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THE ABILITY OF SELF-EMPLOYMENT TO SUPPORT
HISPANIC HOUSEHOLDS IN THE SOUTHWEST
AT A LEVEL ABOVE POVERTY

Dissertation

Presented in Partial Fulfillment of the Requirements for
the Degree Doctor of Philosophy in the Graduate School
of The Ohio State University

By

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* * * * *

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1997

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ABSTRACT

The United States is becoming a more diverse society both racially and ethnically and this phenomena is often referred to as the "browning of America" (Aponte, 1993, p. 527). The composition of the United States' work force is also becoming more diverse and this diversity is partly due to the growing presence of Hispanic workers. This study examines whether self-employment is an option that will enable the Hispanic householder who resides in the Southwest portion of the United States to earn a living that will keep his/her household above the threshold of poverty.

Self-employment is an option that has been considered a viable economic alternative for minority populations facing barriers to gainful employment in the traditional wage and salary labor market. Therefore, self-employment might be considered an alternative employment option for Hispanic householders residing in the Southwest portion of the United States.

The data used for the analysis in this study were drawn from the five percent "A" sample of the 1990 Census of Population and Housing Public Use Microdata Sample. Self-employed Hispanic householders are 8.1 percent of all Hispanic householders—roughly equal to previous studies. Among self-employed Hispanic householders who reside in the Southwest portion of the United States, 56.3 percent
have earnings above the poverty threshold, while 43.7 percent have earnings below the poverty threshold.

A multi-disciplinary approach was used to examine self-employment earnings above the poverty threshold of Hispanic householders residing in the Southwest portion of the United States. The model used drew from the following disciplines: economics (human capital theory), sociology (assimilation), and family science (individual and relationship capital).

The results suggest that human capital, assimilation, and individual and relationship capital variables differ for both the self-employed Hispanic householder with earnings above the poverty threshold and the self-employed Hispanic householder with earnings below the poverty threshold. Also, human capital, assimilation, and individual and relationship capital offered economic benefits for the self-employed Hispanic householder with earnings above the poverty threshold. The results from this study suggest that Hispanic householders are choosing self-employment as an employment option and also that a little over half of the self-employed Hispanic householders residing in the Southwest portion of the United States are above the poverty threshold.
To My Loving and Supportive Husband

Mark Arthur Zuiker
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CHAPTER I
INTRODUCTION

The United States is becoming a more diverse society both racially and ethnically. By the 21st century, the Hispanic population will surpass the African American population as the nation’s largest minority group (Pitts, 1990; DeFreitas, 1991). Today, about one in ten Americans are of Hispanic origin and it is projected that by the year 2050, nearly one in four Americans will be of Hispanic origin (U.S. Bureau of the Census, 1995b). This phenomena is often referred to as the “browning of America” (Aponte, 1993, p. 527).

The composition of the United States’ work force is also becoming more diverse and this diversity is partly due to the growing presence of Hispanic workers. Self-employment is an option that has been considered a viable economic alternative for minority populations facing barriers to gainful employment in the traditional wage and salary labor market. Self-employment is considered a leading sector of job growth and has a higher incidence of poverty among its workers (Aronson, 1991). However, despite the higher incidence of poverty among the self-employed, programs promoting small business are being implemented as a means to enable individuals to work their way out of poverty.
Even though racial and ethnic minorities have increased their rates of participation in self-employment (Aronson, 1991), they are underrepresented in this employment option. The self-employment rate of the Hispanic population is lower than the general population’s rate, however, the number of self-employed Hispanics has increased over the years (DeFreitas, 1991; Devine, 1994). Moreover, Hispanic Americans have a higher incidence of poverty and a higher incidence of unemployment than the general population. Therefore, it is important to further investigate whether self-employment is an option that will enable the Hispanic householder to earn a living that will keep his/her household above the threshold of poverty. The purpose of this study is to ascertain whether self-employment is a feasible economic alternative for the Hispanic population residing in the Southwest portion of the United States to stay above the poverty line.

Rationale for the Study

Over thirty years ago, poverty was considered a top national priority; today, poverty is just one of several concerns. During the Johnson Administration in 1964, the War on Poverty was declared. Since President Johnson declared the War on Poverty, poverty has lessened in the decades that have followed, but the progress came to a halt in the mid 1970s (Danziger, Haveman, & Plotnick, 1986; Danziger, Sandefur, & Weinberg, 1994; Danziger, & Gottschalk, 1995).

When the War on Poverty was declared, 19 percent of the population was poor. The level of poverty continued to decline through the remaining period of the 1960s
and reached a historic low point of 11.1 percent in 1973. In 1983, the poverty rate rose sharply to 15.2 percent and was the highest level since 1965 (Danziger, Haveman, & Plotnick, 1986; Danziger, Sandefur, & Weinberg, 1994; Danziger, & Gottschalk, 1995). In 1992, 14.5 percent of Americans were below the official poverty level (Danziger, Sandefur, & Weinberg, 1994; Danziger, & Gottschalk, 1995; U.S. Bureau of the Census, 1993b). Therefore, poverty is more widespread than many Americans want to realize and it is a condition that more and more Americans can expect to experience in their lifetime.

The welfare system of the past is going through reform. Woodson (1996) pointed out that the welfare system of thirty years ago failed for a variety of reasons. Some of the reasons given for its failure are it did not require reciprocity, it did not provide incentives for work, and it actually discouraged work and savings.

A key word in welfare reform today among the state and federal policymakers is devolution (Haveman, 1996). Devolution is defined as “... a policy shift that involves the transfer from the federal government to states of both money and responsibility for assistance to the low-income population” (p. 21). What this means is that money and responsibility will flow to local units and states and local jurisdictions will be challenged to rethink the nature and purpose of traditional welfare programs.

Even with welfare programs, many Americans have experienced hard economic times since the early 1970s. Two reasons for these hard economic times are slow economic growth and increasing inequality in earnings and family incomes (Danziger, and Gottschalk, 1995). Family incomes have grown very little in the past twenty years.
Today, many workers have lower earnings than they did in the 1970s—after adjusting for inflation (Danziger & Gottschalk, 1995).

Hispanic families, like African American families, have not fared well in recent years (U.S. Bureau of the Census, 1995a; Aponte, 1993). During the late 1970s to 1987, Hispanics experienced a decline in family incomes. Hispanic families are more likely to fall below the official poverty line than the general population (Ford Foundation, 1984; U.S. Bureau of the Census, 1993a; U.S. Bureau of the Census, 1995a). In 1982, about 30 percent of Hispanic persons lived below the poverty level (just after the recessionary period of 1981-1982). In 1989, the Hispanic poverty rate declined to 26.2 percent, but rose to 29.3 percent in 1992. Although the Hispanic population was only 8.9 percent of the total population, 18 percent or one in every six persons living in poverty in the United States was of Hispanic origin (U.S. Bureau of the Census, 1995b).

In 1989, four states in the Southwest portion of the United States had poverty rates above the national average for Hispanic residents (U.S. Bureau of the Census, 1993a). These states were Texas (33.0%), Arizona (28.3%), New Mexico (27.8%), and Colorado (25.5%). Only California had a poverty rate below the national average for its Hispanic residents (21.6%).

Several factors account for Hispanic families falling below the poverty line. These features include the Hispanic population's lower average age and educational level, regional concentration, under-representation of Hispanic professionals, discrimination, lower family income, larger family size, and higher rates of
unemployment than most other groups (Andreasen, 1982; Arrellano, 1984; Hogan, 1975; Wilson-Figueroa, Berry, & Toney, 1990). Additional factors accounting for the increasing numbers of Hispanic families in poverty are lower wage rates, cuts to federal and state sponsored social programs such as Aid to Families with Dependent Children (AFDC) and food stamps, increase in the number of families headed by females, and the widening of the gap between rich and poor people in the United States (Gantz, 1988).

The Hispanic unemployment rate has continued to be consistently higher than the rate for the non-Hispanic population. In 1983, the unemployment rate for Hispanics rose sharply to 16.5 percent and declined to 7.8 percent in 1989, but rose to 11.3 percent in 1992. By contrast, the unemployment rates for the non-Hispanic population were 10.6 percent, 5.2 percent, and 7.5 percent for the same years (U.S. Bureau of the Census, 1993a). Cattan (1988) gives four reasons why there are high rates of unemployment among the Hispanic population. These include large number of recent immigrants to the United States, lower levels of educational attainment, greater likelihood of being employed in occupations that are vulnerable to business cycle downturns, and their greater likelihood of being labor market entrants. In 1987, among all Hispanic workers Mexican Americans and Puerto Ricans had the highest jobless rates while the Cubans’ rate was much lower (Cattan, 1988).

Self-employment historically has been considered one of the key mechanisms for getting ahead (Goldscheider & Kobrin, 1980). An attraction to self employment is the notion of being one’s own boss (Steinmetz & Wright, 1989) long part of the great
American dream (Daum, 1984). A popular belief in the American culture maintains that ownership of small-businesses is a means of upward mobility for individuals who are hard workers (Aronson, 1991; Bates, 1994). Self-employment is regarded as a highly desirable career pursued by many Americans (Goldscheider and Kobrin, 1980). Also, many individuals believe that if the labor market is not rewarding them for their skills and effort, self-employment is an alternative employment option (Bates, 1994).

However, when considering self-employment as an employment option, one should also take into consideration that risks are involved. Some risks include depleting one’s life savings, losing accumulated pension benefits built up from a wage and salary job, and losing other perks that are contingent upon continued job tenure (Daum, 1984). Another risk is whether the business will still be in operation a year to two years after the day it began operation.

Schultz (1980) stated that risk taking is not a unique attribute of entrepreneurs. He adds that individuals who are not entrepreneurs also assume risks. For example, in a dynamic economy there would be entrepreneurs and risks, while in a static economy there would be no entrepreneurs but there would be risks (Schultz, 1980).

Aronson (1991) points out that the self-employment rate has been rising during a period in which the disparity in income between wage and salary workers and the self-employed workers has been increasing and concludes that this increase has been supply driven. He further states that the income effect is much stronger than among otherwise comparable wage and salary workers, since, on average, self-employed earners work longer hours for relatively lower returns to their labor compared with
wage and salary earners. Both of these inferences suggest that self-employed workers are different in their motivations and their responses to market incentives than comparable wage and salary workers.

Another possible explanation for the increase in self-employment may be labor market imperfections (Aronson, 1991). Aronson (1991) further states that this imperfection may be due to both the quality and cost of information. Three factors that may contribute to the lower earnings and high turn-over in the self-employment sector resulting in high failure rates among these small businesses include "underestimation of the capital required to sustain the enterprise beyond infancy, overvaluation of one's managerial ability and experience, and insufficient knowledge of the product market." (p. 126). These potential explanations of the rising self-employment rate raise the question of whether investing resources in training individuals to enter self-employment is a better aid to upward mobility than investing resources in improving the competitive position of workers in wage employment.

With passage of the Family Support Act of 1988, the anticipation was that welfare dependency would be greatly reduced by offering educational programs and jobs for those individuals who are both physically and mentally able to work (Evers-Williams, 1996). It was also envisioned that these trained individuals would then enter the labor force and contribute to their own economic stability. However, Woodson (1996) stated that the evaluations of these government-funded job-training programs revealed that the training was inefficient in preparing its trainees to enter the work force successfully. Woodson (1996) further stated that the reason these government-funded
job-training programs were inefficient in preparing trainees to enter the job market successfully was that a limited number of the programs that were reviewed had not kept records of the placement rates of the trainees, while those that did keep records had shown little success.

Successful job placements have been noted through a number of neighborhood-based private job-training initiatives. These groups had a personal stake in their effectiveness and the training programs emphasized outcomes rather than the process (Woodson, 1996). Both personal responsibility and solid work ethic were stressed in these community based programs. Furthermore, these participants were prepared to compete in the job market.

In recent years, an approach that has attracted considerable attention from those interested in finding new routes out of poverty and welfare is to encourage low-income people to become self-employed (Guy, Doolittle, & Fink, 1991; Balkin, 1989). Traditionally, the wage and salary employment sector was a means to help the poor escape both poverty and reliance on public assistance. For example, employment programs designed to help the low-income individual find a job would start by searching the existing businesses. However, this traditional approach had obvious limitations. In some areas of the country, few companies were hiring new employees due to the depressed local economy and those employers who were hiring were reluctant to hire these workers since they often were viewed as lacking basic work and academic skills (Guy, Doolittle, & Fink, 1991).

Therefore, programs promoting small business creation as a means to assist
low-income individuals to work their way out of poverty are being implemented and are becoming more popular. According to Balkin (1989), "the growth in these entrepreneurial training programs is a response to the increase in demand for them by individuals, and an attempt by organizations to provide alternative private sector-oriented training options" (p. 113). This growth is usually attributed to creativity in attempting to provide new avenues leading to additional jobs (Balkin, 1989).

Woodson (1996) stated that "programs that encouraged microenterprise development and small business creation should be encouraged" (p. 18). Woodson (1996) also proposed the following: 1) these programs should be able to receive state and local block-grant funds, 2) partnerships should be developed between the traditional private lending institutions and the local microlending programs, and 3) miniloans are desperately needed for these small business and entrepreneurial ventures possibly through secondary financing markets.

In the past, fostering the spirit of starting one's own business among low-income people as a vehicle to expand their employment opportunities would have been considered a rarity (Guy, Doolittle, & Fink, 1991; Balkin, 1989). Today, more than 100 programs are operating in the United States that offer training and assistance to low-income individuals to start up their own business. One such program is Self-Employment Investment Demonstration (SEID). Four states participated in SEID since its inception in 1987. These four states are Iowa, Michigan, Minnesota, and Mississippi. SEID "...is a test of the feasibility of operating a program to encourage
self-employment by recipients of Aid to Families with Dependent Children (AFDC) . . .

SEID is designed to help AFDC recipients open their own businesses by means of a three-fold intervention” (p. 1). Those participating in SEID would receive the following: intensive training in personal and technical skills needed to start their business; they would be exempt from certain AFDC regulations; and assistance would be available to apply for business financing.

Another measure to encourage self-employment for low-income persons is the Community Reinvestment Act, through which individuals residing in low and moderate income areas may approach banking institutions in their local communities for loans which are for business start-ups. The Community Reinvestment Act of 1977 is a law that requires banks to serve all customers equally in the neighborhoods where they accept deposits.

Balkin (1989) states that he is not advocating self-employment as an “economic development or job generation policy in general” (p. 4), but rather “it offers an opportunity that low-income people should be in a position to consider” (p. 4). One reason for Balkin’s neutrality is that, on average, the self-employed worker had lower earnings and income compared to the wage and salary worker (Aronson, 1991). Also, the poverty rates of the self-employed worker are higher than for the wage and salary worker and the risks of starting a business are high.

Again, this raises the issue of whether investing resources in training individuals to enter self-employment is a better means of upward mobility than investing resources in improving the competitive position of workers in wage employment. Ehrenberg and
Smith (1988) discussed that having training programs was a worthy enterprise, however these programs may not be the most efficient way to do this. Ehrenberg and Smith (1988) raised the issue that society would have to bear the cost of paying the salaries of the instructors plus purchasing capital equipment instead of giving the money that would be spent directly to the poor.

So how could one be sure that these programs were wise investments? Ehrenberg and Smith (1988) suggested that the only way one could be sure that the investments placed in these training programs were socially productive was to weigh the costs against increases in productivity. However, this would not be an easy task. A suggestion was offered to look at the wage increases of trainees to obtain an idea as to whether productivity increased. Then ask the question: Do these returns justify the costs?

Purposes and Objectives of the Study

Although self-employment is a subject of increased interest and a leading sector of job growth, there is limited empirical work that focuses specifically on the Hispanic population, and none of it ascertains the extent to which self-employment lifts Hispanic families out of poverty. Several factors have contributed to the importance of researching self-employment and the Hispanic population. First, the Hispanic population experienced both a reduction in earnings and a higher incidence of unemployment which makes them good candidates for these self-employment training programs that are targeted specifically to the low-income population. Second,
Hispanics are poor and were eligible for previous welfare programs, which is a cause of concern since the welfare system of the past has changed and support that was once available may not be available in the future. As a result, Hispanics are more likely than the general population to be affected by the reductions in low-income programs (Center on Budget and Policy Priorities, 1988). Lastly, the number of self-employed is rising even among the Hispanic population which indicates that Hispanics are choosing self-employment as an employment option. So it is important to first examine the extent to which self-employment enables the Hispanic population residing in the Southwest portion of the United States to stay above the poverty line. Second, would these findings lend support to investing resources into these self-employment training programs targeted to the low-income population or would they suggest that it would be wiser to invest resources into improving the competitive position of workers in wage employment?

Previous studies have compared the propensities for self-employment between native-born and foreign born Hispanics, while other studies have focused on self-employment earnings as a measure of relative success. This study attempts to synthesize the literature on both the propensity to become self-employed and the earnings of the self-employed and incorporate a standard of sufficiency against which earnings can be measured by examining earnings above the poverty threshold derived from self-employment. By using this technique, it is possible to determine which characteristics contribute to a Hispanic householder’s self-employment earnings and staying above the poverty threshold.
This research study will address the following questions. Who is the
self-employed Hispanic householder who resides in the Southwest and has earnings
above the poverty threshold? How are they different from the self-employed Hispanic
householder that has earnings below the poverty threshold? What do these Hispanic
householders do in the labor market that sustains their earnings above the poverty
threshold? What do those Hispanic householders who are below the poverty threshold
do in the labor market? With the high incidence of poverty among the self-employed, is
it wise to encourage householders to start their own business?

Why examine Hispanic householders who reside in five Southwestern states in
the United States? One reason is that a large percentage of the U.S. Hispanic
population resides in one of these five states. These states include Arizona, California,
Colorado, New Mexico, and Texas. Four of these states had poverty rates above the
national average for Hispanic Americans. This suggests that the Hispanic population is
more likely to experience welfare reform directly and have to live with its
consequences. Additionally, the Hispanic population has had consistently higher
unemployment rates than the non-Hispanic population and this makes them good
candidates for low income training programs. Lastly, research suggests that there are
more Hispanic-owned firms located in these states, which suggests that Hispanics
residing in the Southwest portion of the United States are choosing to enter self-
employment.
The objectives of the study are:

1. To compare the characteristics of the Hispanic self-employed householder who is above the poverty threshold with the characteristics of the Hispanic self-employed householder who is below the poverty threshold.

2. To estimate the effect of human capital, assimilation, individual and relationship capital, and demographic variables on Hispanic householders’ self-employment earnings above the poverty threshold.

3. To identify predictors of whether or not self-employment earnings are above the poverty threshold which could be used to inform job training and business development workshops.
CHAPTER 2
REVIEW OF LITERATURE

Introduction

Research has shown an increasing interest in self-employment as a serious labor market option for native-born and immigrant men (Borjas, 1986; Borjas & Bronars, 1989; Aronson, 1991; & Butler & Herring, 1991). However, limited empirical research has focused on the self-employment experience of the growing Hispanic population. Previous studies have examined the propensities for self-employment, while other studies have focused on earnings as a measure of relative success among the native-born self-employed Hispanic earner, the foreign-born self-employed Hispanic earner, and the Hispanic wage and salary earner. Hispanic families have a higher than average rate of poverty and Aronson (1991) has pointed out that it would not be surprising to find a higher rate of poverty among the self-employed due to lower earnings of self-employed workers compared to wage and salary workers. While the answers to the questions of which Hispanics become self-employed and how much they earn are revealing, they are insufficient to answer the question of sufficiency. This research attempts to address that question. Are earnings from self-employment sufficient to
enable the Hispanic householder, residing in the Southwest, to earn an income that will keep his/her household above the poverty line?

This chapter summarizes and extracts the most useful information from the empirical literature on self-employment and the Hispanic population. This chapter begins with a discussion on the concept of self-employment. Elements of this discussion include the definition of self-employment, the two distinct types of self-employment, and empirical studies’ definitions of self-employment. Next, a brief description of the Hispanic population is presented along with a description of self-employed Hispanics. Additionally, this chapter will present different approaches to examining self-employment. One approach is the career development model and its relation to entrepreneurs. Another approach is the behavioral model of success and its relation to self-employment. Individual and relationship capital will be included as a possible component to examine self-employment. Relevant theories of self-employment and theories relating to earnings and self-employment will be discussed. Finally, key elements from self-employment theories and results from empirical studies will provide the theoretical background for the conceptual framework developed at the end of the chapter.

The Concept of Self-Employment

Silvestri (1991) suggested that for many people self-employment held a great attraction. When compared to the wage and salary sector, self-employment seemed to promise higher earnings, enhanced an individual’s professional standing, gave a sense
of independence, and the ability to adjust one’s work schedule to meet family needs (Silvestri, 1991).

**Definition of Self-Employment**

A commonly used definition of self-employment was to be employed by oneself. Basically, self-employment was an alternative way of earning an income through the sale of one’s own labor (Aronson, 1991). The alternative to self-employment would be to be employed by someone else as a wage and salary earner or earning a living by not working at all as a rentier (Steinmetz & Wright, 1989). Steinmetz and Wright (1989) further stated that a self-employed person was someone who earned a living at least in part through his or her own labor but did not sell his or her labor to an employer for a wage.

**Two Distinct Types of Self-Employment**

In the self-employment literature, self-employment was divided into two distinct categories: self-employed in an unincorporated business and self-employed in an incorporated business. Each category had its own description and characteristics that made it distinguishable from the other category, implying that the self-employed were not a homogeneous group.

The self-employed in an unincorporated business were individuals who had their own business, but were not considered a salaried employee. Whereas, individuals who were self-employed in an incorporated business were those who drew a wage and
salary from their own business and were therefore considered both a self-employed earner and a wage and salary earner (Becker, 1984). In other words, a corporation paid both the employees and the owner a salary (Fain, 1980). Fain (1980) and Silvestri (1991) gave two reasons why an individual would choose to incorporate his/her business. One reason was due to the traditional benefits offered by the corporate structure, such as limiting liability and tax considerations. The second reason was the increased opportunity to raise capital through stocks and bonds. Silvestri (1991) offered an additional reason why an individual would choose to incorporate his/her business, the pension fund tax shelter.

**Empirical Studies' Definitions of Self-Employment**

Self-employment has been identified through two different questions on the United States (U.S.) Census questionnaire: those who identified themselves as self-employed in response to the class of worker question and those who reported their earnings as self-employment income. Several studies who used the U.S. Census data defined a self-employed person as a person whose primary job was in the self-employment sector (Borjas, 1986; Borjas, & Bronars, 1989; Carr, 1993, 1996; Robinson & Sexton, 1994; Torres, 1988; Olson, Zuiker, & Montalto, 1996; Calo, 1995; Roos & Hennessy, 1987; DeFreitas, 1991) through the class of worker question asked on the Census survey. Those studies that examined earnings of the self-employed used both questions from the U.S. Census questionnaire (Borjas, & Bronars, 1989; Torres,
In addition to the class of worker question and the source of income question, previous empirical studies used the answers to several other questions to define self-employment. One feature given attention was incorporation. Borjas (1986) and Borjas and Bronars (1989), using data from the 1970 and 1980 Census, DeFreitas (1991), using data from the 1980 Census, and Calo (1995), using data from the 1990 Census, did not make a distinction between a self-employed worker of an unincorporated business and an incorporated business. Carr’s (1993) thesis and (1996) study, using the 1980 Census on the total population, examined separately both distinct types of self-employment: incorporated and unincorporated. However, when the focus was the probability of being self-employed, Carr (1993; 1996) operationalized the variable to include both types.

Torres’ (1988) study, using data from the 1980 Census, defined self-employment to include only individuals who were listed as self-employed in a nonfarm activity. Olson, Zuiker, and Montalto’s (1996) study, using the 1990 Census, and Torres’ (1980) study included those individuals who were listed as self-employed in a nonincorporated business. Torres (1988) provided two reasons why owners of incorporated businesses were excluded: 1) differences in reporting self-employed income; and 2) inclusion would require analysis of income from all sources which would introduce income from salaries, interest, social security, and other sources.
In addition to the above definitions of self-employment, each of the empirical studies that examined self-employed individuals incorporated additional sample selection criteria that did not directly touch on their definition of self-employed. These included: 1) not in armed forces (Borjas, 1986; Olson, Zuiker, & Montalto, 1996); 2) did not reside in group quarter (Borjas, 1986; Carr, 1993, 1996; Butler & Herring, 1991); 3) not enrolled in school (Borjas, 1986; DeFreitas, 1991); 4) worked at some point in the year (Borjas, 1986; Borjas & Bronars, 1989; Carr, 1993, 1996; Torres, 1988; Olson, Zuiker, & Montalto, 1996; Roos & Hennessy, 1987; Calo, 1995; DeFreitas, 1991); 5) males only (Borjas, 1986; Borjas & Bronars, 1989), instead of women and men (Carr, 1993, 1996; Robinson & Sexton, 1994; Roos & Hennessy, 1987; DeFreitas, 1991; Butler & Herring, 1991; Olson, Zuiker, & Montalto, 1996; Torres, 1988; Calo, 1995); 6) age starting at either 16 years (Torres, 1988; Olson, Zuiker, & Montalto, 1996) and over or 18 years and older (Borjas, 1986; Roos & Hennessy, 1987; Carr, 1993, 1996; Robinson & Sexton, 1994; Butler & Herring, 1991; DeFreitas, 1991); and 7) either resided in an Standard Metropolitan Statistical Area (SMSA) or was not in the farming sector (Borjas, 1986; Borjas & Bronars, 1989; Carr, 1993, 1996; Torres, 1988; Robinson & Sexton, 1994). Olson, Zuiker, and Montaldo (1996) and Calo (1995) included farmers. Torres (1988) argued farmers should be excluded since there were qualitative differences between farming and other business activities.
Hispanic Population

**Definition of Hispanic**

The term "Hispanics" is an ethnic description. Marin and Marin (1991) suggested that the term “Hispanic” was rather a "label of convenience" utilized to refer to those individuals with the capability of speaking and comprehending the Spanish language, whose ancestry was based on a Spanish-speaking country, and who identified with the Hispanic culture (Guernica & Kasperuk, 1982). The term “Hispanic” is used by government institutions, the media, and social and behavioral scientists when referring to this population (Marin & Marin, 1991). Hispanics do not necessarily regard themselves as a single group because their attachments are to their specific national origin. Hispanic Americans are a diverse group; however, they share similar values, beliefs, attitudes, culture, and self-perceptions. These characteristics distinguished the Hispanic population from other ethnic groups (Segal & Sosa, 1983; Cervantes, 1980; Deshpande, Hoyer, & Donthu, 1986).

Hispanics are not newcomers to the United States and their presence in the continental United States appeared as early as the 1500s. The Southwest, from Texas to California, was a Spanish-speaking territory with its own distinctive culture, heritage, and customs for decades. As a result of the Mexican War, the Spanish-speaking citizens of the United States became referred to as Mexican Americans. Two additional large Spanish-speaking groups came from Cuba, Puerto Rico; and a smaller number came from South America, the Dominican Republic, and Central America. "Hispanic" is a term often used to refer to these Spanish-speaking citizens.
In the 1990 Census, the term "Hispanic" was used as an ethnic label rather than denoting it as a race label, therefore suggesting that Hispanics belong to all of the human races. Marin and Marin (1991) suggested that many researchers made the mistake of using "Hispanic" as a racial label and not as the name of an ethnic group. In other words, an individual could be classified as "Hispanic" ethnically and could also be classified as either a member of the Black or White race at the same time.

Description of the Hispanic Self-Employed Individual

According to popular media, the number of Hispanic-owned businesses has tripled and sales revenues have surged. Nationwide, there are 720,000 Hispanic-owned companies generating $63 billion in sales, while paying $21 billion in taxes and employing 2 million workers ("Reaching New Heights", 1996). Both California (32.4 percent) and Texas (20.2 percent) had the largest number of Hispanic owned-firms (U.S. Bureau of the Census, 1996).

In 1990, data taken from the Current Population Survey estimated that 15.6 million workers or 13 percent of the labor force were self-employed (Silvestri, 1991). Furthermore, about 10 million workers were employed in their own unincorporated business compared to 3.5 million who were employed in their own incorporated business. About 2 million were employed as part-time workers this meant that their primary job was in the wage and salary sector.

Both Hispanic (5.1 percent) and Black workers (4.5 percent) were under represented in the self-employment sector (Silvestri, 1991). "Their proportion of total
employment was 10 percent for black workers and 7 percent for Hispanics” (p. 28). From 1983 to 1990, the number of self-employed Hispanics increased faster than the number of self-employed Blacks suggesting that “... Hispanics now outnumber the blacks” (p. 29) in self-employment.

According to Devine's (1994) study, the self-employment rate for both the Hispanic male and the Hispanic female was substantially lower than the general population. However, from 1975 to 1990, self-employment rates increased for both Hispanic males (2.6 to 4.7 percent) and for Hispanic females (2.4 to 4.4 percent).

The distribution of incorporated and unincorporated self-employed women by race and Hispanic origin from 1975 to 1990 were reported in Devine’s (1994) study. From 1975 to 1990, the self-employment rate for a female Hispanic in an incorporated business decreased (2.9 to 2.2 percent), while during the same time period the self-employment rate for an unincorporated business for a Hispanic female increased (2.3 to 4.9 percent). Consistent with Devine’s (1994) study, Carr’s (1993) thesis, using the 1980 Census data, showed that self-employed Hispanics were more likely to be in an unincorporated business (3.8 percent) compared to an incorporated business (2.4 percent) for both genders.

With regards to earnings, mixed results were produced. Both Calo’s (1995) dissertation, using data from the 1990 Census with the California rural Chicano entrepreneurs, and Olson, Zuiker, and Montalto’s (1996) study, using data from the

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1 Statistics underlying this analysis was based on data collected in the March 1976 to 1991 Current Population Surveys.
1990 Census with the California Hispanic population, found higher earnings for the self-employed than wage and salary earners. In contrast, Butler and Herring's (1991) study, found that the Hispanic wage and salary worker had higher earnings than the Hispanic self-employed worker. Similar findings were produced when the focus was on the immigrant and native-born self-employed earners and the wage and salary earners. Both self-employed immigrant males and self-employed native-born males had higher earnings compared to their wage and salary counterparts (Borjas, 1986). Torres (1988) found that native-born Hispanics earned more in self-employment in three of the five states that were analyzed.

Consistent findings were produced with regards to educational attainment and age. The Hispanic self-employment sector was more likely to have higher educational attainment levels compared to the Hispanic wage and salary sector (Borjas & Bronars, 1989; Torres, 1988; Olson, Zuiker, & Montalto, 1996; Calo, 1995). Hispanic self-employed earners were more likely to be older than the Hispanic wage and salary earners (Borjas & Bronars, 1989; Torres, 1988; Olson, Zuiker, & Montalto, 1996; Calo, 1995).

The Hispanic self-employed worker was more likely to be married (Olson, Zuiker, & Montalto, 1996) or married with spouse present (Borjas & Bronars, 1989; Calo, 1995) compared to the Hispanic wage and salary worker. Also, both the Hispanic self-employed earner and the Hispanic wage and salary earner had similar English speaking abilities (Olson, Zuiker, & Montalto, 1996; Calo, 1995).
Mixed results were reported with regards to occupational choice of the Hispanic self-employed individual. In Olson, Zuiker, and Montalto’s (1996) study, examining the California Hispanic self-employed population, Hispanic self-employed workers were more likely to be in service or managerial and professional occupations compared to their wage and salary counterparts who were more likely to be employed as either operators, fabricators, and laborers or technical, sales, and administrative support occupations. In 1990, Silvestri’s (1991) study found that self-employed workers of unincorporated businesses were more likely to be in cleaning and building service occupations and as taxicab drivers and chauffeurs occupations.

Previous studies have reported conflicting results as to whether the number of self-employed was increasing for the Hispanic population. Borjas’ (1986) study reported that the probability of self-employment was larger for immigrants than for native-born and also that the probability of self-employment was lowest among both the native-born and the foreign-born individuals in the Black (3.7 percent and 5.3 percent) and Mexican (5.6 percent and 4.2 percent) samples. Consistent with Borjas’ (1986) study, Borjas and Bronars’ (1989) study found that both Blacks and Hispanics were less likely to be self-employed than Whites and Asians. Butler and Herring (1991) found that individuals who were members of a racial and ethnic group were generally less likely than White ethnics to be self-employed. Carr’s (1996) study, using the 1980 Census on the total population, also found that both Hispanic males and females were less likely to be self-employed earners. However, the 1992 Economic Census reported that Hispanic-owned firms in the United States increased from 1987 to 1992 (422,373
and 771,708, respectfully) an increase of 83 percent. Both DeFreitas (1991) and Devine (1994) reported that over the years the number of self-employed Hispanics had increased.

Career Development Theory

Several theories and models have been used to examine self-employment. In this section, theories and models which have been used to study the general population as well as those which explicitly consider ethnicity will be reviewed. First, theories which do not consider ethnicity will be reviewed. These are career development theory, models of firm success, and individual and relationship capital. Then theories and models which explicitly discuss ethnicity will be reviewed. Within the later group are both theories of self-employment and theories of economic mobility.

One approach to examining self-employment is based on the premise that selection into self-employment is part of a career option, much like one would choose a career in the wage and salary sector. Sonnenfeld and Kotter's (1982) model (Figure 1) provided a conceptual model of a life-cycle approach examining the maturation of career development. Sonnenfeld and Kotter (1982) suggested that career outcomes were the result of three different factors interacting throughout an individual's lifetime. These three factors were occupational, personal, and family. Sonnenfeld and Kotter (1982) included nine categories of variables that were considered necessary to the understanding of an individual's present job situation.
the social class approach has focused mostly on two: the childhood family environment and the current work situation. The static dispositional approach has dealt mainly with three: the individual's personality, the current work situation, and the individual's current perspective. The career stage approach has focused on four: the educational environment, work history, the current work situation, and the individual's current perspective. The life-cycle approach includes seven; only the childhood family environment and the individual's personality tend to be neglected (p. 36).

Sonnenfeld and Kotter (1982) suggested that a fifth approach was necessary and that in the future going beyond even the life-cycle approach was considered important.
Behavioral Models of Success

Another approach to studying self-employment is through behavioral models of firm or venture success. Success was classified into two broad categories: financial success and success as defined by survival. Success has been commonly used to describe achievements in small businesses (Olson, 1994). Two models of success will be discussed in this section. The first model was developed by Davidsson (1991) to explain the impact of growth motivation on actual growth and the second model was developed by Greenberger and Sexton (1987) to examine the determinants of entrepreneurial growth. Although these are normally models of business success, they focus on entrepreneurs, individuals, and are, therefore relevant to this study.

Davidsson's (1991) model (Figure 2), an economic-psychological model of determinants of small firm growth, was based on three major determinants: ability, need, and opportunity. The model had both objective and subjective data that were used to explain the impact of growth motivation on actual growth. Davidsson's (1991)
Figure 2 (Davidsson, 1991, p. 415) Determinants of Actual (historical) Growth.

The study focused on continued entrepreneurship and on degrees of entrepreneurship. The research was based on survey data from more than 400 Swedish small firms.
The basic assumption of the model was that more ability, more need, and more opportunity would lead to a higher rate of actual growth. Davidsson's (1991) study hypothesized the following for each category: ability, need, and opportunity.

1. Industry experience, management experience, entrepreneurial experience, and education (general and business) enhance growth-relevant Ability.

2. Profitability, higher firm age, age of the manager, and firm size (1983 figures) reduce the Need for growth.

3. Opportunity for growth should be better in an industry that is less (naturally) fragmented, has a higher market growth rate, and a higher rate of (product) innovation. Growth Opportunity is also enhanced by a favorable geographic location (i.e., large local market, growth area, proximity to university) (p. 412).

Objective measures of ability, need, and opportunity explained 25 percent of the variation in actual (historical) growth. The need factor appeared to be relatively more important than the other two factors. Davidsson (1991) concluded "that growth might depend on opportunity, need, and ability, and that individual differences matter are, after all, not very provocative ideas. So it is not very surprising that this turned out to be the case . . ." (p. 425).

Greenberger and Sexton's (1987) model (Figure 3) was based on leadership and psychology and built on their venture initiation model. This model presented a different perspective to the entrepreneurial process and included material from a variety
of other areas. The three main components of the model included: a catalysts for identifying opportunities, the decision to initiate a new venture, and the success of the new venture.

First, three factors were hypothesized to serve as catalysts for the identification of opportunities for the new venture initiation. These factors were thought to act additively to increase the likelihood that a person will initiate a new venture. Second, four different factors were included that moderated the effect of the three catalysts on

![Diagram](attachment:image.png)

**Figure 3** (Greenberger & Sexton, 1987) Greenberger & Sexton's Revised Model of Initiation and Growth.
the person's decisions. Finally, the third component was the resulting likelihood that a person would initiate the new venture. (Sexton & Bowman-Upton, 1991).

Sexton and Bowman-Upton (1991) also suggested that personality should be examined, since personality influences the individual's entrepreneurial behaviors, and that these individuals should possess some vision or idea of their prospective business. Four moderators were hypothesized to impact the success of the venture. These four moderators included self-perception, salience, social support and control processed. These four moderators thereby influenced the ability of the entrepreneur to become a transformational leader. Sexton and Bowman-Upton (1991) further suggested that in order for the organization to continue to grow, the entrepreneur would need to change his/her attitude toward their role in the organization. In order to capture this phenomena, two variables were added to the model. These two variables were vision of the organization and empowerment of subordinates.

Individual and Relationship Capital

Dollahite and Rommel's (1993) model (Figure 4) was based on individual and relationship capital as components of human capital. The conceptual model was illustrated through a systems model. Relationship capital was further divided into marital and familial capital.

Dollahite and Rommel (1993) emphasized that individual capital was conceptualized and measured in broader terms than human capital. Further explanation of the development of the individual capital investment included the following:
... investments in individual capital include more than formal education, work experience, training, and health. Capital investments also include informal education in parenting, involvement in citizenship activities, and involvement in self-help groups. The productivity enhanced by individual capital inputs includes more than income or wealth; it includes, for example, the ability to communicate in the family realm, the ability to manage resources, and the

Figure 4 (Dollahite & Rommel, 1993, p. 36). Systems Model of Investment in and Development of Individual, Marital, and Familial Capital.

ability to solve marital and family problems (pp. 32-33).

In the relationship capital discussion, Dollahite and Rommel (1993) emphasized that "... any relationship could be defined as a kind of capital" (p. 33).

Examples given for investments in relationships include money, time, space, energy,
or any other resource and therefore could take the form of shared time and activities and formal enrichment. Dollahite and Rommel (1993) further stated that "... relationships are produced by people and are used to produce outcomes (e.g., love, cohesion, security), are long-lasting, and may be generated, maintained, and improved only through investment of people's resources" (p. 33). Thus, relationship capital was further divided into two categories that included marital and familial capital, thereby suggesting that investments in these two areas could result in one's ability to produce satisfaction for all individuals involved.

Dollahite and Rommel (1993) emphasized that a distinction between investment and development was warranted before proceeding to a systems model. Investment was considered necessary to increase one's productivity and alone it was not considered sufficient. Investments that could improve marital and/or family life could include time, energy, and money. Therefore, "capital development refers to the process of integrating the resource, information, or experience that was invested in the individual or relationship in question... it is possible to invest in capital but not achieve capital development" (p. 34). The example given was a student who spent money for his/her tuition fees and books, but did not read or attend class. This suggested that the student did invest in his/her human capital, but little or no human capital development occurred. Moreover, Dollahite and Rommel (1993) suggested that investment must accompany development in order for increased productivity to occur.

Dollahite and Rommel (1993) suggested that investments in marital capital could include the decision to marry and could be argued as an investment in the
relationship to increase potential for satisfaction. "Marital capital investment and development would usually lead to greater productivity (improved marital role performance) and satisfaction" (p. 38). Whereas, "increased familial capital results in improved family productivity or capacity to create utility (satisfaction) for family members" (p. 38). An example would be the decision to have children.

Dollahite and Rommel (1993) further stated that the model could be viewed within the family resource management framework. Whereby, input would involve investment in individual and relationship capital, throughput would involve development of capital, and output would be the increased productivity and utility. Therefore, "through human capital investment, families transform human, economic, and environmental resource inputs into desired outputs of improved social and economic productivity" (p. 41).

Theories of Self-Employment

Researchers have been interested in answering the question who becomes self-employed? Many factors may affect any one individual’s decision to engage in work and to choose the self-employment sector over the wage and salary sector. This section will be organized in the following manner. First, a discussion of the various theories that have examined self-employment will be discussed. Theories that have been developed to explain the minority propensity for self-employment were cultural theory, disadvantage theory, ethnic economy, ethnic enclave economy, and assimilation. Other theories that have examined self-employment include choice theory, constraint theory,
and human capital theory. Following the discussion of each theory, empirical support for the theory will be included.

Cultural and Disadvantage Theories

Most of the research on ethnicity and self-employment has come from sociological research. Emphasis has been on the process of social and cultural assimilation of both immigrant groups and native-born minorities in the United States. Two theories that have been developed to explain the minority propensity for self-employment are disadvantage theory and cultural theory.

Cultural theory suggests that both the cultural and psychological characteristics of groups incline the members to choose business ownership as a mode of achievement (Light, 1979). An example given “... was the claim that Chinese and Japanese made a success of small business because their culture endowed them with useful resources” (p. 33). Min (1987) discussed cultural factors that would be considered advantages for small businesses to have. These included work ethnic, frugal attitudes, family ties and group solidarity.

Disadvantage theory began from an observation that minorities who were excluded from labor market activity were forced into seeking alternative employment (Light, 1979). Due to these interethnic hostilities, these individuals had to choose between unemployment or low wages. The individuals were referred to as vulnerable workers (Light, 1979). What this phenomenon resulted in was an enormous incentive to seek employment. Furthermore, two factors that created a favorable environment for
minority workers to choose self-employment included increased unemployment and augmented business receipts. Light (1979) suggested that some minorities choose self-employment during downswings in the business cycle, but would gladly give up their business when prosperity returned.

**Ethnic Economy and Ethnic Enclave Economy**

Another perspective to consider was one which takes into account the collective rather than the individual phenomenon. The enclave hypothesis involves networks supported by intragroup solidarity and exchange. Aronson (1991) suggested that “... membership in an enclave tends to increase the probability of self-employment” (p. 83).

Ethnic economy and ethnic enclave economy both referred to an immigrant or minority business and employment sector that coexisted with the general economy. These two terms were often treated as synonymous when in fact, they are not (Light, Sabagh, Bozorgmehr, & Der-Martirosian, 1994). Both ethnic economy and ethnic enclave economy referred to the adjustment to America via the development of business enterprise by both new arrivals to the United States and the foreign born (Butler & Herring, 1991).

Averitt’s study (as cited in Light et al., 1994) stated that “the concept of the ethnic economy derives from the literature of middleman minorities; the ethnic enclave economy derives from dual labor market theory, itself a product of institutional economics” (p. 67). Although there was considerable overlap between these two
concepts, they were different perspectives that enhanced the understanding of the
development of business activity by racial and ethnic groups in America.

The concept of an ethnic economy actually came from the parent concept of
middleman minorities (Light et al., 1994). Middleman theory proposed that “... for
groups that adjust to society by developing enterprise, hostility is generated toward
them from the larger society and this increases ethnic solidarity, which in turn promotes
the further development of business enterprise” (Butler & Herring, 1991, p. 80). These
groups occupied middle positions and were often referred to as buffers between elites
and masses (Bonacich & Modell, 1980).

An ethnic economy was bounded by race, ethnicity, or national origin (Logan,
Alba, McNulty, 1994). “An ethnic economy could be defined as any situation where
common ethnicity provides an economic advantage: in relations among owners in the
same or complementary business sectors, between owners and workers, or even among
workers in the same firm or industry regardless of the owner’s ethnicity” (p. 693).
Furthermore, their customers were of the same ethnic background, an example given
was the Cuban grocer. This suggested that employers operated in a protected market,
since they found their employees at low wage rates through a variety of methods.
These methods included family, ethnic networks, common language, or legal
constraints (Logan et al., 1994). Bonacich and Modell (1980) further stated that the
ethnic economy was ethnic due to the owners and employers being from the same
ethnic group and that workers whose employers were not were excluded.
Light et al. (1994) addressed two shortcomings of the ethnic economy. One was that the concept did not address the locational clustering or density of firms that might be located in the neighborhoods and industries. Second, the concept made no claims about the level of ethnicity within the ethnic economy or between buyers and sellers.

Logan et al. (1994) referred to the ethnic enclave economy as a specific type of ethnic economy. The enclave theory consisted of both the primary and the secondary sector. The primary sector was considered to include jobs that were "good" (Butler & Herring, 1991). Sanders and Nee (1987) referred to the primary labor market as consisting of "...stable work conditions, higher wages, scarce skill specifications, and internal labor markets that provide ladders of success within the firm, provides higher returns on human capital investments for workers" (p. 746). By contrast, the secondary sector consisted of "bad" jobs (Butler & Herring, 1991). Sanders and Nee (1987) referred to the secondary labor market as typically having these characteristics "...high turnover rates, low-paying, low-skill jobs that lack structured opportunities for promotion within the firm, it generates low returns on human capital investments" (p. 746).

Logan et al. (1994) suggested that an enclave economy possesses three key elements. These included co-ethnicity of owners and employers, spatial concentration, and sectoral specialization. It was assumed that minority owners would create jobs opportunities for fellow group members. These jobs did not require the worker to be fluent in English and protected them from discrimination based on their race and
ethnicity. However, this type of arrangement did make it possible for workers to learn skills and develop networks that could lead into self-employment (Logan et al., 1994). Spatial concentration generally referred to the ethnic firms being located in a metropolitan area that employed a significant portion of their workers from the same minority. Sectoral specialization consisted of both the protected sector and the export sector. Whereby, the protected sector represented a captive market with specific ethnic goods and services that were not easily accessible outside of the enclave, while the export sector generated income both inside the enclave and outside the enclave, such as encompassing both sectors.

It was unclear how the influence of an enclave economy affected self-employment among recent immigrant populations. The definition of the enclave could either increase or decrease the probability of self-employment (Aronson, 1991). Researchers interested in the enclave economy have not agreed on a standard definition for an enclave economy, thereby producing contradicting results.

Wilson and Portes (1980) developed an enclave economy hypothesis: Immigrant workers are not restricted to the secondary labor market. In particular, those inserted into an immigrant enclave can be empirically distinguished from workers in both the primary and secondary labor markets. Enclave workers will share with those in the primary sector a significant economic return to past human capital investments. Such a return will be absent among those in the 'open' secondary labor market (p. 302).
Portes's study (as cited in Sanders and Nee, 1987) gave the following description of how an enclave was defined. It consisted of “immigrant groups which concentrate in a distinct spatial location and organize a variety of enterprises serving their own ethnic market and/or the general population. Their basic characteristic is that a significant proportion of the immigrant work force works in enterprises owned by other immigrants” (p. 746).

Sanders and Nee (1987) suggested a reformulation of the enclave economy hypothesis that would be sensitive to important differences between immigrant workers and their bosses. Their study focused on the Cuban enclave as did Portes (1987); Wilson and Portes (1980); and Portes and Jensen (1987). The findings did not support the view that the immigrant enclave was a special sector of the United States economy. Portes and Jensen (1987) argued that Sanders and Nee committed a number of inexplicable mistakes of interpretation. One mistake was the difference between self-employed and employees within the enclave. Portes and Jensen (1987) also thought that Sanders and Nee (1987) misrepresented a number of their views in some of the statements made in the article. The third problem was considered the most serious according to Portes and Jensen (1987). This was the distinction of residential concentration within the enclave. Sanders and Nee (1987) defined enclave participants as “... those who live in the areas where the immigrant population is most numerous, and nonparticipants are those who live elsewhere” (Portes & Jensen, 1987, p. 769). Portes and Jensen (1987) expressed concern that Sanders and Nee (1987) had stretched their definition of ethnic enclave and the results were not comparable.
Research studies suggested that ethnic enclaves exist within the Cuban population in Florida (Wilson & Portes, 1980; Portes and Jensen, 1987; Sanders & Nee, 1987). Borjas (1986) suggested that enclaves had a comparative advantage in serving the needs of consumers from a particular national group and that they possessed better knowledge of consumer preferences and knowledge of the language spoken by that particular immigrant population.

When examining ethnic enclaves among Cuban populations compared to Mexican populations, results indicated there was not an enclave economy for Mexican immigrants (Portes and Bach, as cited in Light et al. 1994). Self-employment was found among Mexican immigrants, however, they decided that Mexican self-employment did not create a small immigrant enclave economy to contrast with Cubans' large one. Light et al. (1994) argued that the nonexistence of a Mexican enclave economy was evident if one agreed with the definition of the Portes and Bach study, however under the Bonacich and Modell (1980) work, one might agree that a Mexican enclave did exist.

Hansen and Cardenas (1988) used primary data from a large sample of businesses located in Mexican ethnic neighborhoods in Texas and California. Under the Bonacich and Modell (1980) definition of ethnic economy, an ethnic economy for self-employed Mexicans did exist. However using the Portes and Bach definition, an ethnic enclave economy did not exist for the Mexican self-employed. Some differences were noted between the Mexican and Cuban ethnic economies. First, a large percentage of Cubans resided in Florida, while Mexicans were more likely to be dispersed.
throughout the Southwest. Second, the Mexican ethnic economy lacked a core locational cluster like the Miami Cubans'. Third, the Mexicans were not as likely to hire co-ethnics, since most did not have employees (Hansen & Cardenas, 1988).

Portes and Zhou's (1992) study, examined labor market experiences of three immigrant minorities (Dominicans, Chinese, and Cubans) in the United States. They found that those immigrants who remained within the ethnic economy often did better than those who had moved outside. Portes and Zhou (1992) further stated that this was especially true for entrepreneurs.

Therefore, in order to understand why nativity differences arise, Borjas' (1986) study estimated a regression equation including a selection correction variable (lambda, λ) to satisfy the condition that the independent variables and the error term were uncorrelated. Borjas' (1986) study found that in the enclave model lambda (λ) was reported as both positive and significant and further stated that Hispanics were more likely to be self-employed if they resided in areas which had larger Hispanic populations.

Borjas and Bronars' (1989) study calculated the predicted probability of self-employment for ethnic and racial groups. The predicted probability equation for Whites was used "... to predict what the average self-employment rate of the various minority groups would be if the same mechanism that determined self-employment rates for whites generated minority self-employment rates" (p. 597). Borjas and Bronars (1989) found that if both Blacks and Hispanics faced the same structure as the Whites, their self-employment rate would be very similar to the 11.8 percent self-
employment rate of the Whites (10.5 percent and 12.0 percent, respectively). They concluded "... the observed variation in self-employment rates is due to differences in the mechanism that selects the self-employment pool in each of the racial/ethnic groups" (Borjas & Bronars, 1989, p. 598).

**Assimilation Theory**

Assimilation was referred to as the process by which individuals or groups were absorbed into and adopted the dominant culture and society. The longer the immigrants remained in the United States and the more exposure to the American culture, the more likely they became similar to the cultural core group (Neidert & Farley, 1985; Waters, 1994). The model assumed that over time and across successive generations the groups became similar to mainstream society and economically successful (Aronson, 1991; Roos & Hennessy, 1987; Waters, 1994).

Jiobu (1988) suggested that assimilation could have two possible outcomes. With the first outcome, the ethnic group became more like the majority group and would begin to lose its distinctiveness, while the majority group did not change during this process. Jiobu (1988) referred to this outcome as Anglo conformity. The second outcome was referred to as the melting pot, where both groups became more like each other and lost their distinctiveness (Jiobu, 1988).

Ross and Hennessy (1987) suggested that as future generations adapted to the "American ways", the distinctive language, culture, kinship of the ethnic groups would become diluted. Portes and Zhou (1992) indicated that in order for the ethnic group to
gain acceptance from the mainstream society and become a part of the upward-mobility ladder, the ethnic group had to learn the normative structure and acquire proper American ways. By doing this, Portes and Zhou (1992) suggested that it “... gave legitimacy to subsequent explanations of the lack of progress of certain ethnic minorities on the basis of their improper values, such as lack of thrift, inability to postpone gratification, and a ‘culture of poverty’” (p. 493).

Furthermore, Torres (1988) specified two important components of assimilation. The first component was the process by which members of an ethnic group became more like the majority group and gradually lost their distinctive ethnic identity. Torres (1988) measured this aspect of integration into the mainstream society in the U.S. with variables capturing U.S. citizenship, command of the English language, and time transpired since immigration. Second, Torres (1988) suggested that assimilation was facilitated if one had control over means of production, as opposed to merely supplying labor to the labor market. Torres (1988) captured this aspect of assimilation with measures of educational attainment and of amount paid in taxes and insurance (as a proxy for property ownership).

Roos and Hennessy (1987) suggested that assimilation was inhibited for Mexican Americans for two reasons. One was due to their close proximity to Mexico and the second was the continuing influx of immigrants to the United States.

The command of the English language is often used to measure the degree of assimilation in empirical studies. For example, DeFreitas' (1991) study, using the 1980 Census, estimated the probability of self-employment among Anglos, Blacks, and
Hispanics for both genders. Hispanic males, who were fluent in English, had a higher probability of being self-employed, while being fluent in English for Hispanic females did not have a significant effect. Calo's (1995) dissertation, using the 1990 Census, found that the likelihood of being self-employed for rural California Chicanos' increased with English proficiency.

Choice Theory and Constraint Theory

Aronson (1991) discussed two classical theories of entrepreneurship as possible frameworks to examine the self-employed population. The two theories were choice theory (Knight, 1921) and constraint theory (Schumpeter, 1934).

In choice theory, the entrepreneur was an individual who exhibited particular abilities and these abilities motivated the individual to establish his/her own business, usually as a self-employed person, while the constraint theory suggested that self-employment was largely opportunistic. These individuals did not necessarily possess any special abilities that would differentiate them from the traditional wage and salary sector, but instead they responded to environmental circumstances (Aronson, 1991). The constraint theory would suggest that minority populations, immigrants, women, and those individuals with disabilities, who encounter barriers to gainful employment in the traditional wage and salary labor market, would choose to form their own businesses (Carr, 1993, 1996).

In contrast, DeFreitas (1991) suggested that self-employment may be a means in which Hispanic men and women could accelerate their upward mobility and possibly
avoid career obstacles that are often posed by discriminatory employers or fellow employees. In other words, one could infer that Hispanic men and women would choose self-employment as a career option to accelerate their upward mobility and/or to avoid career obstacles rather than choosing self-employment by default.

These two theories also have been referred to as career theory (choice) and default theory (constraint). In economic terms, Knight’s (1921) career theory could be inferred as a micro-oriented phenomena wherein self-employment was more a personal choice due to one’s demographic, social, and cultural characteristics. Whereas, Schumpeter’s (1934) default theory could be inferred as a macro-oriented perspective whereby structural and environmental events factored into an individual’s choice to become self-employed. As suggested by Aronson (1991), both of these theories were developed to explain men’s self-employment activity and both were implicitly based on the standard model of labor market participation.

In Carr’s (1996) study, the two self-employment sectors were used to further examine the two classical theories of entrepreneurship. Self-employment in an incorporated business was referred to as a proxy for “skilled” self-employment, such as the career option, while self-employment in an unincorporated business was referred to as a proxy for “unskilled” self-employment, such as the default option. Furthermore, In Carr’s (1993) thesis, the focus was to examine the demographic determinants of men’s and women’s self-employment. Whereas, Carr’s (1996) study, contrasted the sociodemographic characteristics of self-employed women and men in both incorporated and unincorporated businesses and whether either theory of self-employment was appropriate to explain the determinants of women’s self-employment.

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Aronson (1991) stated that the prediction of self-employment in an incorporated business would need to examine characteristics associated with greater choice and opportunity, while traits that constrain one's labor force decisions were expected to predict self-employment in an unincorporated business.

In Carr's (1993) thesis and (1996) study, using the 1980 Census on the total population, a trinomial choice equation was estimated separately for each gender. The three choices were self-employed incorporated business worker, self-employed unincorporated business worker, and wage and salary worker. The probability of self-employment was modeled as a function of age, race, Hispanic ethnicity, civil status, education, work disability, marital status, kids at home, past work experience, residence in Southern states, urban residence, Standard Metropolitan Statistical Area (SMSA) residence, SMSA unemployment rate, and immigrant status. The independent variables selected to estimate Knight's (1921) career theory of self-employment included age, education, and past work experience, while those independent variables selected to estimate Schumpeter's (1934) default theory included sex, age, Hispanic ethnicity, immigrant status, work disability, residence of SMSA, and SMSA unemployment rate.

Carr (1996) concluded that the better explanation of men's and women's self-employment was Knight's (1921) career theory. Advanced age and education were strong determinants of men's and women's self-employment compared to their counterparts in the wage and salary sector. Carr (1996) further emphasized that some of the variables selected to estimate Schumpeter's (1934) default model did predict self-employment, however a closer inspection revealed that these characteristics only
predicted self-employment in an unincorporated business. These variables included past work experience, disability, and immigrant status. Furthermore, Carr (1996) concluded that incorporation status was a very weak proxy for skilled versus unskilled self-employment.

**Human Capital Theory**

Gary Becker defined human capital as the stock of skills, knowledge, intelligence, and physical and mental health a person could use to generate both money and non-money income. Human capital theory broadly encompasses investments in human capital by employers or firms, investments in human capital by individuals, and the relationship between human capital and labor force behavior (Ehrenberg & Smith, 1988). Ehrenberg and Smith (1988) further defined human capital as a "... term that conceptualizes workers as embodying a set of skills that can be 'rented' out to employers" (p. 292).

Three major types of investments for workers included: education and training, migration, and search for new jobs (Ehrenberg & Smith, 1988). The knowledge and skills that a worker obtained through education and training would generate a certain stock of productive capital. Thus, the value of this productive capital would be derived from how much these skills could earn in the labor market (Ehrenberg & Smith, 1988). Therefore, these investments would increase an individual’s economic productivity that would in turn yield utility (satisfaction) for the individuals (Dollahite & Rommel, 1993).
Ehrenberg and Smith (1988) discussed three returns on human capital. These included "... higher level of earnings, greater job satisfaction over one's lifetime, and a greater appreciation of nonmarket activities and interests" (p. 293). This could further be divided into three categories of human capital investment expenditures. The three expenditures included out-of-pocket or direct expenses, foregone earnings, and psychic losses.

Portes and Zhou (1992) further defined human capital as "... certain readily measurable resources that determine... 'productivity' and hence the wage levels..." (p. 494). These measurable resources could also be referred to as marketable skills. The human capital model could be modified to take into account certain unique characteristics of both minority and immigrant populations, such as the knowledge of the English language and length of time they have been in this country (Chiswick, 1978).

Educational attainment is often used in empirical studies as a measure of human capital. Empirical research has produced mixed results regarding the importance of educational attainment and the probability of self-employment. In Borjas' (1986) study, education had a positive and significant impact on self-employment rates in all six samples. Borjas (1986) offered two suggestions for the positive and significant impact that education had on self-employment rates. First, it is possible that higher educational levels increased an individual's ability to provide a service that other persons desired. Second, perhaps higher educational levels increased the organizational or managerial skills of self-employed workers.
In both Carr's (1996) study and Robinson and Sexton's (1994) study, higher levels of education increased the likelihood for both genders to be self-employed. While in Butler and Herring's (1991) study, higher education did not increase the probability of self-employment, therefore suggesting that those individuals with higher levels of education chose to work in the wage and salary sector.\(^1\)

Descriptive statistics in Borjas and Bronars' (1989) study showed that self-employed males were more likely to be college educated than the salaried males in all four of the groups. However, when education was estimated in their model that measured the probability of being self-employed, education was not found to be a significant predictor of self-employment.

In contrast, Roos and Hennessy's (1987) study, using data from the 1980 Census, examined native-born Japanese, Mexican American, and non-Hispanic White men and women residing in California. Roos and Hennessy (1987) stated that a major reason why Mexican Americans had not progressed very far occupationally or educationally was due to their lower levels of educational attainment.

With regards to education and type of self-employment sector, Carr's (1996) study found similar results for both genders. Carr (1996) found that for both men and women who worked for their own corporations were more likely to be highly educated

\(^1\) In the Butler and Herring (1991) study, each racial and ethnic variable was measured as a dummy variable within the one equation, whereas Borjas (1986) measured each equation separately for each of the six racial and ethnic groups. Carr's (1996) study had a dummy variable measuring ethnicity, while Robinson and Sexton's (1994) study did not include either a race or ethnicity variable.
than men and women who were wage and salaried workers and were less likely to be disabled, Hispanic, or Black.

In Butler and Herring’s (1991) study, the likelihood of becoming self-employed increased with age. Butler and Herring (1991) suggested that perhaps age was related to the ability to acquire skills and experience needed in order to run a business. Descriptive statistics showed that self-employed males were more likely to be older than salaried males in all four groups (Borjas & Bronars, 1989). In Borjas and Bronars’ (1989) study, the likelihood of becoming self-employed increased with age for their male sample, while Carr’s (1996) study found that age was a strong predictor of self-employment for both genders.

Borjas (1986) found that self-employment propensities increased with labor force experience for all racial and ethnic groups except for Black men. Carr (1996) and Robinson and Sexton (1994), using the 1980 Census on the total population, found that work experience was a significant predictor of both men’s and women’s self-employment. When the odds of having one’s own incorporated business were examined, both full-time past work experience and education were found to be significant in Carr’s (1996) study.

Borjas’ (1986) study found that health status of the individual had a positive impact on self-employment propensities suggesting that “... the self-employment option expands the opportunities of persons with disabilities and gives them the flexibility of mitigating the negative labor market impacts of bad health” (p. 494). Borjas (1986) found that health status was positive and significant among Mexicans,
while for Cubans and other Hispanics health was not significant. Carr’s (1996) study, however suggested that both advanced age (age 55-64) and having a disability reduced the odds of incorporating one’s business.4

Theories of Economic Mobility

Another approach to studying self-employment is to examine the individual’s earnings potential. Earnings potential as a measure of relative success was a common method used to report the economic benefit of the self-employment sector compared to the wage and salary sector. This section will be organized in the following manner. First, a discussion of the various theories relating to economic mobility upward movement in the distribution of income will be discussed. These theories include human capital theory and assimilation theory. Following the discussion of each theory, empirical support for the theory will be included.

Human Capital Theory

Human capital theory provides a theoretical basis to examine earnings from self-employment as well as choice of self-employment. Olson, Zuiker, and Montalto (1996) stated that “measures of human capital are often used to capture productivity differences between workers. If workers are rewarded in accordance with their individual marginal productivities, then more productive workers will receive higher

4 Carr’s (1996) study had a dummy variable measuring race where 1 equaled to nonWhite and 0 equaled to White and another dummy variable measuring ethnicity as Hispanic equaled 1 and 0 equaled nonHispanic.
earnings. Thus, differences in educational attainment, work experience, or hours worked between the two groups could provide valid explanations for differences in income" (p. 49).

Moreover, an investment in human capital could increase both the future economic and social productivity of individuals (Dollahite & Rommel, 1993). Therefore, a major incentive for individuals to invest in an education or training program would be the prospect of improved lifetime earnings (Ehrenberg & Smith, 1988). However, in order for this to happen, employers must be willing to pay these higher benefits.

On the worker's supply side, the worker has to decide how much education or training he/she wants to invest in. In order to do this, he/she has to weigh the returns against the costs. Furthermore, he/she would have to consider how the actual returns compared to the returns each would require in order to invest in education or training (Ehrenberg & Smith, 1988).

While on the employer's demand side, employers would need to consider whether they are willing to pay higher wages for a better educated worker. However, the employer has to also decide how much more he/she was willing to pay for each additional year of school.

Ehrenberg and Smith (1988) stated that when both sides of the market are put together for the educated worker, it was clear that the wage/education relationship would be positive; "without a positive education/wage relationship, employees would have no incentive to invest in an education" (p. 311). Moreover, in a hedonistic model
of education and wages, both wage workers and self-employed workers would respond to changes in relative earnings in an effort to maximize their utility (Aronson, 1991).

Empirical research has produced mixed results regarding the economic benefit of self-employment for Hispanic persons. For example, Butler and Herring's (1991) study, using the 1983-1987 General Social Survey, found that both Hispanics and Native Americans earned less on average than those of the same ethnicity who were wage and salary workers. While, Roos and Hennessy's (1987) study, using the 1980 Census, found that both White and Mexican American men benefitted economically from self-employment relative to the wage and salary sector. Also, Borjas' (1986) study found that native-born self-employed Mexicans had higher incomes than Mexican self-employed immigrants ($17,189 and $13,982), while other Hispanic self-employed immigrants had higher incomes than the self-employed native-born other Hispanic ($22,599 and $21,339). Borjas (1986) further stated that the higher income of the self-employed worker compared to the wage and salary worker may be due to returns on the physical capital owned by the self-employed worker. Roos and Hennessy (1987) also found that the women in their study benefitted more in earnings from government work than their counterparts in the wage and salary sector.5

Olson, Zuiker, and Montalto's (1996) study, using 1990 Census data on the California Hispanic population, suggested that self-employment offered economic

5 In both Borjas' (1986) and Butler and Herring's (1991) study, earnings were reported as mean income for each racial and ethnic group, whereas in Roos and Hennessy's (1987) study, earnings was the dependent variable and self-employment was one of the independent variables with wage and salary being the omitted category for each racial and ethnic group equation.
benefits to Hispanic workers. The mean income for the Hispanic self-employed in this sample was 25% higher than the mean income for Hispanic wage earners. Hispanic self-employed individuals worked more hours per year, paid a higher amount for taxes and insurance, were slightly older, and more likely to be married than Hispanic wage earners. Higher percentages of Hispanic self-employed persons were in managerial or professional; service; and craft, precision production, and repair occupations.

Olson, Zuiker, and Montalto’s (1996) study also found that the estimated income equations explained 26% of the variance in income of Hispanic self-employed and 42% of the variance in income of Hispanic wage earners. Age, hours worked per year, being in a managerial or professional occupation, having a college degree, gender and marital status were positive and statistically significant for both Hispanic self-employed and Hispanic wage earners.

Torres’ (1988) study, using the 1980 Census, found that self-employed income increased as time spent at work increased for Mexican American business persons. Torres’ (1988) study found that female Mexican American business persons netted much lower incomes than male Mexican American business persons controlling for class, ethnicity, and industry. Also, Torres’ (1988) study found that on average Mexican American business persons earned their highest incomes at about 47.63 years of age and then it would begin to decrease.

Roos and Hennessy’s (1987) study found significant and positive relationships between age and education and earnings. Robinson and Sexton’s (1994) study, using data from the 1980 Census on the total population, found that education and experience
increased higher earnings for the self-employed sector than the wage and salary sector for both genders. However, Robinson and Sexton (1994) found that the returns on education was almost three times higher for males than for females. In Borjas and Bronars’ (1989) study, having 16 or more years of education increased the Hispanic self-employed male’s earnings, whereas for the Hispanic male wage and salary earner having 12 years or less of education decreased their earnings.

Roos and Hennessy’s (1987) study decomposed differences in mean earnings and found that if White males had the lower educational achievement of either the Mexican American male or female, the relative earnings of White men would decrease by 16 or 17 percentage points, respectively. Roos and Hennessy (1987) suggested that “although increased levels of education may go a long way toward equalizing the earnings of white men and Mexican Americans of both sexes, there is no guarantee that the earnings difference between whites and Mexican Americans will be eliminated. It may be that as the educational gap narrows, as it has for Japanese Americans, other institutional mechanisms will inhibit Mexican American access to better-paying jobs” (p. 300).

Robinson and Sexton’s (1994) study, using the 1980 Census on the total population, found that although education was important for the wage and salary worker it was even more important to the success of the self-employed. Roos and Hennessy’s (1987) study, estimating a model of earnings, found that the better one spoke English the higher one’s earnings only for the Mexican American men in their sample.
Roos and Hennessy’s (1987) study, using a decomposition of differences in mean earnings, found that the earnings of White men would decrease considerably if they had worked as few hours as Mexican American men or any of the three female groups. Roos and Hennessy (1987) stated that they were unable to assess whether this finding was due to individual choice or an inability to work additional hours, however they pointed out that the high unemployment rates of Mexican Americans suggested that this group may have had a restricted access to employment opportunities compared to White men.

**Assimilation Theory**

Assimilation theory referred to ethnic groups becoming integrated into the mainstream society over time (Roos and Hennessy, 1987) which could influence their economic status their place in the income distribution. Therefore, assimilation theory also has been tested in earnings models.

Previous empirical research has produced mixed results regarding the impact of assimilation on earnings for self-employed Hispanics. Roos and Hennessy’s (1987) study, estimating a model of earnings, found that the better one spoke English, the higher one’s earnings only for the Mexican American men in the sample. Brock, Evans, and Phillips (1986) found a positive relationship between time lapse since immigration and income, and a negative relationship between immigrant status and income for self-employed workers. While, Torres (1988) found both of these factors to be insignificant in his research on Mexican American business persons, but found a
positive relationship between command of the English language and income. He also found that in larger cities, U.S. citizenship was related to lower income of Mexican American business persons.

Olson, Zuiker, and Montalto’s (1996) study, using the 1990 Census, found that assimilation variables affected the income of Hispanic persons, however, the nature of these effects differed between Hispanics in the self-employed and in the wage and salary sector. Having a strong command of the English language, being a U.S. citizen, and having spent a longer period of time in the U.S. since immigrating were all positively associated with income for Hispanic wage earners, but not statistically significant for Hispanic self-employed earners. The results for Hispanic wage earners were consistent with previous research which showed economic benefits to integrating into the mainstream society (Torres, 1988). However, integration into the mainstream society appeared to yield no economic benefit for Hispanic self-employed persons. Assimilation variables reflecting control of resources were important in increasing income of both self-employed and wage earners, but the effect of the amount paid in taxes and insurance was larger for self-employed.

A Framework to Evaluate Hispanic Self-Employment

This section develops the framework which underlies the empirical analysis of self-employed Hispanics. It focuses on whether earnings from self-employment are sufficient to enable the Hispanic household, residing in the Southwest, to earn an
income that will keep his/her household above the poverty line. Results from empirical studies relating to the proposed theoretical framework will be discussed next.

The most common economic approach to the study of earnings has been based on human capital theory. This research study will take a multi-disciplinary approach to examine self-employment earnings above the poverty threshold of Hispanic householders residing in the Southwest portion of the United States. The model used will draw from the following disciplines: economics (human capital theory), sociology (assimilation), and family science (individual and relationship capital). Demographic
variables will also be included in the model (Figure 5).

Human capital theory will be utilized along with two additional theoretical concepts. These two concepts include assimilation and individual and relationship capital. In other words, human capital theory should be broadened to also include assimilation as a measure of marketable skills and individual and relationship capital as a measure of capital investment.
In the human capital theory framework, individuals are assumed to possess a stock of skills, knowledge, intelligence, and physical and mental health that could be used to generate both money and non-money income. With the knowledge and skills that an individual obtains through education and training, a certain stock of productive capital would be generated. Thus, the value of this productive capital would be derived from how much these skills could earn in the labor market (Ehrenberg & Smith, 1988). Therefore, this would suggest that an individual’s return on human capital would include, such things as “... higher level of earnings, greater job satisfaction over one’s lifetime, and a greater appreciation of nonmarket activities and interests” (p. 293).

Becker (1993) explained that investing in one’s human capital would not only help to explain differences in earnings over time, but would also help to explain differences in earnings among persons and families in an area. Human capital theory also “helps to explain such diverse phenomena as interpersonal and interarea differences in earnings, the shape of age-earnings profiles— the relation between age and earnings— and the effect of specialization on skill” (p. 245).

The assimilation model assumes that over time and across successive generations the group will become similar to mainstream society. Assimilation theory has been estimated in earning’s models to examine whether the process of assimilation has had an effect on the minority group’s economic status. When studying a minority population, such as Hispanics, it is important to use a conceptual framework that will capture whether the minority group has adopted the dominant culture. In other words, is it important or imperative for the Hispanic population to become more like the
cultural core group in order to earn self-employment income above the poverty threshold? Also, Hispanic Americans are known to be bilingual, therefore does knowing the English language contribute to their economic productivity in self-employment?

Overall as a minority group, the Hispanic population is considered to have strong family ties. It is not uncommon in a Hispanic family to have adult children live with their parents until they start their own household. What this means is that the adult children also contribute to the household income. With this in mind, it is important to include a conceptual framework that would capture the family aspect of self-employment. Also, by examining both human capital and individual and relationship capital, one is not only examining activities that capture economic productivity, but also aspects of human productivity in the family. These together would provide additional insights into how families allocate resources enabling them to stay above the poverty level.

Cultural theory and disadvantage theory discussed the characteristics that would incline members of certain minority groups to choose business ownership. These theories also were interested in examining where the minority groups had their business located. Therefore, returns to earnings above the poverty line were not elements of the theory. While, Davidsson’s (1991) model and Greenberger and Sexton’s (1987) model were conceptual models of success in business ownership, these models were both based on the data collection of the researchers and not on secondary data sources. Also, Sonnenfeld and Kotter’s (1982) model on the life-cycle approach to career development
was based on data collection of the researchers and not on secondary data sources. Therefore, the emphasis of these models were not related to economic productivity above the poverty threshold for the self-employed Hispanics.

The career theory and the default theory came close to examining economic productivity, however its emphasis was more on the propensities to self-employment. Therefore, by employing a model that incorporates human capital variables, assimilation variables, and individual and relationship capital variables, it is anticipated that this model will determine the extent to which these concepts explain a Hispanic householder's self-employment income above the poverty line.
CHAPTER 3

METHODOLOGY

Introduction

In this chapter, the selection of the data set, a brief description of the data set, the sample selection criteria, and a description of the characteristics of the sample are discussed. This is followed by the procedural overview, empirical specification of the theoretical models, and limitations of the study.

The Data Set

Selection of Data Set

The data used for the analysis in this study were drawn from the 1990 Census of Population and Housing Public Use Microdata Sample (PUMS) (Census of Population and Housing, 1990a). This data set represented a five percent “A” sample of all housing units in the United States and the persons in them and was prepared by the Bureau of the Census. The data set was chosen for several reasons. The 1990 PUMS was chosen because it was one of the few data sets that contained a large sample of individuals of Hispanic origin. This data set provided a more detailed breakdown of the various subgroups of the Hispanic population, the place of birth, ancestry, language use,
place of residence, citizenship, and year of immigration. The sample universe was all persons and households in the United States. Also, this data set included all of the long-form information for every individual in each sampled household. The five percent sample was organized by counties or county groups of at least 100,000 persons and these units did not cross state boundaries. The 1990 PUMS is a large representative data set, therefore, permitting analyses which could be generalized beyond the sample. It is a key source of data on the size of the population, on important social and economic characteristics of states and smaller localities down to the block level, and on human capital of the United States (Census of Population and Housing, 1990b). However, the most important characteristic of the data set for this research was that it encompassed a sufficient number of observations to study both individuals of Hispanic origin and the self-employed. These two features led to the selection of the data set for this research.

**Description of the Data Set**

The United States Census is the world's oldest continuous census system and has been held every 10 years since 1790. The census form itself is not filled out by every person in each residence, but rather the Bureau of the Census asks one person in the household to fill out the census questionnaire and to provide information on all of the persons living at that address (Barrett, 1994). Each microdata sample is a random sample of the full census sample; that is, 15.9 percent of all households that received census long-form questionnaires (Census of Population and Housing, 1990b).
Who is included in the census? Each person whose usual residence is in the United States regardless of his/her legal status or citizenship is included in the census. Persons excluded from the census were those individuals who were foreign travelers and who had not established a residence that was consistent with previous censuses. Usual residence was defined as "... the place where he or she lives and sleeps most of the time or the place where the person considers to be his or her usual home. If a person had no usual residence, the person was to be counted where he or she was staying on April 1, 1990" (Census of Population and Housing, 1990b, D-1).

The 1990 census primary collection process was through self-enumeration. Each person received a questionnaire packet including general information about the 1990 census and an instruction guide detailing how to complete the questionnaire. Both the questionnaire and instruction guides were available upon request in Spanish and instruction guides were available in 32 other languages.

Two versions of the 1990 Census of Population and Housing were administered and each housing unit in the country received one of the two versions. The short form was the form that all households filled out and the long form was the form that one out of every six households received (Barrett, 1994). The short-form questionnaire included a limited number of basic population and housing questions and were asked of all persons and housing units. The long-form questionnaire contained the 100 percent items and a number of additional questions (Census of Population and Housing, 1990b).
Sample Selection Criteria

For the purpose of this study, only individuals who met the following seven sample selection criteria were included in the analysis. These sample selection criteria were based on previous studies of self-employment. The criteria were: 1) individuals designated as the householder; 2) householders who self-identified themselves as Spanish, Mexican, Central or South American, Puerto Rican, Cuban, Dominican, or other Spanish/Hispanic origin regardless of race; 3) householders who resided in one of the five Southwestern states in the United States (Arizona, California, Colorado, New Mexico, and Texas); 4) householders aged 18 years and over; 5) householders who were not in the military; 6) householders who did not reside in group quarters; and 7) householders who worked at some point during 1989.

Characteristics of the Sample

The population of interest is self-employed Hispanic householders (n= 10,123). Self-employed Hispanic householders are 8.1 percent of all Hispanic householders. Descriptive statistics are presented for self-employed Hispanic householders and wage and salary Hispanic householders in Table 1. To provide a context or frame of reference, from which to examine characteristics of the Hispanic self-employed, Table 1 also contains comparable statistics for Hispanic wage and salary householders (n=114,561). The results of t-tests for differences in means and also chi-square statistics for differences in proportions between the two groups are presented.
<table>
<thead>
<tr>
<th>Variable</th>
<th>Self-Employed Mean</th>
<th>Wage and Salary Mean</th>
<th>Test Statistic</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(Std. Dev.)</td>
<td>(Std. Dev.)</td>
<td></td>
</tr>
<tr>
<td><strong>Demographics</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>0.87</td>
<td>0.79</td>
<td>$\chi^2=354.86^{***}$</td>
</tr>
<tr>
<td>City</td>
<td>0.78</td>
<td>0.79</td>
<td>$\chi^2=6.19^{**}$</td>
</tr>
<tr>
<td>Town</td>
<td>0.09</td>
<td>0.08</td>
<td></td>
</tr>
<tr>
<td>Urban Fringe</td>
<td>0.06</td>
<td>0.05</td>
<td>$\chi^2=6.82^{***}$</td>
</tr>
<tr>
<td>Country Side</td>
<td>0.07</td>
<td>0.07</td>
<td></td>
</tr>
<tr>
<td><strong>Human Capital</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td>43.65 (12.26)</td>
<td>38.80 (11.70)</td>
<td>$t=38.29^{***}$</td>
</tr>
<tr>
<td>Education</td>
<td>10.36 (4.72)</td>
<td>10.12 (4.35)</td>
<td>$t=4.79^{***}$</td>
</tr>
<tr>
<td>Less than High School</td>
<td>0.48</td>
<td>0.48</td>
<td></td>
</tr>
<tr>
<td>High School graduate</td>
<td>0.18</td>
<td>0.22</td>
<td>$\chi^2=60.93^{***}$</td>
</tr>
<tr>
<td>Some college</td>
<td>0.21</td>
<td>0.22</td>
<td>$\chi^2=7.40^{***}$</td>
</tr>
<tr>
<td>Bachelor’s degree or more</td>
<td>0.13</td>
<td>0.09</td>
<td>$\chi^2=233.47^{***}$</td>
</tr>
<tr>
<td>Work limitation</td>
<td>0.07</td>
<td>0.05</td>
<td>$\chi^2=53.27^{***}$</td>
</tr>
<tr>
<td>Work experience</td>
<td>27.30 (13.62)</td>
<td>22.68 (13.09)</td>
<td>$t=32.78^{***}$</td>
</tr>
<tr>
<td>Hours worked</td>
<td>42.62 (16.27)</td>
<td>41.71 (11.33)</td>
<td>$t=5.50^{***}$</td>
</tr>
<tr>
<td>Weeks worked</td>
<td>44.35 (12.67)</td>
<td>45.00 (12.37)</td>
<td>$t=4.95^{***}$</td>
</tr>
<tr>
<td>Full time</td>
<td>0.81</td>
<td>0.91</td>
<td>$\chi^2=942.05^{***}$</td>
</tr>
<tr>
<td>Householder’s self-employment earnings</td>
<td>24,257.30 (31,931.69)</td>
<td>19,591.4 (15,377.30)</td>
<td>$t=14.55^{***}$</td>
</tr>
<tr>
<td>Earnings above poverty</td>
<td>11,817.70 (32,309.09)</td>
<td>7242.80 (16,137.24)</td>
<td>$t=14.09^{***}$</td>
</tr>
</tbody>
</table>

(table continued)

Table 1. Sample Characteristics by Labor Force Participation of Householder
Table 1 (continued).

<table>
<thead>
<tr>
<th>Variable</th>
<th>Self-Employed Mean (Std. Dev.)</th>
<th>Wage and Salary Mean (Std. Dev.)</th>
<th>Test Statistic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Householder’s other income</td>
<td>4669.66 (15,793.96)</td>
<td>1080.50 (4314.88)</td>
<td>t=22.79***</td>
</tr>
<tr>
<td>Assimilation</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>English fluency</td>
<td>0.81 (0.79)</td>
<td>0.79 (1.56)</td>
<td>χ²=26.14***</td>
</tr>
<tr>
<td>Immigration status</td>
<td>0.50 (0.47)</td>
<td>0.47 (1.42)</td>
<td>χ²=32.11***</td>
</tr>
<tr>
<td>Citizen</td>
<td>0.68 (0.68)</td>
<td>0.68 (1.48)</td>
<td></td>
</tr>
<tr>
<td>Paid property taxes</td>
<td>0.59 (0.44)</td>
<td>0.44 (0.76)</td>
<td>χ²=934.53***</td>
</tr>
<tr>
<td>Individual/Relationship</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Married, spouse present</td>
<td>0.77 (0.68)</td>
<td>0.68 (1.48)</td>
<td>χ²=318.28***</td>
</tr>
<tr>
<td>Family size</td>
<td>3.84 (2.11)</td>
<td>3.78 (2.13)</td>
<td>t=2.58***</td>
</tr>
<tr>
<td>Number of children</td>
<td>1.48 (1.48)</td>
<td>1.56 (1.47)</td>
<td>t=5.55***</td>
</tr>
<tr>
<td>One worker in a non-family</td>
<td>0.08 (0.09)</td>
<td>0.09 (0.11)</td>
<td>χ²=11.62***</td>
</tr>
<tr>
<td>household</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>One worker in family</td>
<td>0.29 (0.29)</td>
<td>0.29 (0.29)</td>
<td></td>
</tr>
<tr>
<td>Two or more workers in family</td>
<td>0.62 (0.62)</td>
<td>0.62 (0.62)</td>
<td>χ²=3.35*</td>
</tr>
<tr>
<td>Family income (excluding</td>
<td>12,188.20 (19,039.76)</td>
<td>10,300.10 (14,348.88)</td>
<td>t=9.74***</td>
</tr>
<tr>
<td>householder’s income)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number</td>
<td>10,123</td>
<td>114,561</td>
<td></td>
</tr>
</tbody>
</table>

*p<.10  **p<.05  ***p<.01

The self-employed Hispanic householder is statistically significantly different from the wage and salary Hispanic householder on most characteristics. However, the
differences were very small. The statistical significance of the differences primarily was driven by the large sample size rather than the scale of differences.

Only five characteristics were not significantly different. Having less than a high school education is the only human capital variable that is similar for both groups. The only assimilation variable that is similar for both groups is the variable capturing citizenship. In the individual and relationship capital group, having one worker in the family is similar for both the self-employed Hispanic householder and the wage and salary Hispanic householder. Demographic variables that are similar in both groups include living in a town and living in the country side.

Hispanic self-employed householders are more likely to have more work experience (27.30 years) compared to Hispanic wage and salary householders (22.68 years). The Hispanic self-employed householder works approximately 43 hours a week in 1989, while the Hispanic wage and salary householder works approximately 42 hours a week in 1989. Whereas, the Hispanic wage and salary householder works on average 45 weeks in 1989 and the Hispanic self-employed householder works on average 44 weeks in 1989.

Working full time is more prevalent in the wage and salary sector. Full time status for the Hispanic wage and salary earner is 91 percent compared to 81 percent for the self-employed Hispanic householder. The Hispanic self-employed householder is more likely to have a bachelor’s degree or more compared to the Hispanic wage and salary householder (13 percent and 9 percent, respectively).
The Hispanic self-employed householder is more likely to have a work limitation compared to the Hispanic wage and salary householder (7 percent and 5 percent, respectively). Also, the Hispanic self-employed householder is more likely to be older than the Hispanic wage and salary householder (44 years and 39 years, respectively).

Differences in the income amounts can be found between the two employment sectors. The self-employed Hispanic householder has on average higher earnings than the wage and salary householder ($24,257 and $19,591, respectively). Also, the self-employed Hispanic householder is more likely to have higher amounts of other income sources (this amount does not include his/her self-employment earnings) compared to the Hispanic wage and salary householder ($4,670 and $1,081, respectively). Earnings above poverty on average is higher for the Hispanic self-employed householder than for the wage and salary householder ($11,818 and $7,243).

Differences can be found with the assimilation variables. The self-employed Hispanic householder is more likely to have immigrant status and pay property taxes compared to the wage and salary Hispanic householder.

Differences can be found in the individual and relationship area. The self-employed Hispanic householder is more likely to be married with a spouse present, have two or more workers in the family, and have higher on average family incomes (that exclude the householder's earnings and the householder's income from all other sources) compared to the Hispanic wage and salary householder.
Being a male is more prevalent for the self-employed Hispanic householder compared to the Hispanic wage and salary householder (87 percent and 79 percent, respectively). In both employment sectors, differences are observed for Hispanic householders who reside in the city and householders who reside in an urban fringe.

Table 2 presents both the occupational and industry breakdown by employment sector. The self-employed Hispanic householder is more likely to be in managerial and professional occupations; farming, forestry, and fishing occupations; and precision production, craft, and repair occupations compared to the wage and salary Hispanic householder. The wage and salary Hispanic householder is more likely to be employed in technical, sales, and administrative support occupations; service occupations; and operators, fabricators, and laborers occupations.

Similarities can be found in the types of industries in which the self-employed and wage and salary Hispanic householders are employed. The seven industries types were constructed following Hodson's (1983) and Roos and Hennessy's (1987) suggestions. Both the self-employed Hispanic householder and the wage and salary Hispanic householder are more likely to be in core industries. The self-employed

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The oligopoly sector includes industries that rank highest in size, concentration, foreign involvement, profits, and employee wages. The core sector has high number of unionization and has higher than average levels of foreign involvement and asset size. Periphery industries include lower ratings of unionization, asset size, and foreign involvement. Core utilities sector includes high foreign dividends and high assets but low profits. Periphery utilities have lower firm size and foreign involvement. The trades sector has the lowest values of asset size, concentration, and foreign involvement. Roos and Hennessy’s (1987) study added one more industry type: public administration and postal service.
Hispanic householder is more likely to be in oligophy industries, periphery industries, and periphery utilities, while the wage and salary Hispanic householder is more likely to be in core utilities industries, trades industries, and public administration and postal service.

In Table 3, the distribution of employment sectors by state are shown. Where do the self-employed Hispanic householder and the wage and salary Hispanic householder reside in the Southwest? In the Southwest, the majority of the self-employed Hispanic householders and the wage and salary Hispanic householders live in California (51.4 percent and 52.7 percent, respectively) and in Texas (35.8 percent and 33.4 percent, respectively).
<table>
<thead>
<tr>
<th>Variable</th>
<th>Self-Employed Frequency (Percent)</th>
<th>Wage and Salary Frequency (Percent)</th>
<th>Test Statistic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Types of Occupations</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Managerial and Professional</td>
<td>0.21</td>
<td>0.13</td>
<td>$\chi^2=579.63^{***}$</td>
</tr>
<tr>
<td>Technical, Sales, and Administrative Support</td>
<td>0.17</td>
<td>0.19</td>
<td>$\chi^2=7.61^{***}$</td>
</tr>
<tr>
<td>Service</td>
<td>0.13</td>
<td>0.15</td>
<td>$\chi^2=43.59^{***}$</td>
</tr>
<tr>
<td>Farming, Forestry, and Fishing</td>
<td>0.09</td>
<td>0.07</td>
<td>$\chi^2=72.14^{***}$</td>
</tr>
<tr>
<td>Precision Production, Craft, and Repair</td>
<td>0.27</td>
<td>0.19</td>
<td>$\chi^2=374.15^{***}$</td>
</tr>
<tr>
<td>Operators, Fabricators, and Laborers</td>
<td>0.12</td>
<td>0.27</td>
<td>$\chi^2=1121.00^{***}$</td>
</tr>
<tr>
<td>Types of Industries</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Oligophy</td>
<td>0.06</td>
<td>0.03</td>
<td>$\chi^2=159.71^{***}$</td>
</tr>
<tr>
<td>Core</td>
<td>0.30</td>
<td>0.30</td>
<td></td>
</tr>
<tr>
<td>Core Utilities</td>
<td>0.04</td>
<td>0.06</td>
<td>$\chi^2=223.80^{***}$</td>
</tr>
<tr>
<td>Periphery</td>
<td>0.47</td>
<td>0.32</td>
<td>$\chi^2=906.54^{***}$</td>
</tr>
<tr>
<td>Trades</td>
<td>0.15</td>
<td>0.19</td>
<td>$\chi^2=91.51^{***}$</td>
</tr>
<tr>
<td>Periphery Utilities</td>
<td>0.05</td>
<td>0.04</td>
<td>$\chi^2=22.24^{***}$</td>
</tr>
<tr>
<td>Public Administration and Postal Service</td>
<td>0.00</td>
<td>0.06</td>
<td>$\chi^2=689.56^{***}$</td>
</tr>
<tr>
<td>Number</td>
<td>10,123</td>
<td>114,561</td>
<td></td>
</tr>
</tbody>
</table>

*p<.10  **p<.05  ***p<.01

Table 2. Occupation and Industry by Employment Sector

75
Table 3. Distribution of Employment Sectors by States

The Empirical Model

Procedural Overview

Several steps were followed in order to answer the research question. The first step was to create a data set extracted from the “A” five percent sample of the 1990 Census of Population and Housing Public Use Microdata Samples CD-ROM version which included the five Southwestern states in the United States (Arizona, California, Colorado, New Mexico, and Texas). Next, once the respondents who met the sample selection criteria had been extracted, both the dependent variables and independent variables were created. SPSS for Windows was used to extract the data set and create the variables in the model (see Appendices A and B for the program statements). Also, descriptive statistics were calculated with the SPSS statistical package.

This was followed by the second step, importing the data set into LIMDEP Version 7 (Greene, 1995), econometric software, to estimate the participation and
earnings equations (see Appendix C for program statements). LIMDEP is the only software which correctly adjusts the standard errors produced by the Heckman sample selection correction procedure. Using LIMDEP made feasible the significance tests necessary to meet objective three. LIMDEP also possessed the attractive feature of being available for use on desktop computers.

**Empirical Specification of Theoretical Models**

The empirical specification of the models used in this study draws from both the theoretical and the empirical literature discussed in Chapter 2. The definitions of the variables used in the models are provided in Table 4. All variables that measured earnings needed to be scaled to thousands of dollars, so that they would be the same order of magnitude as the other variables in the model to facilitate convergence of estimation algorithms. This section discusses the selection and measurement of the variables as they are used in the various models to meet the study’s three objectives.
<table>
<thead>
<tr>
<th>Variable</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Dependent Variables</strong></td>
<td></td>
</tr>
<tr>
<td>Self</td>
<td>Type of employment of Householder</td>
</tr>
<tr>
<td>0 = Householder is a wage and salary earner</td>
<td></td>
</tr>
<tr>
<td>1 = Householder is a self-employed earner (incorporated and unincorporated)</td>
<td></td>
</tr>
<tr>
<td>labvp</td>
<td>Earnings above the poverty threshold (in thousands of dollars)</td>
</tr>
<tr>
<td>Incap</td>
<td>Earnings above the poverty threshold recoded into two groups</td>
</tr>
<tr>
<td>0 = Earnings below the poverty threshold</td>
<td></td>
</tr>
<tr>
<td>1 = Earnings above the poverty threshold</td>
<td></td>
</tr>
<tr>
<td><strong>Independent Variables</strong></td>
<td></td>
</tr>
<tr>
<td>Human Capital</td>
<td></td>
</tr>
<tr>
<td>Workexp</td>
<td>Householder's years of work experience</td>
</tr>
<tr>
<td>Hour89</td>
<td>An additional hour worked per week in 1989 in a primary job &lt; 35</td>
</tr>
<tr>
<td>Hourp</td>
<td>An additional hour worked per week in 1989 &gt;= 35 hours (spline function)</td>
</tr>
<tr>
<td>Occ1</td>
<td>Managerial and Professional occupations</td>
</tr>
<tr>
<td>1 = Yes 0 = No</td>
<td></td>
</tr>
<tr>
<td>Occ2</td>
<td>Technical, Sales, and Administrative Support occupations</td>
</tr>
<tr>
<td>1 = Yes 0 = No</td>
<td></td>
</tr>
<tr>
<td>Occ3</td>
<td>Service occupations (Omitted category)</td>
</tr>
<tr>
<td>1 = Yes 0 = No</td>
<td></td>
</tr>
<tr>
<td>Occ4</td>
<td>Farming, Forestry, and Fishing occupations</td>
</tr>
<tr>
<td>1 = Yes 0 = No</td>
<td></td>
</tr>
<tr>
<td>Occ5</td>
<td>Precision Production, Craft, and Repair occupations</td>
</tr>
<tr>
<td>1 = Yes 0 = No</td>
<td></td>
</tr>
<tr>
<td>Occ6</td>
<td>Operators, Fabricators, &amp; Laborers occupations</td>
</tr>
<tr>
<td>1 = Yes 0 = No</td>
<td></td>
</tr>
<tr>
<td>Disab1rc</td>
<td>Householder's work limitation</td>
</tr>
<tr>
<td>1 = Yes, limited in kind or amount of work</td>
<td></td>
</tr>
<tr>
<td>0 = No, not limited</td>
<td></td>
</tr>
<tr>
<td>Educ</td>
<td>An additional year of education &lt; high school diploma</td>
</tr>
</tbody>
</table>

*Table 4. Definition of Variables Used in the Model*
Table 4 (continued).

<table>
<thead>
<tr>
<th>Variable</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Educ1</strong></td>
<td>An additional year of education $\geq$ high school diploma or more (spline function)</td>
</tr>
<tr>
<td><strong>Othhi</strong></td>
<td>Householder’s other personal income excludes householder’s earnings (in thousands of dollars)</td>
</tr>
<tr>
<td><strong>Incorp</strong></td>
<td>Householder owns an incorporated business</td>
</tr>
<tr>
<td></td>
<td>$1 = \text{Yes} \ 0 = \text{No}$</td>
</tr>
</tbody>
</table>

**Assimilation**

<table>
<thead>
<tr>
<th>Variable</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Englishw</strong></td>
<td>Householder’s English fluency</td>
</tr>
<tr>
<td></td>
<td>$1 = \text{Speaks only English, speaks English very well or well}$</td>
</tr>
<tr>
<td></td>
<td>$0 = \text{Speaks English not well or not at all}$</td>
</tr>
<tr>
<td><strong>Citizrc</strong></td>
<td>Householder is a citizen of the United States</td>
</tr>
<tr>
<td></td>
<td>$1 = \text{Yes} \ 0 = \text{No}$</td>
</tr>
<tr>
<td><strong>Immigrrc</strong></td>
<td>Householder is an immigrant to the United States</td>
</tr>
<tr>
<td></td>
<td>$1 = \text{Immigrated to the United States}$</td>
</tr>
<tr>
<td></td>
<td>$0 = \text{Born in United States}$</td>
</tr>
<tr>
<td><strong>Rtaxrc</strong></td>
<td>Householder paid property taxes</td>
</tr>
<tr>
<td></td>
<td>$1 = \text{Yes} \ 0 = \text{No}$</td>
</tr>
</tbody>
</table>

**Individual/Relationship**

<table>
<thead>
<tr>
<th>Variable</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Marrsp</strong></td>
<td>Householder is married with spouse present</td>
</tr>
<tr>
<td></td>
<td>$1 = \text{Yes} \ 0 = \text{No}$</td>
</tr>
<tr>
<td><strong>Numwrk0</strong></td>
<td>Non-family household</td>
</tr>
<tr>
<td></td>
<td>$1 = \text{Yes} \ 0 = \text{No}$</td>
</tr>
<tr>
<td><strong>Numwrk1</strong></td>
<td>One worker in the family in 1989</td>
</tr>
<tr>
<td></td>
<td>$1 = \text{Yes} \ 0 = \text{No}$</td>
</tr>
<tr>
<td><strong>Numwrk2</strong></td>
<td>Two or more workers in the family in 1989 (Omitted category)</td>
</tr>
<tr>
<td></td>
<td>$1 = \text{Yes} \ 0 = \text{No}$</td>
</tr>
<tr>
<td><strong>Rnrichld</strong></td>
<td>Number of children in the household</td>
</tr>
<tr>
<td><strong>Otrfi</strong></td>
<td>Other income from family excluding householder’s earnings and householder’s other personal income (in thousands of dollars)</td>
</tr>
</tbody>
</table>

(table continued)
Table 4 (continued).

<table>
<thead>
<tr>
<th>Variable</th>
<th>Definition</th>
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</thead>
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<tr>
<td>Sexrc</td>
<td>Gender of householder</td>
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<td></td>
<td>1 = Male 0 = Female</td>
</tr>
<tr>
<td>Comm1</td>
<td>Householder lives in a city</td>
</tr>
<tr>
<td></td>
<td>1 = Yes 0 = No</td>
</tr>
<tr>
<td>Comm2</td>
<td>Householder lives in a town</td>
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<tr>
<td></td>
<td>1 = Yes 0 = No</td>
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<tr>
<td>Comm3</td>
<td>Householder lives in an urban fringe (edge of city)</td>
</tr>
<tr>
<td></td>
<td>1 = Yes 0 = No</td>
</tr>
<tr>
<td>Comm4</td>
<td>Householder lives in the country side (Omitted category)</td>
</tr>
<tr>
<td></td>
<td>1 = Yes 0 = No</td>
</tr>
</tbody>
</table>

Objective One

In order to meet objective one, descriptive statistics were calculated for the self-employed sample with earnings above the poverty level and earnings below the poverty level. Statistical tests were conducted to determine which characteristics were significantly different between the Hispanic self-employed with earnings above the poverty level and the Hispanic self-employed with earnings below the poverty level.

The test statistic for continuous variables was constructed as \( (X_i - X_j) \sqrt{(s_i^2/n_1 + s_j^2/n_2)} \) where \( X_i, s_i^2 \) and \( n_i \) were the mean, estimated variance and number of observations in the \( i^{th} \) sample. This test statistic has a t-distribution. The test statistic for the categorical variables and the dummy variables was constructed as \( \sum (O_i - E_i)^2/E_i \) where \( O_i \) and \( E_i \) refer to the observed frequency and expected frequency, respectively, for a given cell. This test statistic has a chi-square distribution. The chi-square test for dummy variables is statistically equivalent to use of the test statistic \( P_1P_2/(P_1^2(1-P_2)) \).
\( \frac{P_i}{n_i} + \frac{(P_2(1-P_2))/n_2}{n_i} \) where \( P_i \) and \( n_i \) are the sample proportion and number of observations in the \( i^{th} \) sample (Smith, 1991, pp. 471-475). This test statistic has a \( Z \)-distribution.

**Dependent Variable.** The dependent variable used to meet objective one was earnings above the poverty threshold expressed in thousands of dollars. Several steps were taken to construct the dependent variable. The earnings' variable was reported in 1989 and was survey question number 32 on the census questionnaire. This information was requested from persons aged 15 years and over. Three earning sources were used to create this variable. The first earning source was from wage or salary earnings which includes total money earnings received for work performed as an employee during 1989. The second earning source was nonfarm self-employment earnings which includes net money income (gross receipts minus expenses) from one's own business, professional enterprise, or partnership. The third earning source was farm self-employment earnings. This included net money income (gross receipts minus operating expenses) from the operation of a farm by a person on his or her own account, as an owner, renter, or sharecropper. The first step was to create a variable that included the sum of the various earning sources. The name of the variable created was “incsum”.

The second step was to incorporate the poverty threshold level for each respondent. The poverty thresholds were based on the definition originated by the
Social Security Administration in 1964 and revised in 1969 and 1980. This standard is used by Federal agencies for statistical purposes.

According to Ruggles (1990), the construction of an official poverty measure had an implicit judgement attached. This judgement suggested that as a society one was concerned for not only the welfare of all society’s members, but especially the well-being of those who were the least well-off.

Ruggles (1990) noted, poverty standards that incorporated a concept of a minimum decent standard of living had two important features in common. The first feature common to all poverty standards was that the focus was on economic well-being and not on welfare. This suggested that these measures determined a person’s poverty status by considering their command over goods and services and not their patterns of behavior, beliefs, satisfaction, or happiness. Furthermore, Ruggles (1990) suggested that the other factors were important, but for evaluative purposes policies that were designed to improve economic circumstances should be based on a scale that would account for economic resources.

The second feature was the population at interest, such as those members of society whose command over goods and services was most limited. Ruggles (1990) stated that if it was a policy goal to provide “...some minimum access to consumption for all members of society... then a standard that focuses on defining a minimal acceptable level of such access is appropriate in assessing policies designed to meet this goal” (p. 16). Therefore, Ruggles (1990) suggested that a policy standard should
contain two pieces of information. One it must be defined in economic terms and two it must focus on those whose resources are considered most limited.

As there are numerous views on why people are poor, there are also several approaches in the measurement of poverty. Schiller (1989) mentioned that there were two basic economic approaches to the concept of poverty. These two approaches were the absolute approach and the relative approach. Ruggles (1990) cited that another approach to the concept of poverty, the subjective approach.

The absolute approach assumes a minimum level of income that would be regarded as a dividing line between the poor and the nonpoor. Whereas, the relative approach would assume that there was no absolute standard, rather that poverty was defined in relationship to what the average family had. The subjective approach would ask the respondent directly what they considered to be a decent or minimally adequate level of living.

Ruggles (1990) stated, "Poverty measures that define poverty as either income or consumption below some absolute level that represents an 'objective' minimum constitute the earliest and broadest class of poverty measures" (p. 17). The absolute approach takes into consideration an individual's or a family's welfare by estimating some particular amount of goods and services that would be essential to their well-being (Schiller, 1989). If an individual or a family does not possess the economic resources to purchase these goods and services, they are considered to be poor. Therefore, the absolute approach assumes that "...there is a minimum level of income that can be regarded as the dividing line between 'poor' and 'nonpoor'" (p. 16).
A strength in using an absolute approach was that it provided a "... fixed benchmark that could be used to measure progress over time (Ruggles, 1990, p. 17). Ruggles (1990) further stated that an absolute poverty standard that adjusts only for changes in prices and not for changes in consumption patterns will miss consumption shifts and overstate improvements in the status of the poor.

The relative approach made the assumption that there were no absolute standards. What this meant was that a person was considered poor when his or her income was significantly lower than the average income of the population (Schiller, 1989). In other words, poverty was further defined with respect to what the average person or family had. Schiller (1989) suggested that by defining poverty in this manner one would avoid the requirement to define absolute needs and would instead place an emphasis on the inequality or equality of incomes.

The subjective approach is a relatively new approach in the field of poverty research. The subjective approach utilizes households' own assessment of the minimum or "just sufficient" amounts of both income and consumption for people like themselves (Ruggles, 1990). Schiller (1989) mentioned that to some observers poverty was just as much a state of mind as a state of one's pocketbook. In other words, a person was not considered poor unless he/she expressed that he/she was poor. Another interpretation using the subjective approach was poverty could be viewed as a lack of money, a lack of spirit, and a lack of hope for a better life (Schiller, 1989). Schiller (1989) argued that while these views were worthwhile in understanding the concept of
poverty, they offered little to the definition or measurement of poverty and were more likely to cause more disagreement than previous measures.

Schiller (1989) stated that it was tempting to abandon the idea of a poverty line, due to the conflicting measures of the various approaches. He further stated that “We need an acceptable definition of poverty in order to identify people we desire to help and to measure our success in helping them” (p. 13).

An example that Schiller (1989) discussed was highway speed limits. He stated that the highway speed of 55 miles an hour was used as a convenient gauge of highway safety and that no one really believed that all speeds over 55 miles per hour were somehow dangerous and those below 55 miles per hour were somehow safe, but that there were more things involved. Therefore, we cannot assume that there was some point below a specified line or number that would make people poor or unhappy and above a specified line or number that would make them content, but rather like highway speed limits, a cutoff point was needed, such as a poverty line.

The federal government used the absolute approach as its official method of defining poverty. Therefore, the government had to identify the minimum amount of money that was required to sustain a family. In 1989, it was estimated that $12,674 was needed for a family of four. The poverty thresholds are revised on an annual basis to take into account changes in the cost of living as reflected in the Consumer Price Index.

The poverty thresholds were developed by Mollie Orshansky who was an economist employed by the Social Security Administration in the 1960s (Fisher, 1992). Her original purpose was not to introduce a new general measure of poverty, but rather
to develop a measure that would assess the relative risks of low economic status of
different demographic groups of families with children.

Orshansky used the Department of Agriculture's food plans as a standard of
adequacy for food. At that time there were four food plans: liberal, moderate, low-cost,
and economy (Fisher, 1992; Ruggles, 1990; Schiller, 1989). The Census of Population
and Housing (1990b) gave a brief discussion on how the poverty threshold was
developed.

It was determined from the Agriculture Department's 1955 survey of food
consumption that families of three or more persons spend approximately one-
third of their income on food; hence, the poverty level for these families was set
at three times the cost of the economy food plan. For smaller families and
persons living alone, the cost of the economy food plan was multiplied by
factors that were slightly higher to compensate for the relatively larger fixed
expenses for these smaller households (p. B-28).

The original definition has been revised many times. The last revision in 1981 reduced
the original 248 detailed poverty thresholds further into

... a set of 48 thresholds arranged in a two-dimensional matrix consisting of
family size (from one person to nine or more persons) cross-classified by
presence and number of family members under 18 years old (from no children
present to eight or more children present). Unrelated individuals and two-
person families were further differentiated by age of householder (under 65
years old and 65 years old and over (p. B-28).
The name of the variable created was "thresh". Therefore, the dependent variable was created as follows:

Earnings above the poverty threshold (iabvp) = incsum - thresh.

In order to capture whether the Hispanic householder's earnings were above or below the poverty threshold, the dependent variable was recoded as a dummy variable. The name of the variable created was "incap". If the continuous variable "iabvp" was greater than or equal to zero (indicating earnings above the poverty threshold), then "incap" equals one; and equals zero otherwise, indicating earnings below the poverty threshold.\[7\]

**Independent Variables.** The independent variables used to meet objective one consisted of demographic characteristics, human capital, assimilation, and individual and relationship capital. Each variable was measured at the householder level and they are summarized in Table 4. The selection and measurement of the independent variables are discussed in detail in the next section.

Some additional human capital variables used to meet objective one that are not used in the empirical model, but are used to describe to the sample include education measured as both a continuous variable and measured with four dummy variables: less than a high school diploma, high school diploma, some college, and at least a bachelors degree. Education is a commonly used measure of human capital and has a positive

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\[7\] Descriptive statistics revealed that "incsum" minus "thresh" did not equal zero for any case.
impact on earnings. Both usual hours worked in 1989 and weeks worked in 1989 in a primary job are measured as continuous variables. A householder can freely choose both the number hours and weeks that they prefer to work. Full time status is measured as a dummy variable, equal to one if the householder works 35 hours or more and zero otherwise. Age is a continuous variable with the minimum age in the sample being 18 years.

In the individual and relationship capital area, an additional variable is included to meet objective one. Family size is a continuous variable. Previous studies suggest that Hispanic families have large family size and it is expected that Hispanic householders with large family size are more likely to have self-employment earnings below the poverty line compared to Hispanic householders with earnings above the poverty line.

**Objective Two**

To meet objective two, a tobit analysis was implemented to estimate the effect of human capital, assimilation, individual and relationship capital, and demographic variables on Hispanic householders’ self-employment earnings above the poverty threshold. A tobit analysis was chosen to estimate the earnings equation because the dependent variable was continuous with many observations at the lower limit of zero. In other words, the distribution of the dependent variable was truncated at zero. Recall that the dependent variable was created as:

\[ \text{Earnings above the poverty threshold (iabvp)} = \text{incsum minus thresh.} \]
Therefore, many of the observations would have values that are below the poverty threshold. By employing tobit, one assumes that the dependent variable has a number of its values clustered at a limiting value which is usually zero (McDonald & Moffitt, 1980). The tobit technique uses all the observations (above and below the limit) in order to estimate the regression line (McDonald & Moffitt, 1980).

In addition, the tobit coefficients were decomposed following McDonald and Moffitt's (1980) and Godwin and Marlowe’s (1990) protocol. The decomposition separates the marginal effects of the explanatory variables into two parts. The two parts consist of the change in $y$ given a nonlimit value times the probability of being above the limit value and the change in the probability of being above the limit times the conditional mean (Greene, 1995). The change in the probability of being above the poverty threshold weighted by the expected value of earnings if above the poverty threshold can be thought of as a threshold effect, while the change in earnings above the poverty threshold weighted by the probability of being above the poverty threshold can be thought of as an earnings effect.

The model was empirically specified as:

Earnings above the poverty threshold = f (Sex, Living in a city, Living in a town, Living in an urban fringe, Work experience, Hours worked per week in 1989 < 35, Hours worked per week in 1989 >= 35, 6 Occupational categories, Work limitation, Years of education < high school diploma, Years of education >=
high school diploma, Householder's other personal income, Incorporating a business, English fluency, Immigrant status, Paid property taxes, Married with spouse present, Number of children, Worker in a non-family household, One worker in the family, Family income.

**Dependent Variable.** The dependent variable was created as the following: earnings above the poverty threshold is equal to the sum of earnings in 1989 minus the poverty threshold based on family size in 1989. Negative earnings were recoded as zero, consistent with the concept of the dependent variable. Consequently, the dependent variable has a number of its values clustering at a limiting value.*

**Independent Variables.** The independent variables used in this study consisted of demographic characteristics, human capital, assimilation, and individual and relationship capital. The independent variables employed in the analysis were chosen based on both consistency with theory and their performance in previous research. Each variable was measured at the householder level.

The demographic variables used in the earnings above poverty threshold model include gender and location of residence. These variables were included in the model

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* This dependent variable “iabvp” was discussed in greater detail in objective one section.
as demographics because gender is a productivity neutral attribute and because location of residence was the sole community characteristic. Gender was measured as a dummy variable where one equaled male and zero equaled female. Location of residence was created from two variables. These variables included whether the respondent lived in an urban area or a rural area and the second variable was whether the respondent lived in a metro area or a nonmetro area. Crosstabs were created to examine four possible combinations of location of residence. Each of these four possible combinations became a zero/one dummy variable. This procedure was similar to Torres' (1988) study.

The first variable measured whether the householder resided in a city. If the householder resided in an urban area and a metro area then the householder resided in the city. The second variable captured whether the householder resided in a town. If the householder resided in an urban area and a non-metro area then the householder resided in a town. The third variable measured whether the householder lived in an urban fringe (edge of city). If the householder resided in a rural area and a metro area then the householder resided in an urban fringe. The fourth variable measured whether the householder lived in the countryside (the omitted category). If the householder resided in a rural area and a non-metro area then the householder resided in the countryside.

The following human capital variables were estimated in the earnings above the poverty threshold model: work experience, hours worked per week in 1989 <35, hours
worked per week in 1989 $\geq 35$, occupational status, work limitation, educational attainment, householder’s other personal income, and incorporating a business.

Hours worked in 1989 in primary job was constructed as a spline, also known as indicator variables for piecewise linear regression. The specific value where the function is anticipated to have a kink in the regression line is additional hours greater than or equal to 35 hours. Neter, Wasserman, and Kutner (1989) stated that “sometimes the regression of $Y$ on $X$ follows a particular linear relation in some range of $X$, but a different linear relation elsewhere” (p.370). This variable is capturing whether working additional hours beyond 35 hours per week will increase a Hispanic householder’s earnings above the poverty threshold.

The occupation variable described the kind of work the person did on the job. The 1990 Census contained 500 specific occupational groupings for employed persons and these were arranged into 6 summary and 13 major occupational groups. This classification was developed to be consistent with the Standard Occupational Classification (SOC) Manual (Census of Population and Housing, 1990b). The occupation variable was measured as six dummy variables one for each of the six summary occupational groups. The coding was as follows: membership in a managerial and professional speciality category was coded as one and zero otherwise. This procedure was implemented for the remaining five categories. The other occupational categories consisted of technical, sales, and administrative support category; service category (the omitted category); farming, forestry, and fishing
category; precision production, craft, and repair category; and operators, fabricators, and laborers category.

Health status was measured through a proxy, work limitation status. The health status variable equaled one if the person was limited in kind or amount of work, but was not prevented from working, while those individuals who had no work-limiting disabilities were coded as zero. As suggested in Borjas (1986) study, choosing self-employment expands the opportunities for an individual with health problems and gives the flexibility of overcoming the negative labor market impacts of bad health.

Educational attainment was constructed as a spline. Splines are also known as indicator variables for piecewise linear regression (Neter, Wasserman, & Kutner, 1989). Splines are used when the effect of the variable is expected to be nonlinear and when certain values of the variable have been observed to be "turning points". Education is one of the variables most often noted to have these characteristics. The specific value where the function was anticipated to have a kink was at 12th grade. As suggested in Borjas' (1986) study, higher levels of education increases an individual's ability to provide a service that others may desire.

Other personal income sources was measured as a continuous variable. This variable did not include the householder's earnings from self-employment and was measured in thousands of dollars in 1989. This variable was included in the model to determine whether additional amounts of income from sources other than self-employment would increase self-employment earnings.
Incorporating a business is a proxy for knowledge, skills, and ability all forms of human capital which would suggest increases in earnings above the poverty threshold. Incorporation of business was measured as a dummy variable. Incorporation of a business equaled one if the householder owned an incorporated business and zero otherwise.

Assimilation variables included in the model were English fluency, immigrant status, and property taxes. These assimilation variables were included in the model to determine if assimilation increases earnings above the poverty threshold for the Hispanic householder.

Command of the English language and the ability to speak more than one language are not commonly estimated in empirical studies that examine self-employment, since the majority of these studies have focused only on native-born White males. However, empirical studies that have examined self-employment among minority populations have included such measures of English proficiency as a means to examine whether these groups have chosen self-employment due to their lack of English skills and as a mechanism to overcome labor market barriers. English fluency is included in the earnings model to determine if being fluent in English increases a Hispanic householder's earnings above the poverty threshold. English fluency was measured as a dummy variable equal to one if the householder spoke English only, spoke English very well, or spoke English well, and zero otherwise.

Immigrant status was measured as a dummy variable. If the householder immigrated to the United States, then immigrant status equals one; otherwise it equals
zero. Immigrants may be more likely to take moderate risks to start a business and may be more aware of ethnically oriented tastes and preferences and use it to their advantage to start a small business (Calo, 1995).

Property taxes was used as a proxy for property ownership. If the householder paid property taxes in 1989, this was coded as a one and if the householder did not pay property taxes in 1989, this was coded as zero. The amount paid in taxes and insurance was used in both Torres' (1988) study and Olson, Zuiker, and Montalto's (1996) study and was measured as a continuous variable. In these two studies the amount paid in property taxes and insurance was used to proxy for access to resources, implying that the larger the amount paid the greater the access to resources.

The following independent variables were estimated in the model as proxies for individual and relationship capital. These included marital status, number of children in the household, number of workers in the family, and family income.

Married with a spouse present was measured as a dummy variable that equaled one for married with spouse present and zero otherwise. As suggested in Borjas' (1986) study, spouses would be more likely to assist in the business and thus should be positively associated with self-employment.

In the Census, the number of children variable ("ragechld") was only captured for the female respondent, therefore this variable could not be used in a sample that included both genders. However, after attempting several crosstabs with the various children variables, one of the children variables did capture whether related children were present in the household for both genders. Therefore, this variable was used as a
proxy for the total number of children in the household and was measured as a continuous variable. The name of the variable is “rnrchld”.

Number of workers was measured as a series of dummy variables. The first dummy variable captured those householders’ who were members of non-family households. The second dummy variable captured only one worker in the family in 1989. The third dummy variable captured two or more workers in the family. These variables were included in the model to determine if having more than one worker in the family would increase earnings above the poverty threshold for the Hispanic householder.

A variable capturing family income excluding the householder’s earnings from self-employment and the householder’s other personal income sources was created. It is a proxy for the human capital of other family members which is accessible to the householder because of a family relationship. This variable was measured as a continuous variable in thousands of dollars.

Recall the purpose of this dissertation study to ascertain whether self-employment is a feasible economic alternative for the Hispanic population residing in the Southwest portion of the United States to stay above the poverty line. If the interest is in the whole Hispanic population residing in the Southwest portion of the United States, then the question of generalizing the results of this study to the Hispanic population needs to be addressed. The results of this study can be generalized to self-employed Hispanic householders in the Southwest because the sample is a random,
representative of this group. The results can be generalized to all Hispanics only if the self-employed are like wage and salary workers.

Are those Hispanic householders who are not currently self-employed systematically different from those who are self-employed? Evidence to date suggests the groups are different (Calo, 1995; Olson, Zuiker, & Montalto, 1996; Borjas & Bronars, 1989). The results of the t-tests and the chi-square tests indicate that the two groups also are significantly different in this sample.


In Borjas and Bronars’ (1989) study, using the 1980 Census with an all male sample, the sample selection correction bias variable was reported as negative and significant in both the Hispanic self-employed equation and the Hispanic wage and salary earner equation. This suggested that there was a negative selection into self-employment in the Hispanic sample. While Calo’s (1995) dissertation, using the 1990 Census examining the Chicano entrepreneurship in rural California, reported that the
sample selection correction bias variable was significant for the wage earner equation but not for the self-employed earner equation.

One way to address this issue and get results generalizable to all Hispanics is Heckman's correction for self-selection bias (Maddala, 1983). First, a probit analysis of the dichotomous variable self-employed earner or wage and salary earner was performed. Next, the results of the probit were used to derive a predicted odds ratio for self-employment and this odds ratio was incorporated in the tobit estimation.

The equation for participation in the self-employment sector was empirically specified as:

\[
\text{self} = f (\text{Sex, Living in a city, Living in a town, Living in an urban fringe, Work experience, 6 Occupational categories, Work limitation, Years of education } < \text{ high school diploma, Years of education } \geq \text{ high school diploma, Householder's other personal income, English fluency, Citizen, Immigrant status, Paid property taxes, Married with spouse present, Number of children, Family income}).
\]

**Dependent Variable.** In order to predict the probability that a Hispanic household, who resided in the Southwest, self-selected himself/herself into self-employment, a dependent variable capturing this phenomenon was created. The dependent variable was created from Census survey question number 30. The respondent was asked to choose the type of worker from one of the eight options given.
This survey question is commonly referred to as the class of worker question. If the householder were self-employed in own not incorporated business and professional practice or self-employed in own incorporated business and professional practice, this was collapsed into one category and coded as one. The wage and salary variable was created by collapsing response numbers one through five on the census questionnaire and was coded as zero. All other responses to the class of worker question were deleted.

Independent Variables. The independent variables used in this study consisted of demographic characteristics, human capital, assimilation, and individual and relationship capital. The independent variables employed in the analysis were chosen based on consistency with both theory and their performance in previous research. Each variable was measured at the householder level and they are summarized in Table 4. Several of the variables were used in the earnings equation, therefore only those variables that were not included in the participation in self-employment model were discussed in more detail.

The demographic variables used in the model include gender and location of residence. These demographic variables were included in the model to determine whether gender and location of residence increases the probability that a Hispanic householder would opt for self-employment.
The following human capital variables were used to predict the decision to participate in self-employment: work experience, occupational status, work limitation, educational attainment, and householder’s other personal income.

Work experience was defined as the number of years an individual has been able to work after completing his or her education. Work experience is a common form of human capital and is used in other empirical studies. It suggests that the more work experience individuals have, the greater their chance of being exposed to alternative modes of occupations, such as choosing self-employment (Calo, 1995). Also, by possessing more work experience, individuals can accumulate wealth and develop networks on which to build a business (Calo, 1995). The variable used to capture work experience was not directly measured in the census data set, so a variable was created to proxy for work experience. This variable is computed as work experience equals age minus education minus six years.

Assimilation variables included in the model were English fluency, citizenship, immigrant status, and property taxes. Citizenship was measured as a dummy variable that equaled one for persons who were U.S. citizens and zero otherwise. This variable was included in the propensity for self-employment model because one should have legal status to work in the United States as a wage and salary earner.

Marital status, number of children in the household, and family income were used as independent variables to proxy for individual and relationship capital. All of these variables were discussed earlier in the section.
Objective Three

To meet objective three, significant variables from the earning’s equation will be identified as possibly useful to inform job training and business development workshops. For example, if an additional year of education would increase self-employment earnings above the poverty threshold, a Hispanic householder considering self-employment has a choice to either obtain more education or not to do so. Program directors of agencies loaning money to prospective small business owners would also be interested in the significant predictors as guidelines in granting money to clients. Possible predictors to observe include location of residence, work experience, amount of hours worked, occupational status, amount of education, having other sources of personal income, incorporating a business, English fluency, paying property taxes, immigrant status, marital status, workers in the family, number of children, and family income.

Limitations of the Study

With regards to the data set, a limitation of the Census data set was that it did not ask any attitudinal questions or questions that specifically pertained to the self-employed business. Also, the purpose of the Census collection was not the same as the researcher’s purpose. Therefore, any time a researcher uses a secondary data set, a problem that the researcher may encounter is that the purposes for the original design of the data set may not coincide with the purposes of the secondary analysis.
Whenever one uses secondary data that rely on self-reported data, the data collected is heavily reliant on what the respondent cares to share and some respondents may choose to inflate their responses to present themselves positively. Therefore, this introduces that possibility of error in the reporting of some of the data on household members by the census respondent. Also, the respondent may not have understood any one of the questions. However, when census takers came across any one of these problems, they were required to follow up on these problem cases, but it was often difficult to track down the missing cases (Barrett, 1994).
CHAPTER 4
RESULTS AND DISCUSSION

Introduction

In this chapter, the results of the estimation of the empirical equations are reported and discussed. First, descriptive statistics of Hispanic householders with earnings above the poverty threshold and Hispanic householders with earnings below the poverty threshold are presented. Second, the results from the prediction equation for the self-employment decision are presented. Third, the results of the model estimating self-employment earnings above the poverty threshold with the selection correction will be discussed. Fourth, the results of a model estimating self-employment earnings above the poverty threshold without considering selection into self-employment are presented. Implications of the results are drawn in the last section.

Results

Earnings Above and Below the Poverty Threshold

Among self-employed Hispanic householders who reside in the Southwest portion of the United States, 56.3 percent have earnings above the poverty threshold, while 43.7 percent have earnings below the poverty threshold.
Descriptive statistics are presented for Hispanic householders with earnings above the poverty threshold and Hispanic householders with earnings below the poverty threshold in Table 5. Table 6 provides descriptive statistics on the occupational distribution of the Hispanic self-employed with earnings above the poverty threshold and the Hispanic self-employed with earnings below the poverty threshold. The results of t-tests for differences in means and chi-square statistics to test differences in proportions also are presented in Tables 5 and 6. Table 7 shows the distribution of earnings above and below the poverty threshold by each of the five Southwestern states. This section is structured in the following manner: demographic characteristics, human capital, assimilation, and individual and relationship capital.

Demographic Characteristics

Differences are found among the self-employed Hispanic householder with earnings above the poverty threshold and the self-employed Hispanic householder with earnings below the poverty threshold. A higher proportion of self-employed Hispanic householders with earnings above the poverty threshold are male (90 percent) relative to self-employed Hispanic householders with earnings below the poverty threshold (82 percent).

Differences are found in the location of residence for both the self-employed Hispanic householder with earnings above and below the poverty threshold. A higher proportion of self-employed Hispanic householders with earnings above the poverty threshold live in the city (82 percent) relative to the self-employed Hispanic
householder with earnings below the poverty threshold (74 percent). Whereas, a higher proportion of self-employed Hispanic householders with earnings below the poverty threshold live in the country side (9 percent) relative to the self-employed Hispanic householder with earnings above the poverty threshold (6 percent).

**Human Capital**

The self-employed Hispanic householder with earnings above the poverty threshold works longer hours per week in 1989 (46 hours versus 39 hours), works more weeks in 1989 (48 weeks versus 40 weeks), and is more likely to work full-time than the self-employed Hispanic householder with earnings below the poverty threshold (89 percent versus 71 percent). However, the self-employed Hispanic householder with earnings below the poverty threshold has more years of work experience than the self-employed Hispanic householder with earnings above the poverty threshold (29 years versus 26 years).
<table>
<thead>
<tr>
<th>Variable</th>
<th>Self-Employed Earnings</th>
<th>Self-Employed Earnings</th>
<th>Test Statistic</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Above Poverty Mean</td>
<td>Below Poverty Mean</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(Std. Dev.)</td>
<td>(Std. Dev.)</td>
<td></td>
</tr>
<tr>
<td>Demographics</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>0.90</td>
<td>0.82</td>
<td>$\chi^2=140.07^{***}$</td>
</tr>
<tr>
<td>City</td>
<td>0.82</td>
<td>0.74</td>
<td>$\chi^2=85.74^{***}$</td>
</tr>
<tr>
<td>Town</td>
<td>0.07</td>
<td>0.10</td>
<td>$\chi^2=39.86^{***}$</td>
</tr>
<tr>
<td>Urban fringe</td>
<td>0.06</td>
<td>0.07</td>
<td>$\chi^2=7.09^{***}$</td>
</tr>
<tr>
<td>Country side</td>
<td>0.06</td>
<td>0.09</td>
<td>$\chi^2=30.35^{***}$</td>
</tr>
<tr>
<td>Human Capital</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td>43.56</td>
<td>43.77</td>
<td>$t=30.66^{***}$</td>
</tr>
<tr>
<td>(11.58)</td>
<td>(13.07)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Education</td>
<td>11.58</td>
<td>8.78</td>
<td>$\chi^2=645.08^{***}$</td>
</tr>
<tr>
<td>(4.39)</td>
<td>(4.67)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Less than H.S.</td>
<td>0.37</td>
<td>0.62</td>
<td>$\chi^2=35.17^{***}$</td>
</tr>
<tr>
<td>H.S. graduate</td>
<td>0.20</td>
<td>0.16</td>
<td>$\chi^2=86.05^{***}$</td>
</tr>
<tr>
<td>Some college</td>
<td>0.24</td>
<td>0.16</td>
<td>$\chi^2=387.82^{***}$</td>
</tr>
<tr>
<td>Bachelor's degree or more</td>
<td>0.19</td>
<td>0.06</td>
<td></td>
</tr>
<tr>
<td>Work limitation</td>
<td>0.05</td>
<td>0.09</td>
<td>$\chi^2=85.07^{***}$</td>
</tr>
<tr>
<td>Work experience</td>
<td>25.98</td>
<td>28.98</td>
<td>$t=10.88^{***}$</td>
</tr>
<tr>
<td>(12.76)</td>
<td>(14.47)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hours worked</td>
<td>45.58</td>
<td>38.81</td>
<td>$t=20.85^{***}$</td>
</tr>
<tr>
<td>(14.86)</td>
<td>(17.20)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Weeks worked</td>
<td>47.87</td>
<td>39.82</td>
<td>$t=31.47^{***}$</td>
</tr>
<tr>
<td>(8.94)</td>
<td>(15.09)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Full-time</td>
<td>0.89</td>
<td>0.71</td>
<td>$\chi^2=492.77^{***}$</td>
</tr>
<tr>
<td>Incorporated business</td>
<td>0.28</td>
<td>0.16</td>
<td>$\chi^2=228.58^{***}$</td>
</tr>
</tbody>
</table>

(table continued)

Table 5. Sample Characteristics of Self-Employed Hispanic Households with Earnings Above and Earnings Below the Poverty Threshold
Table 5 (continued).

<table>
<thead>
<tr>
<th>Variable</th>
<th>Self-Employed Earnings Above Poverty Mean (Std. Dev.)</th>
<th>Self-Employed Earnings Below Poverty Mean (Std. Dev.)</th>
<th>Test Statistic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Householder’s self-employment</td>
<td>38365.70 (36539.24)</td>
<td>6068.22 (5051.39)</td>
<td>$t=65.93^{***}$</td>
</tr>
<tr>
<td>Earnings</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Earnings above poverty</td>
<td>26794.50 (3630.19)</td>
<td>-7490.85 (5200.25)</td>
<td>$t=70.35^{***}$</td>
</tr>
<tr>
<td>Householder’s other income</td>
<td>5310.69 (18251.34)</td>
<td>3843.21 (11850.18)</td>
<td>$t=4.89^{***}$</td>
</tr>
<tr>
<td>Family poverty threshold</td>
<td>11571.20 (3768.16)</td>
<td>13559.1 (4722.45)</td>
<td>$t=22.90^{***}$</td>
</tr>
</tbody>
</table>

Assimilation

<table>
<thead>
<tr>
<th></th>
<th>Mean (Std. Dev.)</th>
<th>Mean (Std. Dev.)</th>
<th>Test Statistic</th>
</tr>
</thead>
<tbody>
<tr>
<td>English fluency</td>
<td>0.89</td>
<td>0.71</td>
<td>$\chi^2=500.39^{***}$</td>
</tr>
<tr>
<td>Immigration status</td>
<td>0.45</td>
<td>0.56</td>
<td>$\chi^2=119.29^{***}$</td>
</tr>
<tr>
<td>Citizen</td>
<td>0.73</td>
<td>0.61</td>
<td>$\chi^2=161.08^{***}$</td>
</tr>
<tr>
<td>Paid property taxes</td>
<td>0.68</td>
<td>0.49</td>
<td>$\chi^2=362.43^{***}$</td>
</tr>
</tbody>
</table>

Individual/Relationship

<table>
<thead>
<tr>
<th></th>
<th>Mean (Std. Dev.)</th>
<th>Mean (Std. Dev.)</th>
<th>Test Statistic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Married, spouse present</td>
<td>0.78</td>
<td>0.76</td>
<td>$\chi^2=4.27^{**}$</td>
</tr>
<tr>
<td>Family size</td>
<td>3.42</td>
<td>4.37</td>
<td>$t=22.55^{***}$</td>
</tr>
<tr>
<td></td>
<td>(1.91)</td>
<td>(2.24)</td>
<td></td>
</tr>
<tr>
<td>Number of children</td>
<td>1.24</td>
<td>1.79</td>
<td>$t=18.42^{***}$</td>
</tr>
<tr>
<td></td>
<td>(1.33)</td>
<td>(1.61)</td>
<td></td>
</tr>
</tbody>
</table>

(table continued)
Table 5 (continued).

<table>
<thead>
<tr>
<th>Variable</th>
<th>Self-Employed Earnings Above Poverty</th>
<th>Self-Employed Earnings Below Poverty</th>
<th>Test Statistic</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean (Std. Dev.)</td>
<td>Mean (Std. Dev.)</td>
<td></td>
</tr>
<tr>
<td>One worker in a non-family household</td>
<td>0.11 (0.05)</td>
<td>0.05 (0.05)</td>
<td>$\chi^2=91.15^{***}$</td>
</tr>
<tr>
<td>One worker in family</td>
<td>0.28 (0.30)</td>
<td>0.30 (0.30)</td>
<td>$\chi^2=4.02^{**}$</td>
</tr>
<tr>
<td>Two or more workers in family</td>
<td>0.61 (0.64)</td>
<td>0.64 (0.64)</td>
<td>$\chi^2=12.99^{***}$</td>
</tr>
<tr>
<td>Family Income (excluding household's income)</td>
<td>13019.70 (20595.16)</td>
<td>11116.1 (16765.15)</td>
<td>t=5.13^{***}</td>
</tr>
</tbody>
</table>

Number: 5701 4422

*p<.10 **p<.05 ***p<.01

Educational attainment differs for the self-employed Hispanic householder with earnings above and below the poverty threshold. The self-employed Hispanic householder with earnings above the poverty line has an average 11.58 years of schooling, while the self-employed Hispanic householder with earnings below the poverty line has an average 8.78 years of schooling. A higher percentage of self-employed Hispanic householders in poverty have less than a high school diploma compared to self-employed Hispanic householders above the poverty line (62 percent and 37 percent, respectively). Whereas, a higher percentage of self-employed Hispanic householders with earnings above the poverty threshold have a bachelor’s degree or more education compared to the self-employed Hispanic householder with earnings below the poverty line (19 percent and 6 percent, respectively).
Self-employed Hispanic householders above the poverty threshold have higher amounts other personal income excluding the householder's self-employment earnings compared to the self-employed Hispanic householder below the poverty threshold ($5,311 versus $3,843). The family poverty threshold amount differs for both the self-employed Hispanic householder with earnings above the poverty threshold and the self-employed Hispanic householder with earnings below the poverty threshold ($11,571 versus $13,559). The average earnings above the threshold for self-employed Hispanic householders are $26,795, while self-employed Hispanic householders earning below the poverty threshold earn on average $7,491.

Age is the only variable that is not different for both groups. The self-employed Hispanic householder with earnings above the poverty threshold and the self-employed with earnings below the poverty threshold are similar in ages (43.56 years and 43.77 years, respectively). Owning an incorporated business is more prevalent for the self-employed Hispanic householder with earnings above the poverty threshold (28 percent) compared to the self-employed Hispanic householder with earnings below the poverty threshold (16 percent).

The occupational distribution of the Hispanic self-employed householder with earnings above the poverty threshold and the Hispanic self-employed householder with earnings below the poverty threshold are presented in Table 6. A higher percentage of Hispanic self-employed householders with earnings above the poverty threshold are in managerial and professional; technical, sales, and administrative support occupations, and a higher percentage of self-employed Hispanic householders with earnings below
the poverty threshold are in service; farming, forestry, and fishing; precision
production, craft, and repair; and operators, fabricators, and laborer occupations.

With respect to the industry distribution, differences between the self-employed
Hispanic householder with earnings above the poverty threshold and the self-employed
Hispanic householder with earnings below the poverty threshold exist. The self-
employed Hispanic householder with earnings above the poverty threshold is more
likely to be in core industry, core utilities, periphery, and periphery utilities, while the
self-employed Hispanic with earnings below the poverty threshold is more likely to be
in oligophy and trades industries.

Assimilation

The self-employed Hispanic householder with earnings above the poverty
threshold is more likely to be fluent in English, be a U.S. citizen, and pay property taxes
compared to the self-employed Hispanic householder with earnings below the poverty
threshold. The self-employed Hispanic householder in poverty is more likely to have
immigrant status compared to the Hispanic householder above the poverty line (56
percent and 45 percent, respectively).

Individual and Relationship Capital

The self-employed Hispanic householder with earnings below the poverty
threshold is more likely to have a larger family (4.37 versus 3.42), have more children
(1.79 and 1.24), and two or more workers in the family (64 percent versus 61 percent)
than the self-employed Hispanic householder with earnings above the poverty threshold. However, the self-employed Hispanic householder with earnings above the poverty threshold is more likely to be married with their spouse present (78 percent) compared to the Hispanic householder with earnings below the poverty threshold (76 percent). Also, a higher proportion of self-employed Hispanic householders with earnings above the poverty threshold has, on average, higher amounts of family income excluding the householder's self-employment earnings and other personal income relative to the self-employed Hispanic householder with earnings below the poverty threshold ($13,020 versus $11,116).
<table>
<thead>
<tr>
<th>Variable</th>
<th>Earnings Above the Poverty Threshold</th>
<th>Earnings Below the Poverty Threshold</th>
<th>Test Statistic</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Frequency (Percent)</td>
<td>Frequency (Percent)</td>
<td></td>
</tr>
<tr>
<td>Types of Occupations</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Managerial &amp; Professional</td>
<td>0.28</td>
<td>0.12</td>
<td>$\chi^2 = 413.19^{***}$</td>
</tr>
<tr>
<td>Technical, Sales, &amp; Administrative Support</td>
<td>0.20</td>
<td>0.15</td>
<td>$\chi^2 = 47.00^{***}$</td>
</tr>
<tr>
<td>Service</td>
<td>0.09</td>
<td>0.17</td>
<td>$\chi^2 = 137.33^{***}$</td>
</tr>
<tr>
<td>Farming, Forestry, &amp; Fishing</td>
<td>0.06</td>
<td>0.13</td>
<td>$\chi^2 = 120.98^{***}$</td>
</tr>
<tr>
<td>Precision Production, Craft, &amp; Repair</td>
<td>0.25</td>
<td>0.30</td>
<td>$\chi^2 = 36.71^{***}$</td>
</tr>
<tr>
<td>Operators, Fabricators, &amp; Laborers</td>
<td>0.11</td>
<td>0.13</td>
<td>$\chi^2 = 11.526^{***}$</td>
</tr>
<tr>
<td>Types of Industries</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Oligophy</td>
<td>0.00</td>
<td>0.05</td>
<td></td>
</tr>
<tr>
<td>Core</td>
<td>0.32</td>
<td>0.28</td>
<td>$\chi^2 = 14.55^{***}$</td>
</tr>
<tr>
<td>Core Utilities</td>
<td>0.03</td>
<td>0.01</td>
<td>$\chi^2 = 57.24^{***}$</td>
</tr>
<tr>
<td>Periphery</td>
<td>0.48</td>
<td>0.45</td>
<td>$\chi^2 = 4.98^{**}$</td>
</tr>
<tr>
<td>Trades</td>
<td>0.11</td>
<td>0.21</td>
<td>$\chi^2 = 173.81^{***}$</td>
</tr>
<tr>
<td>Periphery Utilities</td>
<td>0.05</td>
<td>0.04</td>
<td>$\chi^2 = 8.40^{***}$</td>
</tr>
<tr>
<td>Number</td>
<td>5701</td>
<td>4422</td>
<td></td>
</tr>
</tbody>
</table>

* $p<.10$  
** $p<.05$  
*** $p<.01$

Table 6. Occupation and Industry by Earnings Above or Below the Poverty Threshold of the Self-Employed

In Table 7, the distribution of earnings above and below the poverty threshold are shown by state. Where does the self-employed Hispanic household who has earnings above the poverty threshold reside and where does the Hispanic householder
who has earnings below the poverty threshold reside in the Southwest? In the Southwest, the majority of the self-employed Hispanic householders with income above the poverty threshold live in California (56.7 percent) and in Texas (30.5 percent). Self-employed Hispanic householders with income below the poverty threshold are also more likely to live in California (44.6 percent) and in Texas (42.7 percent).

The only state in which a majority of the self-employed Hispanic householders do not earn enough to keep their families out of poverty is Texas. In Texas, 48 percent of all self-employed Hispanic householders are above the poverty threshold. The comparable figures for California, Colorado, Arizona, and New Mexico are 62, percent 60 percent, 57 percent, and 54 percent respectively.

<table>
<thead>
<tr>
<th>States</th>
<th>Above the Poverty Threshold</th>
<th>Below the Poverty Threshold</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Frequency (Percent)</td>
<td>Frequency (Percent)</td>
</tr>
<tr>
<td>Arizona</td>
<td>237 (4.2)</td>
<td>182 (4.1)</td>
</tr>
<tr>
<td>California</td>
<td>3,235 (56.7)</td>
<td>1,973 (44.6)</td>
</tr>
<tr>
<td>Colorado</td>
<td>185 (3.2)</td>
<td>125 (2.8)</td>
</tr>
<tr>
<td>New Mexico</td>
<td>304 (5.3)</td>
<td>255 (5.8)</td>
</tr>
<tr>
<td>Texas</td>
<td>1,740 (30.5)</td>
<td>1,887 (42.7)</td>
</tr>
<tr>
<td>Number</td>
<td>5,701</td>
<td>4,422</td>
</tr>
</tbody>
</table>

Table 7. Distribution of Earnings Above and Below the Poverty Threshold by States

Self-Employment Decision

Table 8 presents the probit regression on the determinants of self-employment for the Hispanic householder residing in the Southwest portion of the United States.
Seventeen of the twenty one explanatory variables were significant. Only family income, living in a city, living in a town, and living in an urban fringe did not have a significant effect. However the model only explained 3 percent of the variance. The proportion of self-employed Hispanics predicted to be self-employed was very low. Of the 10,123 Hispanic householders who were self-employed, this model predicted only 209 to be self-employed and 9914 not to be self-employed. The results are reported as follows: demographic characteristics, human capital, assimilation, and individual and relationship capital.

**Demographic Characteristics**

Only one of the four demographic variables has a significant effect on the likelihood of becoming self-employed for the Hispanic householders who reside in the Southwest portion of the United States. Male Hispanic householders are more likely to choose self-employment than female Hispanic householders.

**Human Capital**

All ten of the human capital variables have significant effects on the decision to become self-employed for the Hispanic householder residing in the Southwest. Having a high school degree or more increases the probability of becoming self-employed. Having a work limitation also increases the probability of becoming self-employed. However, being an operator, fabricator, or laborer is associated with a lower probability of becoming self-employed than that for the service occupation, while being in the
managerial and professional occupations; technical, sales, administrative support occupations; farming, forestry, and fishing occupations; and precision production, craft, and repair occupations is associated with a higher probability of being self-employed than the service occupation. Work experience has a positive and significant effect on the decision to become self-employed for the Hispanic householder. Personal income from other sources is positively associated with becoming self-employed.

**Assimilation**

All four of the assimilation variables predicting the probability that a Hispanic householder becomes self-employed have significant effects. United States citizens have a lower probability of being self-employed. Whereas, the Hispanic householder who is fluent in English, has immigrant status, or paid property taxes has a higher probability of being self-employed.

**Individual and Relationship Capital**

Two of the three individual and relationship capital variables have significant effects in the decision to become self-employed. Both the probability of becoming self-employed increases with each additional child and being married with spouse present for the Hispanic householder.
<table>
<thead>
<tr>
<th>Variable</th>
<th>Probit Coefficient (Standard Error)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Demographics</strong></td>
<td></td>
</tr>
<tr>
<td>Sex</td>
<td>0.2134*** (0.0190)</td>
</tr>
<tr>
<td>City (Omitted Country side)</td>
<td>-0.0170 (0.0214)</td>
</tr>
<tr>
<td>Town</td>
<td>0.0131 (0.0273)</td>
</tr>
<tr>
<td>Urban Fringe</td>
<td>0.0008 (0.0298)</td>
</tr>
<tr>
<td><strong>Human Capital</strong></td>
<td></td>
</tr>
<tr>
<td>Work experience</td>
<td>0.0125*** (0.0005)</td>
</tr>
<tr>
<td>Managerial &amp; Professional (Omitted Category Service)</td>
<td>0.2756*** (0.0214)</td>
</tr>
<tr>
<td>Technical, Sales, &amp; Administrative Support</td>
<td>0.0632*** (0.0203)</td>
</tr>
<tr>
<td>Farming, Forestry, &amp; Fishery</td>
<td>0.1235*** (0.0251)</td>
</tr>
<tr>
<td>Precision Production, Craft, &amp; Repair</td>
<td>0.1862*** (0.0201)</td>
</tr>
<tr>
<td>Operators, Fabricators, &amp; Laborers</td>
<td>-0.3367*** (0.0211)</td>
</tr>
<tr>
<td>Work limitation</td>
<td>0.0722*** (0.0227)</td>
</tr>
<tr>
<td>Years of education &lt; H.S. diploma</td>
<td>0.0100*** (0.0022)</td>
</tr>
<tr>
<td>Years of education &gt;= H.S. diploma</td>
<td>0.0207*** (0.0042)</td>
</tr>
</tbody>
</table>

(table continued)

Table 8. **Probit Analysis on Self-Employment With Sample Selection Dependent Variable = 1 if Householder is Self-Employed**
Table 8 (continued).

<table>
<thead>
<tr>
<th>Variable</th>
<th>Probit Coefficient (Standard Error)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Householder's other personal income</td>
<td>0.0214*** (0.0005)</td>
</tr>
<tr>
<td>Assimilation</td>
<td></td>
</tr>
<tr>
<td>English fluency</td>
<td>0.0492*** (0.0161)</td>
</tr>
<tr>
<td>Citizen</td>
<td>-0.0341*** (0.0117)</td>
</tr>
<tr>
<td>Immigrant status</td>
<td>0.1566*** (0.0141)</td>
</tr>
<tr>
<td>Paid property taxes</td>
<td>0.1599*** (0.0121)</td>
</tr>
<tr>
<td>Individual/Relationship</td>
<td></td>
</tr>
<tr>
<td>Married, with spouse present</td>
<td>0.0533*** (0.0158)</td>
</tr>
<tr>
<td>Number of children</td>
<td>0.0122*** (0.0040)</td>
</tr>
<tr>
<td>Family Income (excluding householder's</td>
<td>0.0004 (0.0003)</td>
</tr>
<tr>
<td>income)</td>
<td></td>
</tr>
<tr>
<td>Constant</td>
<td>-2.3253*** (0.0405)</td>
</tr>
<tr>
<td>McFadden's $R^2$</td>
<td>0.03</td>
</tr>
</tbody>
</table>

n= 124,684

* ***<p.01 ** p<.05 * p<.10

Self-Employment Earnings Above the Poverty

Threshold Model with Sample Selection

The tobit coefficients for the model of self-employment earnings above the poverty threshold are presented in Table 9. This model is the result of a two-step...
sample selection-correction procedure used in estimating the tobit coefficients. Again, the results are reported as follows: demographic characteristics, human capital, assimilation, and individual and relationship capital.

The log likelihood function is the traditional measure of goodness of fit for a tobit. A higher value of the log likelihood function means the estimates fit the data better than a model with a smaller log likelihood function. The value of the log likelihood function for this model is -62,687.

Both sigma and rho coefficients have strong positive effects on self-employment earnings above the poverty threshold. The positive coefficients indicate that the unobserved factors which increase the probability of a Hispanic householder in becoming self-employed increase the self-employment earnings above the poverty threshold too.

Demographic Characteristics

Two of the four demographic variables have positive and significant effects on earnings above the poverty line. Being a male Hispanic householder is associated with an increase in self-employment earnings above the poverty level. Also, living in a city is associated with an increase in self-employment earnings above the poverty threshold.
<table>
<thead>
<tr>
<th>Variable</th>
<th>Tobit Coefficient (Standard Error)</th>
<th>Marginal Effect</th>
<th>Threshold Effect</th>
<th>Earnings Effect</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Demographics</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>City (Omitted Category Country side)</td>
<td>6.9516*** (1.7152)</td>
<td>5.0183</td>
<td>2.4565</td>
<td>2.5618</td>
</tr>
<tr>
<td>Town</td>
<td>0.6970 (2.1949)</td>
<td>0.5032</td>
<td>0.2463</td>
<td>0.2569</td>
</tr>
<tr>
<td>Urban fringe</td>
<td>3.1716 (2.3537)</td>
<td>2.2896</td>
<td>1.1208</td>
<td>1.1688</td>
</tr>
<tr>
<td><strong>Human Capital</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Work experience</td>
<td>0.6185*** (0.0397)</td>
<td>0.4465</td>
<td>0.2186</td>
<td>0.2279</td>
</tr>
<tr>
<td>Hours per week &lt; 35</td>
<td>0.7956*** (0.0645)</td>
<td>0.5744</td>
<td>0.2812</td>
<td>0.2932</td>
</tr>
<tr>
<td>Hours per week &gt;= 35</td>
<td>-0.6646*** (0.0719)</td>
<td>-0.4798</td>
<td>0.2349</td>
<td>0.2449</td>
</tr>
<tr>
<td>Managerial &amp; Professional (Omitted Category Service)</td>
<td>24.5720*** (1.6360)</td>
<td>17.7384</td>
<td>8.6832</td>
<td>9.0552</td>
</tr>
<tr>
<td>Technical, Sales, &amp; Administrative Support</td>
<td>8.4149*** (1.5936)</td>
<td>6.0746</td>
<td>2.9736</td>
<td>3.1010</td>
</tr>
<tr>
<td>Farming, Forestry, &amp; Fishing</td>
<td>5.1518** (2.0830)</td>
<td>3.7190</td>
<td>1.8205</td>
<td>1.8985</td>
</tr>
<tr>
<td>Precision Production, Craft, &amp; Repair</td>
<td>12.2200*** (1.6178)</td>
<td>8.8216</td>
<td>4.3183</td>
<td>4.5033</td>
</tr>
<tr>
<td>Operators, Fabricators, &amp; Laborers</td>
<td>-15.3590*** (1.7317)</td>
<td>-9.9784</td>
<td>-4.3183</td>
<td>-5.6601</td>
</tr>
</tbody>
</table>

*Table 9. Tobit Analysis of Self-Employment Earnings Above the Poverty Threshold with Sample Selection*
<table>
<thead>
<tr>
<th>Variable</th>
<th>Tobit Coefficient</th>
<th>Marginal Effect</th>
<th>Threshold Effect</th>
<th>Earnings Effect</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Work limitation</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Work limitation</td>
<td>-5.0433***</td>
<td>-3.6407</td>
<td>-1.7822</td>
<td>-1.8585</td>
</tr>
<tr>
<td></td>
<td>(1.8298)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Years of education</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt; H.S. diploma</td>
<td>1.3903***</td>
<td>1.0037</td>
<td>0.4913</td>
<td>0.5124</td>
</tr>
<tr>
<td></td>
<td>(0.1747)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&gt;= H.S. diploma</td>
<td>2.1009***</td>
<td>1.5166</td>
<td>0.7424</td>
<td>0.7742</td>
</tr>
<tr>
<td></td>
<td>(0.2988)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Householder’s other personal income</strong></td>
<td>0.8474**</td>
<td>0.6118</td>
<td>0.2995</td>
<td>0.3123</td>
</tr>
<tr>
<td></td>
<td>(0.0335)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Incorporated business</strong></td>
<td>9.2889***</td>
<td>6.7056</td>
<td>3.2825</td>
<td>3.4231</td>
</tr>
<tr>
<td></td>
<td>(0.6045)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Assimilation</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>English fluency</td>
<td>12.1820***</td>
<td>8.7942</td>
<td>4.3049</td>
<td>4.4893</td>
</tr>
<tr>
<td></td>
<td>(1.3575)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Immigrant status</td>
<td>9.4590***</td>
<td>6.8284</td>
<td>3.3426</td>
<td>3.4858</td>
</tr>
<tr>
<td></td>
<td>(0.8988)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Paid property taxes</td>
<td>18.3230***</td>
<td>13.2274</td>
<td>6.4750</td>
<td>6.754</td>
</tr>
<tr>
<td></td>
<td>(0.9112)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Individual/Relationship</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Married, with spouse present</td>
<td>3.1929***</td>
<td>2.3049</td>
<td>1.1283</td>
<td>1.1766</td>
</tr>
<tr>
<td></td>
<td>(1.3244)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>One worker in a non-family household</td>
<td>6.8511***</td>
<td>4.9458</td>
<td>2.4210</td>
<td>2.5248</td>
</tr>
<tr>
<td></td>
<td>(1.2728)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Omitted Category 2 or more workers)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>One worker in family</td>
<td>5.1596***</td>
<td>3.7247</td>
<td>1.8233</td>
<td>1.9014</td>
</tr>
<tr>
<td></td>
<td>(0.7014)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(table continued)
Table 9 (continued).

<table>
<thead>
<tr>
<th>Variable</th>
<th>Tobit Coefficient (Standard Error)</th>
<th>Marginal Effect</th>
<th>Threshold Effect</th>
<th>Earnings Effect</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of children</td>
<td>-2.2188*** (0.3237)</td>
<td>-1.6018</td>
<td>-0.7841</td>
<td>-0.8177</td>
</tr>
<tr>
<td>Family income</td>
<td>0.0547*** (0.0194)</td>
<td>0.0395</td>
<td>0.0193</td>
<td>0.0202</td>
</tr>
<tr>
<td>Sigma (1)</td>
<td>61.8010*** (0.5047)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rho (1,2)</td>
<td>0.9894*** (0.0014)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Constant</td>
<td>-223.52*** (4.1341)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Log Likelihood function</td>
<td>-62687.49</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

n= 124,684

***<p.01  **p<.05  *p<.10

Human Capital

As expected, having an additional year of education for the Hispanic householder who has at least a high school diploma is significantly related to a Hispanic householder's self-employment earnings above the poverty threshold. Each additional year of education beyond a high school diploma is associated with an increase in self-employment earnings above the poverty level. Similarly, having an additional year of education up to the 12th grade is associated with an increase in self-employment earnings above the poverty threshold.

Both years of work experience and working an additional hour per week up to at least 34 hours per week have positive and significant effects on earnings above the
poverty threshold. While, each additional hour worked over 35 hours per week is associated with negative self-employment earnings above the poverty threshold.

Hispanic householders who are self-employed in managerial and professional occupations; technical, sales, and administrative support occupations; farming, forestry, and fishing occupations; precision production, craft and repair occupations have higher self-employed earnings above the poverty level compared to the service occupations. Whereas, operators, fabricators, and laborers occupations have lower self-employed earnings above the poverty level compared to the service occupations. Having a work limitation has a strong negative effect; it is associated with negative self-employed earnings above the poverty threshold.

Each additional thousand dollars of the Hispanic householder's other income aside from self-employment earnings has a strong positive effect; it is associated with an increase in self-employed earnings above the poverty level. On the other hand, incorporating one's business is associated with an increase in earnings above the poverty level.

Assimilation

All three of the assimilation variables have positive effects on self-employment earnings above the poverty threshold. Being fluent in English, having immigrant status, and paying property taxes are associated with an increase in earnings above the poverty threshold.
Individual and Relationship Capital

All five of the individual and relationship capital variables have significant effects on self-employment earnings above the poverty threshold. Each additional thousand dollar increase of family income excluding the householder’s self-employment earnings and other personal income is associated with an increase in earnings above the poverty level. The presence of children in the household has a strong negative effect; having an additional child in the household is associated with negative self-employment earnings above the poverty threshold. Whereas, being married with spouse present is associated with an increase in earnings above the poverty threshold.

Number of workers in a family has significant effects on self-employment earnings above the poverty threshold. Having one worker in a non-family household is associated with an increase in self-employment earnings compared to having two or more workers in the family. Similarly, having one worker in a family is associated with an increase in self-employment earnings compared to having two or more workers in the family.

Self-Employment Earnings Above the Poverty Threshold Model

Another set of tobit results for the model of self-employment earnings above the poverty threshold are presented in Table 10. In this model, the two-step selection-correction procedure was not performed. The first column shows the tobit coefficient and the standard error, while the last three columns show the results of the
decomposition. Also, the results are reported as follows: demographic characteristics, human capital, assimilation, and individual and relationship capital.

Again, a higher value of the log likelihood function indicates that the model fits better than those with smaller values for the log likelihood function. The log likelihood function for this model is -31,098.16.

**Demographic Characteristics**

Three of the four demographic variables have significant effects on self-employment earnings above the poverty threshold. Being a male Hispanic householder is associated with an increase in self-employment earnings above the poverty level. Also, living in a city and living in an urban fringe are associated with increases in self-employment earnings above the poverty threshold.

**Human Capital**

Hispanic householders who are self-employed in managerial and professional occupations; technical, sales, and administrative support occupations; precision production, craft and repair occupations; and operators, fabricators, and laborers occupations have higher self-employed earnings above the poverty level than the service occupations. Whereas, farming, forestry, and fishing occupations are associated with lower self-employed earnings above the poverty level than the service occupations. Having a work limitation has a strong negative effect.
As expected, having an additional year of education for the Hispanic household who has at least a high school diploma is significantly related to a Hispanic household's self-employment earnings above the poverty threshold. Each additional year of education beyond a high school diploma is associated with an increase in self-employment earnings above the poverty level. Similarly, having an additional year of education up to the 12th grade is associated with an increase in self-employment earnings above the poverty threshold.

Each additional thousand dollars of the Hispanic household's other income aside from self-employment earnings has a strong positive effect; it is associated with an increase in self-employed earnings above the poverty level. Incorporating one's business also is associated with an increase in earnings above the poverty level.

Working an additional hour per week up to at least 34 hours per week has a positive and significant effect on earnings above the poverty level. Weekly hours above 34 has a positive effect on earnings that is lower than the first 34 hours per week. While, increasing years of work experience is associated with lower self-employment earnings above the poverty threshold.
<table>
<thead>
<tr>
<th>Variable</th>
<th>Tobit Coefficient (Standard Error)</th>
<th>Marginal Effect</th>
<th>Threshold Effect</th>
<th>Earnings Effect</th>
</tr>
</thead>
<tbody>
<tr>
<td>Demographics</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sex</td>
<td>11.811*** (1.6259)</td>
<td>5.7491</td>
<td>3.7012</td>
<td>2.0479</td>
</tr>
<tr>
<td>City (Omitted Category Country side)</td>
<td>10.7900*** (1.7318)</td>
<td>5.2521</td>
<td>3.3813</td>
<td>1.8708</td>
</tr>
<tr>
<td>Town</td>
<td>0.6096 (2.0307)</td>
<td>0.2784</td>
<td>0.1910</td>
<td>0.0874</td>
</tr>
<tr>
<td>Urban fringe</td>
<td>4.1298* (2.3643)</td>
<td>2.0102</td>
<td>1.2942</td>
<td>0.7160</td>
</tr>
<tr>
<td>Human Capital</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Work experience</td>
<td>-0.0777* (0.0399)</td>
<td>-0.0378</td>
<td>-0.0243</td>
<td>-0.0135</td>
</tr>
<tr>
<td>Hours per week &lt; 35</td>
<td>0.7360** (0.0769)</td>
<td>0.3583</td>
<td>0.2307</td>
<td>0.1276</td>
</tr>
<tr>
<td>Hours per week &gt;= 35</td>
<td>-0.4402*** (0.0933)</td>
<td>-0.2142</td>
<td>-0.1379</td>
<td>-0.0763</td>
</tr>
<tr>
<td>Managerial &amp; Professional</td>
<td>17.998*** (1.6709)</td>
<td>8.7607</td>
<td>5.6401</td>
<td>3.1206</td>
</tr>
<tr>
<td>(Omitted Category Service)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Technical, Sales, &amp;</td>
<td>8.4904*** (1.6618)</td>
<td>4.1328</td>
<td>2.6607</td>
<td>1.4721</td>
</tr>
<tr>
<td>Administrative Support</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Farming, Forestry, &amp; Fishing</td>
<td>-1.0021 (2.0565)</td>
<td>-0.1403</td>
<td>-0.3140</td>
<td>-0.1737</td>
</tr>
<tr>
<td>Precision Production, Craft, &amp; Repair</td>
<td>4.2697*** (1.6263)</td>
<td>2.0783</td>
<td>1.3380</td>
<td>0.7403</td>
</tr>
<tr>
<td>Operators, Fabricators, &amp; Laborers</td>
<td>6.7975*** (1.8459)</td>
<td>3.3087</td>
<td>2.1301</td>
<td>1.1786</td>
</tr>
<tr>
<td>Work limitation</td>
<td>-9.2780** (1.8354)</td>
<td>-4.5162</td>
<td>-2.9075</td>
<td>-1.6087</td>
</tr>
</tbody>
</table>

(table continued)

Table 10. Tobit Analysis of Self-Employment Earnings Above the Poverty Threshold
Table 10 (continued).

<table>
<thead>
<tr>
<th>Variable</th>
<th>Tobit Coefficient (Standard Error)</th>
<th>Marginal Effect</th>
<th>Threshold Effect</th>
<th>Earnings Effect</th>
</tr>
</thead>
<tbody>
<tr>
<td>Years of education</td>
<td>0.6262*** (0.1750)</td>
<td>0.3048</td>
<td>0.1962</td>
<td>0.1086</td>
</tr>
<tr>
<td>&lt; H.S. diploma</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Years of education &gt;= H.S. diploma</td>
<td>3.6202*** (0.3155)</td>
<td>1.7622</td>
<td>1.1345</td>
<td>0.6277</td>
</tr>
<tr>
<td>Householder's other</td>
<td>0.0895*** (0.0249)</td>
<td>0.0436</td>
<td>0.0281</td>
<td>0.0155</td>
</tr>
<tr>
<td>personal income</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Incorporated business</td>
<td>18.132*** (0.9793)</td>
<td>8.8259</td>
<td>5.6821</td>
<td>3.1438</td>
</tr>
<tr>
<td>Assimilation</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>English fluency</td>
<td>12.7470*** (1.3322)</td>
<td>6.2047</td>
<td>3.9946</td>
<td>2.2101</td>
</tr>
<tr>
<td>Immigrant status</td>
<td>0.7970 (0.9466)</td>
<td>0.3880</td>
<td>0.2498</td>
<td>0.1382</td>
</tr>
<tr>
<td>Paid property taxes</td>
<td>14.873*** (0.9494)</td>
<td>7.2396</td>
<td>4.6608</td>
<td>2.5788</td>
</tr>
<tr>
<td>Individual/Relationship</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Married, with spouse present</td>
<td>0.9164 (1.4862)</td>
<td>0.4461</td>
<td>0.2872</td>
<td>0.1589</td>
</tr>
<tr>
<td>One worker in a non-family household</td>
<td>10.134*** (1.9667)</td>
<td>4.9328</td>
<td>3.1757</td>
<td>1.7571</td>
</tr>
<tr>
<td>(Omitted Category 2 or more workers)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>One worker in family</td>
<td>7.9648*** (1.0576)</td>
<td>3.8769</td>
<td>2.4959</td>
<td>1.3810</td>
</tr>
<tr>
<td>Number of children</td>
<td>-3.2432*** (0.3402)</td>
<td>-1.5786</td>
<td>-1.0163</td>
<td>-0.5623</td>
</tr>
<tr>
<td>Family income</td>
<td>0.1237*** (0.0241)</td>
<td>0.0602</td>
<td>0.0388</td>
<td>0.0214</td>
</tr>
</tbody>
</table>

(table continued)
Table 10 (continued).

<table>
<thead>
<tr>
<th>Variable</th>
<th>Tobit Coefficient (Standard Error)</th>
<th>Marginal Effect</th>
<th>Threshold Effect</th>
<th>Earnings Effect</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sigma</td>
<td>37.1060*** (0.3616)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Constant</td>
<td>-87.6590*** (4.2063)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Log Likelihood function: -31098.16

n= 10.123

***<p.01 **<p.05 *p<.10

Assimilation

Two of the assimilation variables have a significant effect on earnings above the poverty threshold. Being fluent in English and paying property taxes results in an increase in earnings above the poverty threshold for the Hispanic householder who is self-employed and resides in the Southwest portion of the United States.

Individual and Relationship Capital

Four of the five individual and relationship capital variables have significant effects on self-employment earnings above the poverty threshold. Number of workers in a family has significant effects on self-employment earnings above the poverty threshold. Having one worker in a non-family household is associated with an increase in self-employment earnings compared to having two or more workers in the family.
Similarly, having one worker in a family is associated with an increase in self-employment earnings compared to having two or more workers in the family.

Each additional thousand dollar increase in family income excluding the householder's self-employment earnings and other personal income is associated with an increase in earnings above the poverty level. The presence of children in the household has a strong negative effect; having an additional child in the household is associated with negative self-employment earnings above the poverty threshold.

In Table 10, the last three columns show the results of the decomposition. The marginal effect is shown first and this separates into the threshold effect and the earnings effect.\(^9\) The conditional mean of the dependent variable at the sample mean is 14.1954 and the scale factor for marginal effects is 0.4864. The scale factor takes into account all of the model parameters and is computed at the means of the full sample as well as the means of the strata.

Being fluent in English is expected to result in an increase of $6,205 in earnings above the poverty threshold. This effect can be decomposed into the probability of reaching the poverty threshold (threshold effect) and the effect on earnings conditional upon being above the poverty level (earnings effect). The threshold effect for English fluency also is much larger than the earnings effect ($3,994.60 and $2,210.10, respectively).

---

\(^9\) Refer to the discussion in Chapter 3 concerning the decomposition.
Discussion

In this section, the descriptive statistics of self-employed Hispanic householders with earnings above the poverty threshold and Hispanic householders with earnings below the poverty threshold are discussed. Also, the results of the model without considering selection into self-employment are discussed. Since, this model is a model of earnings above the poverty threshold, previous empirical research focusing on earnings as a measure of success are referred to in the discussion. In each section, the discussion is structured in the following manner: human capital, assimilation, individual and relationship capital, and demographic characteristics.

Hispanic Self-Employed Householder: Earnings

Above and Below the Poverty Threshold

Demographic Characteristics

Self-employed males are more likely to have earnings above the poverty threshold than self-employed females. Previous studies have reported that males are more likely to be self-employed and also are more likely to have higher self-employment earnings than females (Roos & Hennessy, 1987; Torres, 1988; Calo, 1995; Olson, Zuiker, & Montalto, 1996).

Where do they reside? Self-employed Hispanic householders with earnings above and below the poverty threshold are more likely to live in both California and Texas. These findings are consistent with the 1992 Economic Census report which
reported that both California and Texas had the largest number of Hispanic owned firms.

**Human Capital**

The self-employed Hispanic householder with earnings below the poverty threshold has on average fewer years of education than the self-employed Hispanic householder with earnings above the poverty threshold. This finding is consistent with previous research that suggests that Hispanic families who are below the official poverty line have lower educational attainment.

The self-employed Hispanic householder with earnings above the poverty threshold is more likely to have a bachelor’s degree or more education compared to the self-employed Hispanic householder with earnings below the poverty threshold. The education results are consistent with other studies that suggest that the self-employed Hispanic earner had more education than the wage and salary Hispanic earner (Borjas and Bronars, 1989; Calo, 1995; Olson, Zuiker, & Montalto, 1996; Torres, 1988). What this suggests is that educational attainment beyond a high school degree can offer economic benefits above the poverty threshold to Hispanic householders who are choosing self-employment as an employment option. Therefore, educational attainment can be considered a choice variable, whereby Hispanic householders have the option to obtain additional education beyond a high school diploma.

Consistent with previous research examining self-employment earnings as a measure of relative success, self-employed Hispanic householders above the poverty
threshold worked more hours per week in 1989 and more weeks per year in 1989 compared to self-employed Hispanic householder with earnings below poverty (Olson, Zuiker, & Montalto, 1996; Roos & Hennessy, 1987; Torres, 1988). This finding suggests that Hispanic householders who are considering self-employment should factor into their decision making process the longer hours and more weeks worked associated with self-employment earnings above the poverty threshold.

Self-employed Hispanic householders with earnings above the poverty threshold are more likely to be in managerial and professional occupations and technical, sales, and administrative support occupations, while self-employed Hispanic householders with earnings below the poverty threshold are more likely to be in precision production, craft, and repair occupations. Olson, Zuiker, and Montalto (1996) study, examining self-employment earnings as a measure of relative success, reported self-employed Hispanics were employed in the managerial and professional; service; and precision production, craft, and repair occupations compared to the Hispanic wage and salary earner.

Assimilation

Self-employed Hispanic householders with earnings above the poverty threshold are more likely to be fluent in English than self-employed Hispanic householders with earnings below the poverty threshold. Olson, Zuiker, and Montalto’s (1996) study reported that the command of the English language offered an economic benefit for the Hispanic wage and salary earner, however having a command over the
English language did not offer a financial benefit to the Hispanic self-employed earner. In contrast, Calo’s (1995) dissertation reported that the cost of speaking English poorly is higher in the self-employment sector compared to the wage and salary sector.

Paying property taxes is more prevalent for the self-employed Hispanic householder with earnings above the poverty threshold compared to the self-employed Hispanic householder with earnings below the poverty threshold. This finding is consistent with Olson, Zuiker, and Montalto’s (1996) study and Torres’ (1988) study, however caution is noted since the measurement of paying property taxes was different from this study. Therefore, these findings suggests that for the Hispanic householder residing in the Southwest who is considering self-employment as an employment option, speaking English fluently and paying property taxes are characteristics that are associated with self-employed Hispanic householders with earnings above the poverty threshold.

**Individual and Relationship Capital**

Self-employed householders with earnings above and below the poverty threshold differ with regards to being married with spouse present. Self-employed Hispanic householders with earnings above the poverty threshold are more likely to be married with a spouse present, while self-employed Hispanic householders with earnings below the poverty threshold are less likely to be married spouse present. This finding is consistent with previous empirical work, however this study examined self-employment earnings above the poverty threshold, while the other studies examined
earnings in self-employment. Previous studies have reported that marital status has positive effects on self-employment earnings (Borjas and Bronars, 1989; Calo, 1995; Olson, Zuiker, & Montalto, 1996; Roos & Hennessy, 1987), however these studies did not address whether being married or married with spouse present influenced their ability to have earnings above the poverty threshold.

Characteristics that describe the self-employed Hispanic householder with earnings below the poverty threshold include larger family size, number of children, lower family income, and has two or more workers compared to the self-employed Hispanic householder with earnings above the poverty threshold. These findings are consistent with previous research that suggests that Hispanic families who fall below the official poverty line have large families including children and have low family incomes.

Model Without Considering Selection into Self-Employment

In this section, only the results from the model without considering selection into self-employment are discussed. The reason that the results from the prediction equation for the self-employment decision and the results of the model estimating self-employment earnings above the poverty threshold with selection correction are not discussed is due to the low goodness of fit value. Another reason is that the proportion predicted to be self-employed was low for the self-employment sector. Although, the log-likelihood function is much larger than previous studies examining the propensity for self-employment and seventeen of the twenty one variables were significant, the low
goodness of fit value and poor proportion of actual predicted were reasons for caution in reporting the results.

The log likelihood function in the tobit model which does not correct for selection is -31,098.16. When comparing this value to other studies estimating a tobit analysis, this value also is much larger. Of the twenty five explanatory variables, twenty were significant.

An interesting observation between the tobit model which corrected for selection and the tobit model which did not correct for selection is the switch in signs and level of significance for some coefficients. These variables include living in an urban fringe, work experience, farming, forestry, and fishing occupations, operators, fabricators, and laborers occupations, immigrant status, married with spouse present. The significance of these differences between the models is unclear. The differences do, at the least, mean that the choice of estimation method is important.

Demographic Characteristics

When examining self-employment earnings above the poverty threshold, self-employed Hispanic males are more likely to have earnings above the poverty threshold compared to self-employed Hispanic females. This finding is consistent with previous studies of self-employment earnings as a measure of relative success. Torres’ (1988) study, using data from the 1980 Census, and Olson, Zuiker, and Montalto’s (1996) study, using data from the 1990 Census, found that males had higher self-employment
earnings compared to self-employed females. This result also is consistent with the pattern observed in the general population of self-employed earners (Carr, 1996).

Also, living in the city is associated with an increase in earnings above the poverty threshold compared to living in the countryside. This would suggest that there are more opportunities such as a larger market to sell their products for the self-employed Hispanic householder who lives in the city. Olson (1994) also found that rural home-based businesses grossed less than urban ones.

**Human Capital**

Consistent with previous studies examining self-employment earnings, education (Roos & Hennessy, 1987; Olson, Zuiker, & Montalto, 1996), and being in a managerial and professional occupation (Olson, Zuiker, & Montalto, 1996; Torres, 1988) are positive and significant. Technical, sales, and administrative support occupations, precision production, craft, and repair occupations, and operators, fabricators, and laborers occupations are positive and significant in this study, while in Olson, Zuiker, and Montalto’s (1996) these occupations were not found to be significant when examining the earnings of self-employed Hispanic earners and wage and salary Hispanic earners in California. However, Olson, Zuiker, and Montalto (1996) included residents of group quarters and 16 to 17 year olds. They also did not control for individual and relationship capital. The improved specification of this research lends great credence to these results than to Olson, Zuiker, and Montalto’s (1996).
Additional years of education through 11th grade and additional years of education beyond a high school education generates the expected positive returns consistent with human capital theory. This finding suggests that policies that are aimed at promoting high standards and at ensuring access to public education should be continued and supported by the Hispanic population residing in the Southwest portion of the United States. Also, Hispanic householders who are currently self-employed could also benefit from these types of programs.

Also, incorporating a business has a strong positive effect on earnings above the poverty threshold. If incorporation is a proxy for business and legal knowledge, this result suggests potentially large returns to investment of time and energy in business law courses. Also bootstrap programs for business startups should include information on business law. However, having a work limitation has a strong negative impact on earnings above the poverty threshold. Having an additional amount of other sources of income has a positive and significant effect on a self-employed householder's earnings above the poverty threshold.

Therefore, if one was interested in identifying human capital variables that could be used as a predictors of whether or not self-employment earnings would be above the poverty threshold, the following human capital variables can serve as a guideline to inform individuals who oversee the job training and business development workshops. These include each additional year of education completed, each additional hour worked up to 35 hours per week, having additional amounts of householder's other personal income, and owning an incorporated business. Several occupations can
offer economic benefits to the self-employed Hispanic household. These occupations are managerial and professional; technical, sales, and administrative support; precision production, craft, and repair; and operator, fabricator, and laborer occupations.

**Assimilation**

Two of the three assimilation variables were positive and significant. Being fluent in English and paying property taxes have positive effects on self-employment earnings above the poverty threshold.

Therefore, being fluent in English offers economic benefits to the self-employed Hispanic household and there is a cost associated in earnings when a Hispanic household does not possess the ability to speak English well. Previous research also indicated that the cost of speaking English poorly is higher in the self-employment sector compared to the wage and salary sector (Calo, 1995).

The positive and significant effect that paying property taxes has on self-employment earnings above the poverty threshold is consistent with Olson, Zuiker, and Montalto’s (1996) study and Torres’ (1988) study, even though the measurement of paying property taxes was different from this study.

Therefore, if one was interested in identifying assimilation variables that could be used as a predictors of whether or not self-employment earnings would be above the poverty threshold, the following assimilation variables can serve as a guideline to inform individuals who oversee the job training and business development workshops. These include being able to speak English fluently and paying property taxes.
Individual and Relationship Capital

Four of the five variables measuring individual and relationship capital are significant. Having an additional child in the household is associated with a decrease in self-employment earnings above the poverty threshold. Having one worker in the family results in an increase in earnings above the poverty threshold compared to having two or more workers in the family. Having family income other than the householder’s income has a positive effect on earnings above the poverty threshold. Therefore, choice variables that the Hispanic householder can do something about are having fewer children in their household and increasing additional amounts of family income other than the householder’s income. Married, with a spouse present is found not to be significant and this finding is consistent with DeFreitas (1991) study examining self-employment earnings, however Olson, Zuiker, and Montalto’s (1996) study found marital status to be positive and significant without specifying whether the spouse was present or not.

Implications and Future Directions

The United States is becoming a more diverse society both racially and ethnically and this phenomenon often is referred to as the ‘browning of America’ (Aponte, 1993, p. 527). Therefore, the results from this study add to the body of knowledge with regards to self-employment as an option for the Hispanic householder. The results from this study suggest that Hispanic householders are choosing self-employment as an employment option and also that a little over half of the self-
employed Hispanic householders residing in the Southwest portion of the United States are above the poverty threshold. Those entities who would find these results useful are Hispanic households, career counselors, and agencies interested in assisting Hispanics start their own business.

Hispanic households interested in seeking self-employment as a means to earn a decent living above the poverty threshold would find the results meaningful in determining whether self-employment is a feasible option for their household. The results from this study would be of interest to those Hispanic households who are currently in the self-employment sector. These households could examine whether their householder had the same characteristics as the self-employed Hispanic householder with earnings above the poverty level and if not, are these characteristics that they could acquire.

Counselors who specialize in career development would find these results helpful in assisting their Hispanic clientele with the decision to become self-employed. Also, business advisors who work with individuals considering self-employment would find these results helpful when working with the Hispanic population.

Previous research has suggested that programs promoting small business creation are being implemented as a means to assist individuals to work their way out of poverty. If this is true, the results for this research would be of interest to these agencies who are either already assisting clients or are considering applying for grants to start up a training program for self-employment. These agencies could use the results as a screening mechanism to assist them in training Hispanic individuals. If a
prospective client came to them wanting to start a business, the results from this study could be a guideline as to what characteristics are more likely for a Hispanic American to earn income above the poverty threshold.

With the continual growth of the Hispanic population, future research in the area of self-employment is warranted. Self-employment is considered a leading sector of job growth and has a higher incidence of poverty among its workers (Aronson, 1991). Also, self-employment is an option that has been considered a viable economic alternative for minority populations facing barriers to gainful employment in the traditional wage and salary labor market.

Hispanic householders vary by country of origin and separate analysis of the various Hispanic ethnic groups, such as Mexican Americans, Puerto Ricans, and Cubans would provide a more in depth examination of the Hispanic population. Also, Hispanics are located in every state in the United States, therefore expanding the states examined in the sample would provide insightful information concerning the United States Hispanic population.
APPENDIX A

SPSS Syntax for Sample Selection and Variable Recoding
The following SPSS syntax was used to extract the sample used in the study from the raw data set. Additionally, the syntax demonstrates the methodology used to create and recode the variables used in the models presented in this study.

SPSS Syntax

COMMENT Extract Variables from the Raw Data Files.

RECODE
  hispanic
  (6 thru 199=0) (1 thru 5=1) (200 thru Highest=1) (ELSE=Copy) INTO HISPAN.
EXECUTE.

COMMENT Deleting Those Who Are Not Hispanic.

FILTER OFF.
USE ALL.
SELECT IF(hispan = 1).
EXECUTE.

COMMENT Deleting Class of Workers with Values 0,8,9 (Never Worked; Working Without Pay; Unemployed).

FILTER OFF.
USE ALL.
SELECT IF(class >= 1 & class <= 7).
EXECUTE.

RECODE
  class
  (6=1) (7=2) (1 thru 5=0) (ELSE=Copy) INTO classrc.
EXECUTE.

COMMENT Deleting Persons Age 17 and Under.

FILTER OFF.
USE ALL.
SELECT IF(age > 17).
EXECUTE.

COMMENT Deleting Person Without Income in Either Category.
FILTER OFF.
USE ALL.
SELECT IF(income1 == 0 | income2 == 0).
EXECUTE.

RECODE
classrc
(1 thru 2=1) (ELSE=Copy) INTO self.
EXECUTE.

COMMENT Compute Family Poverty Threshold.
COMPUTE thresh=0.
IF (mrchild = 0 & persons = 1 & age < 65) thresh = 6451.
IF (mrchild = 0 & persons = 1 & age >= 65) thresh = 5947.
IF (mrchild = 0 & rfampers = 2 & age < 65) thresh = 8303.
IF (mrchild = 1 & rfampers = 2 & age < 65) thresh = 8547.
IF (mrchild = 0 & rfampers = 2 & age >= 65) thresh = 7495.
IF (mrchild = 1 & rfampers = 2 & age >= 65) thresh = 8515.
IF (mrchild = 0 & rfampers = 3) thresh = 9699.
IF (mrchild = 1 & rfampers = 3) thresh = 9981.
IF (mrchild = 2 & rfampers = 3) thresh = 9990.
IF (mrchild = 0 & rfampers = 4) thresh = 12790.
IF (mrchild = 1 & rfampers = 4) thresh = 12999.
IF (mrchild = 2 & rfampers = 4) thresh = 12575.
IF (mrchild = 3 & rfampers = 4) thresh = 12619.
IF (mrchild = 0 & rfampers = 5) thresh = 15424.
IF (mrchild = 1 & rfampers = 5) thresh = 15648.
IF (mrchild = 2 & rfampers = 5) thresh = 15169.
IF (mrchild = 3 & rfampers = 5) thresh = 14798.
IF (mrchild = 4 & rfampers = 5) thresh = 14572.
IF (mrchild = 0 & rfampers = 6) thresh = 17740.
IF (mrchild = 1 & rfampers = 6) thresh = 17811.
IF (mrchild = 2 & rfampers = 6) thresh = 17444.
IF (mrchild = 3 & rfampers = 6) thresh = 17092.
IF (mrchild = 4 & rfampers = 6) thresh = 16569.
IF (mrlchld = 5 & rfampers = 6) thresh = 16259.
IF (mrlchld = 0 & rfampers = 7) thresh = 20412.
IF (mrlchld = 1 & rfampers = 7) thresh = 20540.
IF (mrlchld = 2 & rfampers = 7) thresh = 20101.
IF (mrlchld = 3 & rfampers = 7) thresh = 19794.
IF (mrlchld = 4 & rfampers = 7) thresh = 19224.
IF (mrlchld = 5 & rfampers = 7) thresh = 18558.
IF (mrlchld = 6 & rfampers = 7) thresh = 17828.
IF (mrlchld = 0 & rfampers = 8) thresh = 22830.
IF (mrlchld = 1 & rfampers = 8) thresh = 22617.
IF (mrlchld = 2 & rfampers = 8) thresh = 22253.
IF (mrlchld = 3 & rfampers = 8) thresh = 21738.
IF (mrlchld = 4 & rfampers = 8) thresh = 21084.
IF (mrlchld = 5 & rfampers = 8) thresh = 20403.
IF (mrlchld = 6 & rfampers = 8) thresh = 20230.
IF (mrlchld = 0 & rfampers >= 9) thresh = 27463.
IF (mrlchld = 1 & rfampers >= 9) thresh = 27596.
IF (mrlchld = 2 & rfampers >= 9) thresh = 27229.
IF (mrlchld = 3 & rfampers >= 9) thresh = 26921.
IF (mrlchld = 4 & rfampers >= 9) thresh = 26415.
IF (mrlchld = 5 & rfampers >= 9) thresh = 25719.
IF (mrlchld = 6 & rfampers >= 9) thresh = 25089.
IF (mrlchld = 7 & rfampers >= 9) thresh = 24933.
IF (mrlchld >= 8 & rfampers >= 9) thresh = 23973.
EXECUTE.

COMMENT Deleting Householders Residing in Group Quarters.
FILTER OFF.
USE ALL.
SELECT IF(thresh ~= 0).
EXECUTE.

COMMENT Recoding “sex” -- Male to Equal 1.
RECODE
sex
(0=1) (1=0) INTO sexrc.
EXECUTE.
COMMENT Creating New Variable by Recoding “yearsch.”

RECODE
  yearsch
  (4=2.5) (5=6.5) (6=9) (7=10) (10=12) (11=13) (14=16) (15=18)
  (16=19) (17=20) (0 thru 3=0) (8 thru 9=11) (12 thru 13=14) INTO Educ.
EXECUTE.

COMMENT Creating Four Dummy Variables for Education.

COMPUTE ED1 = 0.
COMPUTE ED2 = 0.
COMPUTE ED3 = 0.
COMPUTE ED4 = 0.
EXECUTE.

IF (yearsch <= 9) ED1 = 1.
IF (yearsch = 10) ED2 = 1.
IF (yearsch =11 or yearsch = 12 or yearsch = 13) ED3 = 1.
IF (yearsch >= 14) ED4 = 1.
EXECUTE.

COMMENT Creating Full Time Variable.

COMPUTE fulltime = 0.
IF (hour89 >= 35) fulltime = 1.
EXECUTE.

COMMENT Creating New Variable Work Experience.

COMPUTE workexp = age - educ - 6.
EXECUTE.

COMMENT Recoding Work Disability Variable 1.

RECODE
disabl1
  (1=1) (2=0) INTO disablrc.
EXECUTE.
COMMENT Creating Marital Status with "rspouse."

COMPUTE marrsp = 0.
IF (rspouse = 1) marrsp = 1.
EXECUTE.

COMMENT Recoding "rtaxamt" into a Dummy Variable.

RECODE rtaxamt
   (Lowest thru 1=0) (2 thru Highest=1) INTO rtaxrc.
EXECUTE.

COMMENT "citizen" Recoded Into a Dummy Variable.

RECODE citizen
   (4=0) (Lowest thru 3=1) INTO Citizrnc.
EXECUTE.

COMMENT "immigr" Recoded Into a Dummy Variable.

RECODE immigr
   (0=0) (1 thru Highest=1) INTO immigrnc.
VARIABLE LABELS immigrnc 'immigr recoded into a dummy variable'.
EXECUTE.

COMMENT Recoding "rwrkr89."

RECODE rwrkr89
   (2=1) (3=2) (4=3) (Lowest thru 1=0) INTO numwrk.
EXECUTE.

COMMENT Creating Six Occupation Dummy Variables from "occup."

COMPUTE OCC1 = 0.
COMPUTE OCC2 = 0.
COMPUTE OCC3 = 0.
COMPUTE OCC4 = 0.
COMPUTE OCC5 = 0.
COMPUTE OCC6 = 0.
EXECUTE.

IF (occup < 200) Occ1 = 1.
IF (occup > 202 & occup < 390) Occ2 = 1.
IF (occup > 402 & occup < 470) Occ3 = 1.
IF (occup > 472 & occup < 500) Occ4 = 1.
IF (occup > 502 & occup < 700) Occ5 = 1.
IF (occup > 702 & occup < 890) Occ6 = 1.
EXECUTE.

COMMENT Deleting Military from Occupation Variable.

FILTER OFF.
USE ALL.
SELECT IF(occup <= 890).
EXECUTE.

COMMENT Creating Seven Industry Dummy Variables From Industry Variable.

COMPUTE indust1 = 0.
EXECUTE.

IF (industry = 42 or industry = 130 or industry = 200 or industry = 201 or industry = 321 or industry = 322 or industry = 351 or industry = 380) indust1 = 1.
EXECUTE.

COMPUTE indust2 = 0.
EXECUTE.

IF (industry = 60 or industry = 100 or industry = 101 or industry = 102 or industry = 110 or industry = 111 or industry = 112 or industry = 120 or industry = 121 or industry = 122 or industry = 132 or industry = 140 or industry = 141 or industry = 142 or industry = 151 or industry = 160 or industry = 161 or industry = 162 or industry = 172 or industry = 180 or
industry = 181 or industry = 182 or industry = 190 or industry = 191 or industry = 192
or industry = 250 or industry = 251 or industry = 252 or industry = 261 or industry = 262 or
industry = 270 or industry = 271 or industry = 272 or industry = 280 or industry = 281 or
industry = 282 or industry = 291 or industry = 292 or industry = 300 or industry = 301 or
industry = 310 or industry = 311 or industry = 312 or industry = 320 or industry = 331 or
industry = 332 or industry = 340 or industry = 342 or industry = 350 or industry = 361 or
industry = 362 or industry = 370 or industry = 500 or industry = 502 or industry = 510 or
industry = 511 or industry = 512 or industry = 521 or industry = 530 or industry = 531 or
industry = 532 or industry = 540 or industry = 541 or industry = 542 or industry = 550 or
industry = 551 or industry = 552 or industry = 560 or industry = 571 or industry = 841 or
industry = 882 or industry = 890 or industry = 893) indust2=1.
EXECUTE.

COMPUTE indust3 = 0.
EXECUTE.

IF (industry = 400 or industry = 401 or industry = 420 or industry = 421 or industry =
440 or industry = 441 or industry = 442 or industry = 450 or industry = 451 or industry =
452 or industry = 700 or industry = 701 or industry = 702 or industry = 710 or
industry = 711 or
industry = 891) indust3=1.
EXECUTE.

COMPUTE indust4 = 0.
EXECUTE.

IF (industry = 40 or industry = 41 or industry = 50 or industry = 150 or industry = 152
or industry = 171 or
industry = 210 or industry = 211 or industry = 212 or industry = 220 or industry = 221
or industry = 222 or
industry = 230 or industry = 231 or industry = 241 or industry = 242 or industry = 290
or industry = 341 or
industry = 352 or industry = 360 or industry = 371 or industry = 372 or industry = 381 or industry = 390 or industry = 391 or industry = 392 or industry = 501 or industry = 561 or industry = 562 or industry = 580 or industry = 581 or industry = 582 or industry = 590 or industry = 591 or industry = 592 or industry = 600 or industry = 601 or industry = 602 or industry = 610 or industry = 611 or industry = 612 or industry = 620 or industry = 621 or industry = 622 or industry = 623 or industry = 630 or industry = 631 or industry = 632 or industry = 633 or industry = 640 or industry = 641 or industry = 642 or industry = 650 or industry = 651 or industry = 652 or industry = 660 or industry = 661 or industry = 662 or industry = 663 or industry = 670 or industry = 671 or industry = 672 or industry = 681 or industry = 682 or industry = 691 or industry = 712 or industry = 721 or industry = 722 or industry = 731 or industry = 732 or industry = 740 or industry = 741 or industry = 742 or industry = 750 or industry = 751 or industry = 752 or industry = 760 or industry = 762 or industry = 770 or industry = 771 or industry = 772 or industry = 780 or industry = 781 or industry = 782 or industry = 790 or industry = 791 or industry = 800 or industry = 801 or industry = 802 or industry = 810 or industry = 812 or industry = 820 or industry = 892 or industry = 232) indust4=1.
EXECUTE.

COMPUTE indust5 = 0.
EXECUTE.

IF (industry = 10 or industry = 11 or industry = 12 or industry = 20 or industry = 30 or industry = 31 or industry = 32 or industry = 402 or industry = 761 or industry = 821 or industry = 822 or industry = 830 or industry = 831 or industry = 832 or industry = 840 or industry = 842 or industry = 850 or industry = 851 or industry = 852 or industry = 860 or industry = 861 or industry = 862 or industry = 863 or industry = 870 or industry = 871 or industry = 872 or industry = 873 or industry = 880 or industry = 881) indust5=1.
EXECUTE.
COMPUTE indust6 = 0.
EXECUTE.

IF (industry = 410 or industry = 411 or industry = 422 or industry = 432 or industry = 470 or industry = 471 or
   industry = 472) indust6=1.
EXECUTE.

COMPUTE indust7 = 0.
EXECUTE.

IF (industry = 412 or industry = 900 or industry = 901 or industry = 910 or industry = 921 or industry = 922 or
   industry = 930 or industry = 931 or industry = 932) indust7=1.
EXECUTE.

COMMENT Deleting Military From Industry Variable.
FILTER OFF.
USE ALL.
SELECT IF(industry < 940).
EXECUTE.

COMMENT Creating the Income Sum for the Dependent Variable.

IF (classrc = 1) incsum = sum (income2, income3).
IF (classrc = 2) incsum = sum (income1, income2, income3).
IF (classrc = 0) incsum = income1.
EXECUTE.

COMMENT Creating the Dependent Variable.

COMPUTE incabpov = incsum - thresh.
EXECUTE.

COMMENT Creating Categories for “incabpov” Variable.

IF (incabpov < 0) incap = 0.
IF (incabpov > 0) incap = 1.
EXECUTE.

COMMENT Creating Householders Other Personal Income.

IF (classrc = 1) othhinc = sum (income1, income4, income5, income6, income7, income8).
IF (classrc = 2) othhinc = sum (income4, income5, income6, income7, income8).
IF (classrc = 0) othhinc = sum (income2, income3, income4, income5, income6, income7, income8).
EXECUTE.

COMMENT Creating Other Income from Family Excluding Householders Income.

COMPUTE otrfinc = rfaminc - incsum - othhinc.
EXECUTE.

COMMENT Creating Speaks English Very Well or Well.
RECODE english
   (Lowest thru 2=1) (3 thru 4=0) INTO englishw.
EXECUTE.

RECODE msapmsa
   (Lowest thru 9360=1) (9997 thru 9999=0) INTO mp.
EXECUTE.

RECODE rfarm
   (0=0) (1 thru 2 =1) into rfarmrc.
EXECUTE.

COMMENT Creating Four Dummy Variables for Community Residing In.

COMPUTE COMM1 = 0.
COMPUTE COMM2 = 0.
COMPUTE COMM3 = 0.
COMPUTE COMM4 = 0.
EXECUTE.

IF (rfarmrc = 0 & mp = 1) Comm1 = 1.
IF (rfarmrc = 0 & mp = 0) Comm2 = 1.
IF (rfarmrc = 1 & mp = 1) Comm3 = 1.
IF (rfarmrc = 1 & mp = 0) Comm4 = 1.
EXECUTE.

COMMENT Recode Income Above Poverty to 0 or Positive Value.
COMPUTE incabprc = MAX(0,incabpov).
EXECUTE

COMMENT Creating Three Dummy Variables from "rwrkr89."
COMPUTE numwrk0 = 0.
COMPUTE numwrk1 = 0.
COMPUTE numwrk2 = 0.
EXECUTE.

IF (rwrkr89 = 0) numwrk0 = 1.
IF (rwrkr89 = 2) numwrk1 = 1.
IF (rwrkr89 = 3 or rwrkr89 = 4) numwrk2 = 1.
EXECUTE.

COMMENT Creating Spline Function Out of "educ - 11".
IF (educ <= 11) educ2 = 0.
IF (educ > 11) educ2 = 1.
IF (educ > 11) educ3 = educ - 11.
IF (educ <= 11) educ3 = 0.
EXECUTE.

COMPUTE educl = educ2 * educ3.
Execute.
COMMENT  Creating Spline Function out of “hour89 >=35”.

IF (hour89 <= 34) hour = 0.
IF (hour89 > 34) hour = 1.
IF (hour89 > 34) hourf = hour89 - 34.
IF (hour89 <= 34) hourf = 0.
EXECUTE.

COMPUTE hourp = hour * hourf.
EXECUTE.

RECODE
classrc
(2=1) (ELSE=0) INTO Incorp.
EXECUTE.
APPENDIX B

SPSS Syntax for Exporting SPSS Variables to ASCII Format and LIMDEP Command Syntax for Importing the ASCII Data File

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The following SPSS syntax was used to translate the selected variables of interest from the SPSS binary format to an ASCII format readable by the LIMDEP command interpreter. Descriptives are produced in order to verify that the data imported into LIMDEP is the same as the data exported from SPSS.

```
WRITE OUTFILE="C:\LIMDEP7\MYPROG~1\HHLIM.DAT"
TABLE/ mrlchld yearsch hour89 self
sexrc workexp disablrc marrsp
nevmar rtaxrc citizrc immigrc
numwrk occ1 occ2 occ3
occ4 occ5 occ6 incabpov
othhinc otrfinc otrhinc englishw
comm1 comm2 comm3 comm4
year1 year2 hour incabpov
numwrk1 numwrk2 numwrk0 educ
educ1 hourp incorp.
EXECUTE.
```

```
DESCRIPTIVES VARIABLES=mrlchld yearsch hour89 self
sexrc workexp disablrc marrsp
nevmar rtaxrc citizrc immigrc
numwrk occ1 occ2 occ3
occ4 occ5 occ6 incabpov
othhinc otrfinc otrhinc englishw
comm1 comm2 comm3 comm4
year1 year2 hour incabpov
numwrk1 numwrk2 numwrk0 educ
educ1 hourp incorp
/FORMAT=LABELS NOINDEX
/STATISTICS=MEAN STDDEV MIN MAX
/SORT=MEAN (A).
```
The following LIMDEP syntax was used to translate the selected variables of interest from the ASCII character format to a binary format more readily readable by the LIMDEP command interpreter.

```
READ ; File = c:\limdep7\myprog-1\hhlim.dat
; Nvar  = 39
; Nobs  = 124684
; Names = mrlchld, yearsch, hour89, self,
       sexrc, workexp, disablrc, marrsp,
       nevmar, rtaxrc, citizrc, immigrrc,
       numwrk, occ1, occ2, occ3,
       occ4, occ5, occ6, incabpov,
       othhinc, otrfinc, otrhinc, englishw,
       comm1, comm2, comm3, comm4,
       year1, year2, hour, incabpre,
       numwrkl, numwrk2, numwrko, educ,
       educ1, hourp, incorp
; Format = (3F2.0,2F8.0J'8.I,13F8.0,4F8.2,8F8.0,4F8.2,F8.1,3F8.2)
; Temp  = HHHTEMP
; Maxvar = 50 $
APPENDIX C

LIMDEP Command Syntax for Running the TOBIT Models
The following LIMDEP syntax was used to produce the two TOBIT models used in the study.

/* Open a text file to contain the LIMDEP Output */
OPEN; OUTPUT = OUTPUT.TXT $

/* Set the sample to contain all observations */
SAMPLE; ALL $

/* Scale the income variables to $1000's to facilitate convergence of the iterative estimation process in computing the maximum log-likelihood estimators */
CREATE; OTHHI = OTHHINC/1000 $
CREATE; OTRFI = OTRFINC/1000 $
CREATE; LABVP = INCABPRC/1000 $

/* Create a NAMELIST variable for use in the matrix tabulations and TOBIT Models */
NAMELIST; X = WORKEXP, HOUR89, HOURP, OCC1, OCC2, OCC4, OCC5, OCC6, DISABIRC, EDUC, EDUC1, ENGLISHW, IMMIGRRC, RTAXRC, MARRSP, NUMWRK0, NUMWRK1, RNRLCHLD, OTHHI, OTRFI, SEXRC, COMM1, COMM2, COMM3, INCORP, ONE $

/* Run TOBIT Model with Sample Selection */
PROBIT; LHS = SELF;
   RHS = WORKEXP, OCC1, OCC2, OCC4, OCC5, OCC6, DISABIRC, EDUC, EDUC1, ENGLISHW, CITIZRC, IMMIGRRC, RTAXRC, MARRSP, RNRLCHLD, OTHHI, OTRFI, SEXRC, COMM1, COMM2, COMM3, ONE;
   HOLD $

SELECT; TOBIT; MLE; MAXIT=125; MARGINAL; ALG=NEWTON;
LHS  = IABVP;
RHS  = WORKEXP, HOUR89, HOURP, OCC1, OCC2, OCC4, OCC5, OCC6, DISABIRC, EDUC, EDUC1, ENGLISHW, IMMIGRRC, RTAXRC, MARRSP, NUMWRK0, NUMWRK1, RNRLCHLD, OTHHI, OTRFI, SEXRC, COMM1, COMM2, COMM3, INCORP, ONE

/*  Perform McDonald's and Moffitt's Decomposition  */

MATRIX; LIST;
   XB  = MEAN(X);
   BETA = PART(B,1,26)

CALC; LIST;
   BXS = BETA*XB/S;
   MU  = N01(BXS)/Phi(BXS);
   P   = Phi(BXS);
   P1  = P*(1-BXS*MU-MU^2);
   P2  = N01(BXS)*BXS+N01(BXS)*MU

/*  Select only those observations where SELF = 1  */

INCLUDE; SELF = 1; NEW

/*  Run TOBIT Model  */

TOBIT; MARGINAL;
   LHS  = IABVP;
   RHS  = X

/*  Perform McDonald's and Moffitt's Decomposition  */

MATRIX; LIST;
   XB  = MEAN(X);
   BETA = PART(B,1,26)

CALC; LIST;
   BXS = BETA*XB/S;

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\[ MU = \frac{N_0(BXS)}{\Phi(BXS)}; \]
\[ P = \Phi(BXS); \]
\[ P1 = P(1 - BXS \cdot MU - MU^2); \]
\[ P2 = N_0(BXS) \cdot BXS + N_0(BXS) \cdot MU \]$
Bibliography


