SELF-EMPLOYMENT AS A CAREER CHOICE: ATTITUDES, ENTREPRENEURIAL INTENTIONS, AND UTILITY MAXIMIZATION

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EXECUTIVE SUMMARY

Prior research examining why people choose to act as entrepreneurs has predominantly relied on the disciplines of psychology and sociology. More recently there have been a number of important contributions from an economics' perspective. One such recent contribution is Douglas and Shepherd (2000), who argue that the decision to be an entrepreneur may be modeled as a utility-maximizing career choice made by an individual. That is, people choose to be self-employed if the total utility they expect to derive (via income, independence, risk bearing, work effort, and perquisites associated with self-employment) is greater than the expected utility from their best employment option.

In this paper we extend this theoretical discussion by empirically exploring people's attitudes to job characteristics and career choice. We find that individuals do consider risk, independence and income when evaluating alternative career options. The sample demonstrated an aversion to risk and a preference for both more independence and higher income. But surprisingly, the level of work effort required was not found to be significant for the sample as a whole. We also explore the relationship between entrepreneurial attitudes and the intention to be self-employed. We found that the intention to be self-employed is stronger for those with more positive attitudes to risk and to independence. That is, the higher the individual's tolerance for risk, and the stronger is their preference for decision-making autonomy, the stronger is their intention to be self-employed.

These findings make a significant and important contribution to the literature. First, we answer Baumol's (2000) call for greater research into entrepreneurship using economic analysis. Second, most research into entrepreneurship from an economic perspective has been theoretical. Here we provide an empirical test. Third, the empirical test does not rely on assumptions of rationality (common for most economic studies) but investigates the "black box" of the entrepreneur and reveals their decision/assessment policies.

This work substantially expands our understanding of what drives the intention to become an entrepreneur. It effectively includes the NPV model of Campbell (1992) and Gifford (1993), and substantially extends the utility model of Eisenhauer (1995) to flesh out the "working conditions" of alternative jobs that serve to increase or decrease the individual's utility from the income stream expected. It throws doubt on the importance of work effort as a determinant of job choice, which was posited as important by Douglas

and Shepherd (2000). Similarly, it throws doubt on the suggestion that people choose self-employment as a means of gaining higher income than they could attain as employees. It investigates the "why" of entrepreneurship rather than the "when" – by looking at the internal motivations of individuals rather than the external inducements of the economic environment.

Since the intention to start one's own business appears to be driven by "more entrepreneurial" attitudes to independence and risk, nations might facilitate employment and productivity growth (via new venture creation) by facilitating the development of more-entrepreneurial attitudes. For example, business educators will add more value to their graduates if they incorporate into their curricula elements that enhance the development of entrepreneurial attitudes, since these are beneficial to both a self-employment and employment career path.

ABSTRACT

This paper investigates the relationship between career choice and peoples' attitudes toward income, independence, risk, and work effort. Entrepreneurs are often described in terms of the strength or weakness of their attitudes in these dimensions. Conjoint analysis was used to determine the significance and nature of these attitudes in choosing one job over another. We also investigated the affect these attitudes have on the intention to start one's own business. Significant relationships were found between the utility expected from a job and the independence, risk and income it offered. Similarly, the strength of intention to become self-employed was significantly related to the respondents' tolerance for risk and their preference for independence.

INTRODUCTION

Previously, research on the question of why people choose entrepreneurship as a career option has been based predominantly on the disciplines of psychology and sociology. More recently there have been important contributions from an economics' perspective (see for example Casson [1982]; Baumol [1990]; Campbell [1992]; Gifford [1993]; Eisenhauer [1995]; and Douglas and Shepherd [2000]). Baumol (2000) predicts that entrepreneurship will be increasingly subjected to fruitful economic analysis. This paper builds upon Douglas and Shepherd (2000) who argue that individuals make a utility-maximizing career choice – they choose to be self-employed if the total utility they expect to derive from entrepreneurship (via income, independence, risk bearing, work effort, and perquisites), is greater than from their best employment option.

The purpose of the present paper is to complement, with an empirical investigation, the theoretical discussion about entrepreneurship as a utility-maximizing

response. We wish to know whether the attitudes of people towards work effort, risk, independence and income do indeed affect their choice of career. Why do some people intend to be self-employed while others intend to be employed? Do their intentions differ because their attitudes to work, risk, independence and income differ?

The present study represents a significant departure from previous work in two important ways. First, prior research from an economics perspective into why people become self-employed typically has relied on theoretical arguments. This study uses these theories of why people become self-employed as a framework for an empirical investigation. Second, prior empirical research into <u>when</u> people become self-employed has investigated primarily macro-economic and demographic factors that influence patterns toward or away from self-employment (e.g., empirical evidence suggesting that age affects the movement to and from self-employment (Quinn, 1980; Fuchs, 1982; Rees and Shah, 1986) and Baumol's (1990) analysis of the environmental factors that encourage or restrict entrepreneurship).

We depart from this macro empirical research of <u>when</u> people act by using conjoint analysis to derive the career assessment policies of people, so we might understand <u>why</u> they act. Our multivariate analytical approach is predicated on the assumption that the decision process involves the evaluation and integration of information across multiple factors or attributes. In contrast to the methods typically used in previous studies, the conjoint approach has the advantage of being better able to capture the complexity of a person's career assessment policies.

In this paper we first review the economic perspective on entrepreneurship as a utility-maximizing response, and develop a series of hypotheses. Second, we discuss data collection including a description of the sample and the survey instrument used. Third, conjoint analysis is used to determine if the attitudes towards work, risk and independence suggested by previous research are actually those used by people making a career choice and whether these decision policies explain, in part, people's intention to be self-employed. Fourth, the results are reviewed and discussed in terms of the self-employment literature. Finally, the implications of this study to future research and to entrepreneurs are discussed.

ECONOMIC MODELS of ENTREPRENEURSHIP

Casson (1982) acknowledged that there was no economic theory of entrepreneurship, and proceeded to present one, but his model did not adequately address the issue of why people become entrepreneurs. Later, Baumol (1990) proposed that "how the entrepreneur acts at a given time and place depends heavily on…the reward structure in the economy...(or) the prevailing rules of the game that govern the payoff " to entrepreneurship (p. 894). In defining entrepreneurs as persons who are ingenious and creative in finding ways to add to their own wealth, power, and prestige, Baumol was

effectively suggesting that individuals choose to be entrepreneurs when or because their utility (from wealth, power, and prestige) is maximized by so doing.

Campbell (1992) stated "economic theory has yet to make a concerted effort at explaining entrepreneurship...or its determinants" and developed a model where the individual chooses to be an entrepreneur if the expected net present value of profit from entrepreneurship is positive, or supplies wage labor otherwise. While Campbell allowed for the individual's attitude toward risk and the monetary value of the psychic costs and benefits of entrepreneurship, he did not consider how these psychic costs and benefits impact the decision to become an entrepreneur except via their (monetary equivalent) impact on the NPV calculation. Nor did he explain why these psychic costs and benefits might differ from person to person.

Gifford (1993) distinguishes entrepreneurial ability (the ability to recognize a new profit opportunity and to exploit it) from managerial ability (the ability to maintain the profitability of current operations), and demonstrates that individuals' prior endowment of these skills determines their choice of career as entrepreneur, entrepreneurial manager (intrapreneur), or salaried employee (perhaps a manager). Gifford proposes the entrepreneur is alert to and responds to profit opportunities, and the career choice depends on the expected profit as an entrepreneur. While the Gifford model advances our thinking substantially, it is more concerned with the optimal size of the firm than it is with what motivates individuals to be entrepreneurs (other than a simple profit motive).

Eisenhauer (1995) builds an economic model of the decision to be an entrepreneur based on the expected utility gained, not simply from the prospective income streams, but also dependent on utility derived from the "working conditions" of the employment versus self-employment alternatives. Douglas and Shepherd (2000) follow this general approach, but expand it substantially. They distinguish between entrepreneurial attitudes and entrepreneurial abilities, and link an individual's income potential to these abilities and attitudes. They investigate more fully the "working conditions" in terms of the individual's attitudes to specific work conditions such as effort required, risk exposure, and decision-making autonomy. Thus, they develop a theory of entrepreneurship that explains, in part, an individual's choice to be self-employed, or to be an employee of an existing organization, by utilizing a utility-maximization model of human behavior – an individual will choose the career option that promises the greatest expected utility. They consider three main attitudes which one might expect to differ between those intending to be self-employed and those intending to be employees. These attitudes are those toward hard work, financial risk, and decision-making autonomy – which they call "independence".

In this paper we examine the link between the individual's attitudes (toward work, risk, independence and income) and that person's intention to become self-employed (or not).[1] We argue that these attitudes affect career choice and while these attitudes are

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[1] Krueger (1993) argues that attitudes impact on entrepreneurship via intentions. Ajzen and Fishbein (1980) argue that intentions provide critical insights into

neither necessary nor sufficient, more entrepreneurial attitudes will affect that person's intention to start their own business (holding all else constant).[2]

THE UTILITY MAXIMIZATION MODEL OF CAREER CHOICE

Utility models of human decision making postulate that individuals will select the course of action which promises, in prospect, the greatest psychic satisfaction or maximal utility (see any Microeconomics text). Since some elements of a course of action may involve disutility (dissatisfaction), such irksome elements will offset to some degree the utility derived from more pleasurable elements of that course of action. Douglas and Shepherd (2000) argue that in the context of career choice, an individual expects to gain utility from income, and either utility or disutility from work effort, risk bearing, independence, and other working conditions. They model the individual's choice of career path out to the individual's time horizon by defining a career path as one or more jobs over that same planning period. Thus they state:

$$U_{ij} = F\ (Y_{ij},\ W_{ij},\ R_{ij},\ I_{ij},\ O_{ij}) \tag{1}$$

where U_{ij} represents the utility anticipated in the ith period from the jth job;

Y_{ij} represents the income anticipated in the ith period from the jth job;

W_{ij} represents the work effort anticipated in the ith period from the jth job;

R_{ij} represents the risk anticipated in the ith period from the jth job;

I_{ij} represents the independence anticipated in the ith period from the jth job;

O_{ij} represents the net perquisites anticipated in the ith period from the jth job;

$i = 1, 2, 3, \ldots.n$ represents the different periods out to the time horizon (n), and

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behavioral processes, and robustly predict and explain behaviors. However, possessing entrepreneurial attitudes does not necessarily motivate a person to start a new venture. We note that even with the strongest intentions to be an entrepreneur, no entrepreneurship will occur without the advent of a suitable self-employment opportunity and the funding required to undertake that opportunity.

[2] Individuals can enter self-employment in a variety of ways, many of which do not involve the creation of new organizations. Nonetheless, certain factors are likely to affect the processes by which individuals move into and out of all kinds of self-employment (Carroll and Mosakowski, 1987).

j = 1, 2, 3, …m represents the different jobs available in any period.

The individual will envision k = 1, 2, 3, …z career paths, each comprising a single job or a sequence of jobs from the present moment out to his/her time horizon. The individual will choose among the z career paths, such that his/her expected utility is maximized. The utility expected from the kth career path can be expressed in general terms as a function of the income stream, the total output of work effort, the total exposure to risks, the total independence provided, and net perquisites associated with each job in each period, out to the time horizon as follows:

$$\Sigma U_{ij} = F\ (\Sigma Y_{ij},\ \Sigma W_{ij},\ \Sigma R_{ij},\ \Sigma I_{ij},\ \Sigma O_{ij}) \qquad\qquad (2)$$

This notation is appropriate for the simple case where the individual holds the same job (j-value) in all time periods. He/she would scan all occupational opportunities and choose the j-valued job with the maximal total utility according to Eq. (1). In the more general case, where the individual may move to new jobs in succeeding periods and thus consider a perhaps infinite set of career paths (job combinations), the notation is more complex and is unnecessary here. The underlying concepts of the Douglas-Shepherd model above model are now briefly discussed.

Attitudes to Work Effort

Tolerance for work effort refers to the degree of aversion to work effort – *work effort* refers simply to the expenditure of physical and mental effort in the workplace, and can be measured as the product of working hours and working intensity. A person with higher tolerance for work effort has a lesser degree of aversion to work effort, and thus derives relatively little marginal disutility from additional hours and/or intensity of work effort.

Scholars of agency theory assume that people have differing degrees of aversion to work (e.g., Alchian and Demsetz [1972]; MacDonald [1984]). These differences reflect the differing utilities individuals derive from remuneration and its uses (including leisure activities), and from the differing disutilities they derive from work effort. The same income may offer less joy to a person with few non-work leisure interests or pastimes, and the same job task may offer greater physical discomfort or mental anguish for some people than it does for others. For example, some employees may find long hours and intensive effort more stressful than others, and thus be less willing to supply additional effort.

It is often said that successful entrepreneurs must work long and hard hours and put their new venture ahead of their personal and family life (Hofer, 1976; Schein, 1987). Or that entrepreneurs seem to enjoy their work, and willingly work longer hours even

when there is little or no promise of extraordinary financial gain (Bird and Jellinek, 1988).

Based on the above discussion, we expect that the more tolerant the person is of work effort, the more likely that person will want to be self-employed – as a self-employed entrepreneur he/she will become the residual claimant to the (larger) contribution to the firm's profit that he/she is able to make by virtue of his/her more positive attitude to work effort. More importantly, the utility gained by switching to self-employment will be greater for a person whose marginal rate of substitution (trade-off rate) between income and work is lower in absolute terms, other things being equal, as demonstrated by Douglas and Shepherd (2000). This greater tolerance for work effort means that any given increase in income (due to switching between employment and self-employment, for example) will generate a greater utility gain for the person who is less averse to work as compared to a person who is more averse to work, other things being equal.

In our empirical investigation we first seek to confirm that work effort is important in people's utility-maximization model of career choice, and that people are indeed averse to work effort. Second, we seek to investigate whether the relationship between their attitude towards work and their intention to be a self-employed entrepreneur. Thus,

> *Hypothesis 1:* Peoples' attitudes to work affect their career choice – people derive disutility from work effort (i.e. they are work-averse).

> *Hypothesis 2:* The more positive (or less negative) the attitude to work effort the higher the entrepreneurial intention.

Attitudes to Risk

The discussion thus far assumes that profit is a direct and unambiguous function of work effort, all other things being equal. But when profit is an uncertain function of work effort, there will be an expected profit level for each level of work effort, surrounded by a variance of profit outcomes which may eventuate due to potential changes in consumer preferences, competitors' prices and product offerings, macro-economic variables, and so on. Such potential profit variability introduces the risk that the employee (or the entrepreneur) may expend additional effort without any additional remuneration for that effort. People will not generally seek out extra risk without compensation and therefore most people are said to be risk averse.

A person with higher tolerance for risk has a lesser degree of aversion to risk, and thus derives relatively little marginal disutility from additional risk bearing. Following Douglas and Shepherd (2000), a "positive attitude towards risk" means a relatively high tolerance for additional risk borne (a relatively low degree of risk aversion). While

employment options vary in level of risk (an employee typically receives a salary or a wage that may or may not be supplemented by commissions and bonuses), self-employment typically represents a riskier endeavor (Knight, 1921; Duchesneau and Gartner, 1990). Such potential profit variability introduces the risk that the employee (or the self-employed person) may expend additional effort without any additional remuneration. Empirical research suggests that the variance of earnings for the self-employed is over three times that of paid employees (Rees and Shah, 1986).

We argue that the more tolerant the person is to risk, the more likely that person will want to be self-employed, because as a self-employed entrepreneur they will be the residual claimant to the (larger) contribution to the firm's profit made larger by virtue of his/her more positive attitude to risk. Note that greater tolerance for risk is reflected in a lower absolute marginal rate of substitution between income and risk (and therefore flatter indifference curves in the Douglas-Shepherd model) compared with a person who is more averse to risk. Thus, the additional income required to induce the individual to assume 100% of the risk will be less for a person who is more tolerant of risk than for a person who is less tolerant. It follows that the gain in income (and hence utility) achieved by switching to self-employment must be greater for a person who is more tolerant of risk, since the self-employment income is common to both persons when all other things (except attitude to risk) are equal. Thus, the more tolerant a person is of risk, the greater incentive that person has to become self-employed, other things being equal. Thus,

> *Hypothesis 3:* Peoples' attitudes to risk affect their career choice – people derive disutility from risk (i.e. they are risk-averse).

> *Hypothesis 4:* The more positive the attitude to risk the higher the entrepreneurial intention.

Attitudes to Independence

By independence we mean a preference for decision-making control.[3] We note that people may gain net utility or net disutility from independence. Such responsibility may bring added stress, conflict with co-workers, suppliers, customers and other parties which generates disutility, and this may outweigh the utility derived from other more pleasurable aspects of "being one's own boss". Conversely, some individuals derive little or no apparent disutility from independent decision-making and thus gain net utility from

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[3] This definition seems to encompass Shapero's (1982) "propensity to act'' and McClelland et al.'s (1953) "locus of control", as well as Bandura's (1986) concept of "self-efficacy" which Ajzen (1991) incorporates into his "perceived behavioral control" construct and which Shapero (1982) incorporates into his "perceived feasibility" construct, and Burger's (1985) "desirability of control."

such autonomy. We call the first group independence-averse and the second group independence preferring.

Following Douglas and Shepherd (2000) we say a "positive attitude" to independence includes both those who are independence preferring and those who (while independence averse) have a relatively high tolerance for independence, which is to say they suffer relatively low marginal disutility from additional decision making autonomy. Conversely, a negative attitude to independence refers to those who derive a relatively high degree of disutility from decision-making. Even though the self-employed person is still answerable to stakeholders such as financiers, and his/her level of independence varies, independence is typically higher in the self-employment career option (Bird, 1989; Katz, 1994).

If an employee were highly averse to independence he/she would not want to be self-employed unless the utility gains from additional income more than offset the additional disutility from work, risk and independence. The person who is highly intolerant of independence will have a steeper trade-off rate between income and independence, compared to a person who is more tolerant of autonomy. Thus it will take a greater increment in income to induce a person who is less tolerant of autonomy to assume 100% of the decision-making responsibility.

This implies that the person with the more-positive attitude to independence will "make the jump" to self-employment more readily, since the availability of sufficiently remunerative opportunities are more likely to be forthcoming for that person (assuming a distribution of income over self-employment opportunities). Conversely, the person with a less-positive attitude to independence needs to await (less-common) more-remunerative self-employment opportunities, other things being equal. Moreover, if the income associated with a self-employment opportunity is expected to grow over time, the more-positive attitude person will have "jumped" to take up that opportunity while the less-positive person is still waiting for it to be sufficiently remunerative, ceteris paribus.[4]

Given the greater probability of sufficiently remunerative self-employment opportunities for people with more-positive attitudes to independence, and given their stronger preference for decision-making autonomy, these individuals might be expected to spend more time scanning their environment for self-employment opportunities, since the expected value of that search activity is higher for them, as compared with people with less-positive or negative attitudes to independence. It follows that the utility

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[4] With ceteris paribus, the time horizon and discount rate and all other variables are common to both situations, of course, such that the expected value of the remuneration would be the same for both persons at any one point in time. For the person with the more-positive attitude to independence this sum may be sufficient to support the "jump" to self-employment while for the less-positive or negative attitude person it may be insufficient, due to their differing marginal rates of substitution between income and independence.

incentive to become self-employed is greater for the person who is more tolerant of decision-making autonomy. Thus,

> *Hypothesis 5:* Peoples' attitudes to independence affect their career choice – people derive utility from independence (i.e. they are independence-preferring).

> *Hypothesis 6:* The more positive the attitude to independence the higher the entrepreneurial intention.

RESEARCH METHOD

This study uses conjoint analysis to determine the decision policies (based on expected utility) of career decision-makers who may or may not intend to be entrepreneurs. Conjoint analysis and policy capturing have been used in many studies of judgment and decision making (Stewart, 1988; Green and Sirinivasan, 1990). These studies vary from research into managers' strategic decisions (Priem, 1994; Hitt and Tyler, 1991), venture capitalists' assessments (Shepherd, 1999; Zacharakis and Meyer, 1998) and expert judgments (Davis, 1996; Bonner, 1990). Conjoint analysis requires respondents to make a series of judgments based on a set of attributes (cues) from which the underlying structure of their decision policy can be investigated. From this series of judgments the respondent's decisions can be decomposed, providing the researcher an opportunity to investigate the underlying structure of the decisions.

Importantly, this technique avoids the use of retrospective and self-reported data by collecting information about a decision as that decision is made (Fischoff, 1988; Zacharakis and Meyer, 1998). It allows the investigation of what Argyris and Schon (1974) refer to as "theories in use" as opposed to "espoused theories of action". However, the tradeoff is that experiments require stimuli be reduced to a manageable level while retaining a sufficient number of scenarios. While the information within the decision exercise does not perfectly mirror the "real life" decision, conjoint experiments are still a valid method for deriving what information decision-makers actually use (Brown, 1972; Hitt and Middlemist, 1979; Riquelme and Rickards, 1992). In a post-experiment questionnaire that asked respondents to self report the importance of these criteria in their assessment of career attractiveness they indicated that all the criteria were at least somewhat important in their decisions.

Attributes, Levels, and Dependent Variable

Respondents evaluated a series of hypothetical conjoint profiles which described career alternatives in terms of four attributes, each with two levels: (1) Work – the requirement for time and effort in the workplace, (2) Risk – the variance of profit outcomes around an expected level of profit, (3) Independence – a preference for decision-making control, a preference to serve one's own objectives rather than follow another's orders and a preference to choose one's own path to that objective, and (4) Income – dollar remuneration. To control for differing perceptions of personal wealth, respondents were instructed to consider their net asset position to be $100,000.

Attribute levels were chosen to represent variation that typically occurs in the decision environment of career decision makers, thereby maintaining believability and response validity. Two levels represent each attribute, namely "high" and "low". *High work effort* requires a high number of hours per week and maximal exertion, while *low work effort* requires a low number of hours per week and minimal personal exertion. *High risk* is where income is composed entirely of bonuses based on actual performance with no agreed salary, while *low risk* is where income is composed entirely of an agreed salary with no bonuses or deductions based on actual performance. *High independence* refers to being responsible for most decisions and not being highly constrained by policies or senior management, while *low independence* refers to being responsible for very few decisions and being highly constrained by policies or senior management. Respondents were told that *high income* means total remuneration being substantially above average for people of their age, education and experience, while *low income* refers to total remuneration that is substantially below average for people of their age, education and experience. A pre-test with MBA students seeking employment confirmed the face validity for both the attributes and their levels.

Each combination of the four attributes was presented as a job offer to the respondents, and they were asked to assess the utility (or usefulness) of the offer to them on an eleven-point scale with end anchors describing "very low utility" and "very high utility". We suggested that the offer would be available within the next twelve months. This time horizon was used because twelve months appears to be a sufficient time for the respondent to prepare for a career change. Furthermore, in the post-experiment questionnaire respondents were asked how probable it is that they will start your own business within the next 12 months. They responded on an 11-point scale anchored by "highly improbable" and "highly probable".

Research Instrument and Experimental Design

The research instrument contained a cover letter, task instructions, the conjoint decision making experiment and a post-experiment questionnaire that asked respondents to self report the importance of the criteria and answer questions regarding their personal characteristics. Relevant definitions were included on a detachable sheet that could be referred to while completing the survey. Once instructions were understood, respondents were asked to consider each conjoint career description and provide a rating on an 11-point scale for the dependent measure, viz.: Utility of Offer.

For the conjoint experiment, an orthogonal fractional factorial design was used to reduce the number of attribute combinations and thus make the decision-making task more manageable. Each of the four attributes was varied at two levels in a fractional factorial design consisting of 8 profiles (Hahn and Shapiro, 1966). The original profiles were replicated to permit estimates of individual subject error for use in subsequent statistical analysis and allow a test-retest measure of reliability. The profiles were randomly assigned to avoid order effects. A practice case was also used to familiarize respondents with the task. Therefore respondents were presented with 17 profiles to evaluate. The experimental design enabled both individual subject level and aggregate subject level analyses.

Sample

The sampling plan consisted of 300 alumni of an Australian university who had graduated with their Bachelors of Business degree between two and ten years previously. Thus they had a common educational base and relatively limited employment experience, allowing focus on their attitudes rather than their abilities.[5] Ninety-four individuals completed the survey, for a response rate of 31%. There was no significant difference in the profile of those that responded and those that did not, suggesting that a non-response bias is unlikely to be a concern.

There may be questions about the generalizability of the results from this sample to other populations. Do Australian career decision-makers have similar utility models to people in the USA, Europe, China, India, or elsewhere? Similarly, is the intention to be an entrepreneur affected by the same attitudes for people from different cultures? These are interesting empirical questions. While we do not have any theoretical expectation that these findings would not generalize to these cultures, care must taken in generalizing these results beyond the Australian context. Further, the sample was made up of people with at least one degree and no more than ten years post-degree work experience. While this has the benefit of controlling to a certain extent for education and experience differences, it does raise the question whether or not the findings are generalizable to people with lesser formal education and/or greater work experience. To the extent that formal business education positively impacts entrepreneurial ability, our results may not be generalizable to those without such education. Similarly, to the extent people learn in the workplace, our results may not apply to those with more work experience.

Analysis

Regression is the statistical technique used to decompose the decision. Regression analysis decomposes an assessment into its underlying structure as represented by the independent variables and their corresponding regression coefficients. The conjoint

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[5] Of course, even within a group of graduates with a similar number of years experience there is likely to be heterogeneity in ability although less heterogeneity than among career decision makers in general.

technique allows analysis at both the individual and aggregate subject level that improves the predictive ability of the research (see Moore [1980]).

To identify attributes statistically significant at the aggregate level, the regression coefficients for each attribute (derived from the individual-subject level of analysis) are averaged across individuals with the sign of the regression coefficient indicating the nature of the relationship. The mean regression coefficients represent a model of the sample's decision policy and thus a model of their utility maximization. A Z-statistic aggregates the t-statistics derived from the individual-subject analysis for that attribute in order to identify whether a particular attribute is significantly used by the sample (Dechow, Huson, and Sloan, 1994). Therefore, a respondent's decision model contained a constant and a regression coefficient for each of the independent variables. Sixteen replicated profiles were used in a test retest measure, using Pearson R correlations to test the consistency of responses for each respondent.

To determine if the attitudes towards work, risk, independence and income affected entrepreneurial intention, a regression analysis was used. Each person's utility model (the regression coefficients from the previous analysis) was regressed with the entrepreneurial intention of that person. The analysis provides a regression coefficient and a corresponding p value. The sign of the regression coefficients provides an indication of the nature of the relationship between peoples' attitudes and their intention to become self-employed and the p value indicates whether those attitudes significantly explain the intention to be self-employed.

RESULTS

At the individual level of analysis, 95% of respondents considered the level of independence in their assessment of career utility, while 47%, 26% and 16% used work, risk and income (respectively) as a significant determinant of the utility they expected to derive from the job offer. Ninety three percent of the respondents had significantly reliable responses with a mean R^2 of .831. To make statistical inferences from the sample an analysis was conducted at the aggregate level. The regression coefficient (B) and its corresponding Z score for each attribute are shown in Table 1. The model explained a significant portion of the variance (R^2 = .163 and p = .011).

At the aggregate level of analysis, the Z scores indicate that attitudes to risk, independence and income are significant in individuals' assessment of career utility ($p<.01$). The sign for the mean unstandardized regression coefficient (B) for each significant main effect indicates the levels for each variable that respondents associate with higher utility. Thus, lower risk is associated with higher utility, indicating risk aversion. Similarly higher independence and higher income are associated with higher utility, indicating that people are both independence and income preferring. The finding that people derive disutility from risk provides support for hypothesis 3 and the finding of independence preferring provides support for hypothesis 5. Not surprisingly, the control

variable for income was significant and people derive utility from more income. Interestingly, there was not a significant finding for work effort required. Therefore there was no support for hypothesis 1.

As discussed earlier, the sample could be expected to be heterogeneous with regards the intention to be self-employed. We now know that people's attitudes to risk, independence and income affect the expected utility they will derive from a career. Does a person's attitudes to work, risk and independence affect entrepreneurial intention? In other words, do those that intend to be entrepreneurs have different attitudes to those that do not have such an intention? To investigate this, each person's utility model was regressed against his or her entrepreneurial intention. The unstandardized regression coefficient (B), and corresponding p value for each attribute is shown in Table 2.

These results indicate that individuals' attitudes toward risk and independence significantly affect entrepreneurial intention – those with a higher entrepreneurial intention are associated with a "more positive" attitude toward risk (i.e., are less risk averse), and independence (i.e., are more independence preferring). Thus, higher entrepreneurial intention is found among those people who gain less disutility from risk and more utility (or less disutility) from independence. This provides support for hypothesis 4 and 6. Interestingly, there was no significant difference in entrepreneurial intention explained by work effort required (therefore no support for hypothesis 2) and not surprisingly, no significant difference in attitude towards income. Support for the hypotheses is detailed in Table 3.

DISCUSSION AND CONCLUSION

This study has demonstrated that individuals do consider risk, independence and income when evaluating alternative career options. Not surprisingly, since income buys most other goods and services, income was by far the most heavily weighted consideration, followed by risk and independence considerations.[6] Surprisingly, the level of work effort required was not found to be significant for the sample as a whole. Perhaps people generally expect the level of work effort required would be commensurate with income, and/or do not believe that "low work effort" would be tolerated by any employer (or possible in self-employment).

Further, we found that the intention to be an entrepreneur is stronger for those with more positive attitudes to risk and independence. That is, the higher the individual's tolerance for risk, and the more-positive their attitude to decision-making autonomy, the stronger is their stated intention to be an entrepreneur. Note that income was not a

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[6] Relative importance can be determined by comparing the regression weights. The regression weights displayed in table 1 are effectively standardized because the units are directly comparable across factors – each are high and low.

significant determinant of entrepreneurial intention – people do not appear to start their own businesses to get rich, or to get any richer than they expect to get as employees. Nor was work effort a significant determinant of self-employment intention, although the sign was negative, as expected. Perhaps people expect to regulate their work effort between the minimum acceptable and the maximum tolerable whether in employment or self-employment.

These findings make a significant and important contribution to the literature. First, we answer Baumol's (2000) call for greater research into entrepreneurship using economic analysis. Second, most research into entrepreneurship from an economic perspective has been theoretical. Here we provide an empirical test. Third, the empirical test does not rely on assumptions of rationality (common for most economic studies) but investigates the "black box" of the entrepreneur and reveals their decision/assessment policies.

This work substantially expands our understanding of what drives the intention to become an entrepreneur. It effectively includes the NPV model of Campbell (1992) and Gifford (1993), and substantially extends the utility model of Eisenhauer (1995) to flesh out the "working conditions" of alternative jobs that serve to increase or decrease the individual's utility from the income stream expected. It throws doubt on the importance of work effort as a determinant of job choice, which was posited as important by Douglas and Shepherd (2000). Similarly, it throws doubt on the suggestion that people choose self-employment as a means of gaining higher income than they could attain as employees. It investigates the "why" of entrepreneurship rather than the "when" – by looking at the internal motivations of individuals rather than the external inducements of the economic environment.

Practical Implications

This study has several practical implications. First, more-positive attitudes to risk and independence have value to nations seeking to increase employment, to increase employee productivity, and to become or remain internationally competitive. Thus governments should facilitate educational processes that develop more positive attitudes to risk and decision-making autonomy. Governments might also streamline their various interfaces with the business community to facilitate the exercise of more-entrepreneurial business activity, whether within existing firms or within start-ups being created as individuals choose self-employment as a career option.

Second, existing firms developing their employee selection and retention policies should pay more attention to the attitudes of individuals towards risk and independence since employees with more-positive attitudes in these dimensions tend to be more productive employees and are also more likely to "jump ship" and start their own

businesses if the employer does not allow them sufficient remuneration, independence, and protection from risk. [7]

Third, venture capitalists and investors more generally should examine the attitudinal make-up of the entrepreneurial management team as part of their assessment of the "value added" by the management team, since these attitudes provide additional information about the individual's value to the organization.

Fourth, business education programs should incorporate into their curricula elements that enhance the development of entrepreneurial attitudes, since these are beneficial not simply to the entrepreneur him/herself, but also to the business he/she works for and the national and global economies.

Future Research

Much future research is required, of course. The development of measures which better capture the degrees of work aversion, risk aversion, and independence preference or aversion, would allow researchers to more finely hone the model. This in turn would allow recruiters, human resource managers, and investors to better measure the attitudes of the individuals whom they are contemplating hiring or providing funds to. The model presented and tested here needs to be extended to incorporate other aspects of the decision to become self-employed, such that it is better able to predict and explain the decision of individuals to become self-employed, or conversely, to remain in the employment of others.

Issues that impinge on the decision to become self-employed, such as different costs of capital and different psychic costs of managing employees across individuals, have yet to be incorporated. Similarly, risk sharing and independence sharing (between employer and employee) to retain entrepreneurial employees, might be incorporated into the model. Dynamic issues of interest include changing attitudes to work, risk, independence and income once a person becomes self-employed, and change in these entrepreneurial attitudes as one becomes older and/or more experienced. Is self-employment something that younger people are more likely to do, and if so why?

This paper has explored the career choice of individuals and found that they consider the level of risk, independence, and income, and express a preference for jobs entailing higher income, lower risk and greater independence. One possible career choice is to be self-employed and we found that variance in the intention to start one's own business can be explained, in part, by a person's "more-positive" attitudes to risk and

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[7] Risk-averse individuals seek to avoid risk, and employers may offer protection from risk as an inducement to employ and retain people. We note that people with more-positive attitudes to risk will seek less protection from risk from their employer than would people with less-positive attitudes to risk.

independence. This research has important implications for nations, employers, investors, and educators, but much further research remains to be done.

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Table 1: Aggregate Model Statistics

Attribute	Mean B score	Z score
Work effort	0.008	0.260
Risk	-0.874	8.183***
Independence	0.437	14.383***
Income	3.974	39.065***

*** p<.01

Table 2: Entrepreneurial Intention

Attribute	Mean B score	p value
Work effort	-0.344	0.212
Risk	0.460	0.039**
Independence	0.631	0.011**
Income	0.098	0.567

** p<.05

Table 3: Summary of Hypotheses tested

Hypothesis 1: Peoples' attitudes to work affect their career choice – people derive disutility from work effort.	Not Supported
Hypothesis 2: The more positive the attitude to work effort the higher the entrepreneurial intention.	Not Supported
Hypothesis 3: Peoples' attitudes to risk affect their career choice – people derive disutility from risk.	Supported
Hypothesis 4: The more positive the attitude to risk the higher the entrepreneurial intention.	Supported
Hypothesis 5: Peoples' attitudes to independence affect their career choice – people derive utility from independence.	Supported
Hypothesis 6: The more positive the attitude to independence the higher the entrepreneurial intention.	Supported

[1] Krueger (1993) argues that attitudes impact on entrepreneurship via intentions. Ajzen and Fishbein (1980) argue that intentions provide critical insights into behavioral processes, and robustly predict and explain behaviors. However, possessing entrepreneurial attitudes does not necessarily motivate a person to start a new venture. We note that even with the strongest intentions to be an entrepreneur, no entrepreneurship will occur without the advent of a suitable self-employment opportunity and the funding required to undertake that opportunity.

[2] Individuals can enter self-employment in a variety of ways, many of which do not involve the creation of new organizations. Nonetheless, certain factors are likely to affect the processes by which individuals move into and out of all kinds of self-employment (Carroll and Mosakowski, 1987).

[3] This definition seems to encompass Shapero's (1982) "propensity to act'' and McClelland et al.'s (1953) "locus of control", as well as Bandura's (1986) concept of "self-efficacy" which Ajzen (1991) incorporates into his "perceived behavioral control" construct and which Shapero (1982) incorporates into his "perceived feasibility" construct, and Burger's (1985) "desirability of control."

[4] With ceteris paribus, the time horizon and discount rate and all other variables are common to both situations, of course, such that the expected value of the remuneration would be the same for both persons at any one point in time. For the person with the more-positive attitude to independence this sum may be sufficient to support the "jump" to self-employment while for the less-positive or negative attitude person it may be insufficient, due to their differing marginal rates of substitution between income and independence.

[5] Of course, even within a group of graduates with a similar number of years experience there is likely to be heterogeneity in ability although less heterogeneity than among career decision makers in general.

[6] Relative importance can be determined by comparing the regression weights. The regression weights displayed in table 1 are effectively standardized because the units are directly comparable across factors – each are high and low.

[7] Risk-averse individuals seek to avoid risk, and employers may offer protection from risk as an inducement to employ and retain people. We note that people with more-positive attitudes to risk will seek less protection from risk from their employer than would people with less-positive attitudes to risk.