

INTEGRATING THE TPB WITH ECONOMIC THEORIES: THE CASE OF GRADUATE ENTREPRENEUR

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Abstract

The purpose of this article is to examine and integrate the theoretical approaches to the study of graduate entrepreneurship. The emphasis is on the use of economic theory to study the actual behaviour of entrepreneurship. The aim is to provide an overview of how the economic theories (utility maximisation theory and risk-taking behaviour theory) can be integrated with the theory of planned behaviour (TPB) to develop a theoretical framework to understand entrepreneurship behaviour.

Keywords. *economic theory; graduates entrepreneurship; integrated theory; TPB.*

JEL Codes. *I23; I29; L26.*

Introduction

Entrepreneurship is a stimulus for structural change and institutional evolution. Thus, entrepreneurship is often synonymous with self-employment. Because entrepreneurship is usually embarked on not by choice but by necessity, a distinction is often made between necessity and opportunity entrepreneurs (Global Entrepreneurship Monitor, 2017). Entrepreneurship is more appropriately seen as a social phenomenon that reflects the broader institutional characteristics of society even though researchers viewed entrepreneurship initially as being limited to innovation and business creation. Entrepreneurship contributes to the economic success of society, particularly economic growth and job creation. It is also found to be a highly satisfying career choice for the individual entrepreneur compared to salaried employment (Gorgievski, Stephan, Laguna, & Moriano, 2018).

In entrepreneurship studies, most research emphasises theories in management and psychology. However, the evolution of entrepreneurship studies was intensely influenced by a few key economists and analysts. Entrepreneurship is clearly essential if investment, innovation, and structural changes are required for economic development. It is also an individual's occupational choice to work on his or her own (Gartner, 1989; Leff, 1979). Stefanovic, Prokic and Rankovic (2010) said that entrepreneurship is essential in contemporary economies. Hence, entrepreneurship also refers to the capacity and willingness to undertake the conception, organisation, and management of a productive venture with all the attendant risks while seeking profit as a reward. To encourage individuals to engage in entrepreneurial activity, a diversity of entrepreneurship ecosystem factors should be considered. Removing "red tapes" is necessary as they could present adverse administrative weights or excessive costs to those thinking about starting a business (Global Entrepreneurship Monitor, 2017).

Two key reasons why university graduates are attracted to become entrepreneurs. Firstly, graduates have the human capital and potential to create a growth-oriented start-up with a low possibility of failure. The successful transition from a university to self-employment could solve graduate unemployment in a challenging economic situation (Gorgievski et al., 2018; Rauch & Rijdsdijk, 2013). According to Davidson and Wiklund (2001), Littunen, (2000), and

Shane and Venkataraman (2003), entrepreneurship has always been given a prominent place in business research but not in the field of economics. Even though economists recognised the fundamental importance of entrepreneurship since Schumpeter's work in 1934, entrepreneurship had not been the subject of substantial research and was more or less absent in economic studies (Kerr, Ramana and Matthew, 2014).

Over the years, various behavioural theories and entrepreneurship innovation theory have been applied to explain the qualities of entrepreneurs, especially among graduates. Limited attention has been paid to studying entrepreneurial career choice because most people are likely to choose salaried employment and not self-employment (Gorgievski et al., 2018). Two groups of factors could explain why people become entrepreneurs. They are individual factors (personal and psychological characteristics) and environmental factors. Individual factors include achievement, controllability, power, tolerance for ambiguity, independence, and propensity for risk-taking. On the other hand, social variables include education and training, experience, professional network, and family background. The environmental variables consist of economic climate, market size, accessibility of financing resources, taxes and bureaucracy, regulatory framework, R&D transfer system, and sociocultural and institutional setting.

Literature Review: Underpinning Theory

The following section reviews the theory of planned behaviour (TPB) and its application to entrepreneurial intention. Then, a model is developed by integrating economic theories to understand entrepreneurship actual behavior. The economic theories considered in this study are utility maximisation theory and risk-taking behaviour because they could explain career choice in entrepreneurship.

Theory of Planned Behavior (TPB)

Social psychologists have been using attitude to predict behaviour for over 80 years (Ajzen & Fishbein, 1973). According to Ajzen and Fishbein (1977), attitude towards an object is conceptualised as a constant favourable or unfavourable response to a specific object. The theory of planned behaviour (TPB) is an extension of the theory of reasoned action (TRA) with the addition of a construct of perceived behavioural control to predict an individual behaviour at a specific time and place (Fishbein & Ajzen, 1975). TPB is well recognised and the most utilized theory to explain and predict individual behaviour, including entrepreneurial intention. In 1985, the theory was cited 22 times, and by 2018, the number grew over 7,000 times (Ajzen, 2015).

Armitage and Conner (2001) argue that TPB is the most widely used research model of behaviour and its determinants. According to this theory, behavioural achievement depends on both motivation, which is intention, and ability, which is behavioural control. TPB also distinguishes between three types of beliefs where people's intention is derived from. They are attitude towards performing a behavior (attitude), perception of social pressure to perform their behaviour (subjective norm), and the ability to execute the behaviour (perceived behavioural control). According to this theory, behaviour is executed if an individual believes that such behaviour will result in an intended outcome. People must be able to cognitively associate that the events are casual in nature for this connection to occur (Bandura, 1977). According to Ajzen (1991), individuals are likely to engage in behaviours they believe will have positive outcomes and avoid behaviours they feel may have negative consequences. For instance, if graduates believe that starting up a business may have a positive outcome, they are likely to be engaged in the creation process.

A common concept in the TPB and TRA is individual intention as a determinant of individual behaviour. Ajzen and Fishbein developed TPB in 1973. Intention at this point in the theory's development was assumed to capture all the factors that would stimulate or affect human behaviour. From the entrepreneurship perspective, an individual's entrepreneurial potential is stimulated if he/she has the ability and support (Kirby, 2006). The early version of the theory proposed two independent variables capable of predicting behavioural intentions, i.e., a person's attitude towards the specific act and normative beliefs multiplied by the importance of following the norms (Ajzen & Fishbein, 1973). While the early versions of the TPB were incomplete, their significance to the study of entrepreneurial intention was already becoming clear.

Ajzen (1985, 1991) recognised that the dual independent variables model was inadequate to address behaviours because people might not have complete volitional control. As a result, he introduced the third variable, perceived behavioural control, which reflects a person's past experience and recognises any potential obstacles or barriers. Perceived behavioural control should not be interpreted as actual control. In entrepreneurship, actual control may include things like availability of resources, networks, skills, or innovative ideas. Hence, if a person has an intention to perform a behaviour and has actual opportunities, he/she is likely to succeed in the endeavour (Ajzen, 1991). Six components make up the TPB that could predict an individual's behaviour:

- **Attitudes**
According to Zellweger, Sieger & Halter. (2010) and Ajzen (2005), attitude taps an individual perception of personal desirability for performing a specific behaviour.
- **Behavioural intention**
Behavioural intention is the antecedent of behaviour. Ajzen (2005) refers to it as the motivational factors that influence a given behaviour where the stronger the intention to perform the behaviour, the more likely the behaviour will be performed.
- **Subjective norms**
This concept refers to a combination of perceived expectation regarding what other people like parent, friends, and siblings think about the behaviour (Ajzen, 1991; 2005). It can be viewed as a perceived social pressure toward the execution of certain behaviour.
- **Perceived power**
Ajzen (2005) states that the perceived presence of factors may facilitate or impede the performance of a behaviour. Perceived power contributes to a person's perceived behavioural control over each of those factors.
- **Perceived behavioural control**
Perceived behavioural control is believed to exert both direct and indirect behaviour. It signifies a person's perception of the ease or difficulty of performing the behaviour of interest. Perceived behavioural control varies across situations and actions. This is the new component of the theory that was added later, creating a shift from the theory of reasoned action to the theory of planned behaviour by Ajzen (Ajzen, 1991; 2005).

TPB is made necessary by the limitation of the original model in dealing with behaviour over which people have incomplete volitional control (Ajzen, 1991). Briefly, the theory postulates that an individual's action is influenced by behavioral intention. Some scholars (Krueger, Reilly and Carsrud, 2000; Martin & Fellenz, 2010; Suartha & Suprapti, 2016; Sihombing, 2011) suggest that intention models provide a significant understanding of entrepreneurial activities. According to Suartha and Suprapti (2016), TPB is a useful framework to understand the impact

of distal variables like how attitude, subjective norms, and perceived behavioural control should be combined to determine intention and behaviour. An addition of a latent variable of perceived behavioural control has enabled this theory to overcome the limitation of the theory of reasoned action. These researchers have used Ajzen's theory of planned behaviour (TPB) on business students and found that the model was significant and could be a valuable tool to understand the entrepreneurial intention.

Limitations and Criticisms of Theory Planned Behaviour

The wealth of TPB research is not without grievance towards the theory. Even when TPB constructs are carefully assessed, they contain random measurement error (Ajzen, 2011). Meyer et al. (2014) indicated that the TPB model often relies on correlational research to conclude that intention causes behaviour. It was found that the TPB was considerably less predictive of behaviour when studies used a longitudinal design, when participants were not university students, and when outcome measures were taken objectively rather than as self-reported measures. Correspondingly, according to the study by Sniehotta, Presseau, and Araújo-Soares (2014), the TPB seems to be most predictive amongst the adolescent, fit and affluent and when predicting self-reported behaviour over a short term. The stability between frugality and validity has also been questioned (Sniehotta et al., 2014). Ajzen (2011) mentioned that previous syntheses of TPB research have revealed that, when analyses with questionable measures were included in the meta-analysis, the observed mean correlations approached their theoretical limits.

Indeed, findings under *ceteris paribus* conditions suggest that individuals are more likely to engage in behaviours that they enjoy less, feel incapable of doing, or do not intend to do seems implausible and would cast doubt on the data more than on the underlying theory. The theory has been criticized for its particular focus on rational reasoning and for excluding unconscious influences on behaviour (Conner et al., 2013). Similarly, Boston University School of Public Health (2016) states that TPB assumes the person has acquired the opportunities and resources to be successful in performing the desired behaviour, regardless of the intention. Also, it does not account for other variables that factor into behavioural intention and motivation, such as fear, threat, mood, or experience. While it does consider normative influences, it does not take into account environmental or economic factors that may influence a person's intention to perform a behaviour.

Moreover, it assumes that behaviour is the result of a linear decision-making process and does not consider that it can change over time. The added construct of perceived behavioural control was an important addition to the theory; however, it does not say anything about actual control over behaviour, and the time frame between "intent" and "behavioural action" is not addressed by the theory (Boston University School of Public Health, 2016). According to Ajzen (2011), TPB stands to reason that, as time passes, an increasing number of intervening events can transform one's behavioural, normative or control beliefs and modify attitudes, subjective norms or perceptions of control, hence producing revised intentions. Transformations of this kind will tend to reduce the predictive validity of intentions that were assessed before the changes took place. In fact, TPB is not a theory of behaviour change. Instead, it is meant to help explain and predict people's intentions and behaviour. Nevertheless, the theory can serve as a useful framework for designing effective behaviour change interventions (Ajzen, 2015).

Furthermore, concern about validity and utility is the main problem. TPB does not explain sufficient variability in behaviour, and some of the theory's propositions are patently false. For example, beliefs are normally found to predict behaviour over and above intentions (Conner et

al., 2013). More critically, all external influences on behaviour mediated through the TPB are empirically and conceptually indefensible and have been fabricated. For instance, there is reliable evidence that age, socioeconomic status, physical health, mental health, and features of the environment predict objectively measured physical activity when TPB predictors are controlled for (Sniehotta et al., 2014). Also, Ozaralli and Rivenburgh (2016), Piperopoulos and Dimov (2014) and Kor and Mullan (2011) mentioned that intentions are sometimes found to be poor predictors of behaviour even over relatively short periods. That is, intentionality does not necessarily lead to actual behaviour. In TPB, a lack of actual control over a behaviour will tend to reduce the predictive validity of intentions. The relatively low correlation between perceived behavioural control and behaviour suggests that perceptions of control are not sufficiently accurate to serve as a good proxy for actual control (Ajzen, 2011).

TPB provides the most robust evidence for its lack of suitability as a theory of behaviour change. In experimental tests, the observations were not in line with the theory. Today, the TPB has lost its utility. It does not help practitioners to develop helpful interventions. It does fit well with experimental tests and postulates explanatory hypotheses that would differ in a meaningful way from other predominant theories.

Utility Maximization and Risk-Taking Behavior Theory to Fill the Limitations

Utility maximization theory is considered as the most useful descriptive theory of human choice behaviour and widely used to understand human behaviour. Douglas and Shepherd (2002), and Stull, Labbe and Ousley (2014) examined entrepreneurs' perceptions of utility and found that valences correlated with intention to become self-employed. Critically, however, it emerged that entrepreneurs often seek to maximize utility when considering starting a new venture (Douglas & Shepherd, 2002; Holland & Garrett, 2013). There is an argument that the decision to be an entrepreneur is a utility-maximizing career choice made by an individual, and people choose a career option that promises the greatest expected utility derived via demographic background, income, risk bearing, work effort, and experience (Douglas & Shepherd, 2002; Pindyck & Rubinfeld, 2013). In other words, as suggested by utility maximization theory, the choice of being an entrepreneur provides a higher utility than other forms of employment (Becker, 1965). The choice of entrepreneurship as a career choice and the choice among entrepreneurial opportunities has been demonstrated as a utility-maximizing choice. This is because choice precedes action, and the decision whether to act or not is the heart of entrepreneurship, as individuals strive to maximize the utility of choice.

Eisenhauer (1995) mentioned that utility models of human decision-making assume that individuals will choose the sequence of action that guarantees, in prospect, the highest utility or psychic satisfaction. Subsequently, certain elements of a course of action may engage disutility, which is dissatisfaction. Such exasperating elements will offset to some degree the utility derived from more pleasurable elements of that course of action. Douglas and Shepherd (2002) modelled the individual's choice of career path out to the individual's time horizon by defining a career path as a single job held throughout an individual's utility function as the following to express the individual's current-period choice between self-employment and being employed in the next period. Thus, they stated:

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

where

U_{ij} signifies the utility anticipated in the i th period from the j th job;

Y_{ij} signifies the income anticipated in the i th period from the j th job;

W_{ij} signifies the work effort anticipated in the i th period from the j th job;

R_{ij} signifies the risk anticipated in the i th period from the j th job;

I_{ij} signifies the independence anticipated in the i th period from the j th job;

O_{ij} signifies the net perquisites anticipated in the i th period from the j th job;

$i = 1, 2, 3, \dots, n$ signifies the different periods out to the time horizon (n);

$j = 1, 2, 3, \dots, m$ signifies the different jobs available in any period.

Note that the individual may have a different job (j -value) in each period or may persist in the same job for several or all periods.

The individual will envision $k = 1, 2, 3, \dots, z$ career paths, each comprising a single job or a sequence of jobs from the present moment out to the time horizon. The individual will choose among the “ z ” career paths, such that their expected utility is maximized. The utility expected from the k th 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:

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

This notation is appropriate for a 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 Equation (1). In a 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 above model is now briefly discussed before we describe the research method used to collect responses, generate a series of utility-maximizing models, and test the explanatory ability of the model in terms of career choice and in terms of the heterogeneity in entrepreneurial intention.

This research utilizes the utility-maximization model of human behaviour and attitudes whereby the individual will prefer a career option that promises the greatest expected utility. The study assumes entrepreneurship as a utility-maximizing response and fills the gap in the theoretical debate by considering the economic perspective.

In line with this theory, a graduate's choice to choose entrepreneurship as a career choice is influenced by factors like social demographics, risk-taking propensity, education, entrepreneurial skills, and experience. The utility and disutility from these sources will determine the career decision. Accordingly, the demonstration of positive attitudes toward risk, work, and independence is neither necessary nor sufficient conditions for a person to want to be an entrepreneur. Entrepreneurial abilities and attitudes are likely to predispose a person towards entrepreneurship, other things being equal.

This study aims to determine whether the graduates' choice of a career is influenced by their intention towards entrepreneurship, attitudes towards risk-taking behaviour, skills, experience and entrepreneurship education, as well as other possible factors. What causes graduates to become an entrepreneur and how to develop graduates to choose entrepreneurship as their first choice career? Is graduates' utility positively exaggerated by the presence of career choice, risk-taking propensity, entrepreneurship education, and demographic elements?

However, this theory cannot be applied directly, as it can only suggest potential determinants. Since the economic theory does not have a direct application to entrepreneurship, management theories are applied to supplement the utility theory.

Risk-Taking Behavior Theory

Decision-making involves uncertainty, and it is economic and human behaviour. Therefore, understanding how people make choices under uncertainty is critical to economic science. Occasionally, institutional forces appear to take over, but if you look closely at any economic outcomes, you will find that they are eventually determined by human decisions or behaviour. Knight (1921) illustrated that making decisions involves risk. The decision maker knows the objective probability distribution over possible outcomes, in which this information is assessed with some degree of nebulosity.

A fundamental discovery is that risk-taking in the laboratory and in real life has been found to often be analytical and intentional and involves an analytical process of evaluating degrees of risks and benefits and trades them off against one another. For instance, the risk-taking behaviour one will take to be an entrepreneur and the cost and benefit of the decision-making (Reyna & Farley, 2006).

The risk value approach to risk-taking in decision theory assumes that preferences are a function of two parameters: risk, operationalized as the standard deviation in the probability distribution over possible outcomes, σ , and expected value, the mean of that distribution, μ . The functions of these two variables define the indifference curves, which reflect the portfolios a person considers equally attractive. Expectation-based models posit that preferences are a function of the magnitudes probabilities of possible outcomes. Consider a prospect (x, p) that offers \$ x with probability p (and nothing otherwise). A basic decision rule is to choose the outcome that maximizes the expected value (EV):

$$EV = p x \quad (3)$$

Expected value maximization implies risk neutrality. To accommodate risk aversion, expected utility theory (Neumann & Morgenstern, 1944) allows the subjective value of money to decrease when wealth increases. This gives rise to a concave utility function, $u(\cdot)$ over states of wealth, W . Decision makers choose the option that maximizes expected utility (EU):

$$EU = p u(x) \quad (4)$$

where

$u(x)$ represents the utility of outcome x . For example, a concave utility function ($u''(x) < 0$).

A utility function over states of wealth cannot readily accommodate pronounced risk aversion for gambles involving possible losses (Rabin, 2000), nor can it accommodate the commonly observed fourfold pattern of risk preferences: risk aversion for high probability gains and low probability losses, coupled with risk-seeking for low-probability gains and high probability losses. Prospect theory (Kahneman & Tversky, 1979) accommodates these patterns by proposing that decision makers maximize the value V of a prospect:

$$V(x, p) = w(p) v(x) \quad (5)$$

where $v(\cdot)$ measures the subjective value of the consequence x , and $w(\cdot)$ measures the impact of probability p on the attractiveness of the prospect.

Integrating TPB with Economic Theories

Theoretical integration to fill the gap

TPB can be improved if it is combined with economic theories, such as utility maximization and risk behaviour to predict and understand human behavior (see Figure 1). Despite its limitations, TPB has been proven as a useful framework (Suartha & Suprapti, 2016). Studies on graduate entrepreneurship using the economic approach are scarce as most of them used TPB and other management theories. Hence, the integration of these theories can offer a robust theoretical foundation for the study of entrepreneurship since these theories complement each other well. By integrating these theories, the relevant variables that determine the career choice of graduates to be an entrepreneur could be identified.

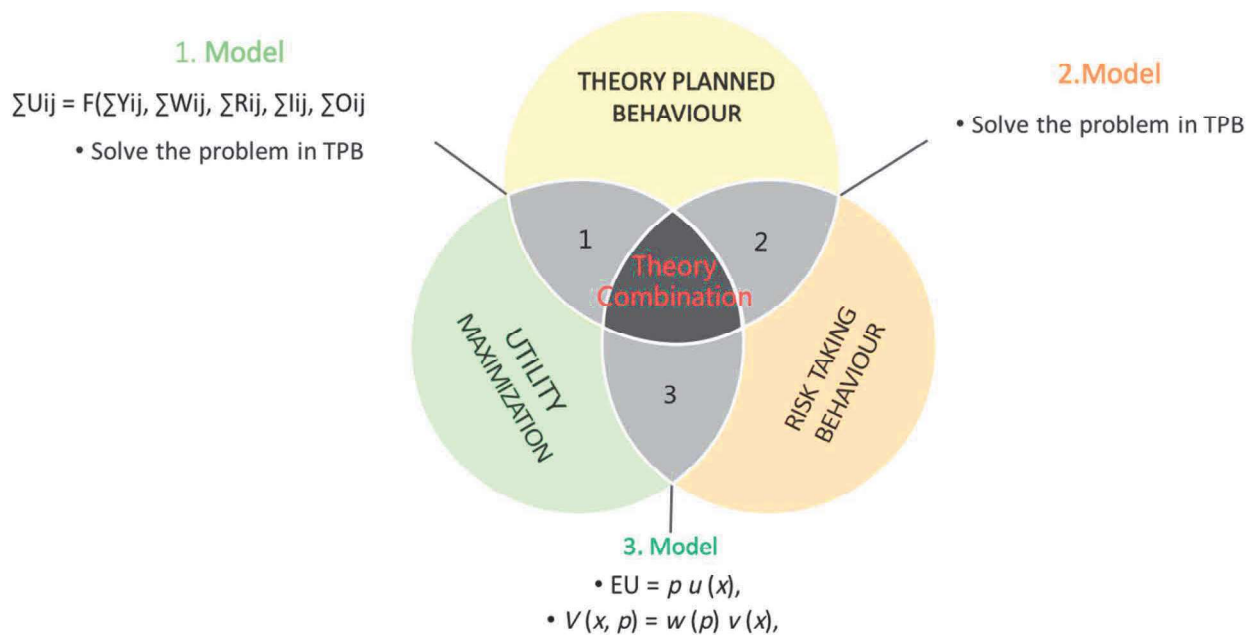


Figure 1: Integration of the three theories

Proposed Theoretical Framework

Based on the research gaps identified from the literature review, this study investigates four constructs related to graduates' career choice in Malaysia. In this study, the framework associated with entrepreneurial behavior is developed based on past studies (Pfeifer, Sarlija and Zekic Susac, 2016; Mazdan, 2015; Mazdan & Muhammad Jazlan, 2014; Noorkartina et al., 2014; Marques et al., 2012) and the theory of planned behavior (TPB) by Ajzen (1991) as shown in Figure 2.

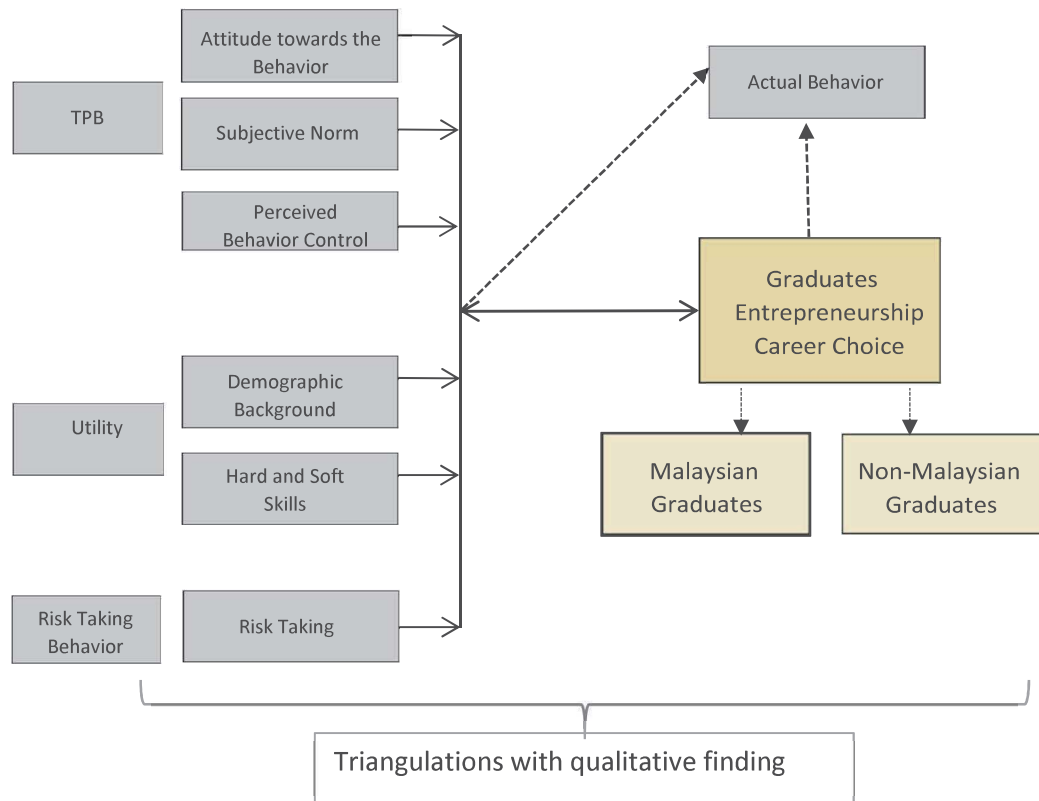


Figure 2: Proposed Theoretical Framework for this research

Two categories of variables are present in this study. They are dependent and independent variables. The independent variables are further segregated into four: Independent variable I (social demographic) constitute the explanatory variables and consist of university, age, gender, race, education, and background of the graduates. Independent variables II are personality (attitude toward behavior, subjective norm, perceived behavioral control) like leadership, experience and knowledge. Independent variable III is education (soft and hard skills) and independent variable IV is related to risk-taking behavior. The dependent variable is actual career choice. The theoretical framework illustrates actual behavior and contains the relationship between social demographic background, economic environment, subjective norms, attitudes, perceived behavioral control, risk-taking behavior, personal characteristics, education, and graduate entrepreneurs as the final response of career choice.

The relationship shows that graduates' actual behavior to be an entrepreneur relies on three important factors. However, because these factors are not directly measurable, the background of the graduates, education, and risk-taking behaviour are postulated to represent the actual behavior. As indicated in Figure 1, a direct relationship is proposed between actual outcome behaviour and career choice to be an entrepreneur. The relationship shows actual behaviour in determining the choice of graduates in the career path of entrepreneurship or self-employment.

Control variables like entrepreneurial career choice, entrepreneurship education, and entrepreneurship risk-taking behaviour are expected to influence graduates in choosing entrepreneurship as their career greatly and may explain the variance in the dependent variable (Noorkartina et al., 2014). Finally, the triangulation of the quantitative findings will be performed.

Discussions and Conclusion

Table 1 is a summary of the theoretical approaches to the study of entrepreneurship to answer the mechanisms that trigger human actions or behaviour.

Table 1: Theoretical approaches to the study of entrepreneurship

Level of Analysis/ Approaches	MICRO: Individual Level	MESO: Corporate Level	MACRO: Country Level	Global
Economic Approach	Entrepreneurial functions as fourth factor of production Theory of the entrepreneurial profit Utility Maximization Occupational Choice Neoclassical and classical theory of economics	Transaction Cost Theory Utility Maximization Neoclassical and classical theory of economics	Schumpeter's theory of economic development Theory of the endogenous regional development Utility Maximization	
Psychological Approach	Traits theory Psychodynamic theory Theory Planned Behavior (TPB)		Kirzner's entrepreneur theory	
Sociocultural Approach	Margination theory Role theory Network theory	Network theory Incubator theory Evolutionary theory	Weber's theory of economic development Theory of social change Population ecology theory Institutional theory	
Managerial Approach	Leibenstein's x-efficiency theory Behavioral theory of the entrepreneur Modes of new enterprise creation Modes to become an entrepreneur	Modes of new enterprise success and failure Corporate entrepreneurship		

Source: Created by the authors

To develop a robust model and framework, future researchers may apply other economic theories and other theories in different disciplines to fill the limitations of TPB. In this study, we explore an entrepreneurial career as actual behaviour and not intention. According to Ajzen (2015) and Schlaegel and Koenig (2014), intention is one of the best predictors of future behaviour and may serve as a proxy for other career choices. However, the perception of occupation may differ from what the occupation is really is, suggesting a gap between intention and actual behaviour. Future career choices of students may differ from what they intend to do, and future studies may wish to investigate to address the gap. Since the government is encouraging the study of entrepreneurship in universities, it is important that future researchers integrate economic theories and TPB to be able to understand better the determinants of actual behavior and hence improve the theoretical knowledge in this field. In a nutshell, this study

aims to deepen our understanding of entrepreneurial career choice as actual behaviour by combining two key economic theories (utility maximization theory and risk-taking behaviour theory) and the TPB.

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References

- Ajzen, I., & Fishbein, M. (1973). Attitudinal and normative variables as predictors of specific behavior. *Journal of Personality and Social Psychology*, 27(1), 41-57.
- Ajzen, I. (1985). *From intentions to actions: A theory of planned behavior*. In J. Kuhl & J. Beckman (Eds.), *Action-control: From cognition to behavior* (pp. 11–39). Heidelberg: Springer.
- Ajzen, I. (1991). Theory of planned behavior. *Organizational Behavior and Human Decisions Process*, 50(2), 179-211.
- Ajzen, I. (2005). Attitudes, personality, and behavior. McGraw-Hill Education (UK).
- Ajzen, I. (2011). The theory of planned behaviour: Reactions and reflections. *Psychology & Health*, 26, 1113–1127. doi:10.1080/08870446.2011.613995
- Ajzen, I. (2015). The theory of planned behaviour is alive and well, and not ready to retire: a commentary on Sniehotta, Presseau, and Araújo-Soares. *Health Psychology Review*. 9(2), 131-137. doi: 10.1080/17437199.2014.88347.
- Armitage, C. J., & Conner, M. (2001). Efficacy of the theory of planned behavior: A meta-analytic review. *British Journal of Social Psychology*, 40, 471–499.
- Bandura, A. (1977). Self-efficacy: Toward a unifying theory of behavioral change. *Psychological Review*, 84(2), 191-215.
- Boston University School of Public Health. (2016). *The theory of planned behavior*. Retrieved October 1, 2017, from [http://sphweb.bumc.bu.edu/otlt/MPH-Modules/SB/SB721-Modules/SB721 Models3.html#limitationsofthetheoryofplannedbehavior](http://sphweb.bumc.bu.edu/otlt/MPH-Modules/SB/SB721-Modules/SB721%20Models3.html#limitationsofthetheoryofplannedbehavior)
- Becker, S. G. (1965). A theory of the allocation time. *The Economic Journal*, 75(299), 493-517.
- Conner, M., Gaston, G., Sheeran, P., & Germain, M. (2013). Some feelings are more important: Cognitive attitudes, affective attitudes, anticipated affect, and blood donation. *Health Psychology*, 32, 264–272. doi:10.1037/a0028500
- Davidson, P., & J. Wiklund. (2001). Levels of analysis in entrepreneurship research: Current research practice and suggestions for the future. *Entrepreneurship Theory and Practice*, 25(4), 81-99.
- Douglas, E.J. & Shepherd, D.A. (2002). Self-employment as a Career Choice: Attitudes, Entrepreneurial Intentions, and Utility Maximization. *Entrepreneurial Theory and Practice*, 26(3), 81-90.
- Eisenhauer, J. G. (1995). The Entrepreneurial Decision: Economic Theory and Empirical Evidence. *Entrepreneurship Theory and Practice*, 19(4), 67-79.
<https://doi.org/10.1177/104225879501900405>
- Fishbein, M. and Ajzen, I. (1975). *Belief, attitude, intention and behavior: An introduction to theory and research*. Addison-Wesley, Reading, MA.
- Fishbein, M. and Ajzen, I. (1977) Attitude-behavior relations: A theoretical analysis and review of empirical research. *Psychological bulletin*, 84(5), 888.
- Gartner, W. B. (1989). Who is an entrepreneur?" Is the wrong question. *Entrepreneurship: Theory and Practice*, 12, 47–67.
- Global Entrepreneurship Monitor Report (2017). Global Reports 2018. Retrieved from : <https://www.gemconsortium.org/report/gem-2017-2018-global-report>
- Gorgievski, M. J., Stephan, U., Laguna, M., & Moriano, J. A. (2018). Predicting Entrepreneurial Career Intentions: Values and the Theory of Planned Behavior. *Journal of Career Assessment*, 26(3), 457–475. <https://doi.org/10.1177/1069072717714541>.
- Holland, D. V., & Garrett, R. (2015). Entrepreneurs' start-up versus persistence decisions: A critical evaluation of expectancy and value. *International Small Business Journal*, 33(2), 194–215.

- Kahneman D, & Tversky, A. (1979). Prospect Theory: An Analysis of Decision under Risk. *Econometrica*, 47, 263–291.
- Kerr, W. R., Ramana, N. & Matthew, R.-K. (2014). Entrepreneurship as Experimentation. *Journal of Economic Perspectives*, 28(3), 25-48.
- Kirby, D. A. (2006). “Creating entrepreneurial universities in the UK: applying entrepreneurship theory to practice”. *Journal of Technology Transfer*, 31(5), 599-603.
- Kor, K. & Mullan, B.A. (2011). Sleep hygiene behaviours: An application of the theory of planned behaviour and the investigator of perceived autonomy support, past behaviour and response inhibition. *Psychology and Health*, 26, 1208–1224
- Knight Frank, H. (1921). Risk, uncertainty, and profit. New York: Augustus Kelly. Google Scholar.
- Krueger, N., Reilly, M. & Carsrud, A. (2000). Competing models of entrepreneurial Intentions. *Journal of Business Venturing*, 15, 411-432.
- Leff, N. (1979). Entrepreneurship and economic development: the problem revisited. *Journal of Economic Literature*, 17(1), 46-64.
- Littunen, H. (2000). Entrepreneurship and the Characteristics of the Entrepreneurial Personality. *International Journal of Entrepreneurial Behavior & Research*, 16(6), 295-309.
- Martin, J. and Fellenz, M. (2010). *Organization Behaviour & Management*. UK: South-Western Cenage Learning.
- Mazdan, A.A. (2015). Involvement of graduates in the field of entrepreneurship in Kuala Lumpur, Malaysia. *International Journal of Liberal Arts and Social Science*. 3(9). 46-53.
- Mazdan, A.A. & Muhammad Jazlan, A.K. (2014). Personality Dimensions Towards Entrepreneurship Enculturation Among Graduates in Malaysia. *International Journal of Arts and Commerce*. 3(6). 85-93.
- Marques, C. S., Ferreira, J. J., Gomes, D. N., & Rodrigues, R. G. (2012). Entrepreneurship education: How psychological, demographic and behavioural factors predict the entrepreneurial intention. *Education and Training*, 54(8/9), 657- 672.
- Meyer, R.D., Dalal, R.S., José, I.J., Hermida, R., Chen, T.R., Vega, R.P., Brooks, C.K., & Khare, V.P. (2014). Measuring job-related situational strength and assessing its interactive effects with personality on voluntary work behavior. *Journal of Management*, 40, 1010-1041.
- Neumann, J.V. and Morgenstern, O. (1944) Theory of Games and Economic Behavior. Princeton University Press, Princeton.
- Noorkartina, M., Lim, H.E., Norhafezah Y., Mustafa, K. & Hussin, A. (2014). Estimating the choice of entrepreneurship as a career: the case of Universiti Utara Malaysia. *International Journal of Business and Society*, 15 (1), 65-80.
- Ozaralli, N. & Rivenburgh, N.K. (2016) Entrepreneurial Intention: Antecedents to Entrepreneurial Behavior in the U.S.A. and Turkey. *Journal of Global Entrepreneurship Research*, 6, 1-32.
- Parker, S.C. (2018). *The Economics of Self-employment and Entrepreneurship*. Cambridge: Cambridge University Press
- Pfeifer, S., Sarlija, N. & Zekic’ Sušac, M. (2016). Shaping the Entrepreneurial Mindset: Entrepreneurial Intentions of Business Students in Croatia. *Journal of Small Business Management*. 54(1), 102–117. DOI: 10.1111/jsbm.12133
- Piperopoulos, P. & Dimov, D. (2015). Burst bubbles or build steam? Entrepreneurship education, entrepreneurial self-efficacy, and entrepreneurial intentions. *Journal of Small Business Management*, 53(4), 970 - 985. <https://doi.org/10.1111/jsbm.12116>
- Pindyck, S. R., & Rubinfeld, D. L. (2013). Microeconomics (8th ed.). United States: Pearson.

- Rabin M. Risk (2000). Aversion and expected-utility theory: A calibration theorem. *Econometrica*, 68(5), 1281–1292.
- Rauch A., Rijsdijk S. A. (2013). The effects of general and specific human capital on long-term growth and failure of newly founded businesses. *Entrepreneurship Theory and Practice*, 37, 923–941. doi:10.1111/j.1540-6520.2011.00487.x
- Reyna, V.F. & Farley, F. (2006). Risk and rationality in adolescent decision making: Implications for theory, practice, and public policy. *Psychological Science in the Public Interest*, 7, 1–44.
- Schlaegel C., & Koenig, M. (2014). Determinants of entrepreneurial intent: A meta-analytic test and integration of competing models. *Entrepreneurship Theory and Practice*, 38, 291–332. doi:10.1111/etap.12087
- Stefanovic, I., Prokic, S., & Ranković, L. (2010). Motivational and success factors of entrepreneurs: the evidence from a developing country. *Zbornik radova Ekonomskog fakulteta Rijeka*, 28 (2), 251-269
- Stull, K.E., L'abbé, E.N., & Ousley, S.D. (2014). Using multivariate adaptive regression splines to estimate subadult age from diaphyseal dimensions. *American journal of physical anthropology*, 154(3), 376-86.
- Sihombing, S.O. (2011). *What is really matter to be an entrepreneur? An Examination of the Theory of Trying*. Proceeding of International Seminar Becoming the key Player in New Globalism. Makassar: University of Hasanuddin.
- Shane, S., & Venkataraman, S. (2003). Guest editor's introduction to the special issue on technology entrepreneurship. *Research Policy*, 32 (2), 181-184.
- Sniehotta, F. F., Presseau, J. & Araújo-Soares, V. (2014). Time to retire the theory of planned behaviour. *Health Psychology Review*, 8(1), 1-7. DOI:10.1080/17437199.2013.869710
- Suartha, N., & Suprati, N.W.S. (2016). Entrepreneurship for Students: The Relationship between Individual Entrepreneurial Orientation and Entrepreneurial Intention. *European Journal of Business and Management*, 8(11), 45-52.
- Zellweger, T., Sieger, P. & Halter, F. 2010). Should I stay or should I go? Career choice intentions of students with family business background, *Journal of Business*, 26(5), 521-536