Latin America and other states within the U.S. The Hispanics come to the store because the products are familiar to them, says Humberto, "these are the things that they ate and used in their native countries"(as translated). Most of the products are shipped to the market from Texas, having arrived there from several different countries in Latin America. The shipping costs associated have raised prices considerably above the prices that Hispanics are used to paying for the same items at home. Still many are loyal to brand, and willing to pay a bit more for things that are familiar to them. The Latino Market does not only sell goods to remind Hispanics of home though, it connects them to home. Along with a menagerie of calling cards with special international rates, the owner of the store also does money wire transfers for his customers, a very important issue for the Hispanic community. Of interest as well are the numerous brochures and flyers for companies that offer products like international cell phones, or services such as bilingual assistance and English classes. Despite this wide array of potential profit making items, Mr. Portillo admitted that business for the most part was not very good. "Most of the Hispanics are in Dardanelle and Danville, not in Russellville," said Portillo, "there are two markets there that are doing well."(as translated) (Portillo, 2003). When asked about what kind of marketing the store

used to attract customers, the owner explained that he was very limited in what he could do because of finances and availability of a broadcast medium specifically aimed at Hispanics. "There is no newspaper written in Spanish for this area, with the exception of some classifieds," explained Portillo, "and radio is too expensive."(Portillo, 2003). There is only one radio station that broadcasts in Spanish for the Russellville area. Mr. Portillo further commented that he felt it was hard for a Hispanic in Arkansas to start his/her own business and make a profit at it. When he started his store, explained the owner, he could not get financing from the bank because, like many working class Hispanics, he didn't have any stable collateral. He didn't own a house or property at the time. In the end he hail to borrow the money from relatives. But, with the continued growth of Hispanics in and around Russellville, Mr. Portillo was hopeful that he could continue and grow his business.

General Impressions of Case Study

While limited in scope, this case study provides insight into what a typical type of small, Hispanic business faces in rural Arkansas. While the growth of population in Arkansas would seem to indicate a strong potential market, small business entrance into the market is fraught with difficulties. The study also showed many problem areas that could be opportunities for the right kind of business. To demonstrate this, it might be helpful to look at some of the small businesses already in existence that cater to Hispanics.

Newspapers

One of the difficulties faced by any businessperson wanting to tap into the Hispanic market is getting the word out about his/her company. Newspapers published in Spanish, and targeted at Hispanic interests give companies a medium to advertise, and are an open opportunity for entrepreneurs. One such newspaper is "El Latino" which is published by the National Association of Hispanic Publications (NAHP). This paper is circulated free of charge in Benton, Conway, Jacksonville, and Maumelle, Arkansas. Contents of the wo4Nay newspaper include news articles from Mexico, stories that relate to Hispanics in Arkansas, and numerous advertisements. The Small Business notes homepage recently reported that the NAHP and the Small Business Administration have signed a strategic alliance memorandum stating their commitment to work together to provide information and

resources to Hispanic publishers and small business owners across the nation (Small Business Notes, 2003). This will help businessmen in Arkansas advertise their product or service at a lower cost.

Other Media

Radio stations, while not widespread in rural areas, are very popular in larger communities where there is a strong Hispanic influence. The stations not only offer advertising for businesses, but also play hit songs from Latin America, and report on sports, especially Soccer, in Arkansas and in Latin America.

Cable companies in Arkansas have recently started providing access to a selection of channels broadcasted in Spanish. Comcast cable has one such selection advertised in "El Latino" newspaper. AETN has begun to air programs in Spanish on a monthly basis and plans to move to a weekly schedule if there is sufficient support from public and private sources. The programs will appear on television stations in Little Rock, Mountain View, Arkadelphia, Fayetteville, and Jonesboro (Leiderman, 2003). Today's THV, a news station which covers most of Arkansas, has also started broadcasting its news in Spanish through the Secondary Audio Program (SAP) function available on most TVs.

Thrift Stores

One category of small businesses that have done very well in Hispanic communities is thrift stores such as Goodwill and Salvation Army. The low price clothing sold at these stores appeals to many Latinos as an alternative to the higher cost department store brands. The overwhelming influx of Spanish speakers has prompted Goodwill, and many other thrift stores to employ bilingual workers to assist customers. Though many of these second-hand stores are non-profit, the market response of Hispanics to them indicates an opportunity for entrepreneurs. Dollar stores like Dollar General and Dollar Tree have also been popular in Hispanic circles, though big stores like Wal-Mart have made it difficult to compete in the retail industry.

SWOT ANALYSIS OF HISPANIC ORIENTED SMALL BUSINESS

A general look at a small business oriented toward Hispanics by analyzing strengths, weaknesses, opportunities, and threats reveals some important considerations for potential entrepreneurs.

Strengths

The strengths of a Latino focused business include a large and growing market base, Hispanic brand loyalty, and a market need for goods and services among Spanish speaking workers. Where there are jobs and low cost living for Hispanic workers, they will be there, and in many cases will congregate to form close knit communities. A business located in an area like this has a good chance of getting market share.

Furthermore, as shown in the first case study, consumers in this market like to buy the brands that they know from their native country. They are very loyal to certain brands. This tendency can help small businesses create a niche market and help them better plan their inventory. Market research on which brands are preferred is crucial in this area. Another related preference that can be an asset is the cultural and familial ties between Spanish speakers. They will go out of their way to visit a business where a friend or relative works.

Weaknesses

Though weaknesses will vary by the type of business or service industry, some general points about potential setbacks can be made based on the research done.

One of the first potential weaknesses in forming a small business in this market is the elasticity of demand. While it is true that brand loyalty plays a major part in Hispanic purchasing behavior, price is arguably the most significant factor. Many goods that newcomers to the state find are completely unknown to them, as are brands. Some brands that they are accustomed to are not even carried at stores. As many Hispanic workers are living on a limited budget, and/or are sending money back to their home country, they can be very frugal in their shopping. This creates a problem for businesses like Humberto Portillo's "Latino Market." Shipping costs from Mexico -to the U.S. force businesses like his to raise prices. The small number

of businesses carrying these products also raises costs as deliveries are often made on a custom basis.

For many Hispanic businessmen, lack of capital is a major limitation since financing is hard to obtain without stable collateral, and since there might be an underlying prejudice against them because of their ethnic. background. Anglo businessmen, on the hand, while they could have access to financing more readily, face the difficulty of dealing with another language and culture. Furthermore, Hispanics often prefer to deal with people from their own culture rather than an outsider. This problem may easily be avoided by employing Hispanics as "front men" to deal with customers.

Limited location is another weakness of this market. Though more Hispanics are coming into Arkansas, the number of cities or regions with a high saturation rate of Latinos is still relatively small. As observed by the businessman in the case study, stores located among higher density Hispanic populations are more likely to prosper. Selecting the right city and region is therefore extremely important.

Opportunities

Some of the most lucrative opportunities for small businesses lie in simply making their product or service available to the Hispanic market. Hiring people with Spanish language skills or cultural experience, advertising in Spanish, making store signage bilingual, acting upon current market research, and developing rapport with Hispanic customers and other Hispanic run businesses are all actions that can go a long way in opening up the Latino market for a business. Hispanics are relationship oriented. They are family focused. Many small Latino stores never advertise their presence in the community because they understand the effectiveness of "word of mouth" advertising in their culture.

There are numerous services and societal practices that are completely foreign to them or are closed to them because of language barriers. For the most part, Hispanics are very open to the American culture and want to learn and participate in it; they just don't know how. Business has an opportunity to help them learn, and by doing so gain a loyal customer.

Threats

Threats from big business are probably the most significant concern for entrepreneurs. You don't have to go any further than Wal-Mart to find a large corporation that can out compete about any retail store in the world. And Wal-Mart is responding to the growth of the Hispanic population, as mentioned earlier in this study. Leveraging their economies of scale, they can often sell the same or similar products at a lower price.

Another potential threat is the changing culture within the Hispanic community. Many second and third generation Latinos are forsaking their native language and culture to conform to American ideals. A business may still access the market, but they must be aware of the changing culture and needs of their clientele.

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