



The motivation to become an entrepreneur

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Abstract

Purpose – Since the 1950s, organizational psychology research investigating work-related motivation has progressed from static content models to dynamic process models. Entrepreneurship research has evolved along a similar trajectory, adapting organizational psychology findings to better understand the motivation to become an entrepreneur. This paper reviews motivation research from both fields, explores some of the commonalities among current theories, and presents a new model of entrepreneurial motivation.

Design/methodology/approach – In an exploratory study, the ability of tolerance for risk, perceived feasibility, and perceived net desirability to predict intentions for self-employment is examined in a sample of 114 undergraduate business students at Florida Gulf Coast University.

Findings – Results indicated that tolerance for risk, perceived feasibility and net desirability significantly predicted self-employment intentions, with an adjusted R^2 of 0.528.

Research limitations/implications – Because the sample consisted entirely of undergraduate business students, findings may not be generalizable to non-student populations. This research did not examine the role of negative motivations, or “push” factors. The cross-sectional rather than longitudinal design of the study raises the usual caveats regarding lack of causal evidence. Finally, a limitation of any survey research is the inability to ask follow-up questions and explore in more depth the reasoning behind any finding. Future research including qualitative interviews and/or focus group sessions could therefore provide rich explanatory information that could add value to the survey data.

Practical implications – As a result of this research, educators, government officials, and others interested in stimulating entrepreneurial motivation should consider how their words and actions affect potential entrepreneurs’ perceptions of entrepreneurial feasibility and net desirability.

Originality/value – Although the model is original and unique, it is based on established theories and models. It provides a well-supported explanation of the motivation to become an entrepreneur that will be useful to potential entrepreneurs and those who encourage and guide them.

Keywords Entrepreneurs, Motivation (psychology), Individual psychology, Risk management

Paper type Research paper

Introduction

Herron and Sapienza (1992, p. 49) stated, “Because motivation plays an important part in the creation of new organizations, theories of organizational creation that fail to address this notion are incomplete”. More recently, Kuratko *et al.* (1997) reported that the lack of empirical research into entrepreneurial motivation was still evident.

Being an entrepreneur, one who is self-employed and who starts, organizes, manages, and assumes responsibility for a business, offers a personal challenge that many individuals prefer over being an employee working for someone else. Entrepreneurs accept the personal financial risks that go with owning a business but also benefit directly from the potential success of the business. Being an entrepreneur is often viewed as an aversive career choice where one is faced with everyday life and work situations that are fraught with increased uncertainty, impediments, failures, and frustrations associated with the process of new firm creation (Campbell, 1992). Not



surprisingly, many researchers have investigated the motivation to become self-employed. What is it about certain people that drives them to take on the risk, the uncertainty and the independent structure of business ownership?

In this paper we examine key components of motivation that may contribute to the decision to become self-employed. We begin with a review of the evolution of research on entrepreneurial motivation starting with content-based theories of motivation. We then explore the current state of the more recent process-oriented research on the motivation to become an entrepreneur. Three constructs that play an important role in the intention to become self-employed are proposed as part of our model of entrepreneurial motivation. To test the model, four hypotheses are suggested. An exploratory research study is then presented utilizing a survey instrument that was presented to 112 undergraduate business students. The findings of our hypothesis testing are discussed with attention given to the limitations and implications of this study.

Motivation and entrepreneurship

The topic of motivation in the entrepreneurship literature has evolved along a path similar to that of the organizational psychology field. From an organizational psychology perspective, theories of motivation have progressed from static, content-oriented theories to dynamic, process-oriented theories, a framework suggested by Campbell *et al.* (1970). Content theories search for the specific things within individuals that initiate, direct, sustain, and stop behavior. Process theories explain how behavior is initiated, directed, sustained, and stopped.

Organizational psychology research focused on developing and testing content (i.e. need) theories of motivation during the 1950s and early 1960s. According to Landy (1989, p. 379), “data supportive of need theories have been infrequent. Damaging data are commonplace.” In a general sense, focusing on personality profiles of people to explain behaviors, the personological perspective, has fallen out of favor. For over 30 years, psychologists have accepted Mischel’s (1968) explanation that behavior results from the interaction between the person and the situation, a dynamic process (Shaver and Scott, 1991).

According to Landy (1989), by the mid-1960s process models were preferred, beginning with Vroom’s (1964) expectancy theory. This was supplanted by Locke’s (1968) goal-setting theory and later by Bandura’s (1977) self-efficacy theory.

Early entrepreneurial research followed a similar path, focusing on identifying traits and characteristics that distinguished entrepreneurs from the general population, rather than developing process-based models. Beginning with McClelland (1961), who argued that a high need for achievement was a personality trait common to entrepreneurs, a great deal of research has focused on characteristics of entrepreneurs (Churchill and Lewis, 1986; Shaver and Scott, 1991).

In spite of the large number of studies examining personality traits of entrepreneurs (Churchill and Lewis, 1986; Timmons, 1999), results are still mixed and inconclusive (Herron and Sapienza, 1992; Shaver and Scott, 1991). Yet studies continue (Stewart *et al.*, 1998). Low and MacMillan (1988, p. 148) commented:

Being innovators and idiosyncratic, entrepreneurs tend to defy aggregation. They tend to reside at the tails of personality distributions, and though they may be expected to differ from the mean, the nature of these differences are not predictable. It seems that any attempt to profile the typical entrepreneur is inherently futile.

Gilad and Levine (1986) proposed two closely-related explanations of entrepreneurial motivation, the “push” theory and the “pull” theory. The “push” theory argues that individuals are pushed into entrepreneurship by negative external forces, such as job dissatisfaction, difficulty finding employment, insufficient salary, or inflexible work schedule. The “pull” theory contends that individuals are attracted into entrepreneurial activities seeking independence, self-fulfillment, wealth, and other desirable outcomes. Research (Keeble *et al.*, 1992; Orhan and Scott, 2001) indicates that individuals become entrepreneurs primarily due to “pull” factors, rather than “push” factors.

Entrepreneurship research has also attempted to identify the situational and environmental factors that predict entrepreneurial activity, such as job displacement, previous work experience, availability of various resources, and governmental influences. However, these empirical studies of contextual factors have found low explanatory power and predictive ability (Krueger *et al.*, 2000).

Logically, there is no reason to expect a direct relationship between these external forces and entrepreneurial activity. For example, job displacement may be a triggering event leading to entrepreneurship. However, displaced workers will not pursue this career unless there is a more direct, process-oriented linkage. Although external forces may provide a more conducive environment supporting entrepreneurship, it may be just as likely that other career option may be pursued.

Sexton (1987) stated that much of the then-current research was fragmented and unrelated. He felt that the transfer of up-to-date research findings from other areas was needed to contribute to the development of paradigms and constructs that lead to the development of convergent theories. Bird and Jelinek (1988) mentioned the need for a behavioral, process-oriented model of entrepreneurship. Calls for frameworks grounded in well-established theory are regularly echoed (Jelinek and Litterer, 1994; MacMillan and Kartz, 1992).

As a result, many of the entrepreneurship models advanced in recent years are process-oriented cognitive models, focusing on attitudes and beliefs and how they can predict intentions and behaviors. Human endeavors, especially complex activities such as new venture initiation, are a result of people’s cognitive processes. Humans are able to think about possible future outcomes, decide which of these are most desirable, and whether it is feasible to pursue attaining these outcomes. It is not reasonable to expect people to pursue outcomes that they perceive to be either undesirable or unfeasible.

Many cognitive models explaining the motivation to found a new enterprise are analogous to Vroom’s (1964) expectancy framework. Although these models use different terminology and build on different theory bases, Vroom’s expectancy model can be used to demonstrate the commonalities between these disparate models.

The Vroom model explains that an individual will choose among alternative behaviors by considering which behavior will lead to the most desirable outcome. Motivation is conceptualized as the product of expectancy, instrumentality, and valence. Expectancy is analogous to measures such as perceived feasibility and self-efficacy used in other models predicting entrepreneurial intentions. Despite subtle, technical differences in these constructs, they are frequently operationalized in similar ways. For example, expectancy, self-efficacy, and perceived feasibility have all been measured by responding to the question: How confident are you that you can perform the task?’ by circling the appropriate percentage range on a survey.

Mone (1994) discussed two measures of self-efficacy, process and outcome. The former refers to people's confidence to successfully perform a task, whereas the latter refers to people's confidence to achieve an outcome. The first measure would be analogous to expectancy; the latter would be analogous to the product of expectancy and instrumentality. The product of instrumentality and valence is analogous to a wide variety of measures used in various organizational psychology or economic decision models predicting entrepreneurial intentions, such as perceived desirability, outcome expectations, net benefits, and perceived utility.

Vroom's (1964) expectancy model establishes a common thread connecting many process-oriented explanations of entrepreneurial motivation. Current process models are implicitly or explicitly grounded in this basic conception: an individual's intentions to become an entrepreneur are predicted by these two questions:

- (1) is entrepreneurship desirable to me? (i.e. does it lead to desired outcomes?); and
- (2) is entrepreneurship feasible for me? (i.e. do I have what it takes to succeed as an entrepreneur?).

Current process models of entrepreneurial motivation

Baumol (1990) suggested that entrepreneurs are motivated by the reward structure in the economy. This economic perspective on new venture initiation focuses on the usefulness, utility, or desirability of an entrepreneurial career. Campbell's (1992) economic decision model compares the expected net present benefits of entrepreneurship relative to the expected gains from wage labor. For both entrepreneurship and wage labor, Campbell multiplied probability of success times average income to determine expected benefits.

Praag and Cramer (2001) found that people would become entrepreneurs if the expected rewards surpass the wages of employment. Because expected rewards depended on assessments of individual ability and attitudes towards risk, perceptions of entrepreneurial feasibility were included. Thus the model, like expectancy theory, finds entrepreneurial activity to be a function of feasibility and desirability. Levesque *et al.* (2002) examined the choice between employment and self-employment in a utility-maximizing model that changes according to the individual's age (i.e. stage of life).

These economics-based models (Campbell, 1992; Praag and Cramer, 2001; Levesque *et al.*, 2002) explicitly consider the role of risk in the decision to become an entrepreneur. Rees and Shah (1986) found that the variance of earnings for self-employed individuals was triple that of individuals working for others, leading to the conclusion that risk-averse individuals are less likely to pursue self-employment. Douglas and Shepherd (1999, p. 231), using anticipated risk as a predictor, stated "The more tolerant one is of risk bearing, the greater incentive to be self-employed."

Other recent research is based on an organizational psychological framework. Bird (1988), stressing the importance of entrepreneurial intentions as a precursor to new venture creation, called for development of a behavioral, process-oriented model of entrepreneurship.

In a theoretical discussion of the psychology of new venture creation, Shaver and Scott (1991) emphasized that new ventures emerge because of deliberate choices made by individuals. They then examined the immediate antecedents of choice:

- Can I make a difference? (i.e. feasibility).
- Do I want to? (i.e. desirability).

Arguably the most widely and successfully applied theories for predicting behavioral intention are the theories of reasoned action (Ajzen and Fishbein, 1980; Fishbein and Ajzen, 1975) and planned behavior (Ajzen, 1988, 1991). The theory of planned behavior (TPB) is essentially an extension of the theory of reasoned action (TRA) that includes measures of control belief and perceived behavioral control. The theory of planned behavior (Ajzen, 1985) was developed to account for the process by which individuals decide on, and engage in, a particular course of action. Kolvereid (1996) demonstrated that the Ajzen (1991) framework is a solid model for explaining or predicting entrepreneurial intentions. Ajzen (1991) states that a person's intention is the immediate antecedent of behavior. Intent to perform a behavior, in turn, is a function of three variables:

- (1) attitude toward the behavior, which refers to the degree to which individuals perceive the attractiveness of the behavior in question. In general, a person who believes that the performance of a given behavior will, with high probability, lead to mostly positive outcomes will possess a favorable attitude toward that behavior;
- (2) subjective norm, which refers to the perceived social pressure to perform the behavior in question. Perceived social norms is a measure of social support of the behavior by significant others, such as family, friends, and other role models and mentors; and
- (3) perceived behavioral control (i.e. a self-evaluation of one's own competence with regard to the task or behavior). Perceived feasibility is a measure of behavioral control, similar to Bandura's (1986) self-efficacy construct.

Thus, the TPB provides an account of the way in which attitudes, subjective norms, perceived behavioral control, and behavioral intentions combine to predict behavioral performance. Depending on the difficulty of engaging in the behavior, perceived behavioral control may also exert a direct effect on behavioral performance. Ajzen's theory of planned behavior has wide acceptance in many behavioral science disciplines and has been used empirically in a variety of settings to predict and understand behavioral intentions (Bansal, 2002; King, 2003; Masalu and Astrom, 2001; Rhodes, 2002).

Individuals' behavioral intentions are, according to Shapero's (1982) model of the entrepreneurial event, also dependent on two main factors: perceived credibility (perceived feasibility) and perceived desirability. Shapero and Sokol (1982) conceptualized perceived desirability as the personal attractiveness of starting a business, and perceived feasibility as a perceptual measure of personal capability with regard to new venture creation. In addition, Shapero adds a third predictor variable, propensity to act. This measure of volition or proactiveness is closely related to locus of control. Both Shapero and Sokol (1982) and Krueger (1993) argued that perceived desirability, perceived feasibility, and propensity to act are associated with entrepreneurial behavioral intentions. Moreover, Erikson (2001) found that the model explained entrepreneurial intentions quite well.

The Ajzen and Shapero models consider self-efficacy, a proxy for feasibility, an important predictor. Chen *et al.* (1998) found entrepreneurial self-efficacy a reliable measure to differentiate between business founders and non-founders.

Krueger *et al.* (2000) compared the predictive validity of the Ajzen and Shapero-Krueger models, using a sample of 97 senior university business students. Regression analysis using perceived desirability, subjective norms, and perceived feasibility to predict intentions supported Ajzen's theory of planned behavior, with adjusted R^2 of 0.350 ($P < 0.0001$) for the overall model. However, the subjective norms predictor variable was not significant in the regression. Regression analysis using perceived desirability, propensity to act, and perceived feasibility to predict intentions fully supported the Shapero-Krueger model, with adjusted R^2 of 0.408 ($p < 0.0001$). The Shapero-Krueger model used Seligman's (1990) learned optimism construct to measure propensity to act.

Our proposed model of entrepreneurial motivation

We started with the Shapero-Krueger framework, as described in Krueger *et al.* (2000), also using self-efficacy as a proxy for perceived feasibility. Borrowing from the previously discussed economic models (Campbell, 1992; Praag and Cramer, 2001; Levesque *et al.*, 2002), we substituted perceived net desirability for perceived desirability, believing that people may be motivated to become entrepreneurs if they believe self-employment is more likely than working for others to lead to valued outcomes. It seemed to us that the motivation to become an entrepreneur is driven by the difference between the desirability of self-employment and the desirability of working for others.

We also operationalized Shapero and Krueger's propensity to act differently. We felt that an individual's willingness to accept a moderate, calculated risk would be the best indicator of this propensity. We recognized that not all people viewing themselves as efficacious, and seeing self-employment as a path to acquiring desirable outcomes, intend to become self-employed. To act on their perceptions of feasibility and net desirability, people must be willing to bear the moderate, calculated risk intrinsic to self-employment. This is consistent with the economics-based models discussed above (Campbell, 1992; Douglas and Shepherd, 1999; Praag and Cramer, 2001; Levesque *et al.*, 2002), which all included risk as a predictor.

We view the decision between a career of self-employment or working for others as a rational three-part process in which:

- (1) Individuals compare the desirability of self-employment with the desirability of working for others.
- (2) Individuals assess whether they possess the requisite knowledge, skills, and abilities to perform the tasks and activities necessary to become an entrepreneur.
- (3) Individuals determine whether they are willing to accept the inherent risk of entrepreneurial activity.

People with a sense of entrepreneurial self-efficacy may be drawn to self-employment's desirable opportunities and benefits, compared to the availability of these benefits obtained through working for others. If they also can accept the intrinsic risk of self-employment, they are likely to act on these perceptions by forming intentions and goals for self-employment.

The current study therefore represents a new paradigm for process-oriented entrepreneurial motivation research drawing upon well-grounded theory. It facilitates a needed convergence of frameworks on the motivational intention to become an entrepreneur. This model of entrepreneurship motivation introduces new constructs and uniquely combines them in specifying that the intention to become an entrepreneur is a function of these three variables: the perceived net desirability of self-employment (NDSE), the perceived feasibility (self-efficacy) of self-employment (SE), and tolerance for risk (TR). Our model is depicted graphically in Figure 1. Our model addresses a long-standing call in the entrepreneurial literature for the development of behavioral, process-oriented models of entrepreneurship that are well-grounded and transfer up-to-date research findings (Jelinek and Litterer, 1994; MacMillan and Kartz, 1992; Sexton, 1987).

To test our model, we hypothesize as follows:

- H1.* There is a positive relationship between an individual's entrepreneurial self-efficacy (SE) and his or her intention to become an entrepreneur.
- H2.* There is a positive relationship between an individual's tolerance for risk (TR) and his or her intention to become an entrepreneur.
- H3.* There is a positive relationship between an individual's net desirability for self-employment (NDSE) and his or her intention to become an entrepreneur.
- H4.* There is a positive relationship between an individual's net desirability for self-employment (NDSE), entrepreneurial self-efficacy (SE) and tolerance for risk (TR) and his or her intention to become an entrepreneur.

H1 through *H3* suggest that each of the three independent variables in the model separately explain an individual's entrepreneurial intentions. *H4* suggests that all three independent variables together (our model) significantly explain an individual's intention to become an entrepreneur.

Methodology

This section examines the methodology used in the present study, including sample data and variable measures, and research design.

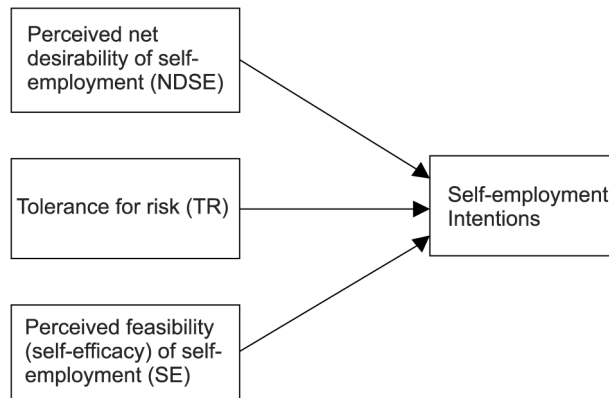


Figure 1.
Entrepreneurial intentions
model

Sample data and variable measures

Sample data. We began this research with a survey instrument consisting of 100 questions, many of which dealt with parameters outside the scope of the present research. We administered this survey to 112 junior and senior undergraduate business students at Florida Gulf Coast University (FGCU). Later, the survey was reformulated to be more focused, reducing the total number of questions from 100 to 26. The final sample for this study consisted of the responses to the 26-question survey by 115 junior and senior undergraduate business students at FGCU, and was administered in January 2001. Surveys were completed anonymously during regular class time, with a response rate of 100 percent. Student respondents were close enough to graduation to contemplate important career choices, such as that of self-employment versus working for others.

Dependent variable. The dependent variable in our model is entrepreneurial intentions. The survey instrument defined entrepreneurship as “being self-employed in your own business.” Chen *et al.* (1998) established six measures of entrepreneurial intentions using the questions listed below:

- Q1. How interested are you in becoming an entrepreneur?
- Q2. How much have you considered becoming an entrepreneur?
- Q3. How much have you already prepared to become an entrepreneur?
- Q4. How likely are you to become an entrepreneur?
- Q5. How likely are you to work very hard at becoming an entrepreneur?
- Q6. How soon are you going to become an entrepreneur?

We included all six measures of intentions in our initial test of the model. Later, we reduced the length of the survey instrument. We accomplished this reduction in length in part by reducing the number of questions designed to measure entrepreneurial intentions from six to one. This reduction was justified based on the results of Cronbach Alpha analysis. Cronbach Alpha is a model of internal consistency, based on the average inter-item correlation. Crano and Brewer (1986) suggest that the degree of internal consistency is considered acceptable if the Alpha coefficient is 0.75 or better.

Table I shows the impact on reliability (Alpha) of removing each of the questions, 1 through 6, one at a time. It is clear from this analysis that question 6 is not internally consistent with questions 1 through 5. The overall Alpha increases to an acceptable level, 0.9175 when questions 1 through 5 are included and question 6 is removed.

Question	Scale mean if item deleted	Scale variance if item deleted	Corrected item-total correlation	Squared multiple correlation	Alpha if item deleted
Q1	15.6000	12.0220	0.7816	0.7363	0.6085
Q2	15.7636	11.6684	0.8230	0.7214	0.5929
Q3	16.8455	12.7374	0.6486	0.4967	0.6505
Q4	16.1636	11.8629	0.8342	0.7499	0.5936
Q5	15.9545	12.3190	0.7013	0.6797	0.6326
Q6	16.4000	24.7560	-0.6605	0.5152	0.9175

Table I.
Impact on reliability (alpha) of removing questions designed to measure entrepreneurial intentions

These results suggest that questions 1 through 5 create a unitary construct that measures entrepreneurial intentions. Based on these results, and our desire to reduce the length of our survey to improve the accuracy of subject responses, we selected question 4 (How likely are you to become an entrepreneur?) as our measure of the dependent variable entrepreneurial intentions.

Independent variables. The model includes three independent variables. The first independent variable is entrepreneurial self-efficacy, which was measured by one question designed to assess an individual's self-confidence in his or her ability to perform the tasks and activities necessary to become an entrepreneur. The second independent variable was an entrepreneur's tolerance for risk (TR). Tolerance for risk was determined by asking pointedly "To what extent are you willing to take a moderate, calculated risk to get ahead?" The third independent variable in the model is net desirability to become self-employed (NDSE). The computation and significance of this variable deserves special attention.

The variable net desirability to become self-employed (NDSE) was calculated as shown in Figure 2. The decision between a career of self-employment or working for others may be viewed as a rational process in which individuals compare the relative desirability of each option. If an individual believes self-employment is more likely than working for others to lead to valued outcomes, then he or she is more likely to be drawn to self-employment.

A review of the literature revealed five outcomes emphasized as criteria in the decision between self-employment or being employed by others: income potential; financial security; independence; need for achievement; and escape from corporate bureaucracy. Using an expectancy (Vroom, 1964) framework, we hypothesized that the desirability of self-employment (DSE) is related to the product of, first, importance of desired outcomes and second, the probability of attaining these outcomes through self-employment. In a similar vein, desirability of working for others is obtained by multiplying importance of desired outcomes by the probability of attaining these

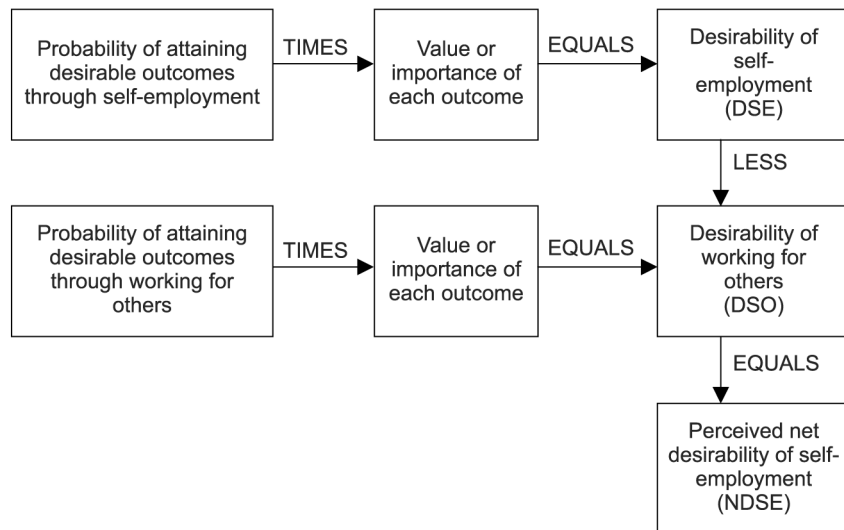


Figure 2.
Perceived net desirability
of self-employment
(NDSE)

outcomes through working for others (DWO). Net desirability to become self-employed (NDSE) was then obtained by subtracting desirability of working for others (DWO) from desirability of self-employment (DSE).

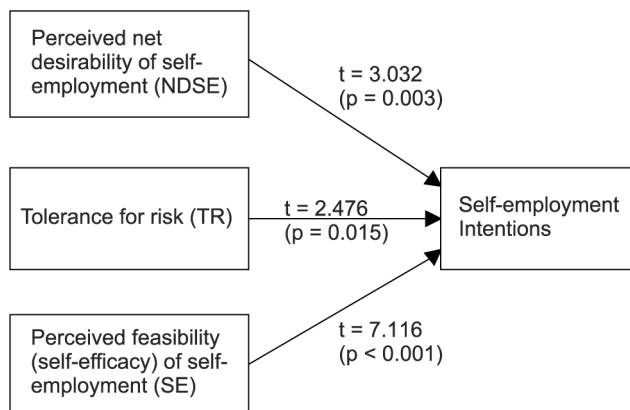
Research design

After identifying and computing variables necessary for evaluating the efficacy of the model, we tested the model, as previously described in Figure 1. We used regression analysis to assess the ability of the model to explain self-employment intentions, the dependent variable. As we test the model using regression, the appropriate comparative diagnostic is the Adjusted R^2 .

Model results

Results are presented in Figure 3 and Table II. Figure 3 shows significant and complete support for the model. The Adjusted R^2 for the regression was 0.528 ($p < 0.001$). A discussion of the findings of each of the four model hypotheses follows.

- H1. There is a positive relationship between an individual’s entrepreneurial self-efficacy (SE) and his or her intention to become an entrepreneur.



Note: Overall Regression Statistics: Intentions
Adjusted R-Squared = 0.528 ($P < 0.001$)

Figure 3. Results for the entrepreneurial intentions model

	Net desirability of self-employment (NDSE)	Tolerance for risk (TR)	Perceived self-efficacy (SE)
Intentions	0.488**	0.480**	0.669**
Net desirability of self-employment (NDSE)		0.422**	0.366**
Tolerance for risk (TR)			0.392**

Note: **Correlation is significant at the 0.01 level (two-tailed)

Table II. Model results. Pearson correlation coefficients

It is apparent from Table II that the dependent variable intentions was significantly positively correlated with the independent variable self-efficacy with a significant (0.001) Pearson correlation coefficient of 0.669. Higher entrepreneurial self-efficacy was associated with a higher intention to engage in entrepreneurial activity. In addition, the model's link between self-efficacy and intentions possessed significant explanatory power, with a t -statistic of 7.116 ($p < 0.001$).

H2. There is a positive relationship between an individual's tolerance for risk (TR) and his or her intention to become an entrepreneur.

An individual's intention to become an entrepreneur was significantly positively correlated with the independent variable tolerance for risk (TR). A higher entrepreneurial TR was associated with a higher likelihood to become an entrepreneur with a significant Pearson correlation coefficient of 0.480 ($p < 0.001$). In addition, the model's link between TR and intentions possessed significant explanatory power, with a t -statistic of 2.476 ($p = 0.015$), demonstrating that higher TR led to a higher likelihood that an individual would engage in entrepreneurial activity.

H3. There is a positive relationship between an individual's net desirability for self-employment (NDSE) and his or her intention to become an entrepreneur.

An individual's intention to become an entrepreneur was significantly positively correlated with the independent variable net desirability for self-employment (NDSE). Higher NDSE was associated with a higher likelihood to become an entrepreneur with a significant Pearson correlation coefficient of 0.488 ($p < 0.001$). In addition, the model's link between NDSE and intentions possessed significant explanatory power, with a t -statistic of 3.032 ($p = 0.003$), demonstrating that higher NDSE led to higher aspirations toward entrepreneurial activity.

H4. There is a positive relationship between an individual's net desirability for self-employment (NDSE), entrepreneurial self-efficacy (SE) and tolerance for risk (TR) and his or her intention to become an entrepreneur.

Figure 3 summarizes the overall findings of our model. The test of the overall model resulted in an adjusted R^2 of 0.528 ($p < 0.001$) indicating strong support for the overall model.

Discussion

We can understand why the intentions construct validated by Chen *et al.* (1998) failed to form a unitary construct in our study. The first five questions asked students whether they had plans, aspirations, or intentions to eventually become entrepreneurs, and these were highly correlated with each other. The sixth question focused instead on how soon they would act on those plans. Clearly, the respondents saw the eventual intention of entrepreneurship as an issue separate and unrelated to their timing to initiate this action. For these students, questions regarding whether they had entrepreneurial intentions were addressing a quite different issue than the question addressing their time frame for taking such an action.

One of the most significant findings of this study was the statistical support for the variable net desirability for self-employment (NDSE). Previous organizational

psychology-based research based has investigated the usefulness of the perceived desirability of self-employment on the intention to engage in entrepreneurial activity. These studies, however, did not use a “net” variable to focus on the difference between the desirability of self-employment and the desirability of working for others.

As hypothesized, the respondents in this study formed entrepreneurial intentions if they considered themselves to be efficacious and they anticipated positive outcomes from entrepreneurship. We also found that an individual’s tolerance for risk (TR) had a significant influence on his or her intention to engage in entrepreneurial activity. Even though an individual might find engagement in entrepreneurial activity desirable and has the self-confidence to do so, it was also important that that person have a relatively high tolerance for risk to engage in such activity.

The R^2 for this model was 0.528; such strong explanatory power is rare in the literature explaining entrepreneurial behavior. Krueger *et al.* (2000) found R^2 of 0.350 for the Ajzen theory of planned behavior and R^2 of 0.408 for the Shapero-Krueger model. In comparison it should be noted that trait or attitude measures typically measure 10 percent of variance in behavior (Ajzen, 1987).

Limitations

Our sample consisted entirely of undergraduate business students. However, other research (Audet, 2000; Krueger *et al.*, 2000) has also relied on student surveys to measure entrepreneurial intentions. Our primary goal was to better understand these students’ decisions to become self-employed or work for others. This study was not a simulation using students to predict the behavior of managers or other non-student populations. Rather, this was a study of people actually beginning to face career decisions. However, they are students – we cannot be certain that their intentions are durable and clear. Also, our findings may not be generalizable to non-student populations.

This research did not examine the role of negative motivations, or “push” factors. As mentioned above, “push” factors appear to be less important than “pull” factors in explaining the motivation to become an entrepreneur. Also, we believe “push” factors are less significant to our sample of young college students than to the general population. Because of the students’ lack of prior work experience, dissatisfaction or involuntary separation from previous employment would not have been an important issue. Accordingly, our findings may not generalize to non-student populations with greater levels of work experience.

The cross-sectional rather than longitudinal design of the study raises the usual caveats regarding lack of causal evidence. However, cross-sectional research designs are frequently used and considered acceptable in this type of research (Ajzen, 1987).

Finally, a limitation of any survey research is the inability to ask follow-up questions and explore in more depth the reasoning behind any finding. The inclusion of qualitative interviews and/or focus group sessions could therefore provide rich explanatory information that could add value to the survey data.

Conclusions

According to Timmons (1999), America has created over 34 million new jobs since 1980, while the *Fortune* 500 lost over 5 million jobs. Timmons further reported that, since 1980, entrepreneurs have created over 95 percent of the wealth that exists in America today. For

these reasons, understanding why people make intentions to become entrepreneurs is becoming increasingly important for educators and policy makers.

This research proposed a new model of entrepreneurship motivation. Introduced was the construct net desirability for self-employment, which was operationalized as the difference between the desirability of self-employment compared to the desirability of working with others. Tolerance for risk was also operationalized uniquely in the model as an indicator of the propensity to act. Together with the construct of perceived feasibility (self-efficacy) a new model of motivational intentions was proposed. The results indicate that tolerance for risk, self-efficacy and perceived net desirability significantly predict self-employment intentions. Further, the findings illustrated that when combined these three variables provide a stronger indication for the intention to become an entrepreneur.

This research study furthers our understanding of what motivates someone to become an entrepreneur by expanding on the process models of motivation that have been offered by Ajzen (1991), Shapero (1982) and others that have explored entrepreneurial intentions. The results have important implications for those who have the opportunity to guide and influence career choices and provide career preparation.

We suggest educators, policy makers, and other wishing to enhance entrepreneurial activity focus first on increasing entrepreneurial self-efficacy. According to Bandura (1986), self-efficacy in an activity such as entrepreneurship develops through four processes:

- (1) enactive mastery or repeated performance accomplishments;
- (2) vicarious experience or modeling;
- (3) verbal persuasion; and
- (4) autonomic or physiological arousal.

Educators may also point out the relative merits of self-employment versus working for others. A common misconception is that the vast majority of small businesses fail within their first few years. This has a chilling effect on perceptions of outcome expectations. Yet, a large-scale study of the eight-year destiny of small firms (Kirchhoff, 1994) found that only 18 percent of all new venture initiations resulted in business failures with losses to creditors. In contrast, 28 percent survived under their original ownership and another 26 percent continued under ownership changes. To stimulate entrepreneurship, perhaps educators should remind students of the high earnings potential an entrepreneurial career makes possible. The best-selling book: *The Millionaire Next Door* (Stanley and Danko, 1999) reported that two-thirds of America's 3.5 million millionaires were self-employed.

Finally we suggest educators and policy makers highlight the advantages of taking moderate, calculated risks to get ahead. Examples of the rewards that can result from risking an entrepreneurial endeavor abound. Many of our most successful executives, including Bill Gates, Michael Dell, and many others achieved their success by taking the risk of launching their own ventures.

As the foregoing discussion suggests, many educational practices may be modified to increase entrepreneurial self-efficacy, highlight the advantages of self-employment, and encourage judicious risk taking. Further research is planned to recommend specific pedagogical methods and interventions, based on our model, that entrepreneurship educators may use to stimulate entrepreneurial intentions.

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