

# The Effects of Human, Financial, and Social Capital on the Entrepreneurial Process for Entrepreneurs in Indiana

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**Abstract:**

The Indiana Study on Entrepreneurship is a sample of 65 entrepreneurs actively engaged in small business start-up that were recruited for participation through small business development workshops within the state. The 65 respondents answered survey questions related to personal demographics, community demographics, and human, financial and social capital in order to determine the impact of the sources of capital on an entrepreneur participating in a start-up. Reports of percentages regarding start-up across the different variable categories are given. Logistic regression was used to determine the impact of selected variables. The model indicated that perhaps human capital is the most significant factor of capital within the parameters of this analysis.

**I. Introduction**

Over the past few years, entrepreneurship has become a major source of concern at both the state and university levels within Indiana. With the growing need for entrepreneurs to stimulate small business development in a faltering job market, much attention has been focused on the elements that produce a successful entrepreneurial endeavor. According to Scarborough (2003), within two years 24% of small businesses fail, within four years 51% fail, and within six years 60% fail. Despite this alarming failure rate, it was also found that small businesses have four times as many innovations per research and development dollar as medium-size businesses and 24 times as many as large businesses. In addition to their large contribution in innovations, small businesses employ 50% of the private sector workforce and are responsible for approximately 75% of the net new jobs within the United States (SBA 2003). In the last twenty years, small

entrepreneurial companies within the US created two-thirds of the new jobs and accounted for two-thirds of the innovations (Sampson 2003). With small businesses playing such a vital role in the economy, it is essential to better understand those factors that increase the probabilities of success.

It has been recognized within related literature that the hardships encountered by entrepreneurs often stem from a lack of knowledge or skill, a lack of finances, or the lack of a supportive social network. In the entrepreneurial process, there are three basic categories of capital that contribute to a successful venture: human, financial, and social. In recent years, many studies have been conducted in an attempt to understand the impact of these forms of capital on the entrepreneur, in hopes that universities and small business development centers may improve their assistance strategies.

The Study on Entrepreneurship in Indiana was designed to study entrepreneurs as they actually involve themselves in the entrepreneurial process, to gain an improved insight into the challenges they face throughout business creation. This study involved 65 respondents, who were surveyed to determine the factors that most affect them as entrepreneurs, given the current demographic status of the entrepreneur and the economic conditions of the area in which he/she resides. Through this study it is hoped that the relative impact of human, financial and social capital on the small business formation process can be determined for entrepreneurs in the gestation period who are approaching firm birth. A better understanding of these factors and their importance to entrepreneurs will provide valuable information to both entrepreneurs and the entities that serve them. Through the information provided by this study, it is hoped that universities and small

business development centers may structure their entrepreneurship programs to best meet the needs of their clients; thus, improving the success rate of entrepreneurs.

## **II. Research Background**

### *Entrepreneurial Process*

Reynolds et al (2002) indicate that three stages exist within the entrepreneurial process. The first stage includes the population of all individuals from which entrepreneurs are identified. During this stage, the first transition point occurs, which is named conception. Conception serves as a signal for when an individual decides to start a business. The second stage in this process has been deemed gestation, and has been found to have an average duration of approximately one year. This stage consists of activities associated with the start-up effort, such as gaining capital, building social networks, and/or counseling with a Small Business Development Center. The outcome transition point of gestation is known as firm birth, which leads to the final stage of the process—infancy. Infancy is known to be the riskiest stage of the entrepreneurial process, and is estimated to last for approximately two years. At this stage it is imperative that the firm use the resources gained in the gestation period to its utmost advantage. From the infancy stage, there are three possible outcomes: firm growth, survival, or termination (Reynolds et al, 2002).

While transitioning through the entrepreneurial process, many obstacles are present. The majority of the problems facing entrepreneurs originate from a lack of skill and/or information, insufficient financial backing, and inadequate social networks. A great deal of literature has been written that addresses the issues of human, financial, and

social capital and the unique challenges that each one of these factors presents throughout the entrepreneurial process.

### *Human Capital*

Human capital has long been a major focus of entrepreneurial workshops, seminars, etc. Many studies have been conducted to determine the impact of human capital factors, particularly industry experience and general human capital, on the success of entrepreneurs in firm foundation. The importance of education as a form of general human capital has been demonstrated in several studies. It has been found that higher education levels indicate an increased likelihood to participate in a business start-up and demonstrate a significant impact on the performance of the new venture (Cooper et al, 1994; Reynolds et al, 2002, Robinson and Sexton, 1994; Bates, 1995; Reynolds 1997b). Although education as an indicator of human capital was shown to be relevant in start-up participation, previous work experience, was not shown to be a statistically significant factor in predicting participation in a start-up or in predicting start-up success (Davidsson and Honig, 2000).

Recently many arguments have also been made regarding the effectiveness of small business assistance programs in improving human capital. Davidsson and Honig (2003) indicated that social capital seemed to play a more integral role in the success of the entrepreneur than did human capital. Chrisman, Gatewood, and Donlevy (2002) found in their study of efficiency and effectiveness of outsider assistance programs to entrepreneurs in both rural and non-rural states, that assistance programs were probably capable of addressing and dealing with the needs of entrepreneurs.

### *Financial Capital*

Since human capital is measured in terms of knowledge, skills, and behavior that prove valuable to a particular firm, Harding (2002) suggests that human capital has a direct effect on the ability of the entrepreneur to secure financial capital for the new business venture. Financial capital for a firm start-up most often comes from debt capital, equity capital, business angels, or formal venture capitalists.

Davila, Foster, and Gupta (2002) explored venture capital financing and the signal it provides for business start-ups. According to this study, the presence of venture capital funding should indicate a fairly high probability of start-up success through funding selection. Since venture capital funding is difficult for many entrepreneurs to obtain, an increasingly available funding source is that provided by business angels (Lipper, and Sommer, 2002; Lange et al, 2003). Lange et al (2003) suggests that most angels invest in earlier stages of firm start-up in a role that consists of filling the gap between the amount needed and the amount the entrepreneur can secure from personal or debt funds. Business angels tend to take on a large number of small investments, which usually range from \$100,000 to \$500,000. Amounts may vary, though, depending on both the angel investor group and the venture.

Since venture capital funding is generally unavailable to most entrepreneurs and angel funding is limited as well, the primary sources of capital for business start-ups are debt and equity capital. Net worth as proxy for income and household ownership are often used as indicators for personal financial capital. Reynolds et al (2002) discovered through the Panel Study of Entrepreneurial Dynamics that those with higher incomes were more likely to be involved in the entrepreneurial process. In this same study it was

also undetermined as to whether home ownership served as a catalyst for participation in entrepreneurial activities, or vice versa.

### *Social Capital*

Social capital has become a recent focus of interest in the effects of capital on entrepreneurship. Essentially two types of social capital networks are discussed: the family network and the network formed by friends and/or acquaintances. Chrisman, Chua, and Steier (2002) suggested that understanding the effects of family on new venture creation could possibly prove more important than any other cultural factor. Davidsson and Honig (2002) found a strong correlation to exist between being an entrepreneur and having parents who were also in business for themselves. Within the same study, it was also found that having encouraging, close friends or neighbors in business for themselves also had a positive effect on an individual participating in the entrepreneurial process.

Social capital theoretically encompasses much more than family relationships, business contacts, etc. Within the theoretical constructs of social capital, both community attachment and reciprocity are included. Within the past two decades, interest in reciprocity and community attachment has facilitated studies related to that topic. Both Cowel and Green (1994) and Miller (2001) found that if the total effect of community attachment was considered, it did indeed have an effect on community inshopping behavior.

### **III. Sample Selection and Procedures**

Data were collected during small business development workshops hosted by both Purdue University and the Indiana Small Business Development Centers. At such seminars a short introduction was given in which the study was described and participation was requested. Individuals were asked to accept participation by taking a survey and signing the consent form. The “Survey for Study on Entrepreneurship in Indiana” is a multiple page instrument designed to target individuals participating in such workshops, and consists of five sections related to: personal demographics, community demographics, human capital, financial capital, and social capital.

The personal demographics segment of the survey requested both contact and general information about the respondent, such as name, address, county of residence, gender, marital status, ethnicity, etc. Such questions were included in the survey to gain a better understanding of the cross-section of entrepreneurs within Indiana that are working towards firm birth.

Community demographics information was requested to indicate the situation of the respondent’s respective community and was used in the survey in an attempt to measure the conduciveness of that community to entrepreneurship. Questions in the community information section detailed community characteristics, such as: presence of a large retail chain, number of banks, number of corporations, access to a college or university, etc.

The remaining three sections of the survey pertained to the forms of capital: human, financial, and social. The first section concerning human capital requested information related to the subject’s educational background, number of years involved in

the workforce, number of years in management positions, prior business ownerships, etc. Financial capital addressed issues related to the entrepreneur's ability to gain capital for start-up, such as household ownership, net worth of household, etc. Lastly, the social capital section was designed to determine the importance of social networks in the start-up process. This was established through questions related to family participation within the business start-up, having parents who are/were self employed, creating resource contact networks for start-up advice, etc.

After the information had been gathered and entered, summary statistics and percentages were used to analyze individual variables, while a logistic regression was used to determine selected variables' impact on participation in a start-up.

#### **IV. Data**

##### *Demographic Variables*

A total of 65 entrepreneurs agreed to participate in the two-year study. Results of only the preliminary study, however, are available and reported. As can be seen in Table 1, many interesting variables were gathered with the survey instrument. Percentages of participants involved in start-up with regards to specific variables are reported, since the mean and standard deviation of the variables have no valuable meaning in this situation. Within this study 26% of the participating entrepreneurs had participated in an actual start-up. Approximately 85% of participation in the study came from individuals attending SBDC workshops; whereas, the remaining 15% of participation came from entrepreneurs involved in a Purdue University workshop. Of the respondents, 3% had lived in their present county of residence for less than one year, 32% had lived there for

two to five years, 23% had lived there for 6-10 years, and 42% had lived there for 10 or more years.

Respondents were asked to indicate their age category for demographic purposes. Approximately 6% of start-up participants fell into the 18-25 years category, 82% into the 25-44 years range, and 12% into the 45-64 years category. Gartner et al (2002) found through their study that among the most active in entrepreneurship were young men ages 25-34. This study indicates that the most active entrepreneurs occur in the 26-44 years age range, similar to the results of the aforementioned study. Unlike the Gartner et al (2002) study, however, approximately 58% of the respondents were female and 42% were male. Of those participants involved in a start-up, approximately 70% were female and 30% were male.

Gartner et al (2002) also studied race as a demographic factor. Within their study it was found that blacks or African Americans were 50% more likely than whites to participate in a start-up. Of the participants involved in the Purdue study, approximately 78.5% were white, 18.5% were black, 1.5% were American Indian/Alaskan natives, and 1.5% considered themselves in the “other” category. Of those 17 participants initiating start-ups, approximately 76% were white and 24% were black. No other races indicated participation in a start-up.

### *Community Demographic Variables*

Of the total participants only 11% did not have a major retail chain, such as a Wal-Mart, K-Mart, or Target, within their respective community of residence. Approximately 8% of the entrepreneurs surveyed perceived their community economic

status as deteriorating, while the remaining 92% viewed their community economies as either stable (46%) or growing (46%).

### *Human Capital Variables*

Thirty-five percent of entrepreneurs had at least some college, and 33% had at least a bachelor's degree. Those entrepreneurs who had participated in a start-up generally had some college or higher education. From the data it was discovered that approximately only 6% of those participating in a start-up had less than a high school education; whereas, 41% had some college, 24% had a bachelor's degree, and 29% had a graduate degree. Very similar to the data gathered for this study, Gartner et al (2002) indicated that those who finish high school and enter some form of higher education are more likely to become involved in the entrepreneurial process. Of the entrepreneurs surveyed, more than 58% had attempted a business plan. Approximately 70% of those indicating a start-up had at least attempted a business plan for their venture.

### *Financial Capital Variables*

For this study, net worth was used as a proxy for income. Forty percent of entrepreneurs surveyed indicated that their net worth was \$100,001 or above. Gartner et al (2002) indicated that individuals with higher household income were more likely to participate in the entrepreneurial process. Most entrepreneurs in this study were either in the lower or higher categories of net worth. Of those indicating participation in a start-up, approximately 29% indicated that they had a net worth of \$50,000 or less, 18%

determined they had a net worth of \$50,001 to \$75,000, 12% claimed a net worth of \$75,001 to \$100,000, and 41% indicated a net worth of more than \$100,000.

Of the sixty-five study participants, 83% indicated that either they or someone within their household owned their place of residence. Gartner et al (2002) indicated that it is unclear whether household ownership induces entrepreneurial activity or vice versa. In this study, 70% of those indicating start-up owned their place of residence.

### *Social Capital Variables*

Approximately 42% of the study respondents indicated that either one or both of their parents had been self-employed at some time. With those entrepreneurs indicating participation in a start-up, approximately 41% indicated having parents who are/were self-employed.

## **V. Model and Results**

A binomial logistic regression was used to analyze the data. Eleven variables were selected for assessment within the model from the 63 total variables available. The following describes those variables selected for the analysis. The conceptual model can be viewed in Equation 1.

$$(1) \quad \begin{aligned} START = & Constant + PU + LR2 + LR3 + FEM + CHAINY + GROW + STABL \\ & + COLLEG + BACH + GRAD + PSTARTY + BPLANY + HHOY + NW2 + NW3 \\ & + NW4 + SEPY \end{aligned}$$

Each entrepreneur has either completed a start-up activity within the past six months or has not done so. The data will be analyzed utilizing binomial logistic regression. The data for each individual in the sample consist of the following:

The dependent factor in the model is START. It is indicated by either 1 = has been involved in business start-up within the last six months, or 0 = has not been involved in business start-up within the last six months. Eleven variables were selected to explain the dependent factor START. Those variables represent: place of participation (PU=1, SBDC=0), length of residence in county (LR1, LR2, LR3, LR4), gender (FEM=1, MALE=0), presence of a major retail chain in the community (CHAIN Yes=1, No=0), economic state of the community (GROW, STABL, DETER), education level (ELEM, JHIGH, HIGH, COLLEG, BACH, GRAD), previous start-up experience (PSTART Yes=1, No=0), business plan attempt (BPLAN Yes=1, No=0), household ownership (HHO Yes=1, No=0), net worth of household (NW1, NW2, NW3, NW4), and self-employed parents (SEP Yes=1, No=0).

### *Results*

Four variables within the model were statistically significant at the 5% level. They were GRAD, BPLANY, HHOY, and NW2. Two of the remaining variables, CHAINY and NW4, were statistically significant at the 10% level. The logit regression results for the start-up model can be found in Table 2.

Within the survey, a great deal of personal demographic information was requested in order to gain a greater insight into the effect of those factors on participation in a business start-up. Three personal demographics variables were selected as part of the model: location of study participation, length of residence in county, and gender. Location of participation indicated whether a respondent had been recruited for the study at a Purdue (PU) sponsored workshop or at an Indiana Small Business Development

Center (SBDC) workshop. As expected the coefficient on the variable was positive, yet was not statistically significant. The workshop hosted by Purdue targeted individuals in food-related industries and charged a fee for attendance and materials; therefore, it was believed that many of those entrepreneurs would be more advanced in their start-up effort. From attending both types of workshops, it has been noted that those entrepreneurs attending the free Small Business Development seminars come from a wide array of proposed industries and seem less developed in their business start-up process. The results indicate that there is no statistically significant difference between entrepreneurs who attend the Purdue hosted and the ISBDC hosted seminars in terms of participating in a start-up.

Length of residence in county indicates the number of years the entrepreneur has lived in his/her current county of residence with the following intervals: less than 1 year (LR1), 2-5 years (LR2), 6-10 years (LR3), and 10 or more years (LR4). LR1 and LR4 were chosen to serve as the reference interval for the model. From the literature on reciprocity proposed by Miller (2001), it was expected that living in a community 6 or more years would prove to positively affect the entrepreneurs' participation in a start-up. Any shorter length of time would be expected to yield a negative effect on participation, since that entrepreneur may not have had time to establish a reputation for him/herself within the community.

Length of residence is not statistically significant in predicting likelihood of a business start-up. One possible explanation is that an individual would not feel comfortable starting a business in his/her own community and competing against other established businesses. The entrepreneur also may have established a negative reputation

within the community and does not believe that he/she would succeed in that setting.

These results could indicate that social status and reciprocity do not necessarily depend upon the length of time one has resided within a particular county.

Gender (FEM) is the final explanatory variable representing the demographic variables. From the information presented by Gartner et al (2002), it was expected that FEM would negatively affect the likelihood of participation in a start-up, even though approximately 58% of workshop participants were in fact female. Being female actually had a positive coefficient of 0.85132; however, the variable was not statistically significant.

It was expected that the presence of a major retail chain in the community, such as Wal-Mart, Target, K-Mart, etc. would indicate sufficient infrastructure in an area to support that respective store. If a community could support such a retail chain, it was believed that other businesses may also thrive. Therefore, it was expected that having a major retail chain in the community would have a positive effect on the entrepreneurs' participation in start-up activities. Having a major retail chain within the community was positive as expected, and was statistically significant at the 10% level. The positive coefficient indicates that having a major retail chain within the community increases the likelihood of an entrepreneur participating in a small business start-up in comparison to not having a major retail chain in the community. This indicates that having a major retail chain within the community may indicate a sufficient infrastructure to support small businesses as well.

The entrepreneurs' perception of the economic status of their respective communities was the other community demographic variable being tested through the

model. Entrepreneurs were given the opportunity to classify their community economic structure as growing (GROW), stable (STABL), or deteriorating (DETER). In the model, DETER served as the reference group. Through the information provided by the literature, it was believed that communities with stable and growing economies, which are often represented by urban areas, would positively affect participation in start-up activities. GROW had a positive coefficient, yet was not statistically significant. It is possible that those in a growing community would be able to participate in business start-ups, but would not have significant need since ample job opportunities may be available. STABL had a negative coefficient and also was not statistically significant. This may suggest that those in stable communities have little motivation for self-employment, since the community is neither growing nor deteriorating. These results indicate that an entrepreneur who perceived him/herself as living in a stable community would be less likely to participate in a start-up when compared to those living in an economically deteriorating community. Since 92% of entrepreneurs indicated that they perceived their community as growing or stable, it is likely that there is little variation associated with this variable within the model. It is also possible that in communities with growing or stable economies that more employment opportunities exist, lending little need for new business creation at the present time.

Educational level was used within the model to try to determine the effect education has on an entrepreneur's participation in a start-up with all other factors being held constant. It was divided into four segments: high school diploma or below, which included elementary, junior high, and high school diploma, some college, bachelor's

degree, and graduate degree. For the purposes of the model, some college (COLLEG), bachelor's degree (BACH), and graduate degree (GRAD) were tested. High school education or below served as the reference group. According to the literature cited in Chapter 4, it was expected that some college experience or above would have a positive effect on an entrepreneur's participation in a business start-up.

Through the results of the model, it was found that COLLEG, BACH, and GRAD all had positive coefficients. Through the results of the model, it was found that COLLEG, BACH, and GRAD all had a positive effect on participation in a start-up. The variable GRAD was statistically significant at the 5% level. Although COLLEG and BACH both have positive coefficients, they are not statistically significant.

The results indicate that those possessing a graduate degree are more likely to participate in a small business start-up, holding all else equal. Bates (1995) found that when differences in industry are controlled in examining the role of education, a positive relationship between increased education and entrepreneurship was found to exist. In the study conducted by Reynolds et al. (2002), it was found that those with at least some post high school study were more likely to have participated in start-up activities. From the results of the two studies cited, it is intuitive that all three variables would have positive coefficients. It is possible that those with graduate degrees may be looking for a new and innovative field in which they can utilize their academic knowledge in a self-employment setting.

Questions pertaining to previous business start-up efforts were also asked in the human capital portion of the survey instrument. Taking the learning curve into consideration, it would be expected that an entrepreneur with previous business start-up

experience (PSTARTY) would be more likely to participate in a current business start-up. From this it was predicted that having previous business start-up experience would positively affect an entrepreneur's current participation in a start-up. In the results of the model, previous start-up experience had a positive coefficient but was not statistically significant.

A great deal of emphasis is placed on the importance of business plan creation in most workshops designed for entrepreneurs. The business plan attempt variable, BPLANY, was tested to determine the importance of a business plan attempt in actually participating in a small business start-up. It was predicted that having attempted a business plan would positively affect an entrepreneur's involvement in a start-up, due to the increased knowledge gained through the completion of such a document. Through the results of the model, it was determined that having attempted a business plan does indeed have a positive and statistically significant effect. These results indicate that an entrepreneur who has attempted a business plan would be more likely to participate in a business start-up than an entrepreneur who has not attempted a business plan.

Household ownership (HHOY) indicates access to equity capital, which serves as a major source of funding for entrepreneurial activities. It is expected that household ownership would positively affect entrepreneurs' participation in a start-up, since it would assist the entrepreneur in securing credit. Gartner et al (2002), however, determined that it was unclear whether home ownership causes entrepreneurial activity or entrepreneurial activity causes home ownership.

The results from this study indicate that HHOY actually negatively affects participation in a start-up. This variable also was statistically significant at the 5% level.

Considering the results, an entrepreneur who owned his/her own place of residence would be less likely to participate in a start-up than would those who do not own a place a residence.

Since an entrepreneur who owns his/her home would seem to have greater access to debt capital, this result runs contrary to the hypothesized outcome. One possible explanation could be that those who own their own home would be cautious in taking on additional debt to start a business, in fear of losing the equity they have built in that home. Another possible explanation is that those who own their home have more to lose through starting a business, leading them to become more cautious in start-up.

Net worth, which represents a proxy for income within this study, is the value received when an entrepreneur's liabilities are subtracted from his/her assets. For the purposes of this analysis, the variable was separated into four separate variables: NW1 (\$0 to \$50,000), NW2 (\$50,001 to \$75,000), NW3 (\$75,001 to \$100,000), and NW4 (\$100,001 or greater). Through data entry, it was discovered that among those with start-ups that NW2 and above seemed to be most representative. Therefore NW2, NW3, and NW4 were tested in the model. The variable NW1 was used as the reference group for net worth.

In the PSED study, Gartner et al (2002) found that those with higher household income were more likely to become entrepreneurs. It was expected that having a net worth of \$50,000 or more would have a positive effect on an entrepreneur's participation in a business start-up. The results of the model indicate that NW2 and NW4 hold up to the predictions made in Chapter 4, since they both have positive coefficients. The variable NW3, however, actually produced a negative coefficient and was not statistically

significant. On the other hand, NW2 and NW4 were both statistically significant, with NW2 showing significance at the 5% level and NW4 demonstrating significance at the 10% level. The results of this portion indicate that entrepreneurs with a net worth of \$50,001 to \$75,000 are more likely to participate in a start-up than are others in comparison to those with a net worth of \$50,000 or less. When evaluated at the 10% level, entrepreneurs with a net worth of \$100,001 or greater are more likely to participate in a start-up than are others in comparison to those who have a net worth of \$50,000 or less.

It is likely that net worth is related to income within the sample, which would give insight into the results received. Perhaps those entrepreneurs in the NW2 category are seeking to increase their wealth through starting their own business. It is also possible that those entrepreneurs within the highest net worth category have extra assets which they hope to grow through a new business.

Through Davidsson and Honig (2003), a strong correlation was found to exist between being an entrepreneur and having parents who are or were self-employed. Therefore, it was expected that having parents who are or who had been self employed would positively effect participation in a business start-up. The results, however, show that SEPY had a negative coefficient and is not statistically significant. This result is both contrary to the literature and to the expectations of the study, since entrepreneurs would have increased access to advice and networks.

## **VI. Implications and Conclusions**

Entrepreneurship and small business development have become major issues both at the university and state level within Indiana. As the need for the growth, development, and retention of small businesses increases, the need to better serve those entrepreneurs stimulating the local economy also increases. For this reason many recent studies have been conducted to gain insight into the factors that most affect entrepreneurs as they work towards firm creation.

Within the literature review it was determined that three sources of capital have a major effect on entrepreneurs in their business creation efforts: human capital, financial capital, and social capital. For the purposes of this study and other studies that have been structured similarly, human capital was determined to consist of the knowledge, experience, and skill an individual brings to a venture. Financial capital was deemed as the financial resources available to entrepreneurs, such as loans, sweetheart financing, venture capital funding, etc, and social capital was defined by the networks an entrepreneur has within his/her community that enhance both human and financial capital. Within this analysis, the aforementioned factors were explored to determine their effects on an entrepreneur's participation in a business start-up.

The objective of this study was to gain a greater insight into the relative impact of factors with regards to human, financial, and social capital on an entrepreneur's participation in a business start-up; thus, assisting small business development entities in best serving the entrepreneurs that rely on them for information. To obtain the data necessary to accomplish this objective, 65 respondents were recruited at workshops held by both Purdue University and the Indiana Small Business Development Centers. Through the survey instrument administered to these participants, information regarding

personal demographics, community demographics, human capital, financial capital, and social capital was gathered and analyzed.

Many interesting results were contained within the data. Percentages of the participant group for selected variables were reported. It was found that 26% of study participants had participated in a start-up. Of those participating in a start-up, 82% fell into the 26-44 year age category, 70% were female, and 76% were white. The data also indicated that of those participating in a start-up, 94% had at least some college or higher, 70% had attempted a business plan, 41% indicated a net worth of \$100,000 or more, and 41% indicated having parents who are/were self employed.

After the data had been analyzed with the Excel program, a logistic regression model was designed using the LimDep Econometrics software package. Results from the model showed that four variables were statistically significant at the 5% level and two variables were statistically significant at the 10% level. In the sections to follow, the statistically significant model results associated with community demographics, human capital, and financial capital will be given.

It is intuitive that communities possessing the clientele to support a major retail chain such as Wal-Mart, K-Mart, Target, etc., would also possess sufficient clientele to patronize many small businesses within the same community. Those larger firms often attract shoppers from outside the community, which would also contribute to small business development within the community. These results suggest that the infrastructures of communities able to support a major retail chain are also able to support small businesses.

The results of the model are similar to the contentions of several previous studies, which indicate that human capital is indeed essential to the success of entrepreneurs. Two human capital variables were statistically significant at the 5% level: graduate school and attempting a business plan. These variables indicate that learning by doing is in fact of great importance to the entrepreneur, and that educational workshops concerning the entrepreneurial process may very well be worth the time of small business development entities and universities.

Higher education played a significant role within the model. The positive, significant effect of graduate degree on participation in a start-up and indicates that individuals with higher education are more likely to participate in a start-up. Incentives for increased levels of education within the community, therefore, would be beneficial to entrepreneurs. The services provided by universities and small business development centers to entrepreneurs increase their level of knowledge; thus, better preparing them to take on the task of start-up.

In many small business development workshops, the importance of a business plan to the entrepreneur is greatly emphasized. Pamphlets, workbooks, and instructional CDs on this topic are marketed in many entrepreneurial workshops. The results of this study indicate that assisting entrepreneurs with business plan creation is in fact a worthwhile endeavor, since it positively and significantly affects the entrepreneur in regards to participation in a start-up. Since a business plan gives entrepreneurs the ability to think through their business formation process, it increases their knowledge; thus, increasing their ability to participate in a start-up. These results demonstrate that business plans are of great importance to the entrepreneur, which implies that universities

and small business development entities should continue their work in promoting business plan creation to entrepreneurs.

Both household ownership and net worth were statistically significant at the 5% level. However, NW2 had a positive effect on participation in a start-up, while HHOY had a negative effect. The net worth category of greater than \$100,000 positively affected participation in a start-up and was statistically significant at the 10% level. This indicates that financial capital, is indeed important to entrepreneurs as they work towards business formation.

Net worth was used as a proxy for income in the analysis. Reynolds et al. (2002) contends that higher levels of income foster participation in entrepreneurial activity. The results associated with this study indicate medium and high values of net worth increase participation in entrepreneurial activity. Higher net worth implies greater access to both debt and equity capital, which are the most common forms of financial capital used in business start-up. Approximately 40% of those participating in a start-up had a net worth greater than \$100,000 and approximately 18% had a net worth of \$50,000 to \$75,000. This indicates that the majority of entrepreneurs surveyed who had been involved in a start-up fell into these two categories.

In the overall study sample, however, twenty-two participants fell into the lowest net-worth category, which signifies net worth less than \$50,000. This may indicate that those with a lower net worth experience more difficulties in securing financial capital to begin the actual start-up. To promote increased levels of entrepreneurship at lower levels of income, perhaps a greater number of sponsored programs geared towards providing funding for lower-income entrepreneurs could be established. Otherwise, it appears that

those with medium and higher levels of net worth have the greatest propensity to become entrepreneurs.

Reynolds et al (2002) contended through their study that the issue of causality between household ownership and entrepreneurship was undetermined. It was expected in this study that since household ownership (HHOY) indicated increased access to debt and equity capital that it would positively affect participation in a start-up. Instead, HHOY negatively affected participation in a start-up and was statistically significant at the 5% level.

A possible explanation of this could be that those who own homes may exert more caution in the entrepreneurial process, since more of their assets are at stake. Entrepreneurs who own homes may be more risk averse than those with fewer ties. This may lead to increased caution in start-up participation.

### ***Limitations***

Although it is believed that in general this analysis is sound and applicable to a more general population, there are some limitations within the study. One such limitation deals with the size of the sample. It has been noted in a nation-wide scale study similar in nature to this analysis that, “Finding such individuals [entrepreneurs in the gestation stage] is no small problem.” Since only a very small proportion of the population of working-age adults is likely to be involved at any particular moment in firm creation, identifying a “generalizable” sample of such individuals is extremely difficult (Gartner, et. al, 2004). Within the confines of Indiana, this study appears to have a credible sample size in comparison to previous studies. It is also a limitation to the study that a

convenience sample of entrepreneurs was used. Most of the needs and problems arising in entrepreneurship are common among all entrepreneurs, however, not only to those attending workshops. It is believed, therefore that these results are generalizable to the larger population of entrepreneurs.

Another limitation within this study is that the follow-up results have not yet been received. Without those results, it is not possible to know how many of the start-up participants continued to progress in their business formations. However, through the continuation of this study, this limitation will be corrected.

### ***Implications and Further Research***

The results of this study could help small business development entities address the needs of entrepreneurs by focusing on those aspects found to be most essential in the business formation process. As discussed in the previous sections, many implications stem from these results. Perhaps the most interesting implications deal with the future structure of small business development seminars at both the state and university level and how those seminars may most benefit the entrepreneur. The results indicate that human capital has the most pertinent implications for improving information disseminated to entrepreneurs.

From personal experience in attending these SBDC and Purdue workshops, human capital is by far the most addressed source of capital within such events. The results of this study indicate that the funds spent on such instruction and training benefit entrepreneurs. From the results, it is suggested that higher education and skill-training continue to be promoted, since those with higher levels of education are more likely to

participate in a start-up. Another way to increase the knowledge of the entrepreneur is through additional workshops, increased specialty programs, and/or counseling. One local SBDC office holds monthly entrepreneurial workshops in which local attorneys, accountants, marketing specialists, and bankers present information related to business start-up. Such workshops would benefit entrepreneurs in other locations as well, since both human and social capital are increased by workshops of that nature. This indicates the importance of organizations, such as S.C.O.R.E., in which retired industry executives provide mentoring and counseling to entrepreneurs. The emphasis placed on business plan creation is justified, since attempting to write a business plan had a significant impact on an entrepreneur participating in a start-up. It is suggested that this remain a central part of the services provided by small business development entities.

This study is an important step to continued research on this topic. There are many areas of study that could stem from this analysis, which will hopefully assist entrepreneurs and the entities that serve them in gaining further insight into the factors that significantly affect entrepreneurs in start-up. Over the next two years, this study will continue to monitor the progress of the entrepreneurs currently in the sample every two months, as well as work to recruit additional entrepreneurs to increase sample size. Through increasing the sample size, it is hoped that a comparison can be made between the rural entrepreneurs and their urban counterparts within the state. With such information, insight will be gained into the intricate process of entrepreneurship, and services may be designed to best meet the needs of entrepreneurs at every stage in the entrepreneurial process, no matter their location.

Table 1 Frequencies and Percentages of Variables of Interest

Variable	Variable Description	No. of Observations	Frequency	%
PU	Participation at Purdue Workshop	65	10	15.38%
SBDC	Participation at SBDC Workshop	65	55	84.62%
LR1	Lived in county <1 year	65	2	3.08%
LR2	Lived in county 2-5 years	65	21	32.31%
LR3	Lived in county 6-10 years	65	15	23.08%
LR4	Lived in county 10 or more years	65	27	41.54%
AGE1	Age category 18-25	65	7	10.77%
AGE2	Age category 26-44	65	45	69.23%
AGE3	Age category 45-64	65	12	18.46%
AGE4	Age category 65 or older	65	1	1.54%
FEM	Gender Female	65	38	58.46%
MALE	Gender Male	65	27	41.54%
AMERIND	American Indian or Alaskan native	65	1	1.54%
ASIAN	Asian	65	0	0.00%
HAWAII	Hawaiian or other Pacific islander	65	0	0.00%
BLACK	Black or African American	65	12	18.46%
WHITE	White	65	51	78.46%
OTHER	Other race	65	1	1.54%
STARTY	Has been involved in the start-up of a new business within the past 6 mos.	65	17	26.15%
STARTN	Has not been involved in the start-up of a new business within the past 6 mos.	65	48	73.85%
CHAINY	Large retail chain located within community, such as a Wal-Mart, Target, or K-Mart	65	58	89.23%
CHAINN	Large retail chain not located within community	65	7	10.77%
GROW	Economy of community described as growing with many thriving new small businesses	65	30	46.15%
STABL	Economy of community described as stable with many established small businesses	65	30	46.15%
DETER	Economy of community described as deteriorating with the number of small businesses decreasing	65	5	7.69%
JHIGH	Last grade of school completed was junior high level	65	2	3.08%
HIGH	Last grade of school completed was high school level	65	6	9.23%
COLLEG	Completed high school, some college	65	23	35.38%
BACH	Completed bachelor's degree	65	22	33.85%
GRAD	Completed graduate degree	65	12	18.46%
PSTARTY	Has previous business start-up experience	65	19	29.23%
PSTARTN	Does not have previous business start-up experience	65	46	70.77%
BPLANY	Attempted to create business plan	65	38	58.46%
BPLANN	Did not attempt to create business plan	65	27	41.54%
NW1	Approximate net worth <\$50,000	65	22	33.85%
NW2	Approximate net worth \$50,001 to \$75,000	65	6	9.23%
NW3	Approximate net worth \$75,001 to \$100,000	65	11	16.92%
NW4	Approximate net worth of >\$100,001	65	26	40.00%
HHOY	Own place of residence	65	54	83.08%
HHON	Does not own place of residence	65	11	16.92%
SEPY	Parents or legal guardians are/were self-employed	65	27	41.54%
SEPN	Parents or legal guardians are not/have not been self-employed	65	38	58.46%
RCY	Have contacted people who may be able to provide resources necessary for business start-up	65	47	72.31%
RCN	Have not contacted people who may be able to provide resources necessary for business start-up	65	18	27.69%

Table 2 Logit Regression Results for Start-up Model

Variable Names	Coefficient	P-Value
Constant	-7.954787**	0.0387
PU	2.085471	0.1884
LR2	-0.388740	0.7006
LR3	-1.469368	0.2748
FEM	0.870361	0.3272
CHAINY	4.613194*	0.0848
GROW	0.122712	0.9607
STABL	-1.142081	0.6056
COLLEG	3.729336	0.1288
BACH	1.886570	0.4227
GRAD	6.025602**	0.0335
PSTARTY	1.506919	0.1290
BPLANY	2.052925**	0.0470
HHOY	-4.313461**	0.0128
NW2	3.340585**	0.0485
NW3	0.256700	0.8685
NW4	2.800462*	0.0661
SEPY	-1.593046	0.1469

% Correctly Predicted 89.23%

\*Indicates significance at the 10% level

\*\*Indicates significance at the 5% level

Log Likelihood Function -22.87