Pathways to Entrepreneurship Across the Life Course: An Innovative Model

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Objectives: This paper breaks new ground by drawing on a mass national and longitudinal data set to model how entrepreneurship emerges from the interaction of various factors across the life course and how this process becomes subject to stability and change. This approach is original in entrepreneurship research. Our specific purpose is to test a theoretically derived model of relationships over time between early stage resource acquisition, the influence of a number of 'displacement' factors and the development of entrepreneurial aspirations at a pre-enterprise stage, and later entrepreneurial behaviour/success. It also demonstrates the value of modelling longitudinal datasets.

Prior Work: Surprisingly little is known about enterprise across the life course. Such a life course perspective has won significant popularity in the sociological literature but it has not been applied to the study of small enterprise. Whilst a considerable body of previous research has examined the entrepreneurial intentions of representative samples of individuals, there has been virtually no analysis of the extent to which those intentions translate into actual business start-up or how they inter-relate in complex patterns with other life course patterns. Such an investigation requires analysis of an appropriate longitudinal data source, but the current research is limited to analysis of cross-sectional data.

Approach: This paper models longitudinal data from the British Household Panel Survey, covering the period 1991 to 2004. Structural Equation modelling (SEM) is used to test causal relationships and moderating influences. The model proposes three central domains of resource acquisition (i.e. human, social and financial capital) and two important displacement factors (i.e. pre-enterprise labour market returns and household resources) that influence entrepreneurial behaviour and success. Variables included in the hypothesized structural model were time-lagged to better represent a causal sequence.

Results: We found that financial resources have a direct and significant effect on chances of start-up and success, but for human and social capital these relationships are largely indirect. People with high stocks of human and social capital are more likely to have a positive labour market status and it is these positive returns from pre-enterprise experience that increase the chances of both starting a business and being successful in that business. We also found that constrained household circumstances may act as a tipping point into entrepreneurship but those same resources may also constrain business performance. Whilst individuals with stated entrepreneurial intentions are more likely to commit to a venture, entrepreneurial intention does not guarantee success. Gender differences are clearly evident in explaining the relative importance of the factors tested in the model and their causal relationships.

Implications: This research is very useful in explaining triggers for entrance into and success in small enterprise and in embedding understanding of enterprise development in the context of developing individual and family lives.

Value: This research is one of the very few in the area that utilises longitudinal analysis employing data from the British Household Panel Survey. The power of longitudinal analysis and the life course perspectives as a framework for studying the subject of entrepreneurship itself adds value and is key aspect of the novelty of this research.

Key words: Entrepreneurship, Nascent entrepreneur, Social capital, Human capital, Finance, Gender

Pathways to Entrepreneurship Across the Life Course: An Innovative Model

1.0 Introduction

The decision to commit to a new enterprise is not a single act but a process that takes time to unfold (Mazzarol et al., 1999). Months or years can pass between an initial statement of entrepreneurial intent and commitment to start a venture. In the intervening time, the individual and social context is constantly changing and the final decision is likely to be influenced by a range of factors including risk, work experience, state of the labour market, the family and social environment and cultural norms (Storey, 1994). However, research on business start-up has tended to focus on the attributes and resources of entrepreneurs at a fixed point in time. For example, personality characteristics such as propensity for risk (Brindley, 2005, Shepherd and Douglas, 2002, Raijman, 2001) and human and social capital resources (Davidsson and Honig, 2003; Lerner et al, 1997) are factored into studies to measure their significance in predicting start-up intentions and behaviour and business performance, but without reference to the individual's broader life context. A mass of studies also focus on graduate cohorts (for example, Van Auken et al., 2006, Shepherd and Douglas, 2002, Nabi et al., 2007, Hmieleski and Corbett, 2006, Wilson et al., 2007, Segal et al., 2005) and are unable to inform us about how early intentions relating to entrepreneurship develop over the life course or, indeed, how these processes vary for people with different levels of human capital and other resources. Given the argument that intention is an evolutionary and perception-based phenomenon responding to environmental cues (Krueger et al., 2000, Shook et al., 2003), rather than a fixed characteristic, longitudinal studies are required to model the individual and environmental complexities that not only contribute to the development of intention, but also create a 'tip over' into entrepreneurial action. We also need to know whether factors that motivate business start-up impede or enable success in entrepreneurship.

In this research we use longitudinal data and the life course perspective to model factors that influence entrepreneurial behaviour and success over time. The life course perspective is popular in the sociological literature but neglected in entrepreneurship research. It has developed in response to the call for more holistic approaches that model individual actions in the context of other social factors (Heinz, 2002). In career research, the approach has been used to model work-biographies and employment contexts over time (Heckhausen and Shulz, 1999), knowledge that could not be created through cross-sectional analyses (Vondracek and Hartung, 2002).

Employing longitudinal data from the British Household Panel Survey (1991-2005) and structural equation modelling we develop a model of causal relationships and moderating or mediating influences on movement into entrepreneurship and financial returns on entrepreneurship. This approach is original in entrepreneurship research and our study is presented as exploratory. We have developed and tested an initial, theoretically derived model of relationships between early stage resource acquisition, displacement factors (labour market returns and household resources) at an intermediate period and later entrepreneurial behaviour and performance. We also test how entrepreneurial intentions at pre-enterprise stage relate to entrepreneurial behaviour and success at a later time. The findings significantly advance our understanding of how entrepreneurship aspirations, behaviour and success emerge in relation to other life course processes. We also demonstrate the value of modelling longitudinal datasets.

2.0 The Life Course Perspective

During the lifetime of an individual, it is argued that there are a number of 'transition points'. At these disjunctures in the life course the prevailing social structures, and an individual's perception of those structures, are likely to influence actions (Hienz, 2002). Individual agency is not just a rational act in response to existing opportunities, but decisions are taken depending on the influence and perceptions of prevailing social, economic and environmental factors (Weick, 1995). As such, work-biographies and the decision to change employment mode, such as into self-employment, must recognize how resources built up over time, or specific context issues, might influence the decision process (Heckhausen and Shulz, 1999). In essence, 'social relationships, norms and role expectations, and, most importantly, opportunity structures, create a set of action frames—opportunities and constraints—that the individual has to take into account' (Heinz, 2002, p226). In this way, life course perspectives go beyond the examination of a particular set of criteria that might be prevalent at one period in a person's life (Vondracek and Hartung, 2002). Sociologists researching from a life course perspective are particularly

interested in modelling the interlocking and variegated nature of individual and social interactions over time (Hans and Moen, 1999). In particular, they attempt to show how individual's lives are linked between domains of action, such as family and work (Moen and Sweet, 2002). Thus, life course research 'typically focuses on the interplay between situations of biography: how the particularities of one's social location give rise to modes of adaptation' (Shanahan and Porfeli, 2002, p339).

From the life course perspective, entrepreneurial intention, action and performance are embedded and shaped by the particular time and place in which they occur. Entrepreneurship is ultimately about action, not an intention, and decisions to act are taken with cognizance of social and personal consequences (Brandstäter and Lerner, 1999). Social, economic and cultural issues are also likely to impact on entrepreneurship, as the changing socio-economic environment impacts on career paths and on the support available in the environment necessary for entrepreneurship to flourish (Morrison, 2000). Research from this perspective requires longitudinal approaches that examine the 'person-in-the environment' (Vondracek and Porfeli, 2002). The purpose of life course research is to identify potential pathways through the life course, to build and test models that link those pathways to social structures that influence life outcomes, and to emphasize the temporal ordering and inter-relationships between overlapping social worlds (Kuh *et al*., 2003). Thus, life course perspectives are particularly well suited to considering the unfolding nature of entrepreneurial lives.

3.0 Entrepreneurial Intentions and Action

Previous research on entrepreneurial intentions is limited in the nature of its scope and methods. The primary contribution is a range of studies that identify particular individual, social and environmental factors that influence intention to enter into an entrepreneurial venture. Given these factors, and drawing on organizational and career research, it is possible to consider a range of factors that might influence, not only stated intentions, but entrepreneurial actions in order to build a model that can be tested with suitable data. Therefore, in this section, indicative previous studies are reviewed in order to build our exploratory model of the entrepreneurial life course. This is not intended to be a thorough review of the literature, but to highlight key areas of research that might be important for consideration from a life course perspective.

3.1 Human, Social and Financial Resources

Penrose's (1959) seminal text proposes a theory of organization where enterprises are considered to be an outcome of the application of both management and entrepreneurial resources. The latter are important for opportunity recognition, while the former are important for opportunity exploitation. This resource-based view of the firm (Barney, 1991) has created an interest in the types of resources that might be influential in supporting the development of entrepreneurial ventures. It is argued that those with more resources are better able to survive the initial stages of start-up (Brush and Chaganti, 1999) and resources are fundamental influences on perceptions and decisions (Weick, 1995, Choi and Shepherd, 2004). Indeed, the majority of research on small firm growth takes a resource-based view of knowledge, where those resources are applied to create and sustain ventures (Macpherson and Holt, 2007). Research attempts to identify and test those resources which are most relevant for firm creation and development.

The human capital of the entrepreneur is often the starting point for this type of research (Gartner *et al*., 1999). Previous endowments an entrepreneur brings to the venture will be dependent on the resources built up through education and experience (Gibb, 1996) and on personality, motivation and resourcefulness (for example, Chell and Allman, 2003, Smith and Miner, 1983, Shepherd and Douglas, 2002, Hmieleski and Corbett, 2006, Lee and Wong, 2004) which make a select number of individuals more suited to an entrepreneurial life course (Schumpeter, 1934). Studies have examined the effect of educational attainment (for example, Wiklund and Shepherd, 2003, Souitaris *et al*., 2007, Jack and Anderson, 1999) and previous organizational experience in terms of both technical and managerial skill sets (for example, Eisenhardt and Schoonhoven, 1990, Olson and Bokor, 1995, Sexton *et al*., 1997, Watson *et al*., 1998, Birley and Westhead, 1993). Consideration of human capital in this study includes both employment experience and educational attainment.

While individuals may set up entrepreneurial ventures on their own, and thus intention to action involves individual agency, in doing so they seek and use social networks for advice, guidance, support and inspiration (Brush, 1992). Local networks are said to be particularly important in the early stages of venture creation, since it is those closest to the entrepreneur that are likely to be called on for help (Storey, 1994). As well as previous employment networks, families and friends provide 'social capital' (Nahapiet and Ghoshal, 1998), and perhaps role models which can act as triggers or support mechanisms for the budding entrepreneur (for example, Lerner *et al*., 1997, Brindley, 2005, McClelland *et al*., 2005, Van Auken *et al*., 2006). The scope of social contacts will thus be an important factor in creating both opportunities and limitations in moving from intention to opportunities. Social networks provide 'cultural capital' in terms of access to wider resources, and they may also provide a set of cultural norms which either support or hinder entrepreneurial acts (Lerner *et al*., 1997, Greene, 1997). Social resources will thus also be dependent on social location or 'habitus' (Bourdieu, 1990). Therefore, social resources in this study include consideration of participation in networking activity, parental role models and also social class. These factors provide an indication of social resources on which the potential entrepreneur might draw when moving from intention to action.

As well as knowledge and relational resources, financial resource are shown in previous research to be influential in start-up decisions and in venture development (Churchill and Lewis, 1983). Almost all new businesses require investment (SBS, 2004) to purchase the goods and services to build the basic infrastructure of a new business and to provide working capital until turnover can cover business costs and personal drawings. For growth businesses, expenses may exceed income for long periods, generating a need for an appropriate pattern of finance sequencing (Mason and Harrison, 2003). Private finance, including personal savings and gifts from family and friends, is the most commonly used and, often, the primary source of finance at start-up (Fraser, 2004). As much personal finance is accrued in employment (Wynarczyk *et al.*, 1993), it is less likely to be available to those suffering labour market disadvantage (Marlow *et al.*, 2003). Of course, investment needs vary widely in relation to the type and growth rate of the enterprise. However, low capital resources also restrict the type and scale of enterprises that can be started (Marlow and Carter, 2004) and can result in survival self-employment (Rouse, 2004; MacDonald, 1996). Thus, both business start-up and performance are related to access to financial capital, particularly personal savings and family or household resources. Factors included in this study include personal savings and investment income and, as an indicator of family wealth, financial resources in childhood.

In summary, the literature informs us that human, social and financial capital are important resources at start-up. Consequently, elements of each of these are included in our exploratory model of entrepreneurship across the life course.

3.2 Labour Markets and Employment

We know relatively little about how status in the labour market might influence the decision to start an entrepreneurial venture. It has been argued that the labour market may effectively 'push' people into self-employment by providing too few employment opportunities on a macro level or within particular occupations (Stanworth and Stanworth, 1997, MacDonald and Coffield, 1991). However, we know relatively little of how factors such as job satisfaction, financial returns on labour and employment level impact on, or may even trigger, start-up within the wider labour market. Yet, career theory advocates a contextual understanding of work transitions (Vondracek and Hartung, 2002; Heinz, 2002). This goes beyond explaining career paths in terms of economics to incorporate other aspects of labour market opportunities and biographies in our understanding of career behaviour (Carter *et al*, 2003; Douglas and Shepherd, 1999; Willson, 2003). This contextual understanding of movements into entrepreneurship is currently lacking. The life course approach provides a rich opportunity to fill this gap in knowledge and, consequently, we include variables relating to job satisfaction, level of employment and labour income in our model of entrepreneurship across the life course.

3.3 Household and Childcare

The small business literature has been strongly criticised for constructing the business owner-manager as an heroic, lone and masculine figure individualised from his family or household (Carr, 2000). There is a growing body of research on female entrepreneurs, but this is largely

set against the norm of a masculine model of entrepreneurship (Marlow, 2002) and only rarely considers how business life relates to family life. The structure of institutions that frame normative business owner-management—such as business plans—also render 'personal' issues such as childcare invisible (Rouse and Kitching, 2006). Yet, the notion that work and family are separate spheres is problematic (Finch and Mason, 1993) and there is now a burgeoning literature on the relationship between 'work and life' for employees (Crompton, 2006). Wheelock *et al.* (2003) question, theoretically and empirically, the notion of entrepreneurship as individual effort, and call for research to consider the degree and nature of permeability between the boundaries of businesses and households and for studies to be embedded in the micro-business household. Few researchers have responded to Wheelock *et al.*'s call, making this a fertile area for new research. An exception is the work of Ram *et al.* (2001) whose research on ethnic minority businesses (EMBs) points attention to how the household lifecycle will impinge on the organization of the micro-business. They conclude that the nature of the inter-relations between these spheres, the permeability of their boundaries and flow of resources between them will vary according to the social and cultural context. It will also depend on the stage that both the business and household have reached in their own life courses and to the household subject leading on the business.

Due largely to policy interest, one strand of inter-relation between business owner and household—the conduct of childcare—has been the subject of in-depth research in recent years. Both national (Anthias and Mehti, 2003; Baines *et al*., 2003; Bell and La Valle, 2003; Bradley and Boles, 2003; Marlow *et al.*, 2003) and international (DeMartino and Barbato, 2003; Bock, 2004) studies report that many women start businesses in the belief that trading can be 'flexibly' combined with family responsibilities. A small proportion of men also enter small business for similar reasons (DeMartino and Barbato, 2003; Bell and La Valle, 2003). However, these hopes are not always realised because access to formal childcare is costly or unavailable during the long non-standard hours often worked by business owners, access to informal childcare support is unreliable or unavailable (mothers cannot rely on fathers to provide childcare in the way that many male business owners rely on mothers) and caring for children at the same time as trading can be unsafe (Rouse and Kitching, 2006; Barclays Bank, 2004). Self-employed mothers are *more* likely to report unmet childcare needs than employee mothers (Bell and La Valle, 2003) and time spent on childcare is positively associated with shorter durations of self-employment by both females and males (Williams, 2004). We can see that there are clear links between the household and business with respect to childcare, but many questions remain. In particular, we currently have no quantitative assessment of the motivator that having children and childcare responsibilities has on start-up and how it impacts on business performance. We include factors relating to childcare and household situation (in terms of income, work, material circumstances and housing conditions) in our model of entrepreneurship across the life course.

4.0 Summary and Research Proposition

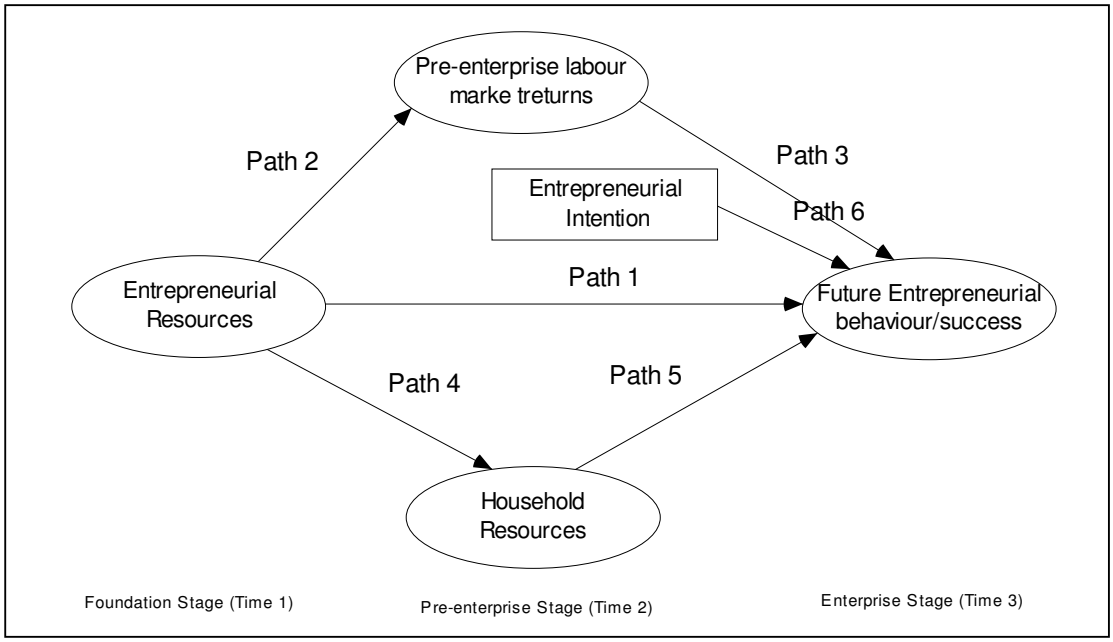
We offer a model that analyses the effect of resources and displacement factors (relating to situation in the labour market and household and childcare issues) on business start-up and performance. Resources are modelled at a 'foundation stage' (Time 1) and displacement factors more immediately prior to start-up, at the pre-enterprise stage (Time 2). The purpose of this study is to assess the effects of resources at the foundation stage and displacement factors at pre-enterprise stage on future entrepreneurial behaviour/success at the enterprise stage (Time 3), simultaneously, in a causal model that incorporates longitudinal data. As such, this study builds upon previous studies in that it uses empirical evidence to inform the development of a model of the entrepreneurial life course, but it adds value by examining specifically how entrepreneurial resources, household and employment factors moderate and mediate entrepreneurial decisions and success. The longitudinal aspect of this research is particularly important since an individual's responses to social and environmental cues are the antecedents of intentions (Krueger *et al*., 2000) and perceptions of context will influence action (Weick, 1995). Three distinct and complimentary resource measures—human capital, social capital and financial capital — are considered together to measure the entrepreneurial resources at the foundation stage. Our general proposition is that the chances of an individual becoming an entrepreneur increases with the amount of resources one possesses (Penrose; 1959; Gartner *et al*, 1991; Brush and Chagnati, 1999), but that entrepreneurial action and success will also depend on a catalogue of events that occur over the life course. Therefore, moderating and

mediating influences need to be assessed to fully explain entrepreneurial choice. In our model, based on previous empirical research, we have incorporated household and labour market measures to examine how life course factors mediate or moderate both entrepreneurial action and subsequent entrepreneurial success.

4.1 Research Framework

In this study we present two related models. In Model 1, we analyse whether resources acquired by the nascent entrepreneurs at an early stage in their career (Time 1) relate to future entrepreneurial behaviour, captured by transition into self-employment[i], at Time 3. In the second model (Model 2), we consider whether resources at Time 1 relate to the success of entrepreneurship (captured in terms of business profit and self-employment income) at Time 3. Furthermore, we test whether the relationship between the independent (resources) and dependent (behaviour/success) variables is mediated by variables measured between the stages (Time 2), namely pre-enterprise labour market returns and pre-enterprise household resources. A number of indirect paths were added to the structural model to study these mediating effects. To control for any moderation effects relating to the entrepreneur's gender, age and length of business tenure, these variables are included as control variables in the final model. The structural model was modified to test the proposition that 'entrepreneurship is an intentional activity' (Henley, 2005). The suggested path model is depicted in Figure 1.

Figure 1: Structural Model: direct and indirect relationships between early stage resources and future entrepreneurial behaviour



5.0 Research design – The British Household Panel Survey (BHPS)

The data used in this paper are taken from annual waves 1 to 14 of the British Household Panel Survey (BHPS), covering the period 1991 to 2004. The BHPS employs stratified random cluster sampling to develop its initial sample to be representative of British households. In its first year (wave 1) a total of 10,264 were interviewed, covering 5,505 households. Each year, the original sample and any new members of the original sample households are questioned via a telephone or postal questionnaire. The questionnaire includes a household section and an individual section covering a wide range of subjects including basic demographics, household composition and circumstances, employment status and recent employment history, job characteristics if employed and income from all sources. Sample attrition rates in the BHPS are generally low (BHPS, 2006). (For more information on the BHPS, see http://www.iser.essex.ac.uk/bhps).

5.1 Study Sample

The sample analysed in this analysis has been selected from the original BHPS sample on the basis of five criterion. First, although the original core BHPS sample has been boosted at various

stages, this research excludes these booster samples to enable complete data across each wave for all respondents. Second, to avoid a large amount of missing and incomplete data, proxy interviews and telephone interviews are excluded. This leaves a sample of 4,415 cases as the starting sample. Third, only individuals of working age - aged between 18 and 65 in wave 1 data but not retired by 2004 (at wave 14) – are included. This reduces the sample size by 30%, leaving 3,082 cases for analysis. Fourth, individuals who have no employment experience (economically inactive) during the full period considered under Time 2 are excluded in the analysis. As a result, the sample size is further reduced to 2,782. This sample was used for analysing Model 1, which tests factors influencing entrance into entrepreneurship. In Model 2, which explores how early stage resources impact on entrepreneurial success, we restrict our sample to those individuals with self-employment experience during waves 11-14 (Time 3). This sample consists of 615 individuals, 13.9% of the original sample.

5.2 Data Analysis

This research uses structural equation modelling (SEM) employing the moment structures software AMOS version 6.0 (Arbuckle, 2005). SEM has a number of advantages over multiple regression techniques (Anderson and Gerbing, 1988; Shah and Goldstein, 2006): it permits the inclusion of latent error terms to represent any effects of omitted variables and from measurement errors; it can simultaneously test all relationships within the model; it can test the goodness of fit for different nested models; and it allows improvement to the model fit by imposing restrictions on paths that are theoretically and operationally irrelevant. SEM techniques are particularly suitable for the study of multiple dependence relationships such as those investigated in this research. Handling of missing data is a particular strength with Amos 6.0 software. Unlike other software that performs multivariate analysis, AMOS employs the Maximum Likelihood approach to estimate models with random and purposeful missing data giving unbiased parameter estimates and standard errors.

Data analysis follows the two-step approach suggested by Anderson and Gerbing (1988) where estimation of a confirmatory measurement model precedes the simultaneous estimation of the measurement and structural sub-models. The measurement models were evaluated to ensure that the items used to measure the constructs were adequate, valid and reliable. Following the verification of the measurement model, a structural equation model was run to test the relationships between the constructs. This approach enables identification of the source of poor model fit and, so, enables utilisation of the most appropriate model for multivariate assessment (Kline, 1998).

Full Information Maximum Likelihood (FIML) was established to deal with the missing data. This method was preferred over the other missing data handling techniques (such as listwise deletion or mean value replacement) as there is a relatively high number of missing values for some of the variables in the model and the FIML estimates are preferred because the results are less biased and more reliable (Cohen *et al*., 1990). The normality of the observed variables was tested using skewness and kurtosis figures (Bollen, 1989). The variables that violated the assumptions of normality were adjusted by log transformation and by introducing alternative scales (groups etc). To ensure multivariate normality of the data, the data was further investigated using AMOS. To avoid any influence from non–normal variables (as two variables did not fully satisfy the normality assumptions as to AMOS results) the structural model was checked using asymptotically distribution free methods and similar results to FMTL were found.

5.3 Measures

The literature guided our choice of issues relevant to each latent construct. As this research utilises data from a secondary source, it is not always possible to utilise ideal measures and scales for structural data analysis. Also, as there were many indicators to measure model constructs, we have decided to include variables most frequently cited in the literature, although our model is not exhaustive. As a result, before performing the structural equation modelling, exploratory factor analysis (where applicable) and confirmatory factor analysis were performed to identify an appropriate measurement model with unidimentional measures that are valid and reliable.

We used some single item measures (control variables, entrepreneurial intention, entrepreneurial behaviour) and a number of reflective multi-item measures (human capital,

social capital, financial capital, pre-enterprise labour market returns, pre-enterprise household resources and entrepreneurial success). The three resource variables (human capital, social capital and financial capital) cover fairly distinct facets of the construct of the overall 'Resources' variable. The two models under investigation have similar independent variables but the dependent variable, *entrepreneurial behaviour* (in Model 1) is replaced in Model 2 with *entrepreneurial success.* A complete list of the items used in the analysis is given in the Appendix. In general, the variables are structured such that a higher score indicates higher amounts of human, social and financial capital, a better labour market position and more household conditions thought to be more favourable to running a business (i.e. higher income and housing conditions and few or no childcare responsibilities).

5.4 Model Design

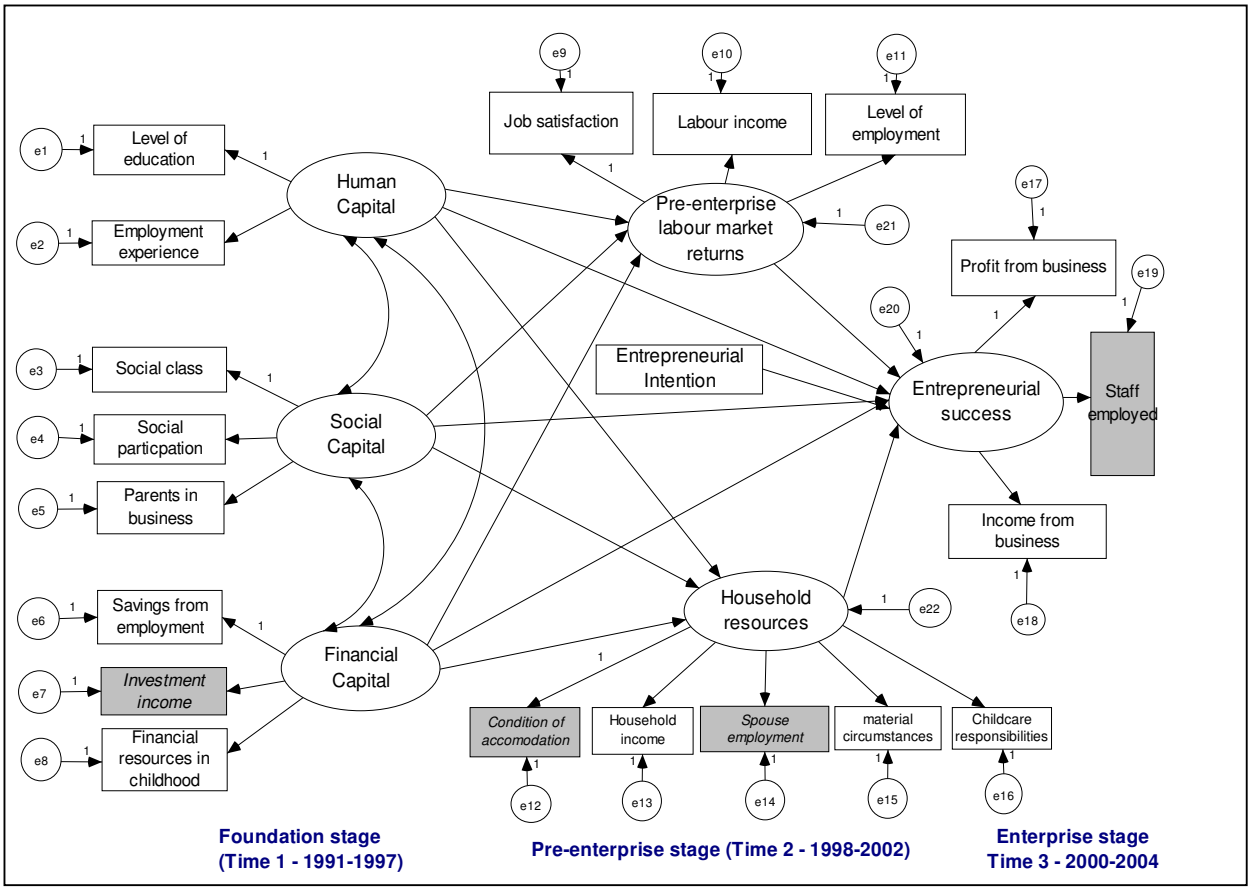
Using AMOS 6 software, the study variables were modelled (Model 1[1] and Model 2[2]) to indicate both direct and indirect relationships between exogenous and endogenous variables of interest. All observed variables are indicated by rectangles and unobserved variables (latent constructs and error terms) by ellipses. The error terms represent measurement errors or the effects of variables not measured in the study. The path diagram in Figure 2 represents a life course model, with variables related to three time frames included in the analysis.

Resources are measured at the first stage of the life course model (Foundation stage - Time1). The data utilised in this section of the model was taken from BHPS wave 1 to wave 7. The measures were calculated by summing the values across years (where applicable) and dividing the resulting figure by the number of years for which answers were provided to correct for missing data. At the second stage (Pre-enterprise stage - Time 2) of the life course model (BHPS wave 8 to wave 12), the condition of current employment and household factors are measured. In the enterprise stage (Time 3), entrance into an entrepreneurial career and the success of entrepreneurship related to business profits and personal income are measured (wave 10 to wave 14). The data from two years prior to declaring themselves as in business (any wave between wave 10 and 14) was used to measure the variables in Time 2. Entrepreneurial intention was measured at Time 2.

Figure 2 shows Model 2, with entrepreneurial success as the dependent variable. Shaded variables were excluded from the SEM model after CFA. To visualise Model 1, the latent variable 'Entrepreneurial Success' in Model 2 needs to be replaced with the observed variable 'Entrepreneurial behaviour'. As Entrepreneurial Intention is a dichotomous variable, following recommendations from (Arbuckle, 2005) this variable is only used as an exogenous variable in our models.

[1] The observed variable 'entrepreneurial behaviour' is included as the model dependent variable
[2] The latent variable 'entrepreneurial success' is included as the model dependent variable

Figure 2: Exogenous and endogenous variables in the structural model (Model 2*).



* To visualise Model 1, replace the latent variable 'entrepreneurial success' with the observed variable 'entrepreneurial behaviour'.

6.0 Data Analysis and Results

Following the recommendations from Sommer *et al*. (2004), all the latent variables measured by reflective indicators (5 factors for Model 1 and 6 factors for Model 2) were subjected to CFA to assess the reliability and validity of measures. CFA was useful to purify the items for each latent construct (for more information on CFA results, please consult the authors).

After satisfactory results for the measurement model, the model parameters in the hypothesised structural models were estimated using FIML method (Bagozzi and Yi, 1988). Because of the mediation effects in the model, the SEM analysis followed two steps: a full model analysis and the mediation analysis (Baron and Kenny, 1986; Sobel, 1982; Shah and Goldstein, 2006).

6.1 The Full Model Analysis

The initial theoretical models contained three exogenous constructs (human capital, social capital and financial capital) and four endogenous constructs (intention, pre-enterprise labour market returns, household resources and entrepreneurial behaviour/success). As shown in Table 2, Model 1 has very good model fit statistics (χ^2 */d.f =1.97,* CFI=0.99, NFI = 0.98 TLI= 0.98, RMSEA=0.031) with 62.12% of entrepreneurial behaviour explained by the antecedent variables. Examination of the overall model fit indices in Model 2 indicated an acceptable model fit (χ^2 */d.f =2.47,* CFI=0.978, NFI = 0.98 TLI= 0.977, RMSEA=0.046) with 56.45% of the variance in entrepreneurial success explained by the structural equations defined in the model. However, upon studying the over-identifying restrictions, it was found that the proposed theoretical model (for Model 2) could be improved if a direct path from pre-enterprise household resources to pre-enterprise labour market returns be identified. A revised model (see Table 2) was thus tested using the same model fit indices. An improved χ^2 statistics (χ^2 = 187.77 with *d.f =85; p<0.05)* along with similar or improved goodness-of-fit indices (χ^2 */d.f*

=2.21, CFI=0.98, NFI = 0.98 TLI= 0.98, RMSEA=0.038) provided evidence to use the revised model as the best model for testing the proposed hypothesised relationships in this study. This decision was further supported by an improved explanation power (58.24%) and higher proportion of statistically significant path coefficients (p<0.01) in the revised model.

Table 2: Model fit measures

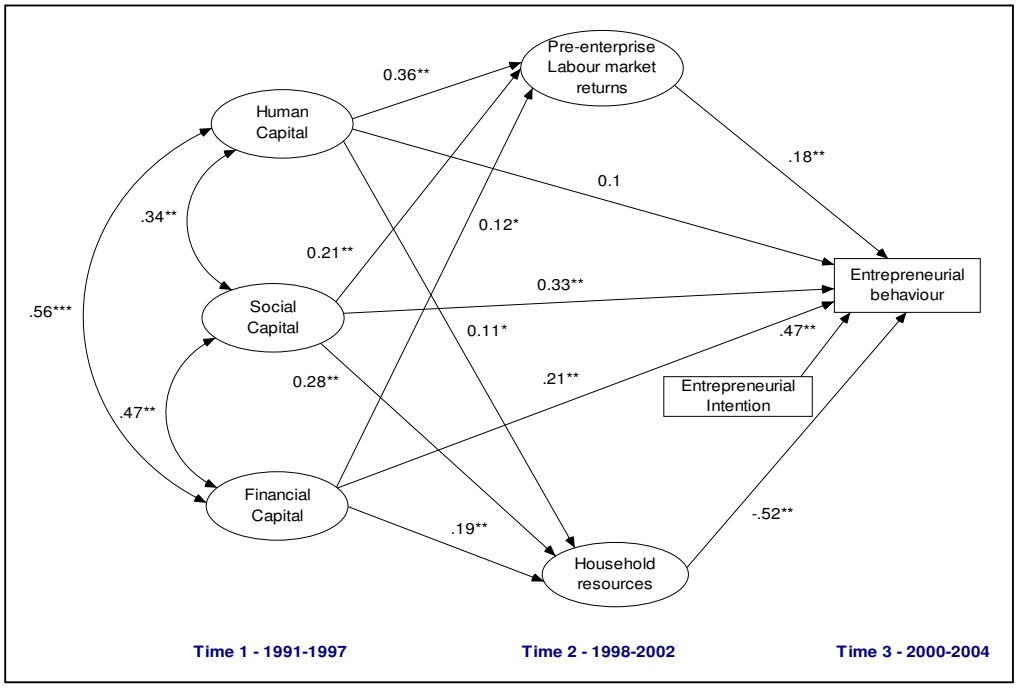
	χ^2	χ^2 /*d.f*	CFI	NFI	TLI	RMSEA	% variance
Model 1: Dependent variable - entrepreneurial behaviour							
Theoretical Model	146.32(74); *p<0.05*	1.97	0.99	0.98	0.98	0.031	62.12
Model 2: Dependent variable – success in entrepreneurship							
Theoretical model	212.76(86); *p<0.01*	*2.47*	0.978	0.98	0.977	0.046	56.45
Revised model	187.77(85); *p<0.05*	*2.21*	0.98	0.98	0.98	0.038	58.24

Figures 3 and 4 illustrate the strength of the relationships between the constructs, indicated by the standardised coefficients and their significance levels. All the statistically significant (p<0.05) direct and indirect effects are marked in the structural models. Following Cohen *et al.* (1990), absolute standardised path coefficients of <0.10 indicate 'small' effects, values around 0.30 a 'medium' effect and values > 0.50 'large' effects.

6.2 Model 1: Entrepreneurial Behaviour and Its Antecedents

As shown in Figure 3, the direct paths from social capital (β = 0.33, p<0.01) and financial capital (β = 0.21, p<0.01) to entrepreneurial behaviour were positive and statistically significant. The direct relationship between human capital (T1) (β = 0.10 p>0.05) and entrepreneurial behaviour, however, was not statistically significant at conventional levels of significance. All direct effects from resource variables to pre-enterprise labour market returns (β = 0.36, 0.21, 0.12) and household resources (β = 0.11, 0.28, 0.19) are positive and statistically significant at p<0.01 and p<0.05 levels respectively. There is a positive significant parameter estimate for the direct effect of labour market returns at T2 (β = 0.18, p<0.05) and a negative significant parameter estimate for the direct effect of household resources at T2 (β = -0.52, p<0.001) to entrepreneurial behaviour. The path from entrepreneurial intention to entrepreneurial behaviour is highly significant and positive (β = 0.47, p<0.001). Among the four paths linking the control variables and the entrepreneurial behaviour variables, the path between gender and entrepreneurial behaviour (β = 0.24, p<0.01) was found to be significant.

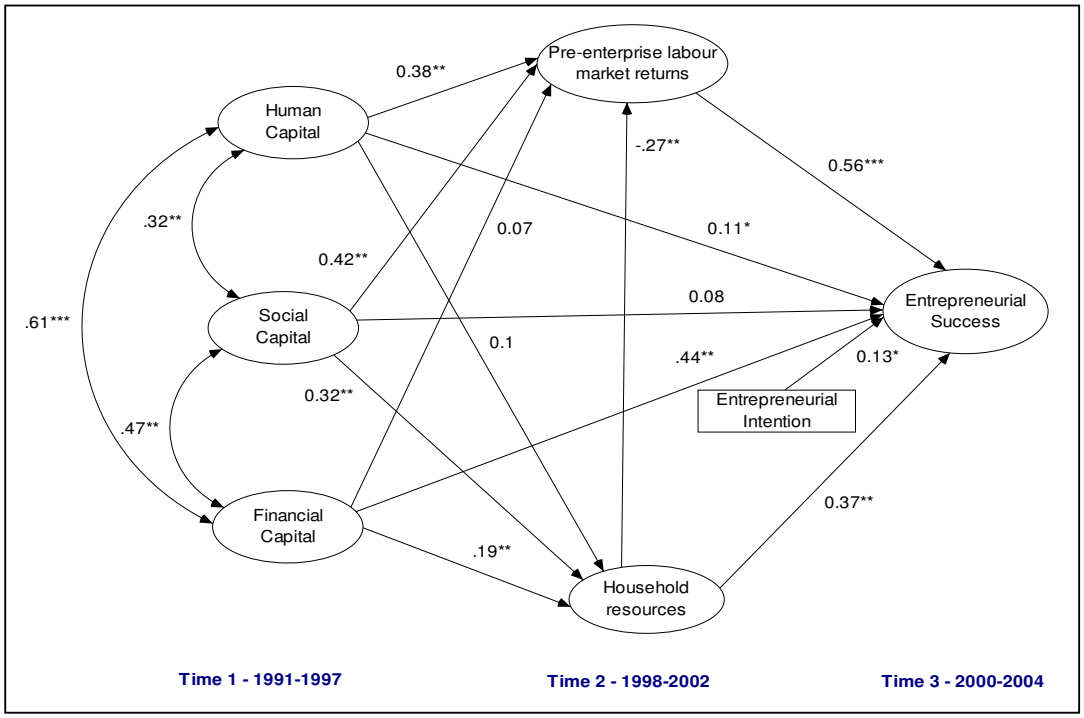
Figure 03: Model 1 – Direct and indirect paths



6.3 Model 2: Entrepreneurial Success and Its antecedents

As shown in Figure 4, the direct paths from human capital (β = 0.11, p<0.05) and financial capital (β = 0.44, p<0.001) to entrepreneurial success were positive and statistically significant. There is a positive but insignificant direct relationship between social capital (β = 0.08, p>0.05) and the success of entrepreneurship. Significant parameter estimates were found for the direct effects of human capital (β = 0.38, p<0.01) and social capital (β = 0.42, p<0.01) on pre-enterprise labour market returns and financial capital (β = 0.19, p<0.01) and social capital (β = 0.32, p<0.01) on household resources. Specifically, the paths leading to entrepreneurial success from current labour market returns (β = 0.56, p<0.001) and household situation (β = 0.37, p<0.001) were statistically significant, indicating that people experiencing 'positive' labour market and 'positive' household conditions have higher chances of being successful as future entrepreneurs. The additional path identified from household situation to current labour market returns has a negative significant association (β = -0.27, p<0.01). The direct effect of entrepreneurial intention to behaviour is positive but significant only at p=0.047 level. Similar to Model 1, the control link between gender and level of entrepreneurship (β = 0.32 p<0.01) was found to be significant.

Figure 4: Model 2- Direct and indirect paths



6.4 Mediation Analysis

Overall, the results in the full models indicate that, in addition to having direct effects, the three exogenous variables (human capital, social capital and financial capital) also have indirect effects on entrepreneurial behaviour/success. These results therefore suggest that the two endogenous variables, pre-enterprise labour market returns and pre-enterprise household resources, provide mediating effects on resource- entrepreneurial behaviour/success relationships.

According to Baron and Kenny(1986), for mediation to be established, there must be a significant relationship between the independent variable and the mediating variable, the mediating variable and the dependent variable, and the effect of the independent variable on the dependent variable should be diminished or negligible (depending on full mediation or partial mediation) by the mediating variable. In Model 1 (Figure 3), although the direct path from human capital to entrepreneurial behaviour was not statistically significant, the paths from human capital to labour market returns and the path from labour market returns to entrepreneurial behaviour was positive and significant. Thus, there is evidence of labour market returns acting as a mediator in the relationship between human capital and entrepreneurial behaviour.

In Figure 4, we find that human capital and social capital at T1 relate to labour market returns at T2, which in turn is related to entrepreneurial success at T3. In the presence of labour market returns variable in the model, the influence of social capital on entrepreneurial success was rendered insignificant at $p<0.05$ level, while that of human capital is only marginally significant ($p=0.0489$). Thus, there is evidence of labour market returns acting as a mediator in the relationship between human and social capital and entrepreneurial success.

Also found in Figure 4 is a significant association between social capital and household resources at T2 and the significant effect of household resources on entrepreneurial success. This, along with the non-significant direct relationship between SC and entrepreneurial success, indicates a mediation effect of household resources on the social capital-entrepreneurial success relationship.

Figures 3 and 4 indicate a strong direct relationship between financial capital and both entrepreneurial behaviour and success. Financial capital has a stronger direct effect on entrepreneurial success than on entrepreneurial behaviour. To further test the nature of this relationship, financial capital was included in the mediation analysis.

To further confirm the significant mediating role of the variables measured at T2, further analysis was conducted. Following Sobel (1982), Z-tests were performed. First to identify significant overall mediation effects and, second, to test for the significance of each mediator on the human and social capital variables. As shown in Table 3, significant mediating effects were found in the association between human capital and entrepreneurial behaviour and in the association between human capital and social capital and entrepreneurial success. The direct relationships between financial capital and entrepreneurial behaviour and success are not mediated.

Table 3: Total, direct and mediated effects of resources at T1 on entrepreneurial behaviour/success at T3

	Model 1			**Model 2**		
	Estimate	**Std. Error**	**Z scores**	**Estimate**	**Std. Error**	**Z scores**
Effects of HC on entrepreneurial behaviour/level						
Total effects	.38	.04	3.21**	.42	.06	4.58***
Direct effects	.10	.05	0.78	.11	.06	1.14
Mediated effects	.28	.04	2.74**	.31	.02	4.88***
Effects of SC on entrepreneurial behaviour/level						
Total effects	.39	.07	3.1**	.54	.04	5.21***
Direct effects	.33	.04	3.17**	.08	.06	0.36
Mediated effects	.06	.05	0.54	.46	.03	5.11***
Effects of FC on entrepreneurial behaviour/level						
Total effects	.30	.03	2.65**	.37	.03	4.23***
Direct effects	.21	.02	1.78*	.32	.06	3.17***
Mediated effects	.09	.05	0.67	.05	.04	0.56

***p<0.001
HC- Human Capital; SC- Social Capital; FC- Financial Capital

To test for the significance of each mediator on the human capital-entrepreneurial behaviour relationship and the human capital and social capital–entrepreneurial success relationships, further Z tests were performed, following Sobel(1988). As outlined in Table 4, pre-enterprise labour market returns measured at T2 is a significant mediator of the human capital–entrepreneurial behaviour relationship and human capital and social capital-entrepreneurial success relationships. Also, more favourable household conditions mediate the direct relationship between social capital and entrepreneurial success significantly

Table 4: Mediating effects of labour market returns (T2) and household situation (T2)

Mediator	Estimate	Standard Error	Z scores
Labour market returns (T2)			
HC → Entrepreneurial behaviour	.027	.009	2.12**
HC → Entrepreneurial success	.046	.011	3.31***
SC → Entrepreneurial success	.012	.006	1.64*
Household resources (T2)			
HC → Entrepreneurial success	.003	.017	0.62
SC → Entrepreneurial success	.023	.008	2.10**

*p<0.05; **p<0.01; ***p<0.001
HC- Human Capital; SC- Social Capital; FC- Financial Capital

7.0 Discussion

The models and analysis presented have revealed direct and indirect relationships between resources and entrepreneurial behaviour/success. The mediation analysis confirmed the presence of some particular mediation effects. Our most striking finding is that, over the life course, having greater financial capital is directly and significantly associated with both starting in business and making high returns on entrepreneurship. The relationship between financial capital and financial success in business is particularly strong. This confirms Fraser's (2004) finding about the importance of personal finance at start-up. It defies a policy trend of funding enterprise programmes focused on raising social and human capital while providing very little financial capital (Rouse and Jayawarna, 2006).

While previous theoretical and empirical research has suggested that resource antecedents such as human capital and social capital influence both entrepreneurial action and success, this research shows that these relationships are complex and largely mediated by status in the labour market and household resources. In terms of human capital, the direct relationship to entrepreneurial action is not significant and to success it is present but not at a higher level of significance. While it is not particularly surprising to find that the better educated, with greater labour market opportunities, may not necessarily have higher rates of start-up, the weak link between human capital and business success is unexpected. Social capital has a direct and significant effect on entrepreneurial behaviour but the relationship to success is not significant. This conflicts with the popular idea that people with good networks and networking skills are more able to succeed in business (Lerner et al, 1997; Jenssen and Greve 2002).

Overall, the weak relationships found between human and social capital and business success are surprising. A key benefit of our analysis is that it has allowed us to probe more deeply into the nature of the relationships between capital resources and early stage entrepreneurship. A key finding is that, while the relationship between financial capital and entrepreneurial behaviour and success are direct, the relationship between these outcomes and human and social capital resources are largely mediated by labour market returns and household resources. In general, when human and social capital is first utilised to succeed in the labour market, there is a greater likelihood of entrance into, and success in entrepreneurship. This adds weight to previous research which reports that work experience provides a resource incubator through which the entrepreneur can gestate potential business ideas and identify opportunities; previous labour market activity also influences the application of those ideas in order to sustain successful business operations.

Our research also indicates that the relationship between human and social capital and entrepreneurship is mediated by household conditions. Higher levels of human and social capital are both positively associated with better household conditions (where this means better income and housing and fewer childcare responsibilities) in our models of entrepreneurial behaviour and success. However, the relationship between household resources and entrepreneurial success is negative at a significant level. This suggests that having poor household conditions is more likely to precipitate business start-up than having good household conditions. Conversely, entrepreneurial success is more likely to occur from positive household resources. Thus, while constrained household conditions may motivate start-up, it constrains success. This reflects the disjuncture found in research on the relationship between

entrepreneurship and childcare, in which the desire to use the independence of entrepreneurship to juggle work and family responsibilities motivates start-up, but childcare responsibilities inhibit business performance (Rouse and Kitching, 2006).

The evidence we present of a positive relationship between having an entrepreneurial intention and starting-up during the study period is, perhaps unsurprising. More interesting is the weak relationship between entrepreneurial intention and returns on entrepreneurship. This may be interpreted in a number of ways. For example, some committed entrepreneurs may be motivated to pursue a particular lifestyle rather than financial returns. Alternatively, those with a strong drive to start-up may be prepared to act on a weak market opportunity. Either way, this finding suggests that raising entrepreneurial intentions, as part of an 'enterprise culture', may have mixed results, in terms of promoting a dynamic business stock.

Of the three control variables tested in the models, only gender was significant in explaining both entrepreneurial behaviour and success. This is line with the body of research that reveals the very different resource, labour market and household conditions occupied by male and female entrepreneurs (for example, Marlow and Patton, 2005).

Overall, we can make four conclusions. First, that financial resources have a direct and significant effect on chances of start-up and success, but for human and social capital this relationship is indirect and therefore complex. Second, that people with good returns from pre-enterprise labour market activity have higher chances of both starting a business and being successful in that business, and that it is people with high stocks of human and social capital who are more likely to have this positive labour market status. Third, that constrained household circumstances may act as a tipping point into entrepreneurship but those same resources may also constrain business performance. Having high human and social capital is related to having good household conditions. Fourth, that entrepreneurial intention is strongly related to start-up but its relationship to success is less significant. Fifth, that the level of entrepreneurial resources, and the way in which these resources are deployed to support venture creation and development, is significantly different for males and females.

7.0 Conclusion

We set out to develop an exploratory model of the life course events that stimulate potential entrepreneurs into entrepreneurial action and success. The research shows that, while human, social and financial capital resources are important antecedents of entrepreneurship, the possession of resources is not enough to explain entrepreneurial behaviour and success. We have shown how a life course perspective and modelling employing SEM can help to explain how entrepreneurship emerges within a broader context. In this regard, we have demonstrated that while financial capital is directly related to entrepreneurial success, human capital and social capital are mediated by life course events, such as pre-enterprise labour market activity and household situations. We have also shown that, while entrepreneurial intention increases the chances of start-up, it does not necessarily result in business success.

As an exploratory piece of work, this paper poses a range of questions on two levels. The first question relates to the value and potential of modelling entrepreneurial careers employing mass longitudinal datasets such as the BHPS. While working with secondary sources inevitably involves compromises because there is no option to collect ideal data, it also has significant advantages in providing free, 'in-time' and longitudinal data that is not subject to recall or attrition bias. We conclude that the potential to develop the exploratory analysis presented here, and other lines of enquiry related to entrepreneurial careers, are significant. The second question raised by our analysis relates to ways in which our model could be developed to offer even more powerful explanations of entrepreneurial behaviour and success. We are particularly keen to pursue the finding that gender is a powerful control variable by modelling the entrepreneurial processes separately for male and female respondents. We are also aware that the relationships we have found may be culturally specific and, so, encourage comparative analysis utilising the longitudinal datasets available in other countries.

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