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COMPARATIVE ANALYSIS OF RURAL AND URBAN START-UP ENTREPRENEURS

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ABSTRACT OF THESIS

COMPARATIVE ANALYSIS OF RURAL AND URBAN START-UP
ENTREPRENEURS

This study investigates the reasons for apparent differences in entrepreneurship rates in rural and urban areas using a Survey of Rural Kentucky Residents (SRKR) and the Panel Study of Entrepreneurial Dynamics (PSED) data. We estimate the determinants of dissimilar characteristics for rural and urban areas in two aspects: one is individual and contextual resources; the other is cultural tendencies of resources.

The results of the analysis suggest that the difference in available individual, economic, and social support resources does not explain the observed difference in entrepreneurship rate. The results also indicate that gender, ethnicity, income, and number of children in the family have different effects on entrepreneurial intentions in rural and urban settings.

The results suggest that policy makers need to account for cultural or geographical differences when designing entrepreneurial educational and support programs in order to enhance the establishment of new business between rural and urban areas.

KEYWORDS: Start-up Entrepreneurs, Panel Study of Entrepreneurial Dynamics (PSED), Survey of Rural Kentucky Residents (SRKR), two sample independent t-test, Logistic model.

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COMPARATIVE ANALYSIS OF RURAL AND URBAN START-UP
ENTREPRENEURS

By

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December 14, 2011

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COMPARATIVE ANALYSIS OF RURAL AND URBAN START-UP
ENTREPRENEURS

THESIS

A thesis submitted in partial fulfillment of the requirements
for the degree of Master of Science in the College of
Agriculture at the University of Kentucky

By

Hyunjeong Joo

Lexington, Kentucky

Directors: Dr. Alison F. Davis, Associate Professor of Agricultural Economics

Lexington, Kentucky

2011

To my family

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This project reminds me of a Korean idiom "Well begun is half done." Dr. Helen Pushkarskaya showed me the way to start. Without her advice, I cannot even dream of writing a thesis. When I was lost, she helped me gladly and was a good model as a scholar as well as a teacher. When I went to AAEA meeting in July, I met my old friend. She said "A finished thesis is a good thesis." Without Dr. Alison, I could not finish my thesis. She led and supported me persistently to finish this work. I really appreciate her assistance.

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I realized again while working on my thesis, human cannot live alone, especially me. There are so many people who helped me to finish this thesis. I still owe our department people and my friends. I really appreciate for their love.

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CHAPTER 1

INTRODUCTION

1.1 Overview of the Study

Promoting entrepreneurial activities is an important strategy for sustainable economic development. Entrepreneurship is argued to be a viable alternative to industrial recruitment and an economically sustainable development strategy (Petrin, 1994). Moreover, entrepreneurial activity has been found to have strong effects on economic growth and job creation (Gartner et al. 2004; Marshall and Samal, 2006). For instance, Geaeser et al. (2009) suggests that if Henry Ford and Alfred Sloan does not exist, the economic history of Detroit, MI would not have occurred. Therefore it is important to understand how to support and motivate entrepreneurship.

To develop programs that can provide effective support and promote entrepreneurship it is important to understand what drives entrepreneurial intents, actions, and successes. However, there is no coherent theory of entrepreneurship. Rich entrepreneurial literature focuses on analysis of correlations between socio-economic individual and environmental factors as well as entrepreneurial intents, actions, and successes. Also, the majority of data are collected using urban samples. Among the most well known data are the Panel Study of Entrepreneurial Dynamics (PSED) and the Global Entrepreneurship Monitor (GEM). The recommendations for entrepreneurial educational and support programs are being developed mostly based on the results of the analysis of urban samples. This neglect of rural entrepreneurs leads to the following two questions: one, "is rural entrepreneurship different from urban entrepreneurship?" Second, "if so,

then how are entrepreneurial programs that target rural areas different from the programs that target urban areas?"

Few studies have looked at rural entrepreneurship. Sophia et al, (2004) said rurality is the influential entrepreneurial resources which can provide both opportunities and constraints for rural entrepreneurs. They studied the rurality characteristics as an entrepreneurial milieu in Europe. Dabson (2001) noted the importance of rural entrepreneurship and suggested rural entrepreneurs on the map in aspect of physical infrastructure and farm support. However, many studies on rural entrepreneurship lack access to data and empirical analyses.

Most data suggest that the rate of entrepreneurship in rural regions is consistently lower than the rate of entrepreneurship in urban regions (e.g. Marshall and Samal, 2006; Eurobarometer, 2007; Sternberg, 2009). However, it is not clear why this difference occurs between rural and urban areas. Literature has suggested two potential explanations.

One possible explanation is that urban areas offer more social and economic resources, therefore they create a better environment for entrepreneurial intentions and actions (Raphael Dar-el and Daniel Felsenstein, 1990; Li Yu et al, 2009). The other possible explanation of economic inequality between rural and urban areas is cultural differences. Cultural effects are geographical-specific identities and most likely can help explain the different rates of entrepreneurs between rural and urban areas (Edward J. Malecki, 1993).

A clear understanding of the driving forces behind the entrepreneurial intentions and actions in rural and urban settings has important implications for entrepreneurial

education and support programs. If the resources are primarily responsible for the urban-rural gap in entrepreneurial activities, then the main recommendation for the support programs would be to focus on providing more resources to rural regions. Whereas, if the inherent cultural differences are primarily responsible for the urban-rural gap in entrepreneurial activities, then the programs that target rural entrepreneurs need to be designed differently from the programs that target urban entrepreneurs.

The focus of the analysis in this thesis is on determinants of entrepreneurial intentions (i.e. on characteristics of nascent entrepreneurs) for the following two reasons. First, it has been found that the only consistent predictor of entrepreneurial actions is entrepreneurial intentions (Krueger et al. ,1999). Second, by comparing characteristics of nascent and active entrepreneurs it is possible to identify the group of nascent entrepreneurs that never progressed from intentions to actions, and investigate the particular barriers they face in order to design a more effective support programs that will work against these barriers.

This thesis uses two datasets (urban and rural samples) to test which of the two described above reasons is primarily responsible for apparent urban-rural gap in the rate of entrepreneurial activities. Based on the results of the analysis the thesis develops recommendations for the educational and support programs that are designed to target rural entrepreneurs.

1.2 Objectives of the Study

The goal of the study is to understand the different factors of the rate of entrepreneurial intentions in rural and urban settings. Using data from the Panel Study of

Entrepreneurial Dynamics 1998-2003 (PSED) and the Survey of Rural Kentucky Residents, 2005-2006 (SRKR), we test for factors that are expected to affect entrepreneurial between rural and urban areas. We assume three hypotheses first, the main difference of rural and urban entrepreneurs is the different resources in two areas, second, the main difference of rural and urban entrepreneurs is the cultural differences in two areas, third, rural area has high push effects, urban area has pull effects. The resources used in this study are individual resources and contextual resources, individual resources are composed of self-efficacy and demographic characteristics, contextual resources consist of social support and economic resources.

If the available resources in two places are not the same, policy should be designed to reduce the gap in resources across the areas. However, if the resources are similar in rural and urban settings but inherent cultural differences exist, then policy programs should instead be designed to separately address these cultural effects.

1.3 Organization of the Study

This paper is organized as follows: first, we review the literature on determinants and motivation of entrepreneurial intentions and actions. We then provide hypotheses that follow from the literature. Third, we introduce the survey data and conduct post-stratification weights to make a representative sample. Fourth, we present a conceptual model that would be used to test our hypotheses. Fifth, we conduct the T-test and Logistic model to compare the different resources and cultural tendencies between rural and urban areas. We present and discuss the results and conclude by suggesting an array of policy recommendations.

CHAPTER 2

LITERATURE REVIEW

2.1 Introduction

The creation of new businesses is encouraged because of a thought that entrepreneurs and small businesses reinvigorate markets (Gartner et al., 2004). Many studies have identified factors that are thought to be essential and effective in motivating the establishment of new firms. Moreover, how resources and cultural inheritance of entrepreneurs' intentions are different between rural and urban areas. In this chapter, we study the literature on the role of entrepreneurship which supports economic growth and the determinants of entrepreneurial intentions, action, and success. Furthermore, we also discuss studies which compared economic and social characteristic and describe determinants of rural and urban entrepreneurship. Finally, we review existing entrepreneurial programs and related policies.

2.2 Entrepreneurship Supports for Economic Growth

Entrepreneurs are thought to be proactive because they utilize resources effectively in the market, and as a result spur economic development. Many studies have explored the positive effects of entrepreneurship on economic development. Wong et al, (2005) showed positive relationship between entrepreneurs and economic growth and studied the impact of different kinds of entrepreneurship on economic growth. As a result, among the four types of new business creation behaviors, high growth entrepreneurship showed a significant impact on the economic growth. Schmitz (1989) fostered Romer's

macroeconomic model (1986) which focuses on the number of firms and outputs. The results suggested that both endogenous entrepreneurship and external effects from the entrepreneurs are key factors of economic growth. Wennekers et al. (2005) examined that there are u-shaped relationships between the rate of nascent entrepreneurs and economic development. Moreover, Audretsch and Thurik (1999) found that an increase in the rate of entrepreneurship (number of business owners per labor force) lead to lower levels of unemployment in 23 OECD countries in the period 1984 through 1994.

2.3 Determinants of Entrepreneurship in Urban Samples

An important factor of entrepreneurial behavior is the individual characteristics, specifically human capital, especially work experience and educational background (Gartner et al, 2004) and push and pull effects providing motivations for people who are considering start a new business.

a) Push and pull effects

One of the most critical factors in entrepreneurship is motivation. Push and pull effects on entrepreneurship spur the creation of nascent entrepreneurs. Starting a new business does not happen by chance (L. Schjoedt, & K.G. Shaver, 2007). When people choose to begin their own businesses, they compare the expected profits from the new enterprise with their stream of current incomes. Even if an individual is gainfully employed, he/she might be interested in the potential for higher earnings. These are pull effects. When someone feels that the current situation is unfruitful or an individual cannot fund gainful employment, this is a push effects.

The push and pull effects are strong motivators for starting firms as well as continuing enterprises (Shapero and Sokol, 1982). If the current economic conditions are good, the pull effects are typically larger than the push effects (Carrasco, 1999). The push and pull effects differ with location: urban entrepreneurs are more likely to start a business due to disagreements with colleagues and management compared to rural entrepreneurs (K. Nielsen and L.C. Freire-Gibb, 2010). In addition, urban entrepreneurs are more likely to start new businesses because of their networking opportunities.

We can assume that disagreements with colleagues and management are push factors because these factors curb to continue current employment, and spur people to create new businesses. Cromie and Hayes (1991) studied the relationship between job satisfaction and the decision to become an entrepreneur. Predictably, their results showed that people who are more unsatisfied in their previous workplace are more likely to establish a new business. And the main examples of push factors are workplace distress, anxiety of losing a job, unemployment rate, and market condition (Shapero and Sokol, 1982; Cromie and Hayes, 1991; Carrasco, 1999). The main examples of pull factors are expectation of life satisfaction and population growth (L. Schjoedt and K. G. Shaver 2007; H. Qian, K. E. Haynes, and J. D. Riggle, 2001).

b) Personal background characteristics

It is important to review other factors that determine entrepreneurship as well. Although entrepreneurship has been found to provide many positive benefits, very little is known about the entrepreneurial process. How and why do new economic activities begin (Gartner et al., 2010)? Various research programs, such as the Panel Study of

Entrepreneurial Dynamics (PSED) and the Global Entrepreneurship Monitor (GEM), have provided some important information about individuals who are involved in starting new entrepreneurial ventures and the key features of the business creation process. An important note to consider is that no comprehensive theory of entrepreneurship exists; rather scholars have focused their efforts on understanding different components of the phenomenon.

One important line of research has focused on the determinants of entrepreneurial intentions, which have been found to be the single best predictor of entrepreneurial actions and eventual successes (Katz et al. 1988). Studies have identified two groups of factors that significantly affect entrepreneurial intentions: individual (personal) and contextual (surroundings) characteristics. Among individual characteristics researchers have primarily worked with the concept of entrepreneurial self-efficacy. Self-efficacy refers to a personal belief that one can successfully deal with various challenges associated with starting and operating a new business (Bandura, 1989). Chen et al. (1998) found that entrepreneurial self-efficacy increases with one's intention to establish a business and that business founders had higher self-efficacy with respect to innovation and risk taking than non-founders.

Other individual characteristics are demographic factors. Some of the demographic factors: gender, age, education level, marital status, and ethnicity are repeatedly reported to strongly correlate with self-employment and modulate the effect on determinants of entrepreneurial intentions and actions (Wilson et al., 2007). For example, according to Carter and Brush (2004) women (4.2%) are less likely to be involved in the workforce than men (7.6%). The age for establishing business varies; the

start-up activity peaks for individuals in their early 30s, is lower in late teens and early 20s, and drops off in the late 50s (Reynolds, 1997). Between 1992 and 1997, the number of Hispanic-owned, Black-owned, and Asian- owned businesses respectively grew by 30%, 26%, and 30%, however, the number of businesses by Native Americans grew by 84% (Green and Chaganti, 2003). Similarly, the ethnicity limited in economic activities, especially start-up business (Green and Owen, 2004).

There is a negative association between income and the likelihood of becoming an entrepreneur (Reynolds et al., 2001). Evans and Leighton (1989) studied that low-wage people are likely to start a new business. Mincer (1985) reported that the decline in family size and in marriage duration provide an increased motivation for female labor force participation. However, the presence of children influences the employment rates of women and men in opposite directions (OECD, 2002) - parenthood negatively influences female employment while positively influencing male employment. Mothers are less likely to be full-time employees than women without children.

Marital status is significantly different between start-up entrepreneurs and other groups. The married rate is 58.6% in nascent entrepreneurs and 51.6% in comparison control group (not involved with a business start-up) (Brush and Manolova; 2004). As for tenure (amount of time living in the present location) among the nascent entrepreneurs, 16.3% have resided in county for 30 years more, however, in case of the comparison group 26.8% have lived in county for 30 years more. The most nascent entrepreneurs are established residents in the place where they began a new business (Reynolds, 2004).

2.4 Comparison of Economic and Social Characteristics of Rural and Urban Regions

Contextual researchers have differentiated between objectively available economic resources and individual perception about the availability of necessary resources. Baum and Oliver (1992) quote that in regions with high population density, there are more opportunities to gain effective knowledge and create extensive social networks, but there is also intense competition.

During demographic transition, if population growth initially accelerates, the economy experiences faster consumption growth, productivity growth, and entry during this initial period (Peretto, 1998). Carree et al. (2002) reported that the nascent entrepreneurship shows a U-shape relationship per capita income as compared to 23 Organization for Economic Co-operation and Development (OECD) countries during 1976-1996. Evans and Jovanovic (1989) and Blanchflower and Meyer (1994) suggest that increased unemployment leads to an increase in startup activity, since the opportunity cost of not starting a firm has decreased (Push effect).

The Social Vulnerability Index (SoVI) is an index of social vulnerability to environmental hazards, based on via county-level socioeconomic and demographic data (Cutter et al., 2003). This index accounts for lack of access to resources, limited access to political power and representation, social capital, beliefs and customs, building stock and age, frail and physically limited individuals, and type and density of infrastructure and lifelines. Because this is an index that suggests weakness exist, it can affect the rate of entrepreneurial behavior. It is important to note here that context is important for

entrepreneurship not just because it provides for opportunities, but also because it constrains particular choices that individuals might otherwise make.

Economic resources, education, government support programs, and local networks may exist in a community, but they might be ineffective tools for helping individuals starting new businesses. Therefore, the availability of resources is not necessarily the key factor to assist entrepreneurs, but the individual's perception of the usefulness and available resources influences individual entrepreneurial intent.

2.5 Determinants of Rural Entrepreneurship and Comparison them with determinants of Urban Entrepreneurship

Individuals can be easily influenced by contextual environments. Geographic location dictates input costs such as rent, labor, and capital, scale of market, and regulations and taxes. Thus, an individual decision to start a new business would vary depending on location.

Studies of urban entrepreneurs are more prevalent than those on rural entrepreneurs. In contrast to urban areas, where there are arrays of different types of self-employed businesses, in rural areas self employed farm businesses tend to dominate (Gladwin et al., 1990).

Gladwin et al., (1990) found distinguishing factors between founders and non-founders of enterprises and differences between rural and urban entrepreneurs using 1987 data from North Florida and New England. They adopted a probit model to understand the different decision making strategies between rural and urban areas. As a result of discriminating factors between founders and non-founders, psychological variables are

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not significantly different for entrepreneurs starting new businesses in rural as opposed to urban areas. However, prior experience in starting firms and the proportion of currently owned firms have a positive effect, while education and management period have a negative effect on the start of new businesses. The largest effect on the probability of having starting a new business is previously owned other businesses. Generally, the authors found that rural areas tend to be more personal, peaceful, clannish, and have a smaller number of consumers than urban areas; therefore community and financial management information is useful to start new businesses.

Marshall and Samal (2006) compared human and financial capital of start-up entrepreneurs between rural and urban areas. They collected data from the 2004-2005 Indiana start-up entrepreneurs' workshop. They used a logistic regression - the dependent variable was the binary for whether to start-up a business or not, and the independent variables were the personal demographics, human capital, financial capital, and location. They implied that higher net worth (more than $50,000) and residence in cities were positive effects on the start of a new business, while home ownership is a negative effect on the establishment of new firms. Analyzing the combined effects, they estimated the probabilities of a female homeowner, employed during the last six months, having retail chain, graduate degree, greater than net worth $50,000; living in cities had 99.14% probability starting new businesses. Yet, the same condition with before except to living in cities had 97.12% probability starting new businesses. And a female homeowner, employed during the last six months, not having retail chain, bachelor's degree, less than net worth $50,000, living in country sides had 18.60% probability starting new

businesses. They determined that the critical factors to participate in new enterprises are net worth and residential places.

Savitha, Siddaramaiah and Nataraju (2009) studied the behavior of female entrepreneurs in rural and urban areas. They found that urban women had more education, higher socio-economic status, and middle level of investment than rural women in Bangalore. They categorized the factors which were effective on the creation of new businesses into three aspects: personal characteristics, socio-economic characteristics, and enterprise-related variables. For personal characteristics, education, marital status, birth order, and family support were positively related to the start of new businesses; however, age and family dependency ratios were negatively related to new firm development in both rural and urban areas. The socio-economic characteristics included socio-economic status, socio-political participation, and mass-media participation was positively related with entrepreneurial behavior. In enterprise related variables, ownership of enterprise, extent of investment, and training received are significantly related to participation in enterprises in both rural and urban areas. However, institutional support only affected the urban areas, and financial assistance was not related to either rural or urban areas.

Nielsen and Freire-Gibb (2010) studied how rural and urban areas influence the identity and network of entrepreneurs and non-entrepreneurs in Denmark. They used logistic regression analysis and data from the Integrated Database for Labour Market Research (IDA), as well as a questionnaire survey on Danish wage-earner and entrepreneurs in 2008. The independent variables were categorized by demographics, identity, start-up motivation, and network. The results were that there were no highly

significant differences in geographic effects and in the case of identity such as intrinsic values score, extrinsic values score, convenience, finances, co-workers, career, entrepreneurial traits score, risk seeking score, tolerance of ambiguity, need for achievement, locus of control, desire for independence, optimism, and creativity between rural and urban areas, the entrepreneurial traits were not significantly different between rural and urban areas. However, urban entrepreneurs are more creative, less motivated by the financial side of work, more encouraged by the career side of work, and more likely to start a new business.

Start-up motivations such as a new product/service, becoming one's own employer, new work challenges, higher earnings, control work tasks and hours, and the ability to support family/friends were also not significantly different across the two areas. However, rural entrepreneurs were more likely to start a new business by converting a hobby into their career. Urban entrepreneurs were more likely to contact former schoolmates, use professionals, and contact other entrepreneurial friends, but less likely to contact former colleagues, who were influenced by family entrepreneurs rather than rural entrepreneurs.

2.6 Existing Entrepreneurial Program/Policies

Even if the entrepreneur is motivated, he/she must still abide by federal and state regulations and laws. There are diverse institutional policies and programs for the entrepreneurs and these programs affect entrepreneurial behavior. Audretsch (2003) mentioned polices related to industrial structure have a trade-off between concentration (efficiency) and decentralization (democracy). Moreover, entrepreneurship policy has

been primarily focused on the Small and Medium-sized Enterprises (SMEs) after the creation of the Small Business Act on July 10, 1953. SME policies are intended to assist inefficient enterprises and preserve unprotected firms from closure. However, SME policies differ from entrepreneurship polices in that the former is a place to promote small business enterprises, continue existing stocks, and mainly be performed by government, while the latter is more of a policy orientation and provides diverse instruments for both new and existing enterprises - it is a more systematic and sensitive framework for multiple units related to entrepreneurial decision making. The study suggested that entrepreneur's policy might cause market failure having externalities of network, knowledge, and learning. So the new policy should decrease market failure and promote entrepreneurship.

Entrepreneurial policies tend to be decentralized and be diversified in different with traditional policies which were focused on the SME. Audretsch (2003) modified with table of David Storey (2003) which was identified in the US and EU entrepreneur policies. It categorized problems such as access to loan finance and capital, stimulating R&D in small firms, entrepreneurial skills and awareness, and management. It also described the executive programs and countries and checked whether those programs were successful or not.

Acs and Szerb (2007) described the relationship among entrepreneurship, economic growth, and public policy. They suggested that middle-income countries should concentrate on supporting human capital, improving the availability of technology and reducing entry regulations.

Scorsone E. (2003) suggested that the University of Kentucky Cooperative Extension Service (UK-CES) support current and future entrepreneurs as well as beginning entrepreneurs in rural areas. Brian Dabson (2001) suggested that the trend in current entrepreneurial policy should focus on farming and physical infrastructure investment. Even though entrepreneurship has a positive effect on the markets, the entrepreneurial policy focused on small business and not animated except to Kauffman Center for Entrepreneurial Leadership and the Nebraska Community Foundation. The study explores current policies such as the Program for Investment in Micro entrepreneurs (PRIME), and mentioned main institutions such as the Rural Policy Research Institute, National Rural Development Partnership (NRDP), Small Business Administration (SBA), Community Development Financial Institutions (CDFIs), and Appalachian Regional Commission (ARC).

2.7 Hypotheses

Previous literature on the determinant of entrepreneurs focused on the urban entrepreneurs. This paper aims to compare both resources and cultural effects in rural and urban nascent entrepreneurs and find which factors are different within the two areas. We have added the self-efficacy and social support variables as well as individual and economic resources for analyzing. Thus, we can contribute to the study of rural entrepreneurship and provide the policy recommendation more diverse aspects.

There are two possible reasons why there are different rates of entrepreneurship in rural and urban areas. One potential reason is that urban settings offer more individual and contextual resources that are important for increasing entrepreneurial activity than

rural areas do. Another potential reason is that the same set of resources might have different effects on entrepreneurial activity between rural and urban regions. This paper investigates both possibilities.

Hypothesis 1: The gap in rural and urban entrepreneurship is due to a difference in individual and contextual resources.

Since the rate of rural entrepreneurism is less than that of urban areas, we might assume that some resources are more available in urban rather than in rural settings. We will categorize as individual and contextual resources.

The individual resources include demographic characteristics and entrepreneurial self-efficacy. To be specific, we investigate how gender, age, ethnicity, employment status, income, education, residence (tenure), household size, presence of children, and marital status differ across rural and urban settings. There are more women in urban areas than in rural areas. Because there are more service jobs in cities than in the countryside, women prefer to live in towns rather than in rural areas. The younger population lives more in urban areas, whereas the old live more in rural areas. Since young people want to get a job or go to a university, they are likely to move to a city. When people get older, they tend to go back to their hometown; so older people prefer to live in rural areas. Ethnic diversity is likely to be higher in urban settings since cities have various transient jobs and educational opportunities.

Employment status such as full time, part time, school, or unemployment is likely to affect the decision to start a business. If an individual's current job is not stable, then the probability of creating a new enterprise is higher. Urban areas provide various job

opportunities; they tend to have lower unemployment rates and higher income levels than rural areas. Education opportunities are diverse and plentiful in urban areas, so education levels in urban settings are higher than in rural settings. Tenure is how long one has lived in the present place; if tenure is longer, the passion of establishing a new business would decrease. People living in rural areas are more likely to live same areas. Because the pace of rural life is slower than in urban areas and the individuals in rural areas are highly connected with their community and resources, farmers cannot easily leave their places.

The number of household members and the number of children have an effect on the start-up of businesses. If one has a large family than it is possible that entrepreneurs get more support from their family. However, if children are young, female nascent entrepreneurs would stop working to take care of their children.

Marital status likely plays an important role in starting a business: the married person tends to start a new business since they can receive support from their spouse. The lifestyle of urban dwellers is more independent and mobile, so there is a high possibility that people in cities are unmarried. Entrepreneurial self-efficacy is a private factor. If someone has a high sense of self-efficacy, then the probability of creating new firms would be increased. Entrepreneurial self-efficacy in urban areas is higher than in rural areas. Because people living in rural areas are likely to live close to friends and family they can easily get help from neighborhoods and relatives. However, people living in urban areas are more likely to live independent, so urban people have a higher probability of having a self-efficacy than rural people.

Contextual resources include social resources and economic resources. As a proxy for social resources, this study adopted the perceived level of community support. When businesses start, community support should be considered as well as one's own resources or economic resources. The community is a society which has common interests - new entrepreneurs get information as well as financing opportunities from the community. The perceived community support in urban areas will likely be greater than in rural areas because of cities population size and institutional support.

The considerable economic resources are income per capita, unemployment rate, and vulnerability index. Moreover, we include population density and population growth as economic resources. Even though these population variables are close to the demographic factors, these are not individual resources and we can use them to analyze the economic analysis. The population density is a ratio of total population to land area; it shows how much people are condensed in certain areas. If population density is greater, then the competition for start-up business is higher, but the demand for new products and networks also would be greater. We expect that higher population density positively affects the start of a new business. Population growth is likely an important factor for the development of new firms - if population growth is relatively large, then this might suggest a booming economy.

If income per capita is high, then purchasing power is increased and the place is good for a beginning business. Because urban areas have higher living costs and prices compared to rural areas, and there are better chances of getting a higher salary than in rural areas income per capita in urban areas might be higher than in rural areas. If the unemployment rate is high, then the economy is not vivid and the purchasing power

would decrease even though the unemployment rate could spur making their businesses. Because of diversity in job opportunities, unemployment rates of cities are less than rural areas.

The vulnerability index is the potential for loss (S. Cutter et. al, 2003) and a measure of the market environment and motivation. Specifically, the Social Vulnerability Index for the United States (SoVI) measures the social vulnerability of environmental hazards such as a natural disaster in the U.S. using 32 socioeconomic variables. There are numerous risks and uncertainties. When considering starting a new business, the SoVI might be a useful tool to determine whether to start a business or not. Therefore, the vulnerability Index in rural areas is larger than in urban areas. Finally, because of the combination of all these factors, the rate of entrepreneurship might be higher in urban as opposed to in rural populations.

Hypothesis 2: Differences in rural and urban entrepreneurship can be explained by the different relative effect of resources on entrepreneurial ambitions.

The relative effect of resources on entrepreneurs in rural and urban areas can express the cultural effect; it means the extra intention for plan to start a new business increases corresponding to an additional unit of a resource. Even though there are similar resources in two areas, if the cultural effect is different, then the effects of independent variables are different.

We assumed that self-efficacy, demographic, social, and economic resources significantly affect the rate of start-up businesses. However, these differences might have different effects on rural and urban regions. The cultural effect on entrepreneurial self-

efficacy in urban areas is higher than in rural areas. When starting a new business, the entrepreneurs confront numerous challenges; in cities, the economic resources are more abundant than in rural areas, but the personal challenge is more difficult than in rural areas due to the number of competitors. Therefore, when starting a business, the struggle of entrepreneurial self-efficacy in urban areas is higher than in rural areas.

In demographic characteristics, men are more likely to start-up a business than women; this is more prominent in rural areas than in cities - men have a greater responsibility to raise their family than women do, and cities have more diverse opportunities to make a new business than the countryside does. The young people living in urban areas and starting new business tends to be higher than rural areas. Although the numbers of young people are the same in urban and rural areas, young people living in rural areas want to move to cities instead of remaining and establishing businesses. However, the elderly living in rural areas are more likely to start a new business than the elderly in urban areas. Since a number of old people live in rural areas, the probabilities of start-up entrepreneurs in rural settings are higher than in urban settings. With regards to ethnicity, people are affected by the surrounding environment, in spite of same number of the ethnicity in urban and rural areas; white person in urban areas is more proactive and challengeable than in rural areas. In terms of employment status, even though unemployment status is similar between urban and rural areas, living expenses in towns are higher than in rural areas, so the behavior for the start-up business in towns is bigger than rural areas.

The person who lives in town is likely to get paid more to start a business than a rural person would, so the relative effect of income in urban areas is higher than in rural

areas. In case of education, if the low education group is the same between urban and rural areas, then the person who lives rural areas move to urban areas to get more various jobs. Therefore the cultural effect on low education in rural areas is less than urban areas. High education people who live in rural areas are looking for better jobs and move to cities. Therefore, the cultural effects on higher education in rural areas are less than in urban areas. People living for shorter periods of time in urban areas are more aggressive and proactive than those living in rural areas. However, the people who live longer in one place, like farmers, have more land, communities, and credit, than those in urban areas. Therefore, the cultural effect on long tenure in rural areas is greater than in urban areas.

Meanwhile, the cultural effect on the number of household members is not different between places, because the influences of household members are not significantly different. In the case of marital status, the cultural effect in rural areas is greater than in urban areas. In urban areas there are many dual income families, unlike in rural areas. This means that married people living in rural areas tend to have more work and are more likely to start a business than married couples in urban areas.

As social resources, the cultural effect on perceived community support in rural areas is higher than in urban areas, because in cities there are diverse support programs at schools, communities, and interest societies. Urban areas have many choices, so the cultural effect on the perceived community support is less than in rural areas.

Among the economic resources, the relative effects of population density, population growth rate, and income per capita are higher in urban areas than in rural areas, since in urban areas there are higher population densities, faster population growth rates,

and higher income per capita than in rural areas. These resources make the high probabilities of start-up business, and incline toward urban areas; therefore the cultural effects of these resources in urban areas are higher than in rural areas.

The cultural effect on unemployment rate in rural areas is higher than in urban areas, because the unemployment rate is higher and the person living in rural areas makes more effort to escape unemployment. The cultural effect on vulnerability in urban areas is higher than in rural areas. Vulnerability in rural areas is higher than in urban areas, especially because farm products are depended upon in case a natural disaster, so the cultural effect for farmers is less than for those in the cities.

Moreover, we can hypothesize the different rate of start-up entrepreneurs between rural and urban areas from a motivational point of view.

Hypothesis 3: In urban areas, the pull effects might be greater than the push effects. In rural areas, the push effects might be greater than the pull effects.

In urban areas, there are abundant resources and high demand; therefore the pull effects might be *greater* than the push effects. However, in rural areas, there is less job diversity and less compensation than in cities, so the push effects might be greater than the pull effects.

Table 1. Hypotheses Explaining the Different Rate of Entrepreneurs in Rural and Urban Areas*

Characteristics			*Hypothesis 1* Differences in resources Urban vs. Rural	*Hypothesis 2* Different cultural effects Urban vs. Rural
Plan to start-up business			+	dependent variable
Individual resources	Self-efficacy	Entrepreneurial self-efficacy	+	+
	Demographic characteristics	Gender; men=1	+	+
		Young people	+	+
		Old people	-	-
		Ethnicity; white=1	+	+
		Employment status	-	+
		Income	+	+
		Education	+	+
		Tenure	-	-
		Number of household members	-	0
		# of children	-	-
		Marital status	-	-
Contextual resources	Social resources	Perceived community support	+	-
	Economic resources	Population density	+	+
		Unemployment rate	-	-
		Population growth	+	+
		Income per capita	+	+
		Vulnerability index	-	-

*: This table is presumed according to the hypothesis. The data will be introduced further chapter.

CHAPTER 3

METHODOLOGY

3.1 Overview of Data

This research compares the rate and behavior of start-up entrepreneurs between the city and the countryside. Even though there are many criteria that can be compared rural and urban areas, this study focuses on individual characteristics, community resources, and economic resources.

The data used to measure individual characteristics and social resources were collected from two surveys. The Survey of Rural Kentucky Residents (SRKR) was conducted from June 2005 to August 2006. The respondents represent only rural households in Kentucky of the 5,000 mailed surveys and follow up phone interviews, 702 responses were utilized for this study. The second source was the Panel Study of Entrepreneurial Dynamics (PSED) data, which was collected by researchers from the University of Michigan from 1998 to 2003, and was used for analyzing the determinants of urban entrepreneurship. The data were representative of the adult population in the U.S. and consisted of 5 samples and 3,910 variables. While the two surveys were not distributed at the same time, the SRKR was designed similarly to PSED data.

Across the two surveys we created 2 subsamples: nascent entrepreneurs and control groups. Within each dataset, individuals can be classified as nascent entrepreneurs (446 in PSED and 112 in SRKR) or as members of the general population (223 in PSED and 503 in SRKR).

Table 2. Composition of Urban and Rural Data

Plan to start a business	PSED (Urban)	Kentucky (Rural)	Total
Yes (Nascent entrepreneur)	446	112	558
No (Comparison group)	223	503	726
Total	669	615	1,284

Table 2 describes this distribution. Only questions that were used in both datasets were selected for this study. The data were combined to generate a pooled data set. There were 1,284 observations used.

In addition, we collected demographic and economic data from the 2000 and 2005 U. S. Bureau of Economic Analysis data (BEA) and U. S. Census data. Both data sources incorporate federal information processing standards codes (FIPS codes). FIPS codes are five digit county codes; the first two digits identify the state (Kentucky is 21) and last three digits identify the county. BEA and Census data also utilize FIPS code. As a result, we were able to combine the survey data and economic data based on the FIPS codes.

3.2 PSED

The PSED was conducted to explore the factors that influence the willingness to start a business and how businesses can change from inception to closure. The PSED survey was conducted twice; the PSEDI data were collected from 1998 to 2000 and followed up three times (over four years), and the PSEDII data were conducted from 2005 to 2006 and followed up twice (12 and 24 months). Even though there is a 6-year time lag, the tendency of nascent entrepreneurs is nearly the same between the two data

sets (P.D. Reynolds and R.T. Curtin, 2008). This study used the PSEDI data. Table 3 shows the specific characteristics of the five sample groups.

Table 3. Description of Sample Selection

Sample	Initial Screening Dates	Initial Screening Sample Size	Initial Detailed Phone Sample Size	First Follow-up Phone Sample Size	Second Follow-up Phone Sample Size	Third Follow-up Phone Sample Size
NE Mixed Gender	1998. 7 – 1999. 4	15,118	446	342	256	Summer 2003 data
NE Female	1998. 9 – 1998. 12	16,143	223	159	141	Summer 2003 data
NE Minority	1999. 7 – 2000. 1	28,314	161	114	Summer 2003 data	None planned
CG Mixed Gender	1998. 11	2,010	223	Not applicable	Not applicable	Not applicable
CG Minority	1999. 11	3,037	208	Not applicable	Not applicable	Not applicable

Source: Gartner et al., 2004.

The PSEDI data were comprised of five types of entrepreneurs. NE Mixed Gender means that NE (Nascent Entrepreneurs) representative sample from the original screening of the U.S. population. NE female represents an oversampling female of U.S female populations. NE Minority means NE minority oversample from the original screening of the U.S. population with only Black and Hispanics. CG Mixed Gender means CG (Comparison Group) representative sample from the original screening of the U.S. population of those not concerned in entrepreneurship. CG Minority means CG

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minority oversample from a screening of the U.S. population of minorities not concerned in entrepreneurship (Gartner et al., 2004). Table 3 shows the description of the selected sample.

Figure 1. PSED Research Design Overview
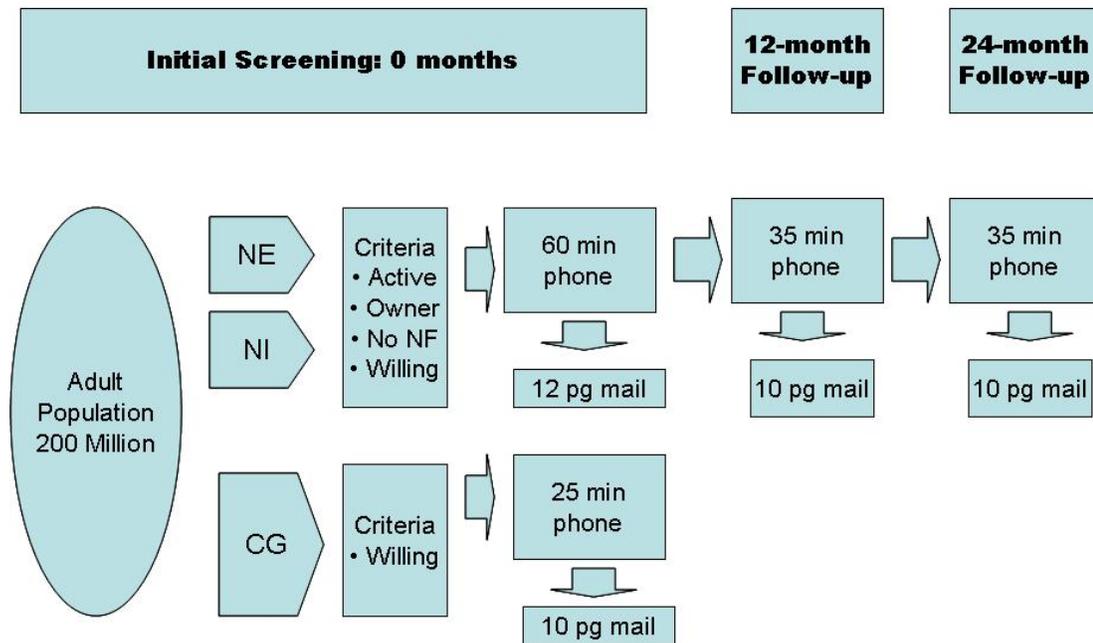
NE=Nascent Entrepreneurs, NI=Nascent Intrapreneurs, CG=Comparison Group, NF=New Firm.

Source: Gartner et al., 2004.

Figure 1 provides an illustration of the PSED. The survey selected 200 million adults living in the U.S. (except those who live in Hawaii and Alaska). The respondents are categorized as one of three types: nascent entrepreneurs who are self-governing starters, Nascent Intrapreneurs (NI) who are subsidized by a current firm (Gartner et al., 2004), and comparison groups who are not willing to start a business.

The survey involved screening the samples, mailing surveys, and then performing follow up phone interviews. At the beginning, the survey asked the respondents about

demographic characteristics, their intention of whether they were planning to start a business, and what type of businesses they intended to start. After 12 months, the follow-up survey that focused on the status of the new business was conducted and after another 12 months, the next follow-up survey focused on the status of businesses (if they had still opened or closed) and factors that influenced the operation of the business.

The survey specifically asked "Are you, alone or with others, now trying to start a new business?", "Are you, alone or with others, now starting a new business or new venture for your employer, an effort that is part of your job assignment?" If these conditions are met, they are considered to be entrepreneurs who have three characteristics: they expect to be owners or part owners of the new firm, they have been active in trying to start the new firm in the past 12 months, and the effort is still in the start-up or gestation phase and is not an infant firm (Gartner et al., 2004).

The phone interview included questions about the participation in the start-up business, employment status, networking, funding, market expectations, previous career experiences, time and decision-making patterns, and household information. The mail questionnaire was more specific, including start-up problems, opportunity recognition (recognition as perceived new potential profit through the founding new business), community context assessment (perception of environment uncertainty), financial expectation, and detailed work background etc. (Gartner et al., 2004).

Among PSED data, this study abstracted the nascent entrepreneurs (mixed gender) and those of comparison groups. The variables were reduced to demographic, community, and economic resources related to SRKR.

3.3 SRKR

The SRKR data represent a sample of Kentucky rural households in the Appalachian region. This survey was conducted from the fall of 2005 to the summer of 2006 and studied the behavior of Kentucky rural households after the Kentucky tobacco buyout bills were passed in 2003. Because the goal of the study was to determine the differences in decision making within changing environments, the subjects of this survey were not limited to only tobacco farmers, but included rural Kentucky households. The survey was randomly mailed to 5,000 households, of which 702 responded.

The questionnaire sought information on individual characteristics including perceived support resources and possible obstacles to starting a new business, self expectations, and self efficacy. More specifically, the questions were asked to determine past and current job activities, individual's anticipated use of tobacco buyout money, distance to community or education system, and intent to start a new business. Individual characteristics such as gender, age, ethnicity, marital and employment status, household income, family members, education, time as resident, computer skills, and recent family events were included. Level of community support, possible start-up problems, information resources, and certainties on the accomplishment of new problems, work ability, current community environment, and social skills were also included.

Many of the questions between the PSED and SRKR data were the same. The observations used for analysis in PSED were 669, and in SRKR were 615. Total variables for analysis were 14, except for economic variables which were collected from the Census.

CHAPTER 4

REPRESENTATIVE SAMPLE

A representative sample refers to how well the characteristics of the sample align with the population. Even though respondents from both SRKR and PSED data were selected randomly, we still need to match the attributes of the samples to those of the populations.

4.1 Post-Stratification Weights

To enhance a representative sample, we need to weigh the sample to better correspond with the original population. There are several potential sampling errors that arise during the process of sampling design (Gartner et al., 2004). First, the entire population is not interviewed. Even though the goal of the Census is to identify the behavior/ characteristics of all people living in America, it is hard to collect information on each individual. If the questionnaire is ambiguous, or respondents have problems understanding the questions, then a bias exists. When respondents avoid responding to a survey or have a special interest in not the survey, there is a sampling bias.

Therefore, it is possible that the survey data are biased. There are some sampling methods to handle the problems that arise from biased samples: random sampling, systematic sampling, stratified sampling, cluster sampling, haphazard sampling, and judgmental sampling, etc. The stratified sampling specifically categorizes samples by subgroups (Westfall, 2009). To conduct stratified sampling, we should know the population of beginning survey beforehand, because imperfect prior information of the population can make a lower efficiency of the sample (Waksberg, 1978). Alternatively,

post-stratification weights are used after the survey, adopting the population ratio to solve the over/under-sampling problems[1].

The sampling weight is essential to mitigating these sampling problems. The use of sample weights normalizes the sample to the population. The post-stratification weights model is as follows (R.M. Alvarez & J. Nagler, 2005):

$$W(i,j) * \text{SAMP}(i,j) = \text{PTT}(i,j) \qquad (1)$$

Therefore, the weight should be :

$$W(i,j) = \text{PTT}(i,j)/\text{SAMP}(i,j) \qquad (2)$$

$W(i,j)$ is the weight in cell(i,j), $\text{SAMP}(i,j)$ is the proportion of the sample in cell(i,j), and $\text{PTT}(i,j)$ is the proportion of the population in cell(i,j).

This study used two separate sets of data; one is the PSED data which were randomly collected from the U.S. population except from Alaska and Hawaii, the other is the SRKR data which were randomly collected from Kentucky rural households. PSED data were already weighted to age, gender, ethnicity, and education by the University of Michigan. The SRKR data were not weighted, so we need to calculate the weight to make the representative samples.

4.2 Weights of SRKR

In contrast to the PSED data, the SRKR data were not weighted when the data were first collected. The SRKR surveyed 702 Kentucky rural households; however, it is

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[1] http://www.atlas.illinois.edu/support/stats/resources/spss/create-post-stratification-weights-for-survery-analysis.pdf

likely that the 702 households are not representative of all Kentucky rural households. Therefore, we need to weigh the data by the characteristics of the original population. After comparing the demographic factors in the sample versus those in the population, the SRKR sample was biased towards farmers, age, education, gender, and income, so we need to weight the sample based on these variables.

The SRKR data surveyed Kentucky rural households, so the population should be total Kentucky rural households. Although the SRKR survey was conducted in 2005, we used the decennial census 2000 data conducted by the U.S. Census Bureau, since it is difficult to find data from the same year and the characteristics of the population have not drastically changed.

Because the data were not specifically labeled as rural versus urban areas, we used the Economic Research Service (ERS) rural-urban classification system. ERS has embraced the Office of Management and Budget's 2003 urban (metro) and rural (non-metro) definitions (Heath, 2002, ERS State fact sheets, 2011). As a result, among the Kentucky's 120 counties; 35 counties are metro and 85 are non-metro counties.

In rural household Census data, we abstract the main characteristics such as farmers, gender, age, ethnicity, income, education, tenure, and marital status. Farmers' rates is not solely determined, so we chose the agriculture, forestry, fishing and hunting categories as a proxy among the industry for the employed civilian population 16 years and over. Gender, age, education, marital statuses are categorized similarly to the sample. Income in census data is categorized in four groups: $0-$29,999, $30,000-$74,999, $75,000-$124,999, and $125,000 and over. The income in the sample was not really that different and was surveyed by four groups: $0-$29,999, $30,000-$79,999, $80,000

Table 4. Descriptive Statistics for Kentucky Households in Rural and Urban Areas

Name	Category	KY Total	KY Urban	KY Rural	KY Urban %	KY Rural %
Population	Total	4,041,769	2,251,967	1,789,802	55.7	44.3
Farmers	farmers	40,017	8,048	31,969	20.1	79.9
	non-farmers	1,758,247	1,038,550	719,697	59.1	40.9
Gender	Male	1,974,840	1,082,292	892,548	54.8	45.2
	female	2,066,929	1,169,675	897,254	56.6	43.4
Ethnicity	White	3,639,168	1,900,905	1,738,263	52.2	47.8
	non-white	402,601	351,062	51,539	87.2	12.8
Age	0-44 Years	2,609,156	1,475,882	1,133,274	56.6	43.4
	45-64 Years	928,945	484,012	444,933	52.1	47.9
	65 Years and Older	503,668	292,073	211,595	58	42
Income	$0-$29,999	714,405	382,996	331,409	53.6	46.4
	$30,000-$74,999	641,456	370,579	270,877	57.8	42.2
	$75,000-$124,999	173,152	111,332	61,820	64.3	35.7
	$125,000 and More	62,726	43,186	19,540	68.8	31.2
Education	high school graduate	1,804,104	874,526	929,578	48.5	51.5
	some college and college	1,059,994	707,283	352,711	66.7	33.3
	graduate degree	183,830	128,351	55,479	69.8	30.2
Marital status	married	2,487,132	1,327,246	1,159,886	53.4	46.6
	never married	730,035	469,911	260,124	64.4	35.6
Tenure	same house in 1995	2,112,135	1,045,758	1,066,377	49.5	50.5
	different house in 1995	1,664,095	1,052,639	611,456	63.3	36.7

Source: U.S. Census Bureau, 2000.

-$119,999, and $120,000. Income categories have not the same between the populations and the sample. Census data categorized whether the person's current home is the same as it was in 1995 or not. Therefore, in the sample's case, we can match tenure whether resident years are less than 5 years or not.

Forty-four percent of the population lives in rural areas and 80% of Kentucky farmers live in rural areas. The percentage of females in urban areas is 57% and is higher than in rural areas (43%). In cities there is more diversity, higher education, higher income, lower marital rate, and a shorter tenure than in the countryside.

Using our data, we can calculate the weighted sample base on eight variables: farmers, gender, ethnicity, age, income, education, marital status, and tenure. More specifically, we can analyze the weight calculation via the ratio of proportion of population vs. those of the sample. This means that if the proportion of a certain variable is the same in both the population and the sample, then the weight is an equal one, and the variables are representative of the population. If the proportion of the value in the sample is bigger than the population, then the sample is oversampled and the weight should be less than one. If the weight is greater than one, then in this case the sample should be magnified to adjust to the population.

Females, younger individuals, those with low-income, and the low education group were under sampled. We came up with twenty independent weights and we multiplied eighteen weights (the weights for white and marital status are approximately equal to 1) to make one weight. These calculated weights are adopted with the analyses such as t-test and logistic regressions.

Table 5. Weighted Calculation in Kentucky Rural Data

Name	Category	Population (A)	Sample (B)	Population ratio (C)	Sample ratio (D)	Weight (C/D)
Farmers	farmers	31,969	545	0.04	0.89	0.05
	non-farmers	719,697	70	0.96	0.11	8.41
	Total	751,666	615	1	1	1
Gender	Male	892,548	483	0.5	0.79	0.63
	female	897,254	132	0.5	0.21	2.34
	Total	1,789,802	615	1	1	1
Ethnicity	White	1,738,263	588	0.97	0.96	1.02
	non-white	51,539	27	0.03	0.04	0.66
	Total	1,789,802	615	1	1	1
Age	0-44 Years	1,133,274	136	0.63	0.22	2.86
	45-64 Years	444,933	332	0.25	0.54	0.46
	65 Years and Older	211,595	147	0.12	0.24	0.49
	Total	1,789,802	615	1	1	1
Income	$0-$29,999	331,409	88	0.48	0.14	3.38
	$30,000-$74,999	270,877	329	0.4	0.54	0.74
	$75,000-$124,999	61,820	130	0.09	0.21	0.43
	$125,000 and More	19,540	67	0.03	0.11	0.26
	Total	683,646	614	1	1	1
Education	high school graduate	929,578	198	0.69	0.32	2.16
	some college and college	352,711	285	0.26	0.46	0.57
	graduate degree	55,479	132	0.04	0.21	0.19
	Total	1,337,768	615	1	1	1

Table 5. Weighted Calculation in Kentucky Rural Data (continued)

Name	Category	Population (A)	Sample (B)	Population ratio (C)	Sample ratio (D)	Weight (C/D)
Marital status	married	1,159,886	549	0.82	0.89	0.92
	never married	260,124	66	0.18	0.11	1.71
	Total	1,420,010	615	1	1	1
Tenure	same house in 1995	1,066,377	589	0.64	0.96	0.66
	different house in 1995	611,456	26	0.36	0.04	8.62
	Total	1,677,833	615	1	1	1

*income categories in sample are $0-$29,999, $30,000-$79,999, $80,000-$119,999, $120,000.

After applying the weight, we compared the means of the sample and population. The farmer, gender, age, income, education, and tenure variables should be weighted to be more representative of the population. If the variables are independent, the weighted sample mean and the population mean should be equal whether we adopt separate weights (such as farmer weight, gender weight, income weight) or multiply one weight (such as farmer weight*gender weight*income weight). When we incorporate each weight separately into the sample, the mean of the sample is similar to the mean of the population; however, when we incorporate multiple weights in the sample, the sample mean is not close to the population. Therefore we can assume that there is likely some dependency among the variables. The next step is to conduct the correlation among variables and adjust the weights.

4.2.1. Correlations

If the independent variables are not correlated with each other, the one weight, which is multiplied by every weight, can make the weighted sample similar to the

population. When we compare the mean of the weighed sample to those of the population using one weight, the results were not similar. We can check the correlation among the variables. Table 6 shows correlation among the demographic characteristics. Contrary to expectations, the variables are not highly correlated. With the exception of the correlation coefficient across the same variables (For instance, in the age group, there is high correlated among the age categories), the high school graduate group (low education) has a $\rho = 0.20$ for those individuals less than \$30,000 income group (low income).

The low income group is negatively related to farmers, males, and age group 45-64 years old and positively related to those 65 years and more (old people). The high income group is positively related to males, and low education is positively correlated with older individuals and the low-income group. The high education group is negatively

Table 6. Correlations among the Demographic Characteristics

Variables	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1.farmers	1														
2.gender(male)	0.07	1													
3.0-44 Years	0.07	0.08	1												
4.45-64 Years	0.03	0.02	-0.58	1											
5.65 Years and Older	-0.1	-0.1	-0.3	-0.61	1										
6.ethnicity(white)	0.1	0.08	0.02	0.03	-0.05	1									
7.\$0-\$29,999	**-0.12**	**-0.15**	0.02	**-0.15**	**0.16**	-0.09	1								
8.\$30,000-\$74,999	-0.03	-0.01	0.01	0	-0.01	-0.02	-0.44	1							
9.\$75,000-\$124,999	0.07	0.05	-0.01	0.06	-0.07	0.07	-0.21	-0.56	1						
10.\$125,000 and More	0.08	**0.12**	-0.02	0.09	-0.09	0.05	-0.14	-0.38	-0.18	1					
11.high school graduate	-0.03	0.01	-0.09	-0.07	**0.17**	0.06	**0.2**	-0.02	-0.1	-0.06	1				
12.some college and college	-0.02	0.01	0.05	0.03	-0.08	-0.04	-0.06	0.06	-0.03	0.02	-0.64	1			
13.graduate degree	0.05	-0.03	0.05	0.05	-0.1	-0.02	**-0.15**	-0.05	**0.16**	0.05	-0.36	-0.49	1		
14.married	0.06	-0.01	**-0.18**	0.02	**0.16**	-0.02	**-0.13**	-0.04	**0.12**	0.05	0.03	0.01	-0.04	1	
15.tenmore5	0.1	0.03	-0.1	0.02	0.08	-0.05	-0.01	-0.02	0.03	0	**0.11**	-0.05	-0.07	0.06	1

related to low income, and positively related to $75,000-$124,999 income (mid-high income) group. The married group is negatively related to the group less than 44 years (young people) and low income, but positively correlated with old people and the mid-high income group. The tenure group whose residents' period is more than 5 years is positively related with the low education group.

4.2.2. Sampling adjustment

Since a single weight cannot correct the sample, we need to adjust the sample weight. The weight associated with ethnicity is close to 1, so we do not need to create a weight for ethnicity, thus only eighteen weights should be used to adjust the sample. The method of adjustment sampling is conducted step by step to find the most appropriate sample weights with the population. At first, the weight is calculated into eighteen types. After calculating the weight, we selected various combinations of the weights and try to find the good combinations to reach the mean of population. After many processing, we find that the good combination is mixed with farmers, gender, age, and income and education groups. In the first step, the weights of farmers and gender are close to one (similar to the population), however, the weights of age, income and education groups are not close to one. So we need to adjust additional weight for age, income and education and then multiply the previous weights and the new weights. This is the second step and these iteration steps are repeated until the mean of weighted sample is close to those of the population.

Table 7 provides the final adjusted weights. The weights are combined with farmers weight1, farmers weight2, gender weight1, gender weight2, income weight1, income weight2, income weight3, income weight4, income weight5, income weight6,

income weight7, income weight8, income weight9, income weight10, education weight1, education weight2, education weight3, education weight4, education weight5, age weight1, age weight2, age weight3, age weight4, age weight5, and age weight6. The number of the variables means the iterated time to calculate the weights.

Table 7. Adjusted Weighted Sample

Name	Variable	Sample Mean	weighted sample			Population Mean	Adjusted weight*
			mean	[95% Conf.	Interval]		
Farmers	farmers	0.886	0.023	0.011	0.035	0.043	0.03
	non-farmers	0.114	0.977	0.989	0.965	0.957	8.57
Gender	Male	0.785	0.461	0.421	0.5	0.499	0.59
	Female	0.215	0.539	0.579	0.5	0.501	2.51
Age	age1644	0.221	0.576	0.536	0.615	0.633	2.61
	age4564	0.54	0.283	0.247	0.318	0.249	0.52
	age65	0.239	0.142	0.114	0.169	0.118	0.59
Ethnicity	White	0.956	0.984	0.974	0.994	0.971	1.03
Income	income1	0.143	0.491	0.452	0.531	0.485	3.43
	income2	0.535	0.399	0.36	0.438	0.396	0.75
	income3	0.211	0.081	0.059	0.103	0.09	0.38
	income4	0.109	0.029	0.016	0.042	0.029	0.27
Education	edu1	0.322	0.574	0.535	0.613	0.695	1.78
	edu2	0.463	0.385	0.347	0.424	0.264	0.83
	edu3	0.215	0.041	0.025	0.056	0.041	0.19

Table 7. Adjusted Weighted Sample (continued)

Name	Variable	Sample Mean	weighted sample			Population Mean	Adjusted weight*
			mean	[95% Conf.	Interval]		
Marital status	married	0.893	0.796	0.764	0.828	0.817	0.89
	non-married	0.107	0.204	0.236	0.172	0.183	1.91
Tenure	tenmore5	0.958	0.705	0.669	0.741	0.636	0.74
	less5	0.042	0.295	0.331	0.259	0.364	7.02

*Adjusted weight includes weight 1(farmers, gender, age, income, education), weight 2(farmers, gender, income, education, age), weight 3(income, education, age), weight 4(income, education, age), weight 5(income, education, age), weight 6(income, age), weight 7(income), weight 8 (income), weight 9(income), weight 10(income).

4.3. Weights of PSED

The PSED data were collected randomly; however, it was oversampled by gender and ethnicity to better determine out effects of gender and ethnicity. It also may have sampling biases since the survey was conducted by telephone and households without a telephone were ignored, and because a higher proportion of the respondents are women than men, since women are more likely to be at home during the day than men.

The PSED data developed two different weights: initial weights and revised weights. The initial weights were organized into a four-way table: age, gender, the four regions of the U.S., and household income (Gartner et al., 2004). Although this was a good attempt at adjusting the sample, the range of values and variances was big. Therefore, the University of Michigan calculated the revised weights based on age, gender, ethnic background, and educational accomplishment. There are two steps to conduct revised weights. First, the whole screening data set was considered as one

sample (64,622). Second, the Current Population Survey Data were integrated two years in accordance with the screening conducted. The range was reduced to 3 from 100 and the variation was reduced from 34.2% to 4.5% (Gartner et al., 2004). The PSED data adopted the revised weights, which were consistent with 6 types according to surveyed timing: Screening (all cases), Detailed1 (all entrepreneurs in initial period), Detailed2 (all entrepreneurs in period 2), Detailed3 (all entrepreneurs in period 3), Detailed4 (all entrepreneurs in period 4), and Detailed5 (all comparison group cased in initial data) (Gartner et al., 2004). The data through periods 2 to 4 is the follow-up data, which have more comprehensive information. Since this study was for the initial analysis of entrepreneurs, we applied two weights: Detailed1, and Detailed5.

CHAPTER 5

ANALYTICAL FRAMEWORK

5.1 Description of Variables

While the original PSED data and SRKR data have many different variables, there is still some overlap. We selected the variables that were common between the two samples. In total use 25 variables and 1,284 observations. The variables we used are detailed in Table 8. The dependent variable is the decision to start a new business- this is a binary variable: if the answer is "yes" then the code is "1", otherwise it is "0".

Individual characteristics include gender, age, ethnicity, unemployment status, education, tenure, number of household members and children, marital status, and entrepreneurial self-efficacy. Gender is a dummy variable: if the respondent is "male" then the code is "1", if not it is "0". In age, the reference group is 45-64 years old, and the other two age groups are people under 44 years old and people older than 65 years old. Ethnicity is a dummy variable: code "1" is for white; code "0" is for all other groups. The unemployment status code is "1", and employment (full time, part time, or temporary) is "0". For income, the reference group is under $30,000, so less than $30,000 is coded as "1"; all income of $30,000 and above is coded as "0". The middle education group is the reference group, so the low and high education groups are included in the analysis. If a person lived in their place of residence for more than 5 years, then the code is "1"; those who lived 5 years or less in their place of residence are coded "0". The household members and number of children are coded to numbers. If the respondents are married, then the code is "1". If they are not, it is "0".

Table 8. Data Description, Statistics of Variables and Results of T-test (n=1,284)

Variable	Description	Mean	Std. Dev.	t-test (applied weights)	
				Kentucky-PSED	p-values
Rural	1=rural, 0=urban	0.479	0.500	-	-
Plan to start	1= yes, 0=no	0.435	0.496	-0.346	0.004***
Gender	1=male, 0=female	0.665	0.472	-0.153	0.299
Age	Number	47.571	14.962	3.169	0.485
Age 16-44	Younger than 45	0.439	0.496	-0.074	0.581
Age 45-64	between 45-64	0.427	0.495	-0.025	0.807
Age more 65	Older than 65	0.134	0.341	0.099	0.125
Ethnicity	1=white, 0=other wise	0.858	0.349	0.140	0.000***
Unemployment	1=unemployment, 0=o/w	0.046	0.209	0.047	0.378
income 1	Income less than $29,999	0.167	0.373	0.309	0.039**
income 2	Income $30,000-74,999	0.530	0.499	-0.128	0.378
income 3	Income $75,000-124,999	0.167	0.374	-0.055	0.204
income 4	Income more than $125,000	0.135	0.342	-0.126	0.000***
Low education	Education less than high school	0.252	0.435	0.380	0.013**
Middle education	Education some college and college	0.530	0.499	-0.240	0.127
High education	Education graduate school	0.196	0.397	-0.138	0.000***
Tenure	Number	27.746	19.812	9.982	0.093*
Tenure more 5	Living more than 5 years	0.843	0.364	-0.026	0.875
Household number	Number	1.975	1.852	-2.103	0.000***
Having children	1= yes, 0=no	0.389	0.488	-0.051	0.749
Married	1=married, 0=o/w	0.803	0.398	0.075	0.521
Perceived community support	Reduced factors	0.000	0.915	0.270	0.646
Entrepreneurial self-efficacy	Reduced factors	-0.019	0.914	0.308	0.445
Population growth	Rate	0.856	1.214	-0.009	0.954
Income per capita	Dollar	30694.63	9915.71	-9526.03	0.000***
Vulnerability index	Rate	1.056	4.518	-3.153	0.000***
Population density	Rate	1302.83	5831.48	-1864.62	0.000***
Unemployment rate	Rate	5.667	1.526	1.424	0.000***

***,**, and* means statistically significant at 1%, 5%, and 10%, respectively.

1. Age and tenure are not included in the analysis.

Factor analysis with varimax rotation was used to reduce the number of variables in the analytic model by creating single variables to represent highly correlated statements. The varimax rotation in factor analysis maximizes the sum of the variances of the squared loadings; if there are high correlations the number of factors is decreased. The cronbach alpha statistic of reliability was used to evaluate possible composite variables. Two variables, entrepreneurial self-efficacy and perceived community support were derived for highly correlated statements, as shown in Table 9.

In entrepreneurial self-efficacy, the original questions included four statements; "If I work hard, I can successfully start a new business," "Overall, my skills and abilities will help me start a business," "My past experience will be very valuable in starting a business," and "I am confident I can put in the effort needed to start a business." The possible responses are ranged from 1 ("strongly disagree") to 5 ("strongly agree").

These four statements are highly correlated and can be reduced to one common factor. As a result of factor analysis using varimax rotation, the scale is reduced to one factor which represents the entrepreneurial self-efficacy. The eigenvalue is 2.407, and the explanation power of variance is 60%. Since the Cronbach alpha showing reliability is 0.772, we can use this factor.

In perceived community support, the original questionnaire consisted of five statements: "Young people are encouraged to start their own businesses in my community," "State and local governments provide good support for people starting new businesses in my community," "Bankers and investors go out of their way to help new businesses get started in my community," "Other community groups provide good support for and can be people starting new businesses in my community," and "The local

media does a good job of covering local business news in my community." These are highly correlated and these are reduced to one common factor. The eigenvalue is 2.423 and the variance is 48%. The cronbach alpha is 0.726, so we can use this factor.

Table 9. Factor Loadings of Entrepreneurial Self-efficacy (ESE) and Perceived Community Support (PCS)

Items	Factors	Eigenvalue	% of variance
Entrepreneurial Self-efficacy ($\propto$= 0.772)			
1. If I work hard, I can successfully start a new business	.664		
2. Overall, my skills and abilities will help me start a business	.856	2.407	60.183
3. My past experience will be very valuable in starting a business	.798		
4. I am confident I can put in the effort needed to start a business	.773		
Perceived Community Support ($\propto$= 0.726)			
1. young people are encouraged to start their own businesses in my community	.601		
2. state and local governments provide good support for people starting new businesses in my community	.767		
3. bankers and investors go out of their way to help new businesses get started in my community	.766	2.423	48.453
4. other community groups provide good support for people starting new businesses in my community	.729		
5. the local media does a good job of covering local business news in my community	.595		

The contextual characteristics such as population density, unemployment rate, population growth, income per capita, and vulnerability index are collected by county. The population density, unemployment rate, population growth, and income per capita

data are collected from the U.S. Census data and U. S. Bureau of Economic Analysis (BEA). The Social Vulnerability Index (SoVI) was measured by the Hazards & Vulnerability Research Institute.

5.2. Model

5.2.1. T-test: *Comparing the resources of the two groups*

A t-test is the commonly used method for comparing two samples; it determines of there is a significant difference means among samples. More specifically, if the two variances are the same when comparing the means of two independent populations, then we can use a Z-test or a Pooled-Variance T-test, if this is not the case then use a Separate-Variance T-test (Berenson et. al, 2008).

To conduct a Z-test with the same variance, we should know the variance of the population. Since we know the sample variances, we used a Pooled-Variance T-test. If we can assume the samples are randomly and independently selected from the population, then we can use the Pooled-Variance t- test (Berenson et. al, 2008).

The null hypothesis is to test of the means are the same in the two populations.

$$H_o: \mu_1 = \mu_2 \qquad\qquad (1)$$

$$H_1: \mu_1 \neq \mu_2$$

If we cannot assume two population variances, we can use Separate-Variance T-test. The formula (Separate-Variance T-test for the difference between two means) as follows:

$$t = \frac{(\overline{X_1} - \overline{X_2}) - (\mu_1 - \mu_2)}{\sqrt{(\frac{S_1^2}{n_1} + \frac{S_2^2}{n_2})}} \qquad (2)$$

Where $\overline{X_1}$ = mean of the sample from population 1, S_1^2=variance of the sample from population1,

n_1 = size of the sample from population 1, $\overline{X_2}$= mean of the sample from population 2,

S_2^2 = variance of the sample from population 2, n_2=size of the sample from population 2.

The separate-variance T-test follows a t distribution with v.

$$v = \frac{(\frac{S_1^2}{n_1} + \frac{S_2^2}{n_2})^2}{\frac{(\frac{S_1^2}{n_1})^2}{n_1 - 1} + \frac{(\frac{S_2^2}{n_2})^2}{n_2 - 1}} \qquad (3)$$

5.2.2. Logistic Model: *Comparing to the cultural tendencies of two groups*

The dependent variable in this study is binary and is equal to 1 for respondents who indicated that they plan to start a new business in the near future and 0 otherwise. To investigate the determinants of a binary choice, the logistic or probit model can be employed. In order to decide what method to use, it is important to check the degree of correlation between dependent variables. The logistic model assumes the standard logistic distribution function (M. Verbeek, 2008), and is as follows:

$$p\{y_i = 1 | x_i\} = F(x_i'\beta) \qquad (4)$$

The probability of $y_i = 1$ depends on the x_i, and $F(x_i^{'}\beta)$ is the predicted probability, which should be between 0 and 1. This standard logistic distribution function is in the logistic model:

$$F(x_i^{'}\beta) = L(x_i^{'}\beta) = \frac{e^{x_i^{'}\beta}}{1+e^{x_i^{'}\beta}} \qquad (5)$$

Unlike the linear model, the coefficients of binary model are not the marginal effects. The marginal effect is for the logistic model:

$$\frac{\partial p}{\partial x_i} = L(x_i^{'}\beta)[1 - L(x_i^{'}\beta)]\beta_i = \frac{e^{x_i^{'}\beta}}{1+e^{x_i^{'}\beta}}\beta_i \qquad (6)$$

To interpret results of a logistic regression, it is customary to use a concept of odds ratio. The equation (2) can be rewritten as follows:

$$log\frac{p_i}{1-p_i} = x_i^{'}\beta \qquad (7)$$

Where $p_i = p\{y_i = 1 | x_i\}$ is the probability of observing result 1. The left hand side refers to the log odds ratio, then the interpretation is simple. For instance, if the value of odds ratio is 3, then the odds that $y_i = 1$ is 3 times than $y_i = 0$. And if $\beta_k = 0.1$, a one-unit increase of x_{ik} increasing the odds ratio by about 10% under the ceteris paribus, it is related to semi-elasticity (M. Verbeek, 2008). This paper uses the logit model to test the hypotheses formulated above.

5.2.2.a Dependent Variable

In the logistic model, the dependent variable is binomial. The goal of the study is to determine the different factors that influence an individual to start a new business and

how these factors differ between rural and urban areas. Therefore, the dependent variable is the decision to start a new business; the question is "Are you planning to start a new business?" If the answer is "yes", then the code is "1"; otherwise, it is "0".

5.2.2.b Independent Variables

Independent variables are composed of three parts: individual characteristics, social characteristics, and contextual characteristics. Individual characteristics include gender, age, ethnicity, unemployment status, education, tenure, number of household members, having children, marital status, and entrepreneurial self-efficacy. Entrepreneurial self-efficacy is scaled by factor analysis. After factor analysis, four statements were reduced to one common factor. This one factor represents the entrepreneurial self-efficacy.

Gender, ethnicity, unemployment status, tenure more than 5 years, presence of children and marital status are dummy variables. If the respondent is "male" then the code is "1", otherwise it is "0". In age, the reference group is 45-64 years old, and the other two age groups are people under 44 years old and people more than 65 years old. Ethnicity is a dummy variable: code "1" is for white, and otherwise it is "0".

The unemployment status code is "1", and employment (full time, part time, or temporary) is "0". For income, the reference group is under $30,000, so less than $30,000 is coded "1"; all income of $30,000 and above is coded "0". The middle education group is the reference group, so low and high education groups are included in the analysis. If one lived in their place of residency more than 5 years, then the code is "1"; those who lived 5 years or less are coded "0". The household member and number of children are coded to numbers. If the respondents are married, then the code is "1". If they are not, it is "0".

For social characteristics, perceived community support is used. After factor analysis, five statements were reduced to one common factor. The contextual characteristics are population density, unemployment rate, population growth, income per capita, and vulnerability index. These variables are collected by county. The population density, unemployment rate, population growth, and income per capita data are collected from the U.S. Census data and U.S. Bureau of Economic Analysis (BEA). The Social Vulnerability Index (SoVI) was measured by the Hazards & Vulnerability Research Institute.

CHAPTER 6

EMPIRICAL RESULTS

As the determinants of entrepreneurship, we referred to the previous studies and compared two aspects: individual resources and contextual resources. Using these independent factors, we conducted T-tests to compare different resources in rural and urban areas. Then, we estimated the cultural relative effects of resources using logistic regression. Moreover, we studied the motivation of rural and urban entrepreneurs and assumed rural entrepreneurs have higher push effects than urban areas, urban entrepreneurs have higher pull effects than rural areas.

6.1. T-test Results (Resource Differences)

T-tests are useful when comparing means between two different groups. Using calculated weights, we conducted the weighted T-test. The last column in table 8, we have results of the weighted T-test. As expected, the plan to start a business rate is higher in urban areas than in rural areas. Urban entrepreneurs tend to higher income, education, income per capita, and population density than rural entrepreneurs. These results are consistent with our hypothesis; it is because cities tend to more markets, job opportunities, and schools, so the people who live in cities are more likely to start a new business receiving a higher income and education. However, the vulnerable index does not conform to our hypothesis, the index in cities are higher than countryside. The reason why the vulnerability index is higher in towns seems to be that in cities there are greater various things and number of people and events; that can cause individuals to expose numerous uncertainties and the vulnerability index weakens the environmental of firms.

Low diversity of ethnicity, low income, low education, tenure, and unemployment rate factors are more significant and influential in rural areas than in urban areas. These results support our hypotheses. Rural areas show low ethnical diversity and long tenure, which means that rural areas are static and conservative. Rural areas do not have many universities, so the educational opportunities are fewer than in urban areas. This means that rural residents tend to earn a lower income than their urban counterparts.

Unemployment rates are also higher in rural areas than in urban areas because there are fewer job opportunities. These results show that the entrepreneurs who live in cities tend to be competitive and more employable. The entrepreneurs who live in rural areas have a propensity to continue living their secure lifestyles - they don't move frequently from their location. Nevertheless, household numbers in rural areas are lower than in cities. This result differs from the hypothesis, perhaps because in rural areas there is a lack of young people and the elderly live without their children, so the number of household members is lower than in urban areas.

In contrast to what was proposed in the hypothesis, expected self efficacy, the perceived community support, age, gender, number of children, and marital status are not significantly different between urban and rural areas. These results differ from the study by Marshall (2006) which showed that the female in urban areas is more likely to start a business than the female in rural areas. According to these results, there is not a big difference in individual characteristics and social networks between urban and rural areas. It appears that environment does affect infrastructure such as available education and job market resources though.

Overall, urban areas have more vitality than rural areas since they have hold attractions for entrepreneurs looking to start a new business, such as individual and economic resources. This comparison is a superficial analysis of the two different locations. To enhance, better to obtain more profound examination of two new different types of entrepreneurs, we exploited the regression model.

6.2. Logistic Regression Results (Cultural differences)

The difference in available resources can potentially account for the difference in the entrepreneurship rate between rural and urban areas. However, it is also important to investigate whether the role of these resources is similar or different in diverse settings. The logistic regression was conducted to disintegrate factors of nascent entrepreneurs in rural and urban areas.

Recall that the estimated equation is

$$p\{y_i = 1 \mid x_i\} = \beta_0 + \beta_i x_i + \beta_j x_i * rural \qquad (9)$$

In order to evaluate whether the role of various resources is the same in rural and urban settings, a number of interaction terms were included in the model. If a particular resource has an average effect on the probability of forming entrepreneurial intentions, then, it is a marginal effect of the resource on the probability to form entrepreneurial intentions in urban and rural areas. The null hypothesis is:

$$H_0 : \beta_i = \beta_i + \beta_j \qquad \text{Or} \qquad H_0 : \beta_j = 0 \qquad (10)$$

The results of the logistic model are in table 10. The dependent variable is to start a new business and this model includes the interaction terms with rural areas. The results

show that people who live in rural areas are more likely to start a new business. This means that the cultural effects of nascent entrepreneurs in rural areas are higher than the effects of those in urban areas. Therefore, if the proper support or education system is provided, the response to policies in rural settings is greater than in urban areas.

Some resources which are suggested previous analysis are not significant to starting a new business. Men, young people, white people, unemployment status, household member, having children, and entrepreneur self-efficacy, perceived community support and population density are significant to start a new business. Moreover, old people, low education, long tenure, marital status, income per capita, and vulnerability index are significantly different between rural and urban areas.

Among the individual resources, as expected, younger people (less than 45 years) are more likely to start a business than middle age people are. However, men are more likely to start a new business. Additionally, men and older people living in rural areas are less likely to start a new business. Perhaps these results reflect a preference of men to be self-employed rather than be an employee. Young people may have more passion and less responsibility and so are more willing to start a business than middle aged people are. Older people are not significantly likely to start a new business. However, older rural residents may be afraid to start a new business because they do not want to incur the risk.

White people and those that are unemployed are less likely start a new business, and if these people live in rural areas they are less likely to start a business than they would be in urban areas. White people, as expected, might feel more comfortable in their current workplace than other ethnicities do in the U.S, therefore there is less of a push

effect on them, and so their tendency to start a new business is low. Contrary to the hypothesis, unemployment does not have a strong push effect on new entrepreneurs, because unemployed people may lose confidence and invest less seed money in starting a new business. In particular, unemployed people living in rural areas may show a lower probability of starting a business because they may receive a great deal of support from their families and relatives, and friends and do not want to take the risk.

Contrary to expectations, income and education do not have a significant effect on the decision to start a new business; however, people who earn a higher income or live in rural areas and have a lower level of education are more likely to start a new business. This is because there are fewer competitors in rural areas than in cities, even though rural areas have a smaller market space. This might attractive factors for higher income person who has highly potential investment. Low education living in rural areas is significant push effect to start a new business, the low educated people living in rural areas have low opportunities to make a job and rural areas do not have various employed job, they want to start a new business.

A long tenure does not have a significant effect on the choice to start a new business, but if someone has been living in rural areas for more than 5 years, he/she would be less likely to start a new business. The lives of people who live for a long time in the countryside are stable and secure, so they don't want to change their life or take a risk; this is sort of push motivation and the rate of making a new business might be lower than the middle age and short tenure (living less than 5 years in current areas) groups.

Table 10. Results of Logistic Model

Plan to start a business (Dependent variable)		Coefficient		Marginal effect		Odds ratio	
		β	S.E	dy/dx	S.E	Odds ratio	S.E
Location	Rural	12.858	10.641	0.968	0.118*	383,926	4,085,205
Individual Resources	Gender	0.764	0.190*	0.129	0.040*	2.148	0.408*
	Gender*rural	-4.900	3.404	-0.529	0.227**	0.007	0.025
	Age 1644	0.472	0.235**	0.078	0.041***	1.603	0.377**
	Age 1644*rural	-0.698	1.633	-0.112	0.258	0.498	0.813
	Age more 65	-0.024	0.567	-0.004	0.095	0.976	0.553
	Age more 65*rural	-4.897	2.959***	-0.298	0.066*	0.007	0.022***
	Ethnicity	-0.613	0.249**	-0.119	0.057**	0.542	0.135**
	Ethnicity *rural	-7.078	2.768**	-0.939	0.087*	0.001	0.002**
	Unemployment	-0.950	0.511***	-0.125	0.057**	0.387	0.198***
	Unemployment *rural	-5.729	6.054	-0.269	0.056*	0.003	0.020
	Low income	0.099	0.254	0.017	0.044	1.104	0.280
	Low income *rural	0.165	2.005	0.029	0.350	1.180	2.366
	High income	0.426	0.301	0.080	0.063	1.532	0.460
	High income *rural	3.865	4.937	0.720	0.364**	47.709	235.531
	Low education	0.230	0.269	0.040	0.047	1.259	0.339
	Low education *rural	9.552	3.418*	0.983	0.028*	14,073	48,105*
	High education	-0.048	0.246	-0.008	0.041	0.953	0.234
	High education *rural	0.298	3.752	0.055	0.742	1.347	5.055
	Tenure more 5	-0.172	0.220	-0.030	0.039	0.842	0.185
	Tenure more 5*rural	-5.385	2.838***	-0.741	0.231*	0.005	0.013***
	Household member	0.180	0.083**	0.031	0.015**	1.198	0.100**
	Household member *rural	-1.117	1.190	-0.190	0.201	0.327	0.389

Table 10. Results of Logistic Model (continued)

Plan to start a business (Dependent variable)		Coefficient		Marginal effect		Odds ratio	
		β	S.E	dy/dx	S.E	Odds ratio	S.E
Individual Resources	Having children	-0.713	0.294**	-0.119	0.053**	0.490	0.144**
	Having children *rural	1.698	2.240	0.339	0.503	5.464	12.237
	Married	-0.028	0.250	-0.005	0.043	0.972	0.243
	Married*rural	2.827	1.716***	0.467	0.271***	16.893	28.984***
	Entrepreneur self-efficacy	0.876	0.155*	0.149	0.039*	2.402	0.371*
	Entrepreneur self-efficacy*rural	0.733	0.616	0.125	0.106	2.081	1.282
Contextual Resources	Perceived community support	-0.282	0.126**	-0.048	0.023**	0.754	0.095**
	Perceived community support *rural	-3.268	1.487**	-0.556	0.201*	0.038	0.057**
	Population growth	0.096	0.081	0.016	0.014	1.101	0.090
	Population growth*rural	0.583	1.082	0.099	0.184	1.791	1.939
	Income per capita	0.000	0.000	0.000	0.000	1.000	0.000
	Income per capita *rural	-0.000	0.000**	0.000	0.000***	1.000	0.000**
	Vulnerability index	-0.033	0.039	-0.006	0.007	0.968	0.037
	Vulnerability index *rural	-0.407	0.225***	-0.069	0.038***	0.666	0.150***
	Population density	0.000	0.000***	0.000	0.000	1.000	0.000
	Population density*rural	0.006	0.002*	0.001	0.000**	1.006	0.002*
	Unemployment rate	0.026	0.072	0.004	0.012	1.026	0.074
	Unemployment rate*rural	0.050	1.039	0.008	0.177	1.051	1.092
Constant		-0.133	0.761	-	-	-	-
Log likelihood		-351.3596		-		-351.3596	
χ^2		189.41		-		189.41	
Pseudo R^2		0.5114		-		0.5114	

*,**, and*** means statistical significant at 1%, 5%, and 10%.

As for the number of household members, the greater the number, the higher the probability of starting up a business – but there is no significant difference between rural and urban areas. Different with employed jobs, decision making of the entrepreneurs is independent and entrepreneurs can adopt the household members as a resource for making business. So the household members can provide direct labor as well as some information and advice. However, having children has a negative effect on the start up a business. Having and raising children is expensive in terms of time, labor, and capital – these forcing parents to choose a safe job and avoid risk. In rural areas, marriage is a good motivation to start a new business. Rural life styles are more family centered than city life style, and marriage makes a rural person feel more secure and confident so they embrace risk and get support to create their new business.

As expected, the entrepreneur's self-efficacy is a significantly positive effect on the start-up of a business. However, there are not significant different with rural and urban settings. Since those with self-efficacy believe that they can reach the goal, this is a good pull effect for new entrepreneurs.

As results of contextual resources, different with expectation, those who have high perceived community support are less likely start a business, especially those in rural areas. Perceived community support has two possible effects on novice entrepreneurs: if someone notices high perceived community support, he/she may have high confidence and make a firm more active even though the real world does not match up with their thought. As for the other aspect, if someone perceives high community support, he/she may not want to start a new enterprise. Because they might think that this good condition can make many competitors as attractive to new business field, or this

factor comes from the outside, so the new entrepreneurs might does not care too much. Beyond this, the perceived community support might be close to a push effect.

As expected, vulnerable index are not significant curb factors for starting a business, however, in rural areas, these index is significantly negative effect on the start a new business. This is an obvious result - no one wants to gladly embrace uncertainties, unexpected disasters, and risks. Population density, especially in rural areas, has a significant impact on the start of a new business. If there is a high population density, it means there can be high demand and big markets; this is a good factor for starting a new business. Rural areas have lower population densities than cities do, so given the law of diminishing marginal returns the effect of population is bigger than in urban areas.

The coefficients of the logistic model are changed by the scale of variables, so it does not imply marginal effects like a linear regression would. We further investigated the analysis and adopted the marginal effect. People who live in rural areas are 97% more likely to start a new business in comparison with live in urban areas. This means that location is one of the most important determinants to starting a new business.

Males are 13% more likely to start a new business than females. However, males living in rural areas are 53% less likely to start firms than males living in urban areas. This implies women have more flexibility to get another non-entrepreneurial income, and rural areas are not as attractive as urban areas for men who want to start a new business. Young people are 7.8% more likely to start a new business than those who are middle aged. The interaction term shows that older individuals living in rural areas are 30% less likely to start a new business than middle age persons. This result is similar to the

hypothesis; when old people want to start a business, those living in rural areas tend to lack of passion and sophisticated technology although they have good experiences.

White people are 12% less likely to start a business, and this effect is greater in rural areas at 94%. In rural areas, the interaction term between lower education and rural areas shows that rural people with low education are 98% more likely to start a new business. This result is in accordance with previous studies and shows that start of a new business is push effects to improve incomes.

As expected, tenure can have an effect on the start of a new business. The interaction term between longer tenure and rural areas shows that rural residents with longer tenure are 74% less likely to start a new business. When moving to rural areas, the people who live in an area less than 5 years are more progressive than the other lengths of residency, but they become accustomed to the security of rural life as time passes.

In contrast to what was expected, the number of household members is 3% likely to start a new business. Families are a good motivation to start a business, since they encourage each other and provide the labor and information to support new activities. Having children has a negative effect on the start-up business; those who have children are 12% more likely to start a new business. Because of expenses for supporting children, people might avoid taking risks.

Entrepreneurs with a sense of self-efficacy are 15% more likely to start a business. Meanwhile, perceived community support is 4.8% less likely to influence the start of a business, this effect is prominent in countryside it shows negative effect as 55.6% in rural areas. The results show that an entrepreneur's self-efficacy directly spurs

the beginning of a new business as an innate characteristic. However, perceived community support is not an innate characteristic; it cannot directly affect the start of a business. These results show that individual motivation is more important than the community support perception for starting a business.

The economic characteristics significant affect the start of a business, especially its contribution is higher in rural areas, but the magnitude is small. Vulnerability index in rural areas are 6.9% less likely to start a business, and population density in rural settings are 0.1% more likely to start a new business. This results show that the motivation of nascent entrepreneurs which comes from their insight and individual characteristics are more essential than economic resources. To sum up, the main determinants of the entrepreneurs' role are the individual characteristics; the contextual characteristics are less crucial.

Moreover, odds ratio is also good measurement in a logistic model, it can be measured the ratio between the event which will be occurred and the event which will not be occurred. The rates of start-up entrepreneurs of men living in rural areas are twofold as likely as the rate of non-start-up entrepreneurs. In rural areas, the rates of start-up entrepreneurs with married person are 17 times higher than the rate of non-start-up entrepreneurs.

The third hypotheses are for the push and pull effects. Among the independent variables, the examples of the push effects are low income and education, and unemployment rate. As the examples of pull effects, we can see high income, household member and income per capita. Because, nascent entrepreneurs in rural areas respond

more sensitive with push effects, rural areas have higher push effects accordance with hypotheses. In case of pull effects, it is less in rural areas, so we can see the pull effects are higher in urban areas than rural areas.

CHAPTER 7

SUMMARY AND CONCLUSIONS

7.1 Summary of Findings

Entrepreneurs use resources effectively and create the market proactively often without government subsidies. Therefore, stimulating and supporting the entrepreneurs are influential to spur the economy. The goal of this paper is to investigate why the rate of rural entrepreneurship is lower than the rate of urban entrepreneurship. The paper identifies two potential reasons. One potential reason is that the urban setting offers more resources important for forming entrepreneurial intentions. Another potential reason is that available resources have different effects on entrepreneurial intentions in rural and urban regions (i.e. a lower effect in rural setting). To do this we conducted t-test and logistic regression using PSED and SRKR data. The results suggest that both reasons are likely to contribute to the difference in the entrepreneurial rate between rural and urban settings.

Even though the Kentucky data are not fully representative of the rural area in the U.S., the research of the entrepreneurs in other rural areas is not vigorous, so these data and study are worthwhile. We studied the different characteristics of rural and urban start-up business in individual and contextual resources and cultural tendencies. As the result of comparing resources, the rate of decisions to start a business is higher in urban areas than rural areas. In individual characteristics, entrepreneur self-efficacy, ethnicity diversity, employment statue, education level, number of household members and income in urban areas are higher than in rural areas. Among economic resources, income per capita, vulnerability index, and population density are more significant and greater in

urban areas than in rural areas. However, the population growth rate and unemployment rate are higher in rural areas than in urban areas.

In the logistic model, the main determinants of entrepreneurs' roles are the individual characteristics; especially gender, age, ethnicity, income, tenure, household member, and entrepreneur self-efficacy. The contextual characteristics are less essential. Even though there are some probabilities to collect economic variables, the effects of economics resources are lower. As a result, we can see the critical determinants for essential differences between urban and rural entrepreneurship; the individual characteristics are more essential than the economic resources.

7.2 Conclusions and Discussions

We investigated the rate of rural and urban entrepreneurship and analyzed what made the difference between rural and urban settings. When we compared the rural and urban areas, the main gap seemed to be in resources. In rural areas, there are fewer economic resources and education or job opportunities; however, it has fruitful potential. Rural areas have lower production and labor costs, as well as good environmental resources. In urban areas, even though there is great demand, easy-to-find financial and labor resources, and good promotion programs, there are some problems--such as high competition and low environmental quality. As we expected, urban areas have fluid economic resources.

Economic resources are important when starting a new business. But, the individual resources are also crucial variables. Such as the individuals including men, younger, non-white, less tenure, married people who are more likely to start a new

business. Moreover, innate characteristics are more important than community or contextual resources. Self-efficacy is the most representative variable among innate characteristics; if someone has high self-efficacy, he/she is more likely to create a new business. This is a good motivation and pull effect, even when the novice entrepreneurs run into trouble, those with this self-efficacy factor suffer less harshly and are wiser than other people. This term is not unfamiliar in economics; however, it is closer to the practical model and world, demonstrating that these physical factors should be considered.

7.3 Policy Implications

Entrepreneurs play a pivotal role in business activities and spur economic growth. Although entrepreneurs are highly proactive and self-motivated, if policy makers create favorable business environments, then the start-up businesses would be invigorated and have greater longevity. This study analyzed the behavior of nascent entrepreneurs with individual, community, and economic environment characteristics in rural and urban areas.

Most entrepreneurs programs focus on the small entrepreneurs to support their existence or to protect from the closing. This study analyzed the differences between rural and urban entrepreneurs in terms of two aspects: individual/contextual resources, and cultural effects. In accordance with these results, the policies or the related programs can be designed for rural and urban areas. First, after comparing individual and contextual resources in rural and urban areas, as we expected, resources are more abundant in urban areas than in rural areas. Rural areas are dominantly the male, old, white, married people, have long tenure, unemployment status and high population growth rate than urban areas. Urban areas have more young, the low and high income;

have short tenure, household number, having children, self-efficacy, income per capita, vulnerability index and population density then rural areas.

To reduce the differences between rural and urban areas and to make better places for start-up businesses, rural policy makers should focus on promoting rural areas to be more active, vivid and diverse places. Because rural areas tend to show stationary environments, if the policies or programs are for designed for more flexible for movement and communication, then the community will be invigorated and the people living in rural areas get more information to achieve their goals. In the case of urban areas, where young and diverse people live, the motivation for building a new business is higher than in rural areas. However, in cities there are some sorts of negative byproducts accompanied with higher incomes: a high vulnerability index and a high population density. So the policies in urban areas should concentrate on the alleviation of negative effects with development rather than on the stimulation of enthusiasm of individuals.

Secondly, we found different cultural effects between rural and urban areas. In rural areas, the people who are male, older, white, have a lower income, and live for shorter periods in their current residence are more likely to participate in new businesses. These people tend to be weak and vulnerable, having less experience, capital or information. Thus, rural policymakers should provide a way of how to manage risks for new entrants.

In urban areas, the individuals who are young or have high self-efficacy are more likely to establish new firms. However, the perceived community support has a negative effect on a new business. This shows that those in cities believe that it is important to embrace risks, but dependence on other people or programs such as community support

are obstacles when opening new enterprises. Even if self-efficacy is a good determinant which highly increases the probabilities of achieving a goal and continues motivation for new frontiers, it is intriguing that this factor is only significant in urban areas. Therefore, urban policymakers should focus on a design to boost self-efficacy for entrepreneurs; however, the specific programs are unclear. We are able to start at this point, casting a tolerant eye over previous experiences or mistakes in psychology, and we can move to more visual and practical programs. Besides, a number of households and having children have a different effect on start-up businesses in rural and urban areas.

In rural areas, having fewer household members and having children are good for creating new businesses, while in urban areas having more household members and fewer children is favorable for participants in new businesses. These results imply that in rural areas, smaller families and shorter tenure tend to start new things. Thus, rural policy makers should support the education of children, while providing the adults opportunity to enter consultant programs. On the other hand, in urban areas, new entrepreneurs receive help from their household members, but the effectiveness of children is minor. In cities, the expense for raising children is high, so having children makes parents abandon their new plans or risks, so urban policy makers should provide financial incentives and risk management for parents starting new businesses.

7.4 Limitations of the Study and Suggestions for Further Research

This paper is meaningful as it attempts to compare rural and urban start-up entrepreneurs. Start-up entrepreneurs are active and create many job opportunities, so the study is useful. However, there are some pitfalls. One is that the two samples compared

are not the same. The surveyed period is not in the same condition. One is conducted from 1998 to 2003, while the other is from 2005 to 2006. There may happen to be some gaps. Second, to collect the economic variables, we should find the related data from 2000 Census data. This period is not exactly matched with the two samples. And the reason why the population growth rate is higher in rural areas than urban areas is ambiguous. The economic data come from different sources (Census data and BEA) and is modified by fips codes. It may result from the bias of resources.

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