ENTREPRENEURIAL ASPIRATIONS AND TRANSITIONS INTO SELF-EMPLOYMENT

CHRISTOPHER GEORGE DAWSON

Submitted to Swansea University in fulfilment of the requirements for the Degree of Doctor of Philosophy.

Swansea University
2010

SUMMARY

This thesis uses data from the Labour Force Survey (LFS), the British Household Panel Survey (BHPS) and a small scale survey on student entrepreneurship conducted by the School of Business and Economics at Swansea University, in assessing entrepreneurial intentions and transitions into self-employment.

Analysis of entrepreneurial motivations has largely been confined to 'push' versus 'pull' factors. Very few studies, if any, have analysed individual-specific factors associated with entrepreneurial motivations. In addressing this issue, the analysis documents the extent to which there is heterogeneity amongst the self-employed on the basis of the motivations that they report for choosing self-employment. Multivariate regression analysis is employed using a method to control for self-selection into self-employment. Background characteristics such as gender, educational attainment, housing tenure and region of residence are found to be important factors influencing entrepreneurial motives.

Relative to males, females are less likely to show entrepreneurial intent and subsequently participate in self-employment, however little is known about precisely why this is. Using decomposition analysis, the gap in entrepreneurial intent probabilities is examined across gender. Attitudes towards risk are found to be a major factor associated with the gap in average levels of entrepreneurial intentions between males and female students, accounting for very nearly half of the total gap.

Within Wales there seems to exist a widespread perception that the younger population views entrepreneurship less positively than their counterparts elsewhere in the UK. The analysis examines whether differences in entrepreneurial intention probabilities between Welsh-domiciled and non-Welsh domiciled students can be explained by a range of demographic factors, family characteristics and psychological traits. Family and other background influences are found to be important contributors to the non-Welsh and Welsh gap, while differences in risk attitudes appear to provide the largest single component of the intentions gap between the two groups.

Entrepreneurs may differ from non-entrepreneurs in terms of a range of personal characteristics, family and social background and personal resources. Cognitive or behavioural factors may also be important in determining who becomes an entrepreneur. Data from the BHPS indicates that unrealistic optimism is significantly and positively associated with the probability of being both self-employed and an aspiring entrepreneur. Furthermore, unrealistic optimism is found to be persistent and a factor affecting duration in self-employment.

DECLARATION

This work has not been previously accepted in substance for any degree and is not being concurrently submitted in candidature for any degree.

Signed   __ (candidate)

Date   6/05/2010

STATEMENT 1

This thesis is the result of my own investigations, except where otherwise stated. Where correction services have been used, the extent and nature of the correction is clearly marked in a footnote(s).

Other sources are acknowledged by footnotes giving explicit references. A bibliography is appended.

Signed   __ (candidate)

Date   6/05/2010

STATEMENT 2

I hereby give consent for my thesis, if accepted, to be available for photocopying and for inter-library loan, and for the title and summary page to be made available to outside organisations.

Signed   __ (candidate)

Date   6/05/2010

CONTENTS

TABLES AND FIGURES

Tables

ACKNOWLEDGEMENTS

GLOSSARY

APS	Annual Population Survey
ASHE	Annual Survey of Hours and Earnings
BERR	Business, Enterprise and Regulatory Reform
BHPS	British Household Panel Survey
ESRC	Economic and Social Research Council
EU	European Union
GCSE	General Certificate of Secondary Education
GEM	Global Entrepreneurship Monitor
GHQ	General Health Questionnaire
GHS	General Household Survey
GNVQ	General National Vocational Qualification
HBOS	Halifax Bank of Scotland
HEI	Higher Education Institution
HND/HNC	Higher National Diploma/ Higher National Certificate
HRP	Household Reference Person
ILO	International Labour Office
KTH	Kungl Tekniska Högskolan
LFS	Labour Force Survey
LLFS	Local Area Labour Force Survey
MBA	Master of Business Administration
MIT	Massachusetts Institute of Technology
OECD	Organisation for Economic Co-operation and Development
PSED	Panel Study of Entrepreneurial Dynamics
QLFS	Quarterly Labour Force Survey
SME	Small to Medium Enterprise
TEA	Total Entrepreneurial Activity
VAT	Value Added Tax
WAG	Welsh Assembly Government

CHAPTER 1

INTRODUCTION

Entrepreneurship, as a topic for research, has grown dramatically in recent years primarily due to the relationship thought to exist between entrepreneurial activity and economic development. New firms are thought to create new employment opportunities (Parker and Johnson, 1996; Ashcroft and Love, 1996). New firms are also thought to be involved significantly in innovative activity, such that the role of innovative entrepreneurship is viewed as a key transmission mechanism between the creation of knowledge and economic growth (Audretsch, 2007). In addition, self-employment is an important occupational option for many in the labour force. At any one time it may account for approximately a tenth of all employed workers (Evans and Leighton, 1989b). The perceived economic importance of entrepreneurial activity has spawned extensive research and government interest in understanding the characteristics of potential entrepreneurs, and subsequently the process of transition into self-employment.

Within the UK, enterprise has been one of the five core drivers of the government's strategy to lift the productivity of the economy. Within the last ten years there has been considerable progress in encouraging an enterprising economy, in particular, there were over 750,000 more businesses at the start of 2006 compared to 1997, survival rates are higher than a decade ago and entrepreneurial intentions of younger individuals have significantly increased (BERR, 2006). However whilst the majority of entrepreneurial indicators report UK performance ahead of many European countries, the UK still remains significantly below the US. More specifically, the US has 20 per cent more businesses per head, and 40 per cent more businesses in the US achieve higher growth rates than seen in the UK (Hoffman and Junge, 2006). A significant proportion of this gap can be explained by both the UK's deep-

seated fear of failure and also the significantly lower levels of female participation in self-employment observed within the UK. In particular, 36 per cent of people in the UK indicated that fear of failure would prevent them from undertaking a new venture, compared with 21 per cent in the US (GEM, 2006). However given the current economic decline associated with excessive risk-taking in the financial sector and the conclusions drawn from the analysis within Chapter 6, policies aimed at encouraging individuals to be more positive about the risks associated with self-employment should be carefully designed. In order to close this gap new enterprise policies have highlighted five key enablers to encourage a more enterprising economy. The first refers to the creation of a more entrepreneurial culture, to develop awareness, aspirations and motivations around enterprise, especially for young people and women. Moreover, by embedding a culture of enterprise the Enterprise Strategy hopes to counteract the UK's ingrained cultural fears of both risk taking and failure. Evidence from the European Commission Flash Barometer (2007) found evidence that approximately 43 per cent of people in the UK believe that a new business should not be created if there is a risk it might fail, compared to 19 per cent in the US. The second seeks to equip more individuals in the UK with the skills and knowledge needed to realise entrepreneurial ambitions and subsequently undertake a new business venture. The third aims to help entrepreneurs and growth businesses to access finance. Access to finance is clearly critical for entrepreneurial success, according to the BERR Annual Small Business Survey (2006), 25,000 businesses a year with viable propositions are unable to secure the finance they require. The fourth intends to reform the regulatory framework to alleviate some of the complex regulations which can stifle enterprise. Over a third of adults who do not consider entry into self-employment as a possibility, identify complexities of the regulatory framework as a barrier. Further work from the Federation of Small Businesses has also found small businesses to be more dissatisfied with the complexity of the regulatory framework than with

the volumes and cost of compliance. The last of the five key enablers designed to create a more enterprising economy, aims to reinforce the role of innovation as a driver of enterprise, by promoting greater investment in research and development and encouraging innovative links to be formed between businesses and also between businesses and universities.

In the Welsh context the 1999 Entrepreneurship Action Plan of the former Welsh Development Agency (WDA, 1999) is explicit about a range of strategic actions to create a more entrepreneurial Wales. The plan is being implemented in four distinct strands with the intention of changing culture, assisting entrepreneurial education, motivating communities and developing businesses. Actions to support the objectives of the Entrepreneurship Action Plan have been carried forward in the subsequent economic development strategy statements of the Welsh Assembly Government: A Winning Wales (Welsh Assembly Government, 2002) and Wales: A Vibrant Economy (Welsh Assembly Government, 2005). Activities range from schemes to raise entrepreneurial aspirations amongst young people, including the embedding of entrepreneurship into the school national curriculum in Wales, through to more targeted interventions aimed at providing support to new entrepreneurs in the early stage of their business venture.

Achieving these ambitious aims requires an understanding of who entrepreneurs are and what motivates these individuals to become entrepreneurs in the first instance. An extensive part of the labour economics approach treats the decision to become an entrepreneur as an occupational choice, relying predominantly on self-employment data.[1] In particular, research emphasises the importance of several variables that may affect this occupational choice, including human capital such as age and experience (Lucas, 1978; Calvo and Wellisz, 1980),

---

[1] Although self-employment as a status in the labour market may not map exactly onto entrepreneurship, the "labour economists" approach is essentially focused on occupational choice. Within this study the term 'self-employed' will be used to appropriate for an entrepreneur.

educational attainment (Evans and Leighton, 1989b; Casson, 2003), self-employed parents, (Lentz and Laband, 1990; Dunn and Holtz-Eakin, 2000), marital status (Borjas, 1986) and disabilities (Quinn, 1980; Curran and Burrows, 1989). Beyond the "labour economists" approach, a number of studies have identified psychological traits such as locus of control, over-optimism and risk attitudes (Evans and Leighton, 1989b; De Meza and Southey, 1996; Van Praag *et al.,* 2002) as significant factors affecting self-employment status. A subset of this literature has illustrated the importance of macroeconomic factors, with particular focus on how economic development (Lucas, 1978; Schmitz, 1989), changing industrial structures (Keeble and Walker, 1994), unemployment (Evans and Leighton, 1989b; Kuhn and Schuetze, 2001; Audretsh and Acs, 1994) and geographical location (Georgellis and Wall, 2000) affect the nature and extent of entrepreneurship.

Within this literature other demographic variables such as gender and ethnicity have attracted growing interest. Evidence reports that females are less likely to participate in self-employment, however, little is known about precisely why there is less female participation in self-employment. Wang and Wong (2004) reported that females are generally less interested in becoming entrepreneurs. Aronson (1991) suggests that being married and having children are important positive determinants of female self-employment. Supporting this prediction, Buttner and Moore (1997) identified the importance of the work-family balance issue for women. While other studies have speculated that female entrepreneurship occurs subsequent to a lack of progression in paid-employment, associated with the 'glass ceiling'. As with gender, prominent variations in propensities to participate in entrepreneurial activity are evident within ethnic minority groups. Two hypotheses have been advanced to explain the observed variations. The first is discrimination, either by employers, banks or consumers. The second suggests several positive factors which make entrepreneurship appealing to members

of ethnic minorities, such as, positive expected relative returns (Fairlie and Meyer, 1996), ethnic enclaves, culture and role models.

Other studies have focused on self-employment in more dynamic terms, referring to different stages of the entrepreneurial process. In particular this research can be segmented into four distinct categories. First, there are studies of entrepreneurial aspirations or intentions. An important starting point for much work is Ajzen's (1987) theory of planned behaviour, which proceeds from the premise that intentions predict behaviour and that, in turn, exogenous attitudes predict intention (Krueger *et al.,*2000). Entrepreneurial intention can therefore be viewed as an important mediating factor between background, beliefs and economic environment and the decision (or not) to launch a new business venture. More recent research documents the scale of entrepreneurial intent in various international contexts, and investigates a range of hypotheses concerning antecedents of, or influences on intentions (Scott and Twomey, 1988; Thandi and Sharma, 2004). Second, there are studies on entrepreneurial motivations for founding a business, where such motives can be classified as either opportunity or necessity (Storey 1982). Whilst opportunity entrepreneurs start their business venture voluntarily, attracted by the perceived benefits of self-employment, necessity entrepreneurs are 'pushed' into self-employment due to negative external forces. These types of studies are generally conducted in developed economies where pull motives, such as independence and job satisfaction are most commonly citied and where push motives are less prevalent (Kolvereid, 1996; Carter *et al.,* 2003). Studies of entrepreneurial motivations also include cost-benefit type studies where material or immaterial risks and gains are used to explain the decision to start a business (Douglas and Shepard, 2002), whilst others focus on psychological motives, including; need for achievement (McClelland, 1961) and need for power (McClelland, 1975). Third, recent research has turned its attentions to the

5

question of transition from aspirations towards entrepreneurship to becoming a nascent (i.e. those intending and preparing a new business) or early-stage entrepreneur (Katz, 1990; Henley, 2007). Research on transitions is however sparse, as a thorough investigation requires longitudinal data. Fourth, studies have focused on longevity within entrepreneurship, subsequently analysing business failures or transitions out of self-employment. These studies usually conduct probit/logit and hazard models when analysing the effects of individual- and firm-specific determinants of entrepreneurial survival and exit (Evans and Leighton, 1989b; Carrasco, 1999).

This thesis was funded by the ESRC and WAG with the over-riding objectives of extending the prior literature on entrepreneurial aspirations and participation in self-employment. Given the involvement from the WAG the thesis also aims to see how these objectives impact in a Welsh context. To achieve these aims, three empirical chapters (Chapter 4 to Chapter 6) develop a body of evidence examining how entrepreneurial intentions and labour force status within the UK can be explained by personal characteristics, psychological traits and motivating factors. Preceding the empirical chapters, Chapter 2 discusses the existing theories of entrepreneurship and subsequently undertakes the tricky task of defining the term "entrepreneur" and for the purpose of this thesis, the term "self-employed". Chapter 3 employs a descriptive approach in assessing self-employment rates across the UK. In particular, regional variations in self-employment across the UK government office regions and Welsh district/unitary regions are assessed and explained using factors such as unemployment, house prices, labour demand and annual pay. In essence the purpose of this chapter is to contextualise the subsequent analysis on entrepreneurial intentions/participation, particularly for Chapters 4 and 5 which both assess entrepreneurship in a regional context. The three successive empirical chapters are each constructed in a similar manner and

consider a brief motivation, highlight the most important elements of the literature, before developing a methodology and presenting and discussing key results. The analysis of two large scale government surveys, the British Household Panel Survey (BHPS) and the Labour Force Survey (LFS), as well as a small scale survey conducted by Swansea University on the entrepreneurial intent of students forms the basis of our evidence. There is particular focus on several of the issues identified above, particularly extending the literature on the motivating factors associated with entry into self-employment as well as undertaking more detailed analysis of gender and spatial variations in entrepreneurial participation.

More specifically, the first empirical chapter (Chapter 4) undertakes an analysis of the motivating factors cited by the self-employed in the UK as reasons for choosing self-employment. Because motivation plays an important part in the creation of new organisations, many researchers within organisational psychology (Mischel, 1969; Landy, 1989) and labour economics (Kolvereid, 1996; Shane *et al.,* 2003) have investigated the motivations to become self-employed. From this research it is recognised that entrepreneurs start ventures for many different reasons. Career reasons, such as need for achievement, egoistic passion and independence, have been empirically developed in order to establish motives for entrepreneurial participation. In addition, more recent research has addressed linkages between career motives of entrepreneurs with job-growth, innovation and business failure rates (Minniti *et al.,* 2005; Reynolds *et al.,* 2002; Hessels *et al.,* 2008). However, very few studies, if any, have analysed individual-specific factors associated with entrepreneurial motivations. In order to address this gulf within the previous entrepreneurial literature, two questions are addressed using large scale labour force survey data for the UK. The first concerns the extent to which the self-employed are self-employed out of necessity, opportunity, lifestyle decision or occupational choice. The second concerns the extent to

7

which there is heterogeneity amongst the self-employed on the basis of the motivations that they report for choosing self-employment. Factor analysis reveals a number of different dimensions of entrepreneurship on the basis of stated motivation, but with very little evidence that being 'forced' into entrepreneurship through economic necessity is a significant factor. Motivation towards entrepreneurship is therefore highly multidimensional. Multivariate regression analysis is employed using a method to control for self-selection into self-employment. This reveals significant differences between men and women, with women concerned more with lifestyle factors and less with financial gain. Market-directed 'opportunity' entrepreneurship is more strongly associated with higher educational attainment. Those joining family businesses appear not to value prior educational attainment. In addition, motivations for entry into self-employment vary across UK regions, the results provide original insights into explaining the observed north-south divide in self-employment rates evident across the country. A version of the analysis, entitled; "Why Do Individuals Choose Self-Employment?" was published as an IZA discussion paper in January 2009 with two co-authors A. Henley and P. Latreille.[2]

The next analytical chapter (Chapter 5) documents the finding of a comparative study of entrepreneurial aspirations amongst students. Whilst the majority of the self-employment literature seeks to identify characteristics that separate those in self-employment from those in paid-employment, less is known about the characteristics that separate individuals who show entrepreneurial intent from those who do not. Three main questions are addressed using information from a survey conducted by the School of Business and Economics at Swansea University. The first concerns how entrepreneurial intentions are formed for students. The

---

[2] Dawson, C., A. Henley & P. Latreille (2009)."Why Do Individuals Choose Self-Employment?" *IZA Discussion Paper*, No. 3974.

survey instrument addresses a wide range of background influences and attitudes in much more detailed manner than previous research; in particular addressing the influences of entrepreneurial role models and engagement within informal entrepreneurial activities. The second concerns the role of gender, as aforementioned previous research has highlighted that females are less likely to show entrepreneurial intent and subsequently participate in self-employment. However, within the relevant research gender is largely included as a dummy variable; as a consequence little is known about precisely why there is less female than male entrepreneurship. In order to provide a clearer understanding, an extension of the Oaxaca-Blinder decomposition by Fairlie (2005) is applied to determine the strengths of various demographic factors, family characteristics and psychological traits in explaining entrepreneurial intention levels between male and female students. The final question pays special attention to Welsh-domiciled individuals. Within Wales there exists a perception that the younger population in particular view entrepreneurship less positively then elsewhere in the UK. To assess the variation in entrepreneurial intent between Welsh-domiciled and non-Welsh domiciled students, the decomposition technique by Fairlie (2005) is applied as before. The results from the empirical analysis provide original insights into how entrepreneurial aspirations are formed, reporting significant positive effects of the influences of entrepreneurial friends and prior engagement within informal entrepreneurship. The findings also reveal that Welsh students have significantly less positive attitudes towards risk, as do female students, with these differences providing the largest single component of the explained gap between the levels of entrepreneurial intent between both groups of students. This analysis made up part of a final report to the Welsh Assembly, "Entrepreneurial Aspirations and Activity amongst Students: A Comparative Study for Wales," with A. Henley, C. De Cock, P. Latreille and I. Humphreys.[3]

---

[3] Henley, A., C. De Cock, P. Latreille, C. Dawson & I. Humphreys (2009). "Entrepreneurial Aspirations and

The final empirical chapter, Chapter 6, examines the impact of unrealistic optimism on entering self-employment, exiting self-employment and lastly in assessing whether individuals, and in particular the self-employed, are persistently unrealistically optimistic. Unrealistic optimism is defined within this chapter when individuals make negative expected returns, that is, when their forecasts exceed reality. These questions are addressed using large scale British Household Panel Survey data for the UK. The idea that the self-employed are systematically unrealistically optimistic in evaluating their future prospects has, of course, been suggested before, but has rarely been tested outside the realms of theoretical and experimental models (de Meza and Southey, 1996; Manove, 2000). Within this literature it is suggested that excess optimism induces individuals to undertake ventures that more rational individuals may not, subsequently leading to excess entry, higher exit rates from self-employment and subsequently credit rationing. This chapter provides empirical evidence to suggest that entrepreneurial aspirations are fuelled by unrealistic optimism, and that this unrealistic optimism leads to higher exit rates from self-employment. A conclusion is that public policy measures should concentrate on dampening optimism to result in fewer but higher quality transitions into self-employment. Next we provide evidence to suggest that the self-employed are persistently unrealistically optimistic. This in turn has several implications regarding market efficiency, the conservative nature of banks to loan and the tendency for credit rationing.

The final chapter, Chapter 7, highlights the key findings from each of the empirical chapters and establishes overall conclusions, particularly on issues that extend across chapters. At this

---

Activity amongst Students: A Comparative Study for Wales," Final Report to the Welsh Assembly Government. Available at: http://www.swan.ac.uk/sbe/People/decockc/Student%20Entrepreneurial%20Aspirations%20-%20WAG%20Report%202008.pdf.

point, the main limitations of the current analysis are discussed and potential areas for future

research are identified.

CHAPTER 2

ENTREPRENEURSHIP AND SELF-EMPLOYMENT: MEASUREMENT ISSUES

The concept of entrepreneurship has been interpreted by scholars, even within the same discipline, with varying meanings. Modes of studying entrepreneurship have evolved using a variety of perspectives, including psychological, anthropological, socio-economic and economic viewpoints. Each approach has produced its own various routes of study, reflecting both the complexity of defining entrepreneurship, and consequently the scope for research based upon assorted foundations. Within economics there is an assortment of theories and definitions of entrepreneurship, often conflicting yet rarely conceptually distinct. Perhaps the earliest view about entrepreneurship was that of Cantillon (1755) whose entrepreneur is an arbitrageur, equilibrating supply and demand within the economy and who bears all risk and uncertainty. Similarly, Knight (1921) argued that the key role of an entrepreneur is to assume uncertainty, shielding all stakeholders against it. However while risk bearing is an important element of entrepreneurial behaviour, many entrepreneurs have succeeded by avoiding risk, and actively seeking others to bear that risk. Moreover, entrepreneurs are not generally high-risk takers when they cannot affect the outcome of the situation. Instead, they tend to set realistic goals, and only take calculated risks based on facts and experience, rather than instincts. Schumpeter (1949) questioned the view of an entrepreneur as simply a risk bearer, arguing that entrepreneurs are individuals who engage in innovative activity, either by the creation of a new product or technology, opening a new market or by creating a new organisation or industry. More recent theories of entrepreneurship have developed Cantillon's arbitrageur; Kirzner (1973) argues that the economy is in a constant state of disequilibrium and within this disequilibrium entrepreneurs realise and utilise business opportunities. Related to this view is that of Schultz (1975), whose entrepreneur has the ability to deal with

situations of disequilibria in the economy. More specifically, in disequilibrium agents are acting below the optimal level and can relocate resources to maximise utility. The key concept of Schultz's entrepreneur is the ability to relocate these resources efficiently.

Given the wide variation of entrepreneurial theories, measuring the level of entrepreneurial activity is problematic. The labour economics approach is essentially focused on occupational choice, relying predominantly upon self-employment data, surveys, and expert interviews for econometric evaluation of entrepreneurship. Whilst it is easier to define the term 'self-employment', there are a variety of conceptual issues that are unresolved in its appropriate definition. In particular, the self-employed are an incongruent group, ranging from innovative entrepreneurs, to destitute workers unable to find work in the conventional employee labour market. The reason that an individual's employment status is of importance is not just one of consistency and thus comparability of various data sets, but as a determinant of the application of rights and obligations under legislation regarding employment protection, social security and taxation.

Self-employment can be defined in a legal, social, tax or economic context. Within the legal context, "*an individual who provides labour to another, normally under a contract for services, and who may or may not be in business on his or her own account (independent contractor),*" (Burchell *et al.*, 1999, p.90), is classified as self-employed. However the legal definition of self-employment status diverges across legislative domains; similarly, different criteria are often used for determining the self-employed under taxation and social security

qualifications.[4] Consequently, the employment status of a self-employed individual may be different under legal, tax and social security legislation.

There is the perception that the current taxonomy of employment status has become too stringent and non-adaptive with the increasing complexity of the employee-employer relationship. In particular, the growth of 'flexible' and 'non-standard' forms of employment, contractual relationships, outsourcing and subcontracting by firms, have created a so-called 'grey area' between self-employment and paid employment. Regarding the growth of contractual arrangements lies the distinction between a 'worker' otherwise referred to as the 'dependent self-employed' and the 'independently self-employed'. That is, the division between those who are self-employed, but not in business on their own account and who contract to provide their personal services to another, thus in legal terms a 'worker', or those self-employed individuals who are in business on their own account, working under a contract for services. Boheim and Muehlberger (2006), contend that this dependent form of self-employment is concentrated in the construction sector, where self-employed workers are to all intents and purposes direct employees, working exclusively for one contractor at a time or sequentially for several contractors. Moreover, evidence from the ILO (2003), suggests that the increase in outsourcing and subcontracting by firms observed over the last few decades, has led outsourced workers to become dependent on the firms they are contracted to. Within these contractual relationships, it is argued that employers often organise their workforce into self-employment contracts to evade employment protection obligations. Harvey (2003) contends that this shift towards dependent self-employment enables employees to separate themselves from paying entitlements such as holiday and sick pay, and employment protection from dismissals. In the same way, Muehlberger (2004) argues that

---

[4] Most noticeable is the contribution from Dennis (1996), identifying divergences in meaning between legal and tax-based definitions of self-employment.

14

firms outsource to reduce the implications of the principal-agent problem, that is, shifting part of the entrepreneurial risk onto the worker.

Included in this 'grey area', are 'non-standard' forms of employment. That is other working arrangements that in some respects leave the standard model of employment, and suffer from establishing employment status, including areas such as freelancers, agency workers, casual and zero-hours contract workers and franchise holders. More specifically, when workers have no fixed hours of work, but are called upon from time to time or when work is available, often do not have contracts of employment with their casual employer, and consequently are frequently regarded as self-employed. Moreover, within agency work, it is often unclear who the individual is employed by, either the agency or the client of the labour. Also, within franchises, it is often uncertain whether the franchise is an independent business or part of a large firm.

While employment status is ambiguous for a number of individuals on the grounds of dependence, another definitional issue arises between the self-employed within incorporated and unincorporated businesses. In particular, within the US and UK, individuals who 'work for themselves' but incorporate their businesses, become for legal purposes an employee, rather than self-employed. Accordingly, while the incorporation of a business may reflect no 'real' change within the economy, under the legal definition of self-employment, a change will be registered.

Perhaps more relevant to the nature of this theses is the definitions used by major surveys, which are used in empirical research. In the UK, surveys include the Labour Force Survey (LFS), British Household Panel Survey (BHPS) and the General Household Survey (GHS).

15

Within these surveys however the definition of self-employment is left exclusively up to the respondent, that is, an individual's own perspective of their status. Consequently, the responses obtained will potentially conflict with the legal and or tax-based definitions of the self-employed, illustrating further inconsistencies with classifications. Within Chapters 3, 4 and 6 of this thesis the Labour Force Survey (LFS) and British Household Panel Survey are used for empirical analysis. The exact wording of the questions used to define self-employment for the LFS and BHPS respectively were as follows:

STATR[5] - Employment status in main job (reported)
1. Employee
2. Self-employed
3. Government scheme
4. Unpaid family worker

JBSTAT - "Please look at this card and tell me which best describes your current situation?"
1. Self-employed
2. In paid employment (full or part-time)
3. Unemployed
4. Retired from paid work altogether
5. On maternity leave
6. Looking after family or home
7. Full-time student/ at school
8. Long term sick or disabled
9. On a government training scheme
10. Something else **(PLEASE GIVE DETAILS)**

Whilst one faction of labour economists have relied upon self-employment data for econometric testing, industrial economists tend to use data on the formation of new firms,

---

[5] STATR is a derived variable reporting respondent's current job. All respondents who were currently in work or who had worked in the last eight years were asked: "(STAT) *Were you working as an employee or were you self-employed?*" These respondents were given a choice of four responses: *"1) employee, 2) self-employed, 3) government scheme or 4) unpaid family work."* The filter (EVERWK= -9) is applied to the questionnaire variable STAT to distinguish between current and last job to create the derived variable STATR.

measured predominantly by VAT[6] registrations and deregistration. Daly (1990) argues that the rate of entry and exit from the VAT registers closely reflects the rate of entry and exit from self-employment. As with survey data, VAT registration is subject to caveats. Simply put, once a company's annual sales revenue exceeds the current VAT registration threshold of £68,000 (from 1st May 2009 - previously it was £67,000), or the value of the company's taxable supplies in the next 30 days alone is expected to exceed this threshold, they are required to register for tax and charge purchasers of their goods and services VAT as appropriate. However, the database excludes firms which are not registered for VAT, since they have a turnover below the current threshold. How many firms that are excluded for this reason is unknown. In the same way, firms that have just registered for VAT may not be new firms; they may have been simply operating under the threshold for some time prior to registration. Similarly, those that de-register are assumed to be those firms which have failed or died. However Daly (1987) contends the de-registration of firms to be reliant upon takeovers, changes in legal status, or simply when a trader falls below the current threshold.

Another approach which directs its attention to the more dynamic approach of measuring self-employment is that adopted by the Global Entrepreneurship Monitor (GEM) and referred to as Total Entrepreneurial Activity (TEA). TEA is defined as the total of those who are nascent entrepreneurs (with resources committed to the business, but no salaries paid for more than 3 months) and new business owner-managers (those paying salaries for between 3 and 42 months). GEM views entrepreneurship as a process considering individuals in

---

[6] Value Added Tax (VAT) is a tax on the final consumption of certain goods and services in the home market but is also collected at each stage of production and distribution. Subsequently most business-related goods and services will therefore be subject to VAT.

entrepreneurial activity in different stages, from early stages such as businesses gestation to already established firms and possibly discontinuation of the business.

Within this study the term 'self-employed' will be used to approximate for an entrepreneur; however references will be made to the new-firm formation literature for completeness. While self-employment statistics lump very heterogeneous activities across a broad number of sectors and contexts into one lone measure, it is widely measured, and although not being a direct measure of entrepreneurship, it acts as a useful proxy for entrepreneurial activity (Storey, 1991).

CHAPTER 3

SELF-EMPLOYMENT WITHIN UK AND WELSH REGIONS

3.1. Introduction

We have seen that the self-employed are not a homogenous group, nor is there a universally accepted definition of exactly what a self-employed individual should be. However the self-employed have become an important class of worker, accounting for an average of 16.1 per cent of the total civilian employment within OECD countries. Within these OECD countries self-employment rates vary considerably, at both a cross-section and over time. Table 3.1 displays time-series data of self-employment as a proportion of total civilian employment within a sample of OECD countries. Over the period between 1990 and 2007 the OECD total self-employment rate has fallen from 18.5 per cent to 16.1 per cent. Similarly the EU27 total has fallen steadily from 17.9 per cent in 1995 to 15.9 per cent in 2007. This downward trend has been mirrored by a substantial proportion of OECD countries, including the US, France, Korea and Brazil. However this trend is not observed in every OECD country. In particular, Estonia has seen a relative increase in the proportion of self-employment, whereas countries such as Canada, Russia and New Zealand have seen an inverted U-shape pattern emerge. Moreover, countries such as the UK and Germany have exhibited oscillating patterns in their rates of self-employment, whilst however remaining relatively stable.

What is also apparent from Table 3.1 is the magnitude in the variation in self-employment rates across the OECD countries. More specifically, the self-employment rate varied in 2007 from 5.7 per cent in Russia to 51.2 per cent in China. Previous research has shed some light on trends in self-employment rates and cross-country differences. In particular, Acs *et al.* (1994) suggest that a decreasing trend in self-employment in OECD countries reflects

increases in per capita gross national product, female labour-force participation, the unemployment rate and when high technology industries are more important. Parker and Robson (2004) report that, instead of macroeconomic variables explaining the evolution of international self-employment rates, three tax-benefit variables possessed most of the explanatory power. In particular, self-employment rates were found to be positively and significantly related to personal income taxes, and negatively and significantly related to employers' social security contributions and the unemployment benefit replacement rate.

What is more, self-employment tends to be more prevalent within less developed or developing, than developed countries. This reflects the movement of labour from the informal to the formal sector, as poor economies develop. This form of informalisation involves an increasing number of (often disguised) self-employed (or own-account) workers, including home workers, street vendors, as well as workers in family businesses and domestic workers employed by households. In addition, the data in Table 3.1 includes the agriculture sector; agriculture plays a major role in many developing economies, in which high self-employment rates are generally found.

This chapter moves away from cross-country comparisons, instead concentrating upon divergences in regional levels of self-employment within the UK government office regions and within Welsh district/unitary authority regions. Subsequently this chapter examines factors closely related to self-employment, such as housing wealth, unemployment and income in order to explain these observed variations. The following estimates are based primarily upon aggregated data from the Quarterly Labour Force Survey (QLFS), Local Area Labour Force Survey (LLFS), the Land Registry House Price Index, HBOS data archive, Annual Survey of Hours and Earnings (ASHE), and the Annual Population Survey (APS). It

is important to note that while the graphical tools utilised in this chapter are useful in the sense that they illustrate a relationship or correlation between two variables, they do not indicate any notion of causality between the variables. The purpose of this chapter is therefore to contextualise the multivariate analysis of self-employment undertaken in the subsequent chapters, by presenting background and bi-variate associations. This is particularly useful for Chapters 4 and 5, which employ multivariate analysis of entrepreneurship in a regional context, in terms of motives for entry into self-employment and levels of entrepreneurial intent.

3.2. Variations in UK Regions

While we have shown the existence of substantial cross-country variations in rates of self-employment, there are also wide variations in the rates of self-employment within regions of the same country. Figure 3.1 reports considerable variations in self-employment rates across UK regions.[7] Of particular interest is the prevalence of a north-south divide[8], with areas in the North East, the North West and Yorkshire and Humber having rates of self-employment some 36 per cent, 11 per cent and 15 per cent lower than the national average. Contrastingly, areas such as the South West and South East display self-employment rates respectively 13 per cent and 12 per cent higher.

However, while previous research has identified this north-south divide, there also appears to be a clear-cut group of regions situated across the middle of the UK, with rates of self-employment below those of the south but above the more northerly regions. Within this

---

[7] Figures are based on region of residence. It is important to note that region of residence does not equate to region of birth. Clearly some individuals will self-select into regions where the economic climate is deemed more suitable for new business creation or entry into self-employment.

[8] Most noticeably acknowledged by Robson (1998a)

group are regions such as Wales, the East Midlands and West Midlands with self-employment rates of 11.9 per cent, 12.3 per cent and 11.6 per cent respectively.

3.3. Explaining the Variations

The previous literature has identified varying and often contrasting explanations regarding regional disparities in self-employment rates.[9] Relevant prior research has highlighted various demand side influences that affect the market opportunities of potential entrepreneurs using indicators such as household income and population growth (Evans and Leighton 1987; Keeble and Walker 1994; Armington and Acs 2002). Other studies have focused on supply side factors, including indicators such as unemployment rates, inheritance and home ownership (Blanchflower and Oswald 1990; Bernhardt 1994; Cowling and Mitchell 1997). Other sections of the literature analysis region specific factors, such as culture and industry composition (Ritsila 1999; Mueller and Thomas 2001).

3.3.1. Industry structure

The variation in self-employment rates by region will depend partly on the industry mix in the region. Industrial structures most favourable to high levels of self-employment are characterised by i) shifts from manufacturing employment to services, and ii) reductions in firm size. This implies that regions dominated by the service industry, *ceteris paribus*, will encourage self-employment, since service sector firms are usually less capital intensive then those within the manufacturing sector. In addition, geographical areas dominated by small firms are more likely to have higher rates of new firm formation, as individuals working in a small firm may see their natural progression as one day becoming entrepreneurs themselves.

---

[9] For full details on the regional literature see section 4.2.2.

Within the UK there has been a general shift from manufacturing employment to services within the last decade. Figure 3.2, using aggregated data from the QLFS for England, Scotland and Wales, clearly illustrates a decline in the share of employment in manufacturing (MANU), reflected by increasing levels of employment in the service industry (SERV). Furthermore, it appears that the share of employment in construction (CONS) has remained relatively constant over the time period.

Table 3.2 gives a regional perspective to the observed shift from manufacturing to service industry employment within the UK. In particular, regions such as Wales, the North East and North West have seen substantially reduced levels of employment in manufacturing towards service industry employment. Where a decade ago manufacturing employment as a proportion of all in employment varied between 26.8 per cent in the East Midlands and 10.4 per cent in London, today the gap has narrowed, with 18.4 per cent in the West Midlands to under 7 per cent in London.

However, while regional disparities in employment within industries have converged, evidence suggests that industrial structures among former generations may have a significant impact today, implying differences in self-employment across regions may well persist (Curran and Burrows, 1988). Consequently, while within the UK regions we may see a convergence of industrial structures; it is possible that industrial structures prominent decades ago may well dominate the propensities of self-employment, even if other factors, such as labour market conditions change over time.

3.3.2 Unemployment

Previous studies of entrepreneurship have placed a large emphasis on the explanatory power of unemployment. Two contrasting effects may be at work in this relationship. On the one hand there may be a positive relationship between unemployment and self-employment rates, reflecting the recession-push hypothesis, where a lack of opportunities for paid employment pushes individuals into self-employment.[10] In contrast, we may see a negative relationship, that is, high rates of unemployment reflecting relatively low levels of demand, which inhibit the market demand for the products/services of the self-employed. Similarly, markets with high demand and promising economic conditions imply low regional unemployment, and consequently higher rates of self-employment[11]. Within the UK government office regions, including Wales and Scotland as UK wide statistical comparisons, there seems to exist a weakly negative relationship between self-employment and the unemployment rate[12] (SELF, see Figure 3.3). However, when excluding London we observe a strong significant negative relationship (SELF1, see Figure 3.3).

This is suggestive of the prosperity-pull hypothesis. That is, areas in the south, such as the South West and South East have relatively high levels of self-employment and relatively low levels of unemployment, as opposed to areas in the North, such as the North East and Scotland with low levels of self-employment and high levels of unemployment. The exception to this pattern is London, with the highest unemployment and self-employment rate of 7.1 per cent and 15.1 per cent, respectively. The reconciliation of this self-employment and

---

[10] Most noticeably Harrison and Hart (1983), Foreman-Peck (1985), Hudson (1987a) and Hamilton (1989).

[11] Most notable are the works by Hamilton (1989), Taylor (1996) and Blanchflower and Oswald (1998).

[12] The measure used for unemployment within Chapter 3 is derived from the Labour Force Survey (LFS) which measures unemployment under the International Labour Organisation (ILO) unemployment definition. The survey asks a series of questions about respondents' personal circumstances and their activity in the labour market. Under ILO definitions, every respondent (aged 16 or over) is; 1) in employment; 2) unemployed; or 3) economically inactive. The unemployment rate is the proportion of the economically active who are unemployed. The economically active are those people who are either in employment or unemployed. Therefore the definition of unemployment used does not include the economically inactive.

unemployment dichotomy seems to be related to the way that the London labour market is structured. In simple, stylised terms, the capital's labour market can be thought of as a system of three sub-labour markets: 1) a high-skills, high pay market; 2) a low skills, low pay market and 3) the public sector market. The high-skills, high pay market principally contains high levels of sustained employment growth and low unemployment, as opposed to the second group, largely based in the service industries which is characterised by high levels of unemployment. Whilst the supply of jobs in this market has risen, so has the supply of workers, resulting in downward pressure on wages and the maintenance of the high levels of unemployment.

Correspondingly, labour demand, measured as job density[13], appears to be positively related to regional self-employment rates. That is, regions with higher job densities are characterised by higher levels of self-employment.

It might be sensible to expect labour demand to be negatively correlated with self-employment, if one were considering the recession-push argument used to explain unemployment. Thus regions with lower levels of labour demand are indicative of reduced prospects of achieving paid employment, pushing individuals into self-employment. However the pattern observed in Figure 3.4 illustrates a statistically significant positive correlation, indicating that as with unemployment, higher job densities are indicative of promising economic conditions and higher demand, supporting the notion of the prosperity-pull hypothesis.

---

[13] "Job density = the total number of filled jobs in an area divided by the resident population of working age in that area. For example, a job density of 1.0 would mean that there is one job for every resident of working age. The total number of jobs is a workplace-based measure and comprises employees, self-employed, government-supported trainees and HM Forces. The number of working age resident's figures used to calculate job densities are based on the mid-2001 population estimates." (Nomisweb.com)".

3.3.3 Capital Constraints

The importance of securing adequate capital upon entering self-employment is heightened by the reluctance of banks to sanction unsecured loans, implying the importance of household wealth as a source of collateral. In particular, studies such as Robson (1998a) and (1998b), Black *et al.* (1996) and Cowling and Mitchell (1997), have highlighted the importance of housing wealth on the probability of becoming self-employed within the UK. Figure 3.5, using data from the Land Registry House Price Index 2006, supports this view and more specifically indicates the north-south divide in regional rates of self-employment within the UK clearly reflects the distribution of housing wealth, as acknowledged in Robson (1998a). In particular, areas in the North East and North West are characterised by low levels of housing wealth and low self-employment rates, as opposed to areas in the south, most noticeably London, the South East and South West with the highest levels of housing wealth and the highest levels of self-employment.

3.3.4 Other Reasons

Household incomes are often used as a proxy for regional levels of demand. Evidence produced by Keeble and Walker (1994) and Armington and Acs (2002), highlights the importance of aggregate demand and the probability of entrepreneurship. This may reflect two separate influences: 1) underlying demand side influences, as wealthier areas have higher disposable incomes, leading to greater demand and, 2) supply side influences, as higher disposable incomes enable potential entrepreneurs to raise capital more easily and at a lower cost. The positive correlation observed between self-employment and regional levels of gross annual pay, illustrated in Figure 3.6 supports this notion. The exception is most noticeably the South West, which has the second highest self-employment rate, but relatively low annual pay. This anomaly is a product of the data and the labour structure of the South West. More

specifically, the ASHE dataset used for regional rates of gross annual pay does not cover the self-employed; however within the South West, wages and salaries form a smaller proportion of income than in any other part of the United Kingdom. On the other hand, income from self-employment forms a higher proportion of income in the South West than in any other region, except London. Similarly, there are a larger proportion of retired individuals within the South West receiving pensions.

Whilst annual pay gives an indicator of wealth, it does not act as an appropriate proxy for 'real wealth', that is wealth relative to regional prices. Therefore, while London is characterised by high incomes, it is also associated with higher than average house prices. Since costs associated with home ownership are primarily the biggest source of outlays to individuals, average regional house prices divided by gross annual pay acts as a useful proxy for the affordability of a region[14]. Using this proxy, the results suggest a positive correlation between the self-employment and the affordability of a region, illustrated in Figure 3.7. That is, those regions which are relatively unaffordable, or simply those regions where average wages represent a low proportion of housing wealth, have higher levels of self-employment than those regions which are relatively more affordable. Several effects may be at work here. Firstly, this may suggest that people in unaffordable regions, such as London the South East and South West are pushed into self-employment, due to the lack of opportunities for well-paid work comparative to housing wealth. Similarly those individuals in regions where annual pay accounts for a larger proportion of housing wealth, such as the North East and North West, are perhaps not as inclined or pressured to seek other perhaps more profitable forms of employment. Secondly, regions with proportionately larger housing wealth to

---

[14] Note for the affordability measure, higher values represent less affordable regions. Additionally it is worth noting that this measure has several limitations in so much as no allowances are made for outstanding mortgage commitments.

relative pay may be more suited to self-employment, as increased housing wealth increases the ease with which collateral can be obtained and hence the ease of entry into self-employment.

3.4. Variations in Welsh Regions

We have seen that regional differences in rates of self-employment within the UK exist. Similarly there are also substantial variations in regional self-employment within Wales. However, where regions in the UK vary from 8.3 per cent in the North East to 15.1 per cent in London, regions in Wales differ from 26.9 per cent in Powys to 5.5 per cent in Merthyr Tydfil.

Within Wales there is a clear distinction between rural and urban locations. Rural areas are defined using the Welsh Assembly definition in its Rural Development Plan. The nine unitary authorities in Wales included in the Welsh Assembly definition of rural[15] are The Isle of Anglesey, Denbighshire, Pembrokeshire, Gwynedd, Powys, Carmarthenshire, Conwy, Ceredigion and Monmouthshire. While these are all defined as rural locations, it is important to note that industrial structures among these regions are not homogeneous, such that, while the importance of agriculture is more prevalent in Ceredigion and Powys, tourism is of greater significance in Pembrokeshire.

One feature of the rural labour market in Wales appears to be the prevalence of self-employment, with all nine rural authorities exhibiting the highest rates of self-employment within the Welsh unitary regions, with an average rate of self-employment just below 19 per cent in rural Wales compared to an average rate of just below 9 per cent in urban Wales. A

---

[15] Note urban is defined as all areas not defined as rural.

part of the regional self-employment literature has highlighted the distinction between rural and urban locations, with mixed results.[16] On one hand urban markets tend to be larger and have on average higher disposable incomes, synonymous with higher levels of demand for services of small-scale entrepreneurs. Urban areas are more expensive in so much as inputs, such as rent and labour are on average more costly then within rural locations. Similarly within rural locations there are often less paid-employment opportunities, increasing the propensity to becoming self-employed.

Within the Welsh regions a large variation in self-employment rates between urban and rural locations can be explained by the high proportion of self-employment within agriculture in rural regions. More specifically, in Powys, Anglesey, Carmarthenshire, Pembrokeshire, Ceredigion and Denbighshire, self-employment in agriculture accounts for approximately 37, 25, 24, 23, 22 and 15 per cent of those in self-employment[17]. Similarly, in rural Wales agriculture accounts for 5.5 per cent of employment, within urban Wales agriculture accounts for less than 0.5 per cent (Jones 2004). Moreover, whilst there have been large persistent variations in self-employment rates between rural and urban Wales, over time this gap has converged. In particular self-employment has been declining in rural areas, whilst it has remained relatively steady in the rest of Wales (see Figure 3.8). The changing industrial structure has obviously contributed to this, with the decline in agriculture and amalgamation of farms (Monk *et al.*, 1999 and Shucksmith, 2000).

3.4.1 Unemployment

As within the UK government office regions, there appears to be a negative relationship between self-employment and unemployment within Welsh unitary regions (see Figure 3.9).

---

[16] See Lindh and Ohlsson (1996), who found positive effects from urban dummies, and Reynolds *et al* (1994) and Carrasco (1999) who did not.
[17] These figures are derived from the Annual Population Survey 2006.

Unemployment levels in Welsh regions appear to be significantly larger then within UK regions, with areas such as Blaenau Gwent, Neath Port Talbot, and Rhondda with unemployment levels 7.5, 7.1 and 7.1 per cent respectively. High unemployment seems to be most prevalent in areas in the South Wales valleys, which were previously dominated by mining and steel making industries, with the restructuring of industry causing structural unemployment. Conversely areas neighbouring England such as Flintshire, Wrexham, Powys and Monmouthshire have lower unemployment. These results appear to loosely fit Morris and Wilkinson's (1989) east/west divide. More specifically, areas to the east where there is greater access to larger centres of population, exhibit stronger economic performance. Indeed, the unemployment rate in Blaenau Gwent (7.5 per cent) was more than double that in Powys (3.6 per cent) and more than three times that in Wrexham (2.3 per cent). Over time, these divisions have developed as structural change has had an imbalanced spatial impact; areas previously reliant on heavy industry (such as the South Wales Valleys) have suffered a disproportionate number of job losses. In contrast, economic growth has been centred alongside main infra-structural developments such as the M4, contributing to the growth in Cardiff (Jones 2004).

Using job density as a proxy for labour demand, there does not seem to be a clear cut relationship between self-employment and job densities within Welsh unitary regions (see Figure 3.10). Moreover, there appear to be on average, more opportunities for paid-employment in rural than urban areas, with job densities of 0.76 and 0.73, respectively.

3.4.2 Capital Constraints

As within the UK regions, there appears to be a positive significant relationship between regional house prices and regional levels of self-employment within Welsh unitary regions

30

(see Figure 3.11), further implying the importance of capital and thus housing wealth in securing loans. Furthermore, there is a clear division of rural and urban regions by the fitted regression line.

3.4.3 Educational Attainment

As with unemployment, one can advance arguments for both positive and negative relationships between self-employment and education. On the one hand, educational attainment increases an individual's managerial ability and thus the probability of becoming self-employed (Lucas 1978). Similarly, higher levels of education may precipitate into a better informed understanding of business opportunities. On the other hand individuals with higher levels of educational attainment may be more likely to enter into paid employment. Moreover, the skills that make good entrepreneurs are more likely to come from labour market experience as opposed to formal qualifications.[18]

When formal qualifications are considered, rural Wales outperforms urban Wales (see Table 3.4). More specifically, rural Wales has a lower proportion with no qualifications and a greater concentration of individuals qualified at the highest level (i.e. NVQ4+). However, while the rural labour force appears as skilled as the urban population, until earnings and consequently opportunities within rural Wales begin to compete with urban Wales and the rest of the UK (see Figure 3.4), there will always be motivation for suitably qualified people to migrate.

---

[18] See Rees and Shah (1986) and Evans and Leighton (1989).

3.4.4 Other Reasons

Within Welsh regions there appears to be a statistically significant negative relationship between self-employment and regional levels of gross annual pay (see Figure 3.12). This is contrary to the results we obtain within the UK government regions exhibiting a statistically significant positive relationship between self-employment and gross annual pay. This negative relationship appears to be related to the urban/rural dimension of the Welsh labour market, with employment in rural Wales characterised by low pay and high self-employment, and employment in urban Wales characterised by higher levels of pay and lower levels of self-employment.

Controlling for rural and urban locations within Wales, we find two contrasting results between self-employment and annual pay: 1) a statistically significant negative relationship within rural locations and, 2) a statistically significant positive relationship within urban regions (see Figure 3.13). Therefore the arguments advanced for the variations within the UK government regions seem to hold for urban Wales. However within rural Wales the negative relationship may represent a form of opportunity cost. That is simply the wage rate that might be obtained in self-employment as opposed to what otherwise would be earned in paid-employment.

This negative relationship could however be a product of the data (as was observed with the South West). More specifically, the ASHE dataset used for unitary authority levels of gross annual pay do not cover the self-employed. Moreover, since rural areas have proportionately higher levels of self-employment, income from self-employment will form a higher proportion of income in rural Wales than urban Wales.

There are many possible explanations for these observed differences in wages. One explanation could be the cost of living between these rural and urban locations. Similarly the structure of the labour market, where sectors historically synonymous with low-pay (i.e. tourism and part-time employment), are over-represented in rural areas.

Related to both the observed variations in wages and living costs across unitary regions, an affordability measure is used to proxy 'real wealth'. As within the UK there appears to be a significant positive relationship between the affordability of a region and the level of self-employment, with those regions which are relatively less affordable (e.g. have a higher affordability figure) characterised by higher levels of self-employment.

3.5. Conclusion

Within the UK, variations in self-employment rates across regions clearly reflect a north-south divide. With areas in the North East, the North West and Yorkshire and Humber with rates of self employment some 36, 11 and 15 per cent lower than the national average, contrastingly areas such as the South West and South East display self-employment rates, respectively 13 per cent and 12 per cent higher. These regional disparities seem to be the product of the regional labour and housing markets. Whilst northern regions are characterised by low-pay, low levels of housing wealth, high unemployment and low levels of self-employment, southern regions are characterised by high pay, high housing wealth, low unemployment and have relatively higher levels of self-employment.

Within Welsh unitary regions the trend seems to be less clear cut. While regional disparities at the unitary level exist, there seems to be a strong rural/ urban dimension, with an average rate of self-employment just below 19 per cent in rural Wales compared to an average rate of

just below 9 per cent in urban Wales. Perhaps the most fundamental difference between the rural and urban locations is the variations in labour market earnings. While the Welsh rural market is characterised predominantly by high levels of self-employment and low-pay, urban Wales is characterised by significantly lower levels of self-employment and higher wages. Phimister *et al.* (2000) have previously identified low labour market earnings in other rural locations within the UK. Moreover, while the rural labour force appears as skilled as the urban population, until earnings and consequently opportunities within rural Wales begin to compete with urban Wales and the UK, there will always be motivation for suitably qualified people to migrate.

As with the UK, housing wealth appears to explain unitary level variations in self-employment within Wales, with areas such as Powys and Ceredigion having amongst the highest levels of self-employment and housing wealth, and areas such as Blaenau Gwent and Merthyr Tydfil having amongst the lowest. Similarly as with the UK, the 'affordability' measure used to proxy for real wealth appears to fit the regional variations in self-employment. Thus areas such as Powys, Ceredigion and Pembrokeshire, which are relatively less affordable have relatively higher levels of self-employment, compared to those more affordable areas such as Blaenau Gwent and Merthyr Tydfil which have relatively lower levels of self-employment.

However, a large proportion of the variance between self-employment in rural and urban Wales can be explained by agriculture. In particular, Powys, Anglesey, Carmarthenshire, Pembrokeshire, Ceredigion and Denbighshire, self-employment in agriculture accounts for approximately 37, 25, 24, 23, 22 and 15 per cent of those in self-employment. For further more detailed data analysis, controlling for agriculture may give a better indication of

regional levels of entrepreneurial activity within Wales, since self-employment within agriculture is likely to be heavily influenced by traditions of family ownership and factors other than those that influence self-employment in the rest of the economy.

Table 3.1: Self-employment in Selected OECD Countries

	Self-employment rate: economically active (%)				
	1990	1995	2000	2005	2007
Australia	15.1	15.4	14.1	12.9	12.9
Austria	14.2	14.4	13.1	13.3	14.4
Belgium	18.1	18.8	14.0	13.8	13.8
Canada	9.5	10.6	10.6	9.4	9.3
Czech Republic	-	12.0	15.2	16.1	16.2
Denmark	11.7	9.6	8.7	8.7	8.9
Finland	15.6	15.6	13.7	12.7	12.6
France	13.2	10.8	9.2	9.0	9.0
Germany	-	10.7	11.0	12.4	12.0
Greece	47.7	46.1	41.9	36.4	35.9
Hungary	-	18.0	15.2	13.8	12.5
Iceland	-	19.7	18.0	14.2	13.7
Ireland	24.8	22.2	18.9	17.4	16.8
Italy	28.7	29.3	28.5	27.0	26.4
Japan	22.3	18.3	16.6	14.7	13.4
Korea	39.5	36.8	36.8	33.6	31.8
Luxembourg	9.1	8.4	7.4	6.5	6.1
Mexico	31.9	41.2	36.0	35.5	34.3
Netherlands	11.6	12.4	11.2	12.4	12.4
New Zealand	19.7	20.9	20.7	18.5	17.3
Norway	11.3	9.3	7.4	7.4	8.0
Poland	27.2	29.7	27.4	25.8	23.5
Portugal	29.4	27.9	26.1	25.1	24.2
Slovak Republic	-	6.5	7.9	12.6	12.9
Spain	25.8	25.2	20.2	18.2	17.7
Sweden	9.2	11.2	10.3	9.8	10.6
Switzerland	-	12.8	13.2	11.2	11.5
Turkey	61.0	58.5	51.4	45.8	41.9
United Kingdom	15.1	15.6	12.8	13.4	13.8
United States	8.8	8.5	7.4	7.5	7.2
EU27 total	-	17.9	16.7	16.3	15.9
OECD total	18.5	19.4	17.6	16.9	16.1
Brazil	-	38.6	-	34.9	32.9
China	-	-	-	48.2	51.2
Estonia	3.2	6.9	9.0	8.1	8.9
Russian Federation	-	1.9	7.6	6.1	5.7

Source: OECD Factbook 2006: Economic, Environmental and Social Statistics.

Notes: The rates shown here are the percentages of the self-employed in total civilian employment *i.e.*, total employment less military employee. Unemployment rates for 1990,

1995, 2000, 2005 and 2007 in the UK were 6.0%, 9.4%, 6.0%, 4.8% and 5.5% respectively. Therefore higher levels of self-employment in 1995 were associated with higher levels of unemployment. Conversely lower levels of self-employment in 2000, 2005 and 2007 were characterised by lower levels of unemployment. While there appears to exist a positive relationship between unemployment and self-employment within the UK this result is not statistically significant.

Table 3.2: Employment within the Manufacturing, Construction and Service Industry at the Regional Level.

	All employed in manufacturing as % of all in employment			All employed in construction as % of all in employment			All employed in service industries as % of all in employment		
	Jun 1995 – May 1996	Jun 2000 – May 2001	Jun 2004 – May 2005	Jun 1995 – May 1996	Jun 2000 – May 2001	Jun 2004 – May 2005	Jun 1995 – May 1996	Jun 2000 – May 2001	Jun 2004 – May 2005
North East	21.2	19.4	14.2	7.6	6.6	8.2	67.4	70.8	75.1
North West	21.9	18.8	14.6	6.8	6.6	7.7	68.4	72.7	75.9
Yorkshire and Humber	21.2	19.5	16.0	7.1	7.1	8.6	67.8	70.7	73.0
East Midlands	26.4	22.3	18.0	6.9	6.9	7.7	62.7	67.7	71.2
West Midlands	26.8	23.3	18.4	6.5	6.7	7.8	63.5	67.5	71.6
East	17.8	16.3	13.4	7.5	7.7	8.7	71.1	73.6	75.3
London	10.4	8.1	6.9	6.0	5.7	6.5	81.9	85.1	85.6
South East	16.1	13.9	11.9	6.6	7.4	7.4	74.6	76.0	78.5
South West	16.9	15.5	13.3	7.0	7.2	8.4	70.8	73.9	74.9
Wales	22.2	17.2	13.9	6.7	7.9	7.6	65.7	70.9	74.8
Scotland	16.6	14.8	11.7	7.8	7.7	8.3	70.1	71.9	75.2

Source: Labour Force Survey: Quarterly: four quarter averages.

38

Table 3.3: Self-employment in Welsh Unitary Regions

	Number	%
Anglesey	4,200	14.0
Blaenau Gwent	1,900	7.0
Bridgend	3,600	6.3
Caerphilly	5,600	8.0
Cardiff	14,000	10.0
Carmarthenshire	11,800	17.0
Ceredigion	9,200	26.9
Conwy	7,600	16.5
Denbighshire	5,900	13.9
Flintshire	8,500	11.4
Gwynedd	9,900	18.7
Merthyr Tydfil	1,200	5.5
Monmouthshire	6,200	15.3
Neath Port Talbot	3,800	7.4
Newport	5,300	8.8
Pembrokeshire	10,500	21.4
Powys	16,400	26.9
Rhondda, Cynon, Taff	7,900	8.7
Swansea	8,700	8.9
Torfaen	3,000	7.9
Vale of Glamorgan	6,800	12.6
Wrexham	7,000	11.4

Source: Nomis – Local Area Labour Force Survey: March 2003 – Feb 2004, quarterly: four quarter average

Notes: The rates shown here are the percentages of the self-employed in employment aged 16+.

Table 3.4: Highest Qualification (as a proportion of working age) in Wales

	Rural	Urban
No Qualifications	15.6	20.0
NVQ1	12.5	14.9
NVQ2	18.1	16.2
Trade Apprenticeships	6.9	7.0
NVQ3	15.0	13.6
NVQ4+	23.9	20.1
Other qualifications	8.0	8.2

Source: Nomis: Local LFS 2003

Figure 3.1: Self-Employment in UK Government Regions
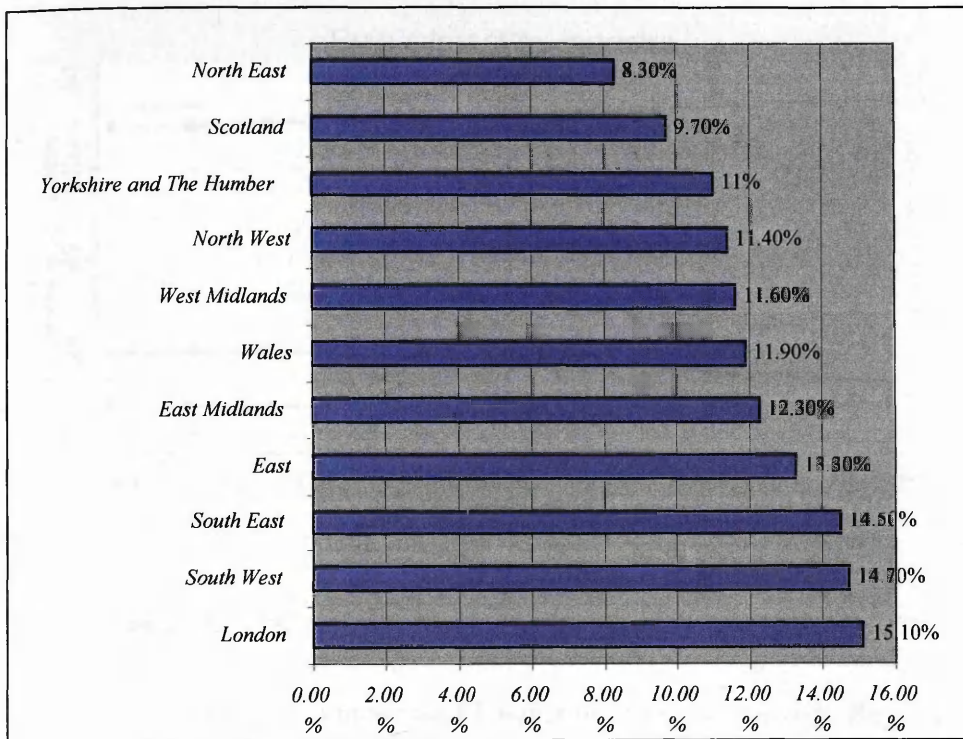
Source: Labour Force Survey: Quarterly: four quarter averages (June 2004 – May2005).

Figure 3.2: Employment within the Manufacturing, Service and Construction Industry

Data Source: LFS : Quarterly: four quarter averages from June 1994 - May 2005
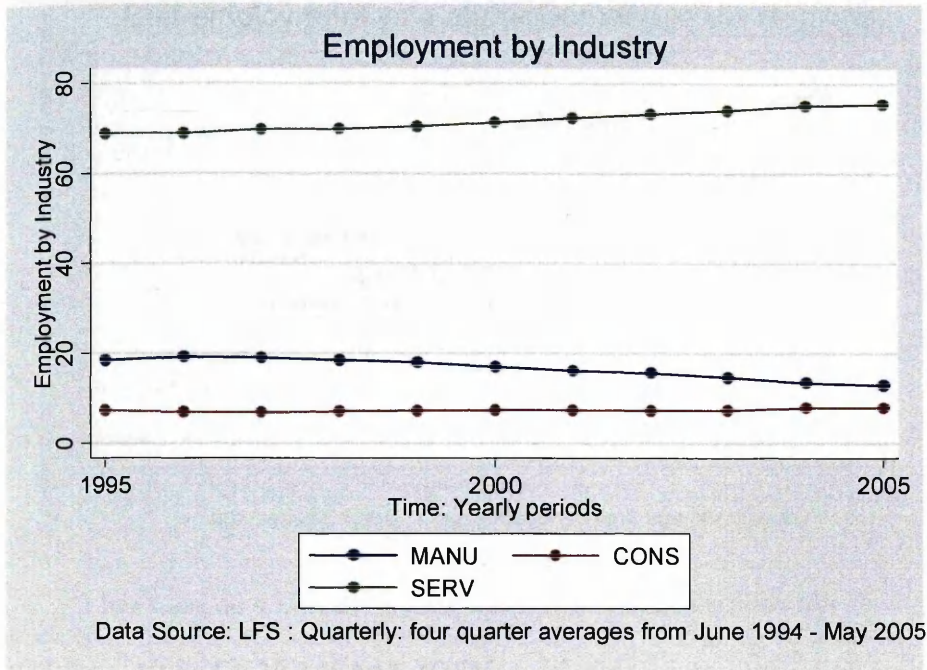
Figure 3.3: Self-Employment and Unemployment within UK Regions

Data Source: QLFS: June 2004 - May 2005; four quarter averages
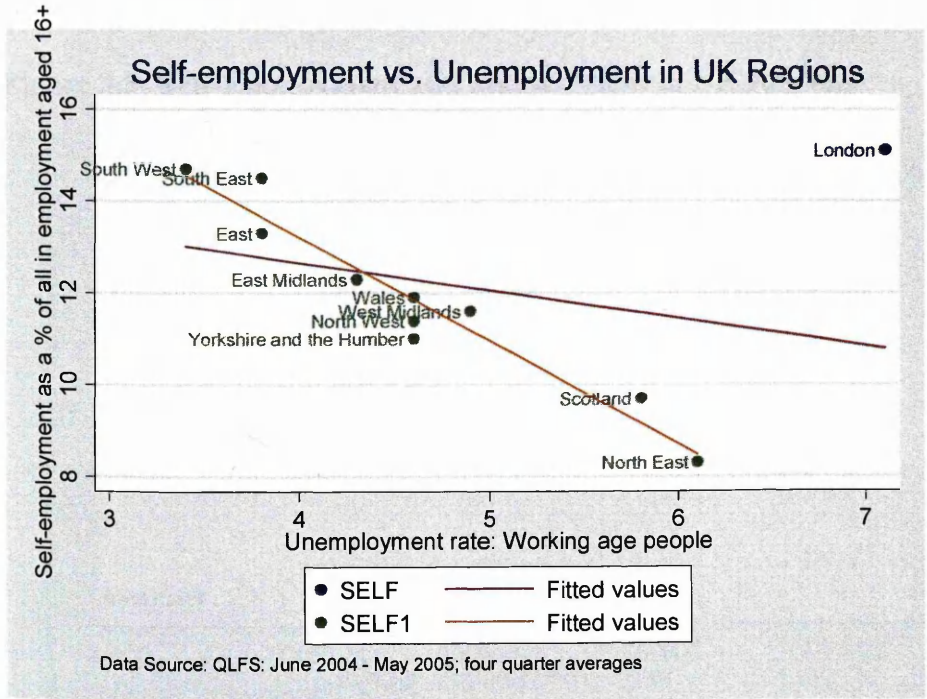
$$SELF = 15.075*** - 0.604\ UNEM$$
$$\quad\quad\ (2.987) \quad\quad\quad (0.606)$$

$$SELF1 = 22.189*** - 2.248***\ UNEM$$
$$\quad\quad\ (0.986) \quad\quad (0.212)$$

Notes: For Figures 3.3 to 3.14, *indicates significance at .10 level. **significant at 0.05 level, ***significant at 0.01 level

41

Figure 3.4: Self-Employment and Labour Demand in UK Regions

Self-employment vs. Labour Demand in UK Regions
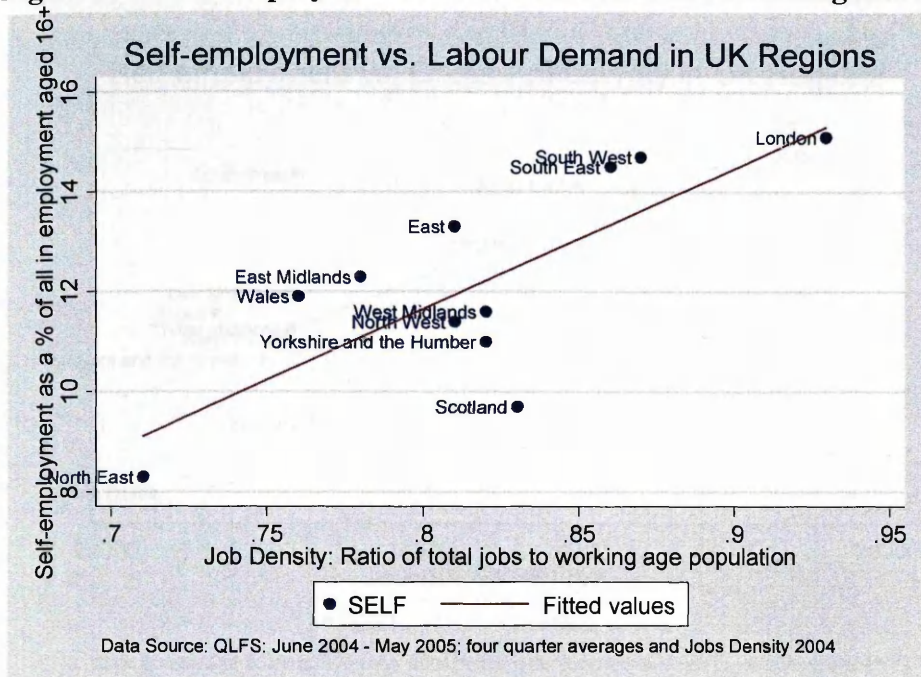
$$SELF = -10.864 + 28.145 *** JDEN$$
$$\quad\quad\quad (6.381) \quad\quad (7.782)$$

Figure 3.5: Self-Employment and House Prices in UK Regions

Self-employment vs. Average House Prices in UK Regions
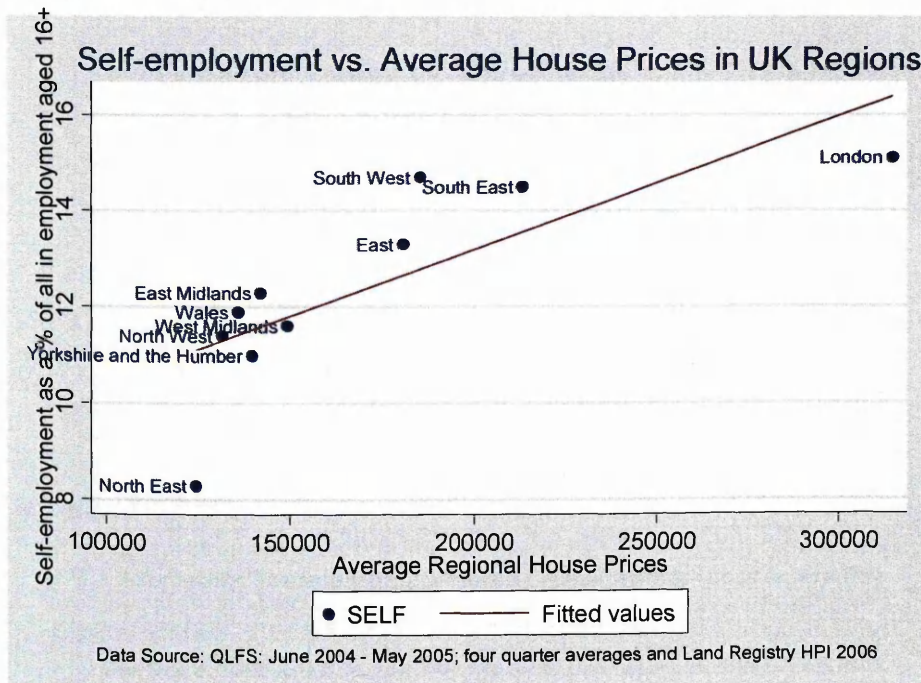
$$SELF = 7.66232 *** + 0.000027 *** HPRC$$
$$\quad\quad\quad (1.44622) \quad\quad\quad (8.03e-06)$$

Figure 3.6: Self-Employment and Gross Annual Pay in UK Regions

Self-employment vs. Gross Annual Pay in UK Regions

Self-employment as a % of all in employment aged 16+

London
South West
South East
East
East Midlands
Wales
West Midlands
North West
Yorkshire and the Humber
Scotland
North East

Gross Annual Pay

● SELF ——— Fitted values

Data Source: QLFS: June 2004 - May 2005; four quarter averages and ASHE - workplace analysis 2006
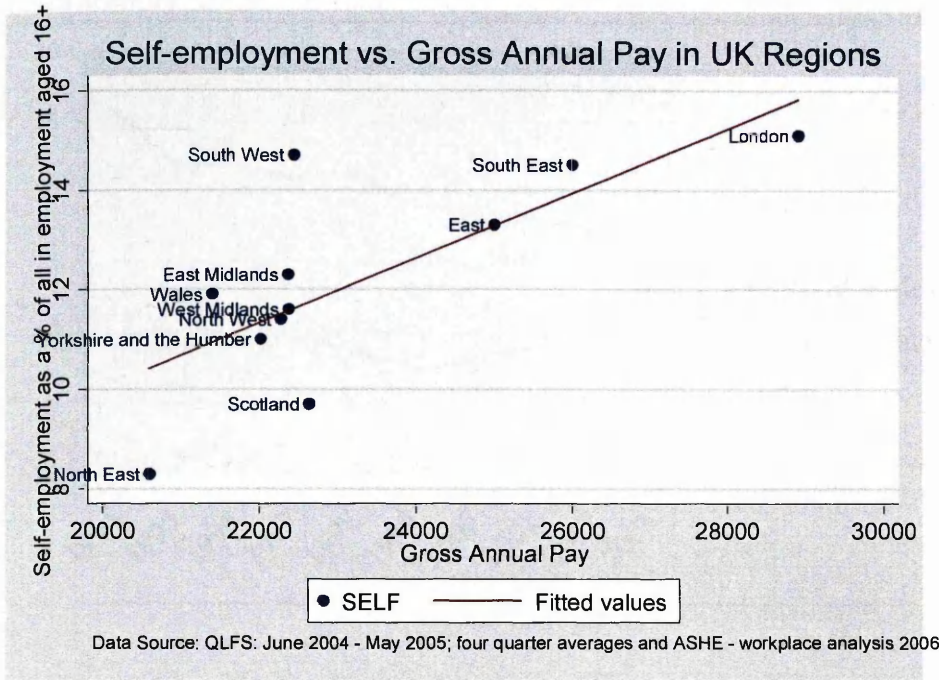
$$SELF = -2.936 + 0.00065 * ANNP$$
$$(4.627) \quad (0.0002)$$

Figure 3.7: Self-Employment and Affordability in UK Regions

Self-employment vs. Affordability in UK Regions

Self-employment as a % of all in employment aged 16+

London
South West
South East
East
East Midlands
Wales
West Midlands
North West
Yorkshire and the Humber
North East

Affordability: Average Regional House Prices/Regional Gross Annual Pay

● SELF ——— Fitted values

Data Source: QLFS: June 2004 - May 2005; four quarter averages and Land Registry HPI 2006
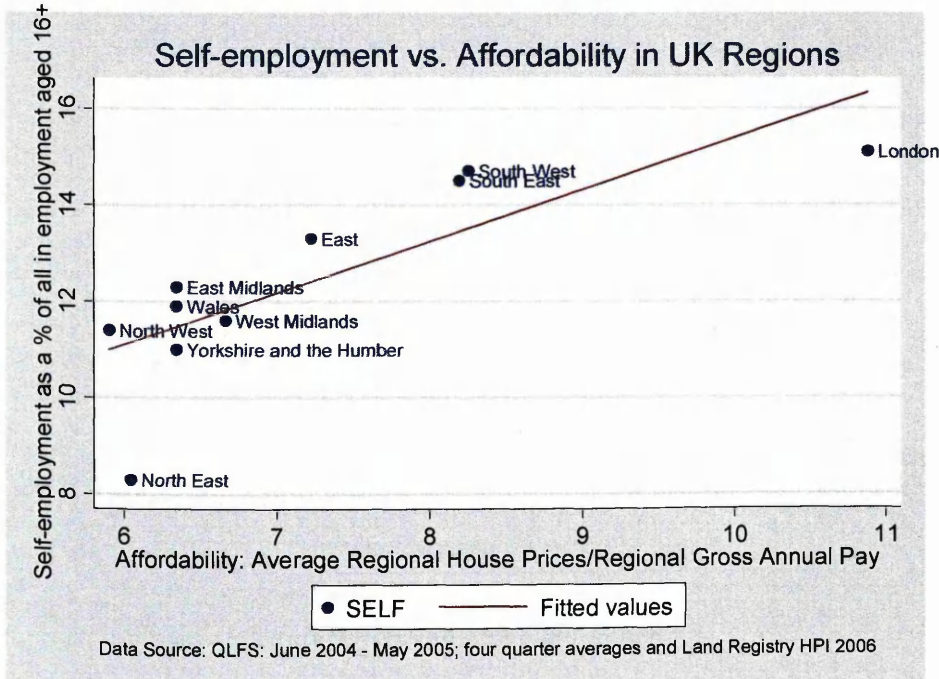
$$SELF = 4.688 * + 1.07 * * * AFFORDABILITY$$
$$(5.0462) \quad (0.9686)$$

43

Figure 3.8: Self-Employment Rates in Urban and Rural Wales
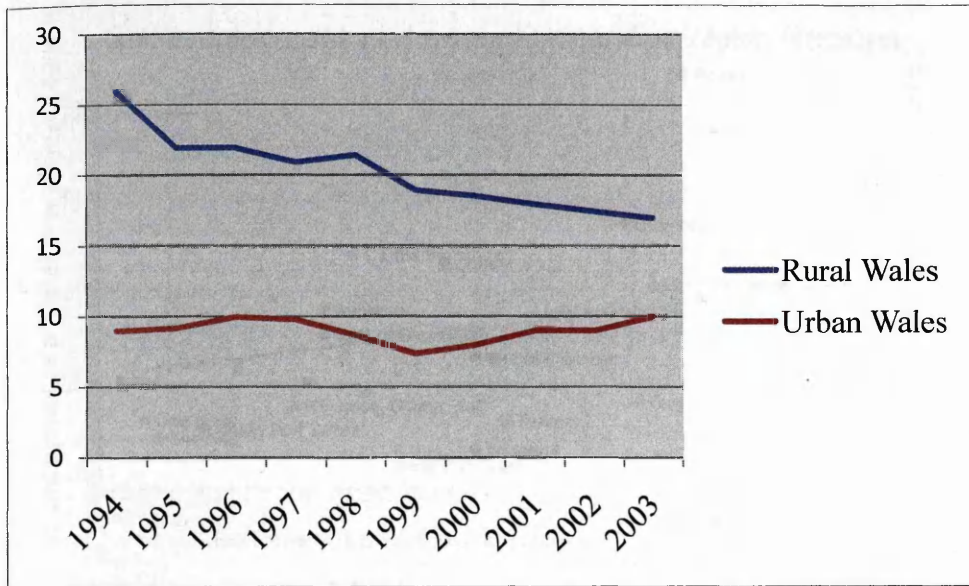
Source: Source: Labour Force Survey: Quarterly: four quarter averages *(Jones, 2004)*.

Figure 3.9: Self-Employment and Unemployment in Welsh Unitary Regions
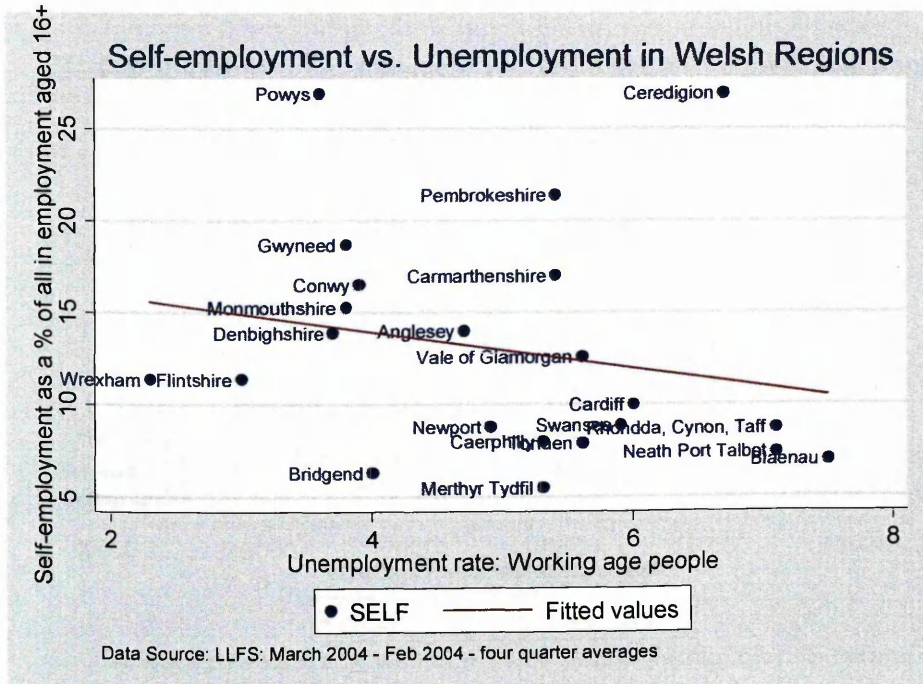
$$SELF = 17.9022*** - 0.9886\ UNEM$$
$$\quad\ \ (5.0462) \qquad\qquad (0.9686)$$

Figure 3.10: Self-Employment and Labour Demand in Welsh Unitary Regions

Self-employment vs. Labour Demand in Welsh Regions
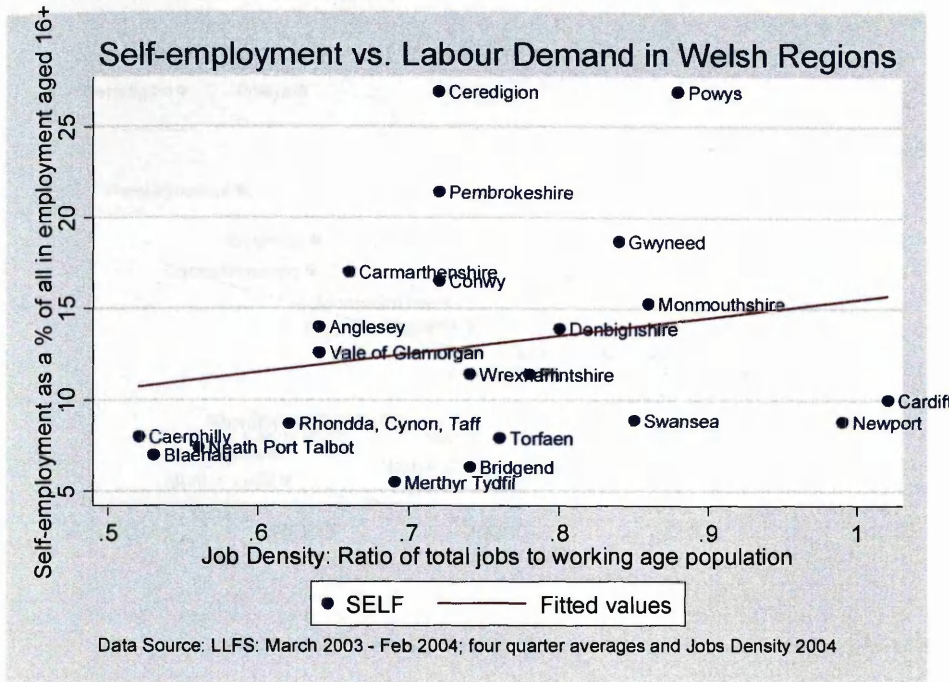
$$SELF = 5.5676 + 9.9516 \; JDEN$$
$$(7.6663) \quad (10.2036)$$

Figure 3.11: Self-Employment and House Prices in Welsh Unitary Regions

Self-employment vs. Average House Prices in Welsh Regions
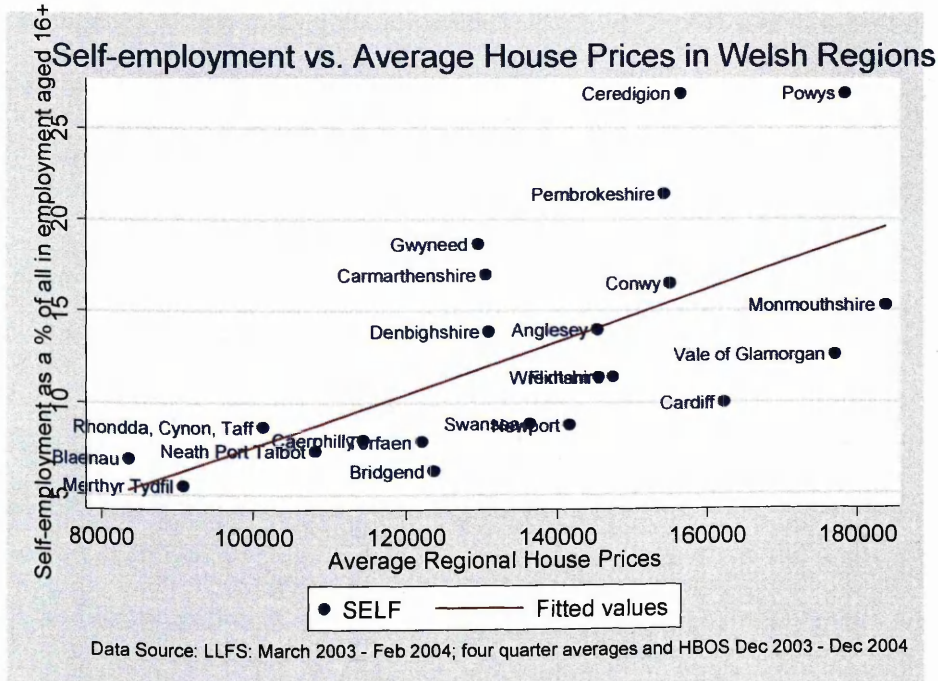
$$SELF = -6.632722 + 0.0001427 *** \; HPRC$$
$$(5.5706) \quad (0.000039)$$

Figure 3.12: Self-Employment and Gross Annual Pay in Welsh Unitary Regions
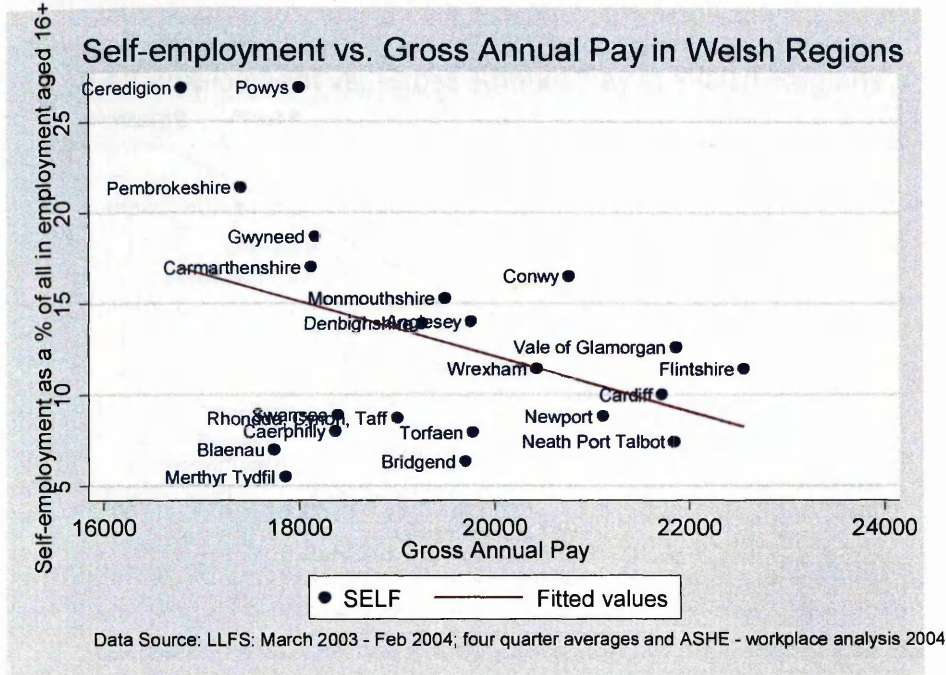
$SELF = 42.4375** - 0.001516* ANNP$

(15.1181)   (0.0007)

Figure 3.13: Self-Employment and Gross Annual Pay in Rural and Urban Wales

Self-employment vs. Gross Annual Pay in Welsh Regions

Data Source: LLFS: March 2003 - Feb 2004; four quarter averages and ASHE - workplace analysis 2004
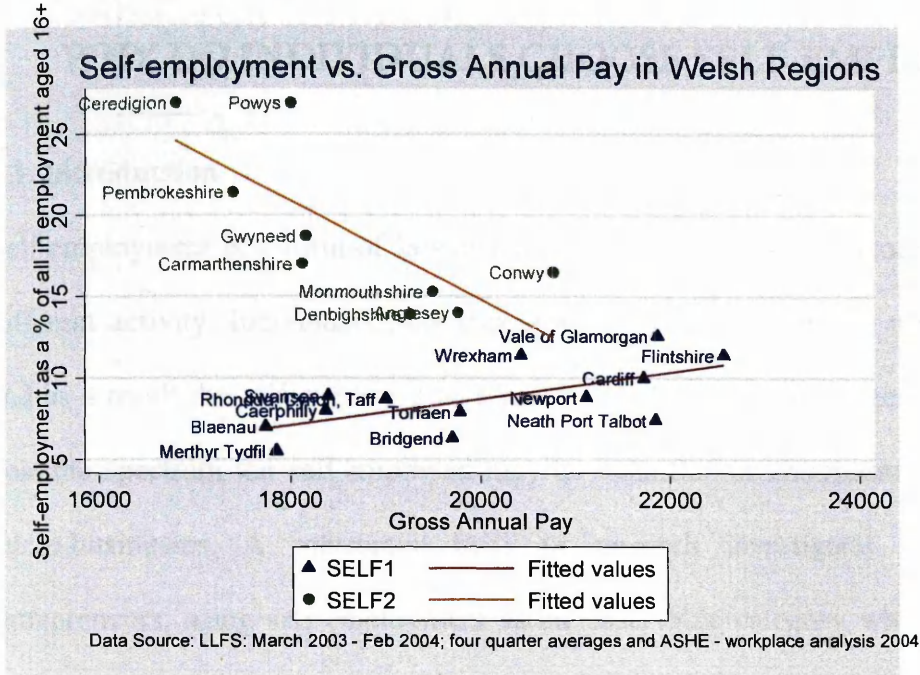
$$SELF1 = -7.610864 - 0.0008177 ** ANNP$$
$$\quad\quad (5.753227) \quad (0.0002864)$$

$$SELF2 = 75.67577 *** + 0.0030437 ** ANNP$$
$$\quad\quad (18.64503) \quad\quad (0.0009985)$$

Figure 3.14: Self-Employment and Affordability in Welsh Unitary Regions

Self-employment vs. Affordability in Welsh Regions

Data Source: LLFS: March 2003 - Feb 2004; four quarter averages and HBOS Dec 2003 - Dec 2004
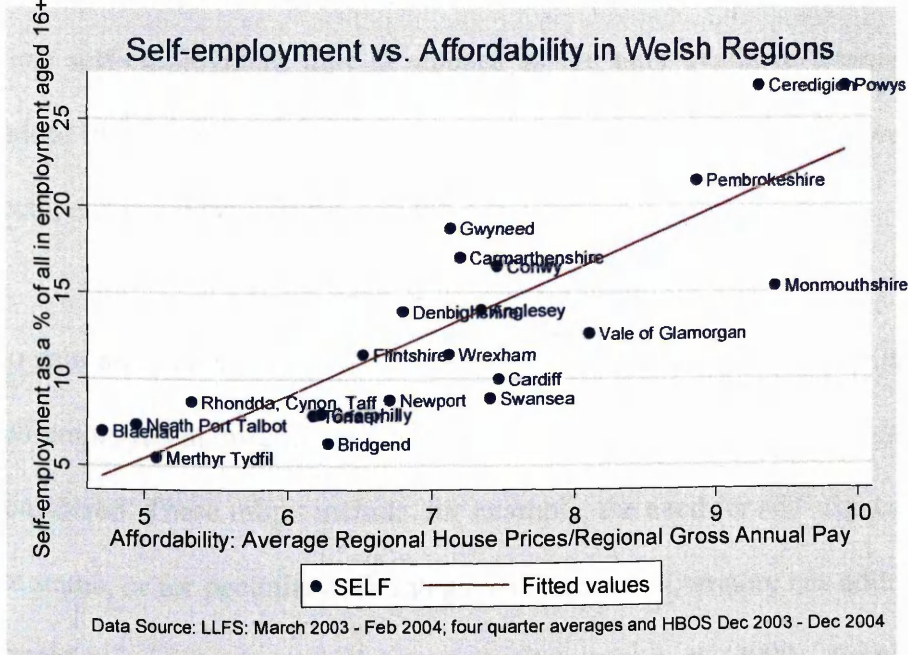
$$SELF = -12.50439 *** + 3.598229 *** AFFORDABILITY$$
$$\quad\quad (3.90336) \quad\quad (0.54165)$$

CHAPTER 4

WHY DO INDIVIDUALS CHOOSE SELF-EMPLOYMENT?[19]

4.1. Introduction

Self-employment is a form of labour market status which may encompass a wide range of different activity. Individuals may choose to be self-employed for many different reasons, and as a result the self-employed as a group may be highly heterogeneous. At one end of a possible spectrum the self-employed may be identified as entrepreneurial, single employee micro-businesses. A substantial body of research investigates the self-employed as entrepreneurs, using self-employment as an observable category which, albeit imperfectly, identifies the stock of entrepreneurial talent in the economy. At the other end of this spectrum, self-employment may comprise a far less desirable state chosen reluctantly by individuals unable to find appropriate paid employment under current labour market conditions. So for example, individuals wanting flexible working hours might choose self-employment if a paid employment contract offering sufficient flexibility is unavailable. For some self-employment may be chosen as the only available alternative to unemployment. Indeed in many developing economies self-employment may be viewed as a form of informal sector employment activity.

To gain an understanding of the 'positive' reasons why individuals might choose to become self-employed in order to venture a new business, a range of underlying motivations might be considered. These might include, for example, the need for self-expression, for independence, for status, or for pecuniary advantage. An extensive literature has addressed the process of the formation of entrepreneurial intention (Krueger *et al.*, 2000). Empirical analysis typically

---

[19] This chapter draws heavily from an IZA discussion paper entitled; "Why Do Individuals Choose Self-Employment", by C. Dawson, A. Henley and P. Latreille.

develops a range of constructs related to the formation of entrepreneurial intention by using detailed questionnaires with samples of individuals and correlating these with reported strength of feeling about self-employment or entrepreneurship. In such studies reported levels of interest in entrepreneurship are often very high, particularly if questions are framed loosely in terms of open-ended career aspirations (see Blanchflower *et al.*, 2001). Such high levels are difficult to square with much lower levels of actual self-employment in many countries. This suggests that intentions to become self-employed are either frustrated or that self-reported aspirations are vague and poorly formed. A further literature in economics models the choice of self-employment as an occupational choice decision, focusing on the importance of background and demographics associations. A key objective of this literature, taking its lead from the seminal study of Rees and Shah (1986), is to address whether the choice of self-employment might be motivated by the expected income differential between self-employment and employment for a given individual (see Le, 1999 and Parker, 2004, for surveys).

Very few studies, if any however, have analysed individual-specific factors associated with entrepreneurial motivations. The preceding discussion suggested that the self-employed can be classified into two broad types; those that have entered voluntarily for reasons such as independence, job satisfaction and or anticipated higher incomes, and those that have been 'pushed' into self-employed because of the absence of any other attractive alternative. If the motivations behind the decision to become self-employed are largely the former then self-employment can be viewed positively, providing the opportunity for individuals to improve their quality of life and/or for exploring creative entrepreneurial opportunities. Public policy which supports transitions into self-employment may therefore have wider economic and societal benefits. On the other hand, if a substantial number are in self-employment for

'negative' reasons then approaches to public policy which frame self-employment in entrepreneurial terms may unwittingly encourage some to launch business ventures for which they are ill-prepared and poorly resourced. Resulting spells of self-employment may be short and disheartening, and in some cases may simply result in delayed transition into unemployment.

In this chapter we undertake an analysis of the motivating factors cited by the self-employed in the UK as reasons for choosing self-employment over the alternative of paid employment working for someone else. This is undertaken by analysing information contained within selected years of the UK Labour Force Survey, the main quarterly British household survey of labour market activity. The principal contribution of the paper is to provide a multivariate analysis of the association of a range of demographic and background characteristics with differing motivations for choosing self-employment, whilst controlling for the selection bias that arises because the self-employed as a group are unlikely to be representative of the whole population of the economically active. Specifically we are concerned with three main themes. The first concerns the extent to which the self-employed are self-employed out of necessity, opportunity, or lifestyle or occupational choice. The second concerns the extent to which there is heterogeneity amongst the self-employed on the basis of the motivations that they report for choosing self-employment. The third and final theme focuses on the extent to which motivations on becoming self-employed vary across UK regions and whether these variations are useful in explaining regional disparities in self-employment rates observed across the UK. We conclude that background characteristics such as gender, ethnicity, educational attainment, housing tenure status and geographic location are important factors influencing entrepreneurial motives.

The remainder of the chapter is structured as follows. Section 4.2 provides further background and reviews previous related literatures. Section 4.3 describes the data source used. Section 4.4 discusses the methodology adopted to model self-employment motivation. Section 4.5 describes the results of the analysis. Section 4.6 provides a concluding discussion.

4.2. Background and Previous Literature

Motivating Factors for Entry into Self-Employment

Whilst much previous empirical work has sought to determine what personal characteristics separate the self-employed from the employed, less attention has been given to the specific reasons that individuals cite for choosing self-employment.[20] Moreover, very few previous studies employ nationally representative data, and those that do, have generally refrained from the further analysis of background characteristics that may be associated with these motivations. Previous research on entrepreneurial motivations has predominantly focused upon the 'push' versus 'pull' factors, or to a lesser extent the divergence between the necessity entrepreneur and the opportunity entrepreneur. Opportunity entrepreneurs start their business venture voluntarily, that is as individuals attracted into self-employment by perceived benefits such as independence, wealth, satisfaction, and personal and family motivations. In contrast, necessity entrepreneurs are 'pushed' into self-employment because of negative external forces, such as layoff and a subsequent lack of available paid-employment work.

At the aggregate level research has addressed the case for both 'push' and 'pull' theories by examining the relationship between self-employment and unemployment. There is little agreement here. Theoretical arguments have been constructed in support of both a positive

---

[20] While the GEM provides some descriptive information on motivations, there have been very few studies that deal with the issue more thoroughly, in regards to applying more sophisticated statistical techniques investigating differences between entrepreneurial motives with respect to a range of variables.

and a negative relationship between self-employment and unemployment. On one hand, the prosperity-pull hypothesis suggests that individuals are more likely to attempt to start a new firm under conditions of economic expansion, when incomes are growing and opportunities are strong for market specialisation. Accordingly, a higher new firm formation rate may be associated with lower local unemployment. High unemployment will inhibit the market demand for products of the self-employed, and expose those who are self-employed to greater risk of falling incomes and possibly bankruptcy. This implies a negative relationship between self-employment and unemployment.

On the other hand, according to the 'push' hypothesis, increasing levels of unemployment reduce the prospects for finding paid employment; as a result the expected returns from entrepreneurship become more attractive, pushing people into self-employment (Storey, 1982; Storey and Johnson, 1987). Moreover, second hand capital becomes both cheaper and more readily obtainable, as business closures increase in a time of recession. Thus the recession-push hypothesis suggests that worsening economic conditions activate previously dormant entrepreneurial ambitions, pushing individuals towards self-employment. Therefore, the principal issue when using unemployment as an explanatory variable in an empirical analysis of self-employment is one of identification. Unemployment will capture both supply side and demand side effects. Whilst most cross sectional analysis has found a negative association (for example, Evans and Leighton, 1989 and Blanchflower and Meyer, 1994), the majority of times series studies report a significant positive correlation between self-employment and unemployment, reflecting the recession push hypothesis (for example Hamilton 1989). Some time series analyses, notably Black *et al.* (1996), Cowling and Mitchell (1997) and Robson (1998) also report a positive association between house prices and self-employment, consistent with a prosperity-pull hypothesis. Henley (2004), using

individual-level longitudinal data, finds that initial housing wealth exerts a positive effect on the likelihood of being self-employed, but also reports that inertia plays an important role: once someone has been pulled or pushed into self-employment they more likely to continue to choose self-employment as an occupation. Some authors have identified windfall financial gains as positively associated with transition into self-employment, for example Georgellis *et al..* (2005). The transmission mechanism here between such indicators of individual economic prosperity and entrepreneurship is thought to be the relationship between the value of personal collateral and access to business loan finance.

Nearly all cross-sectional studies, using individual-level data, suggest that motivations for choosing self-employment are dominated by positive factors. However studies which sample the self-employed only suffer from a potential selection bias, which may lead to differences between stated (*ex-post*) motivation and actual (*ex ante*) motivations. That is, people may be reluctant to admit to negative factors *ex post*, preferring to provide information which is consistent with revealed behaviour. This potential *caveat* must be considered. Dennis (1996), reporting findings from a survey of around 3000 new business founders in the USA in the late 1980s, suggests that people enter into self-employment because they want to and not because of lack of available alternatives. In particular, just 8 per cent of the sample described 'the lack of alternatives' as a very important motivation for choosing self-employment. 57 per cent reported that using their 'skills and abilities' was a very important motivating factor. 54 per cent reported that both 'greater control over their life' and 'building something for the family' were very important motivating factors for forming their own business. In a very small-scale study, Hughes (2003) uses data from 61 Canadian female respondents in the province of Alberta who are self-employed. In general 'push' factors were not found to be the primary

motivator behind the decision to become self-employed. In contrast most were motivated by reasons such as independence and a positive working environment.

Similarly, using data from a much larger nationally representative survey of 3,840 self-employed Canadians for 2000, the same author reports that 'independence/freedom' is the most important motivator for both men and women when entering into self-employment (Hughes, 2006). 42 per cent of men and 24 per cent of women cite this as their main motivation. For women, 'work-family balance' and 'flexibility of hours' were the next most cited reasons. For men 'challenge' and 'prospects of more money' were the next most cited motivators. Overall Hughes suggests that over 71 per cent of men can be classified as 'opportunity' entrepreneurs, with only 22 per cent pushed into self-employment as a result of the lack of other suitable opportunities. A further 7 per cent of men could be classified as 'work-family entrepreneurs'. For women the percentages were 53 per cent, 22 per cent and 25 per cent respectively, demonstrating for women the far greater importance of work-family relationships when making the decision to become self-employed.

Taylor (1996), using UK data from 1991 found that self-employed Britons were less likely then those in paid-employment to regard pay and security as important job criteria, but were more likely to cite enjoyment and work satisfaction then their paid-employment counterparts. Smeaton (2003), using UK data from 1986 and 2000, found that in 1986 16 per cent of men cited 'unemployment/redundancy' as a motivating factor behind choosing self-employment, whereas by 2000 this figure had risen to 26 per cent. For women the results were 5 and 10 per cent respectively. The most cited reason for men in both 1986 and 2000, at 39 per cent, was a preference for being one's own boss. For women in 1986 the most cited motivating factor was 'going into business with a family member'. By 2000 women cited 'going into business

with a family member' equally at 23 per cent with 'prefer to be own boss' and 'to follow an interest' as the most popular reasons. These results suggest that for both men and women, despite lower rates of UK unemployment in 2000, the self-employed seemed to have become more pessimistic about the availability of paid employment. Carter *et al.* (2003), find evidence from US data that the motivations offered by nascent entrepreneurs when starting a business are dominated by self-realisation, financial success, innovation and independence.

Frey and Benz (2003) assess the level of job satisfaction of the self-employed compared to those in organisational employment using individual-level longitudinal data for Germany, Switzerland and the UK. Although these data sources are not specifically concerned with explicit motivations for choosing self-employment, the authors are able to conclude that higher levels of subsequently reported job satisfaction amongst those transitioning into self-employment are associated with an absence of hierarchy and sense of independence, as proxied by the size of the former employer.

Whilst the ease with which alternative employment can be obtained may be an important factor affecting a decision to transition into or remain in self-employment, opportunity cost considerations are also important; that is the wage rate that might otherwise be earned in paid-employment. In a seminal study, Rees and Shah (1986) find evidence that provides support for self-employment/paid-employment decisions being made rationally on the basis of a consideration of the expected earnings differential in the two states. Taylor (1996) also finds that individuals appear to be attracted to self-employment because of higher expected earnings. Similarly, Clark and Drinkwater (2000) suggest that the difference between an individual's predicted earnings in paid and self-employment exerts a powerful influence upon the employment decision. On the other hand other studies, including Gill (1988) and Earle

and Sakova (2000), question this finding. These mixed empirical results may be explained by the divergence of data sources used, the robustness of model specifications and identifying exclusions, the ambiguous nature of the definition of employment or self-employment and the difficulties in accurately measuring self-employment income and therefore the differential between the two states. It is therefore open to debate as to whether the expected financial gain from choosing self-employment is a predominant factor in determining occupational status, or whether other non-pecuniary considerations are of equal or greater importance.

Whilst this literature offers some pointers to potential motivations behind self-employment as occupational choice, the direct survey evidence which is available is limited and usually based upon small samples under non-random selection criteria. Moreover, whilst an expansive literature exists in which personal characteristics separate entrepreneurs from non-entrepreneurs, little attempt has been made to determine systematically what personal characteristics are associated with the pattern of reported motivations for choosing self-employment.[21]

Spatial Variations in Entrepreneurship

Next to individual level studies on motivations to enter self-employment, there are cross-country studies. These studies investigate motives at the aggregate level and focus on variances in entrepreneurial motives across countries. As previously suggested there are two major reasons that individuals participate in self-employment: 1) they start their business venture voluntarily, that is attracted by perceived benefits (opportunity/pull), or 2) they are pushed into entrepreneurship because all other options for work are either absent or unsatisfactory (necessity/push). Reynolds *et al.* (2002), reports evidence of great variability

---

[21] Previous literature has looked at the gender differences between motivations to become self-employed, and identified the importance of work-family balance issues for women. See Buttner and Moore (1997) and Hughes (2006) for an overview of the evidence.

existing between the 37 countries used in the Global Entrepreneurship Monitor (GEM), regarding the distribution of opportunity and necessity entrepreneurs. In particular, while there are virtually no necessity entrepreneurs in France, Spain, United Kingdom, United States and Japan, up to 7 per cent of the labour force is pursuing necessity entrepreneurship within Chile, China, Argentina and Brazil. Similarly, Minniti *et al.* (2005) report that in general a more favourable ratio of opportunity to necessity-driven motives is evident in countries that exhibit healthy and diversified labour markets or stronger safety nets, in respect to social welfare provisions. This type of research suggests that the ratio of opportunity- to necessity-based motives for starting a business is more favourable in the cluster of high-income countries. In addition, this research has highlighted the importance of understanding the heterogeneity of entrepreneurial motives, in terms of job creation, innovation and longevity within entrepreneurship. More specifically, Minniti *et al.* (2005) report a significant positive relationship between the ratio of opportunity to necessity entrepreneurship and the transition rates from early-stage to established entrepreneurship. That is, countries that are primarily characterised by opportunity-driven entrepreneurship show a lower share of early-stage business failures, suggesting there may exist a relationship between the motivation to start a business and the subsequent chance of that venture succeeding. Hessels *et al.* (2008), find that countries with a higher incidence of increase-wealth-motivated entrepreneurs (individuals who indicate that their prime motive for being self-employed is to increase wealth) tend to have a higher prevalence of high-job growth. Reynolds *et al.* (2002), report that opportunity entrepreneurs are more likely to add a higher contribution to the economy then necessity entrepreneurs. In particular, they find that approximately 20 per cent of entrepreneurial activity, expect to provide no jobs, 53 per cent of which are necessity entrepreneurs. In contrast, over 25 per cent of entrepreneurs expected to provide more than 20 jobs in five years, of which 70 per cent are opportunity entrepreneurs. Moreover, 5 per cent

of all necessity entrepreneurs expect to create a new market, compared to 9 per cent of opportunity entrepreneurs. Whilst however previous research has highlighted the variations in motives across countries, very little, if any research has addressed whether motives for entrepreneurship vary across regions of the same country. If regional variations in entrepreneurial motives exist, this would imply that current programs designed to encourage entrepreneurship may be appropriate for some regions and not for others. This is clearly important for future policy measures aimed at reducing the variations in self-employment rates observed across regions of the same country.

The self-employment literature has found and documented significant and persistent regional variations in self-employment in an assortment of countries, such as the US and UK. Table 4.1 illustrates the self-employment rate by region within the UK for the years 1999, 2000 and 2001 spring quarters only.[22]

Across this period in the UK, areas in the North East, the North West and Yorkshire and Humber exhibited rates of self employment some 28, 13 and 15 per cent lower than the UK average; contrastingly areas such as London, the East, the South West and the South East display self-employment rates, respectively 13, 10, 24 and 12 per cent higher. The strong influence of industry type upon these propensities suggests that regions where there has traditionally been manufacturing firms may well have a lower then average self-employment rate. This can be seen in the North, where there has traditionally been a concentration of manufacturing, as opposed to areas in the South and South East, which rely heavily on construction and the service industry. Correspondingly, the rate of new firm formation has been sectorally and geographically irregular, revealing a north-south divide. In particular,

---

[22] Self-employment rates are analysed between 1999 and 2001 due to the availability of the question on motivations for becoming self-employed in the QLFS which was asked only periodically (spring quarters only) between 1999 and 2001.

between 1980 – 1990, regions such as the "*South East, South West and East Anglia recording much higher rates than Northern England, Scotland, the North West and Northern Ireland*" (Keeble and Walker 1994, pp.412-413).

Several factors have been used to explain regional variations in self-employment rates, some of which have been investigated in Chapter 3 with use of bi-variate associations. These factors can be grouped under three broad sets of headings. Firstly and perhaps most predominantly (Keeble and Walker 1994) are the demand side influences. That is, influences which are thought to affect the market opportunities for those individuals considering self-employment. Second are factors influencing the prospective pool of local entrepreneurs, otherwise known as supply side influences. Lastly, there is the presence of region-specific effects, including regional differences in culture and history, which may affect the suitability of both the region and the region's labour force for entrepreneurial activity.

It is sensible to suppose that, considering new firms have a tendency to supply local markets, as local demand increases, more new firms will be created to satisfy this increased local demand, increasing self-employment. There are two indicators predominantly used to utilise variations in spatial demand: (1) rates of change of household income or Gross Domestic Product (GDP) (2) population density/growth or in-migration, underlying the theory that as the population becomes more concentrated the local market opportunities associated are greater. However, it is worth noting that population growth may also pick up supply side influences, reflecting a growth in the supply of entrepreneurs. Keeble and Walker (1994) and Armington and Acs (2001), attribute spatial variations in new firm formation within the UK and US respectively, to be largely reliant upon growth of local GDP and changes in population growth. Similarly Evans and Leighton (1987) have shown a significant positive

relationship between aggregate demand and male self-employment. These results imply wealthier areas are expected to be associated with higher rates of new firm formation, reflecting two separate influences. Firstly, underlying demand side influences, those in wealthier areas are more likely to have higher disposable incomes, leading to greater demand for income elastic services provided by small firms. Secondly, underpinning supply side influences, a higher disposable income enables founders to raise capital more easily, at lower cost, to enable them to start a new firm. This relates to one of the major factors considered within economic theory of the self-employed, that is, the financial constraints faced by an individual who wishes to establish a business. Blanchflower and Oswald (1990) found that initial capital often required to establish a business is frequently obtained through accumulation, gifts, inheritances or loans. Similarly Bernhardt (1994) attributes home ownership and the availability of investment income to the probability of becoming self-employed. At the regional level, Robson (1998a), using pooled cross-section times series data on male self-employment rates in the UK over the period 1973–1993, considers explanatory variables under two headings: factors which influence the relative returns to self-employment, and factors which influence the ease with which start-up finance may be obtained. In the long-run, Robson concludes that self-employment will be more prevalent in areas in which a high-proportion of GDP is accounted for by industries with relatively low barriers to self-employment (low capital intensity), and in regions where there is a high level of net housing wealth per capita. Further, the north-south divide in regional rates of self-employment within the UK clearly reflects the distribution of net housing wealth. In support, Robson (1998a) explains the rapid growth of UK self-employed males during the 1980s, by the rise in the real value of personal sector liquid wealth, through rising levels of GDP, and to a lesser extent, increases in the real value of housing wealth. Furthermore, Black *et al.* (1996), investigate the extent to which the supply of collateral affects business formation in

the UK, given that bank loans are typically secured upon an entrepreneur's house. The results suggest that a 10 per cent rise in the value of unreleased net housing equity, raises by 5 per cent the number of new VAT registrations. Cowling and Mitchell (1997), find empirical evidence linking the rise in self-employment in the UK over the period 1972–1992, to activity in the housing market. In particular that increased house wealth lowers barriers to self-employment arising from borrowing constraints, since the supply of lending is proportional to housing wealth. The implications of the reluctance of banks to sanction unsecured loans, highlights the importance of collateral in the path to self-employment, and of the importance of housing wealth as collateral.

In addition to housing wealth, the importance of inheritance and to a lesser degree family wealth upon capital constraints has been acknowledged. Blanchflower and Oswald (1991) using British data, indicates that the propensity to be self-employed increases if the individual has received a gift or inheritance. Holtz-Eakin *et al.* (1994), using US data found similar results. In particular, liquidity constraints seem to be binding, since the likelihood of becoming an entrepreneur increases with the size of inheritance received. Laferrere and McEntee (1995) find that intergenerational transfers of wealth relax liquidity constraints, and similarly that the intergenerational transfers of entrepreneurial human capital are important. Using a different approach, Lindh and Ohlsson (1996), using Swedish microdata from 1981, test whether windfall gains, in the form of lottery winnings and inheritances affect self-employment. Their results suggest that the probability of being self-employed increases when people receive both types of windfall gains specified. At the regional level then, one might expect regions characterised by high housing wealth and a high proportion of intergenerational transfers of wealth, to be more entrepreneurial, as those factors relax the capital constraints consistent with entry into self-employment.

Whilst it is argued that entrepreneurs face liquidity constraints, these capital requirements will undoubtedly differ across industries. Accordingly industrial restructuring, associated with (i) shifts from manufacturing employment to services and (ii) reduction in firm size, will be more favourable towards self-employment. In particular when a region is dictated by the service industry, *ceteris paribus*, this will encourage self-employment, since service sector firms are usually less capital intensive then those within the manufacturing sector. Similarly regions that are characterised by a high-proportion of small firms, which are often characterised by specialisation of products and market adaptability, are synonymous with high rates of formation and self-employment. The growth of firm formation within the South East of the UK is indisputably associated with the concentration of financial, professional and business services, historically related with this region, whilst areas in the north of the UK, historically synonymous with traditional manufacturing firms, have seen relatively low-levels of new firm-formation growth (Keeble and Walker 1994).

Consistently, in North America self-employment is most prevalent in the service and retail trades, whilst the lowest rates of self-employment are found in manufacturing. As previously mentioned, a larger proportion of smaller firms in a region is often used to explain increased entrepreneurial activity. In particular, small firms provide potential entrepreneurs with business ideas, whilst providing opportunities for budding entrepreneurs to familiarise themselves with a particular market and with the management of a small firm.

Moreover, these insights provided by small firms reduce the barriers to entry into self-employment, and in particular establishing a business. Kangasharju (2000), investigating regional variations in firm formation in Finland over the period 1989–1993, concludes that within Finland and several other countries that the presence of small firms is the most

important determinant of regional firm formation. Correspondingly, Fritsch (1992), determining regional differences in the formation of firms within Germany, acknowledges the small-business sector as a 'seed-bed'. More specifically, that there is a large positive correlation between the formation rates of firms and the share of the regional labour force in small establishments suggesting that many of these new entrepreneurs had gained skills specific to their occupation and had worked in small firms prior to starting their own business. The empirical evidence appears to support the suggestion that labour market experience has a positive relationship with the propensity to become self-employed.[23] However the relationship is subject to caveats, in so much as labour market experience is correlated with the accumulation of financial resources necessary to enter into self-employment, consequently reflecting the capital constraints associated with entry into self-employment as opposed to any form of labour market experience. The implication that industrial structure provides a significant explanation for spatial variations in self-employment, suggests that reducing or eliminating the gap across regions may be difficult without serious amendments to that structure.

Closely related to this issue, but predominantly focused on in the firm formation literature, is the distinction between urban and rural locations. Whilst, urban areas have advantages, in that they are typically larger markets, witness higher average disposable incomes, have on average a higher educated workforce and easier access to inputs, including capital, labour and suppliers. Urban areas are more expensive in that inputs such as rent and labour are proportionality more costly then within rural areas, potentially offsetting the possible benefits of urban areas, in new firm formation. Similar to the theory of urbanisation is that of agglomeration externalities.

---

[23] See Rees and Shah (1986) and Evans and Leighton (1989).

Marshall (1920) argues that a firm receives three major benefits of locating near other firms within the same industry. That is, a pooled labour market, information spillovers amongst producers and the provision of non-traded inputs. There is an extensive literature that exists in regional economics that sheds some light on how to capture the extent to which pooled labour markets, non-pecuniary transactions and information spillovers exist. The first approach suggests that in more densely populated regions, the infrastructure of services is more developed, therefore the concentration of multiple firms in a specific region, offers a pooled labour market with industry specific skills and consequently a lower propensity to become unemployed and of labour shortages. Thus firm formation in specific industrial regions should be positively correlated to the density of establishments in the region. Secondly, informational spillovers give clustered firms a better production function, compared to isolated firms. Lastly, localised industries tend to support the production of non-tradable specialised inputs. These agglomeration externalities are generally more favourable in urban as opposed to rural areas. That is urban areas with higher densities, with positive migration, growth of population and GDP practically force the creation of new firms.

Highly concentrated urban areas often provide 'start-up insurance' for potential entrepreneurs. In particular, new firms are almost guaranteed a qualified workforce, suppliers, informational spillovers and networks. Moreover the creation of new firms in urban areas enhances the features that made their existence possible in the first instance. In addition, urban areas are usually characterised by an influx of more-educated individuals, providing a source of entrepreneurial talent. Urbanisation can be modelled using indicators such *"as the percentage of the population 25-44 years old, the percentage of the workforce in managerial positions, the percentage of the population with formal occupational training or post-high school degrees, population densities and as an indicator of non-urban settings, the presence*

of secondary and vacation housing"(Reynolds *et al.,* 1994, pp. 446)". Ritsila (1999), using regional differences in environments for enterprises in Finland, finds that urban and rural areas differ from each other as potential environments for enterprises, with rural areas typically having a level of synergy and innovatively below the national average. Rural areas were characterised with lower rates of firm formation then in urban areas, lower quantity of cluster enterprises and education of levels below the national average. Boyd (1990), examining factors effecting the self-employment of Asian and black workers in the U.S. Metropolitan areas, indicates that the propensity to be self-employed is 1.28 times higher for black workers in central cities then for those in suburbs. Reynolds *et al.* (1994b), exploring cross-national comparisons of the variation in new firm formation rates within both the manufacturing and all-sectors, finds a positive effect with urbanisation/agglomeration regional variations in five European countries and the U.S. within the all-economic sectors. However, with the manufacturing sector, the results indicate only weak positive effects are observed from factors connected with urbanisation/agglomeration. For example, manufacturing firm-formation rates are higher in the UK, Germany and the U.S. in rural regions adjacent to the major urban regions. This is suggestive of the lower land and labour costs associated with rural zones, and the efficiency in terms of transportation to other regions by locating on the periphery of major urban regions. These rural manufacturing areas are often characterised by high capital intensity and specialisation, which produces further barriers to the establishment of other firms.

Within both the self-employment and firm formation literature, early studies have placed a large emphasis on the explanatory power of unemployment. However, whilst these earlier studies have placed more emphasis on the importance of unemployment in explaining levels of self-employment, the more recent literature has changed the focus, motivated by higher

technologies and occupational structures. That is, the occupational structure of a region may influence the supply of entrepreneurs, as evidence suggests that entrepreneurs have either skilled labour backgrounds or managerial grades, and that more educated individuals will select occupations synonymous with entrepreneurship, such as managerial occupations (Evans and Leighton, 1989b). This is not the only channel through which the level of education of an individual might influence the prospect of them entering self-employment: it is possible also that individuals with higher levels of education may be more likely to enter into paid-employment, consequently curtailing the likelihood of entering into self-employment. Evidence from Rees and Shah (1986) and Evans and Leighton (1989b), from the UK and US respectively, suggest educational attainment has a positive effect on self-employment. Therefore, *ceteris paribus*, at the regional level one should expect to observe a positive relationship between self-employment and the proportion of the local labour force with high levels of education. However, Robson (1998) suggests there is no simple relationship between the level of educational attainment amongst a region's male labour force and the rate of male self-employment. Furthermore, Georgellis and Wall (1999), at the regional level within the UK, find evidence of a negative effect between regional self-employment rates and educational attainment. Whilst the literature illustrates a disparity of the relationship, there may be more sources of divergence, as educational attainment may have different impacts upon propensities to becoming self-employed among different cultural traditions and ethnic groups. Borooah and Hart (1999) conclude that there is a greater tendency for whites with higher levels of education to enter into self-employment then amongst Indians. Similarly, Kidd (1993) identified that Australian born individuals possessing diplomas were 3.87 percentage points less likely to enter into self-employment then those who had not completed year 10. However, different levels of educational

attainment were found not to significantly influence the propensity to enter self-employment within the immigrant population of Australia.

Although a great deal of the recent comparative research concentrates upon economic factors, in explaining spatial variations in rates of self-employment, they often refrain from addressing the possible impact of culture. Furthermore, whilst the economic factors are important, there remains a high level of unexplained variation across countries and at a regional level when only economic variables are controlled for. Subsequently, more recent research has looked at sociological factors such as culture in explaining this variation. *"Entrepreneurial culture is defined as a social context where entrepreneurial behaviour is encouraged"* (Johannisson, 1984). Whilst research has identified spatial variations in local entrepreneurial cultures, analysis and interpretation of the relationship between entrepreneurial activity and regional specific cultural factors is problematic.

Thus culture, as an underlying system of values and beliefs synonymous within specific societal groups, may influence a wide development of behaviours, including the decision to become self-employed rather than to work for others. In particular, Hofstede (1980) identified four distinct dimensions of culture: power distance (degree of tolerance for hierarchical or unequal relationships), uncertainty avoidance (degree of acceptance for uncertainty or willingness to take risk), individualism (degree of emphasis placed on individual accomplishment) and masculinity (degree of stress placed on materialism). While Hofstede did not specify the correlation between culture and entrepreneurship, his cultural indices are however useful in explaining the variations in entrepreneurial orientation. Shane (1992), investigating the affiliation between culture and invention, finds that small power distance and high individualism are positively associated with an individuals propensity to be

inventive. Conversely, Acs *et al.* (1994), considering culture at a periphery to economic factors, finds that strong uncertainty avoidance and low individualism are related to higher levels of self-employment. Mueller and Thomas (2001), conclude that culture is an important variable in determining entrepreneurial potential at the national or regional level. In particular, cultures with low uncertainty avoidance and individualism appear to be more supportive of entrepreneurs then other cultural configurations. Thus far, the existing empirical work on Hofstede's indices is inconclusive and contradictory. In relation to Hofstede's notion of masculinity, Uhlaner, *et al.* (2002), investigate the concept of post-materialism. That is the transformation in many countries from a culture dominated by more materialistic orientation to a society in which the population is dominated by non-materialistic life goals. Using data from 14 OECD countries, they find evidence of a negative relationship between post-materialism and self-employment. In particular, countries with less-materialistic values tend to have lower self-employment. Further other social variables, including dissatisfaction in life, political extremism and church attendance, are reported to be positively associated with self-employment.

Including socio-economic indicators, such as culture, other strands of literature identify historical and geographical factors. Georgellis and Wall (1999) at the regional level control for region specific effects, such as sociological, historical and geographic factors, alongside the more conventional economic factors, finding significant effects for all factors. Within the firm-formation literature, there is much evidence noting historical sectoral concentration. Within the UK, small business growth is more prolific in the South East. This growth is indisputably associated with the concentration of financial, professional and business services, historically related with this region. Areas in the North of the UK, historically synonymous with traditional manufacturing firms, have instead low levels of new firm-

formation (Keeble and Walker 1993). Curran and Burrows (1988) identify the industrial structure among former generations as having a significant impact today, suggesting differences across regions may well persist, even if other factors, such as labour market conditions change over time. Acs and Armington (2002), found new firm formation rates positively related to higher levels of existing establishment in the same industry and area sector, suggestive of information spillovers. The evidence suggests that entrepreneurship appears to be more compatible with some cultures then others. Consequently, policy makers should be aware of the limits of policy influence in promoting self-employment, since underlying region specific effects, which change only slowly over time, may not be susceptible to policy measures. Some regions therefore, may just be historically more entrepreneurial than others, and remain that way, despite policy interventions. Presumably then, policy measures should be focused on changing deep-seated structural and cultural issues, for long-term self-employment growth.

Whilst the previous literature has developed an understanding of both entrepreneurial motivations and regional disparities, no attention has been given to investigating whether a regional dimension exists on the basis of motivations for entry into self-employment. If motivations are the key to transitions into self-employment, an understanding of these regional variations will be of interest to regional development efforts seeking to stimulate self-employment.

4.3. Data Source and Descriptive Statistics

UK Labour Force Survey Data Source

The data used in the present study is obtained from the United Kingdom Quarterly Labour Force Survey (QLFS), covering the years 1999-2001. The QLFS is a household survey in

which all adults at each sampled postal address are asked about current labour market status and activity. The survey is used by the British government to provide important labour market intelligence data, but is also made available, after a certain time lag, to the research community in anonymised form for other secondary analysis. Although, the QLFS has a panel design, with each household of the sample interviewed for 5 consecutive waves, we are primarily interested in individual responses to a schedule of 'recall' questions about self-employment choice and so include only one observation on each individual for analysis.[24] Interviews were achieved at approximately 59,000 addresses in each quarter, resulting in a sample of approximately 138,000 individual respondents in each quarter. The very large size of the QLFS means that it is possible to obtain a large sample of observations on the self-employed, facilitating robust analysis of particular sub-groups. The QLFS questionnaire includes schedules of household and individual questions covering family structure, housing information, economic activity, employment, educational and health issues.

Between 1999 and 2001, in each spring quarter only, all economically active adults of working age, who reported that their current status was self-employed, were asked about their motives behind the decision to become self-employed. The exact wording of the question was as follows:

"(Question 108) May I just check, why did you become self-employed? Was it...

     1. to be independent / a change
     2. wanted more money
     3. for better conditions of work
     4. family commitments / wanted to work at home
     5. opportunity arose – capital, space, equipment available
     6. saw the demand / market
     7. joined the family business
     8. nature of the occupation

---

[24] The choice of time period 1999 to 2001 is constrained by the availability of the question on motivation for becoming self-employed. This question has been asked only periodically in the QLFS and was dropped after 2001.

9. no jobs available (locally)
10. made redundant
11. other reasons
12. no reason given"

(Source: QLFS questionnaire, Jan-Mar 1999)

Each individual respondent was asked to choose up to four reasons. Individual observations are pooled across the three available Spring quarters providing a total pooled sample of 147,686 economically active individuals, of which 17,507 (11.9 per cent) are self-employed.[25] As a result of multiple choices there are 23,851 choice responses to the question for these 17,507 self-employed respondents.

Descriptive Statistics – Motivations by Gender

Table 4.2 reports the proportions of the self-employed who provide each reason for becoming self-employed using the pooled data over the period 1999 to 2001. Table 4.3 reports the proportions of total responses for each reason given, providing columns which sum to 100 percent.

Overall Tables 4.2 and 4.3 suggest that for the majority of respondents, entry into self-employment is influenced by a range of non-pecuniary factors, of which the need for 'independence' is the most pronounced. This finding supports the conclusions in Dennis (1996) and in Frey and Benz (2004) who suggest the attraction of entrepreneurship is work satisfaction and independence, irrespective of income and hours worked. The next most cited

---

[25] Each member of the QLFS sample is interviewed for five consecutive quarters in order to provide a rotating longitudinal element to the survey. This means that the spring quarter files for 2000 and for 2001 included two observations on those who were self-employed in each year, and therefore a duplicate (although potentially inconsistent) response to the question on reasons for becoming self-employed. To avoid duplicate observations in our analysis, those individuals in the spring quarter 2000 sample who were also included in the spring quarter 1999 sample, and those in the spring quarter 2001 sample who were also included in the spring quarter 2000 sample, were deleted from the analysis on their second appearance. In principle one could have deleted the first rather than the second duplicate observation. Both methods were investigated, and it was found that the results of the secondary analysis in each case were almost identical. In total there were 2463 duplicate observations, 73% of whom gave consistent answers to the motivations questions.

motivation in the QLFS is the 'nature of the occupation'. This result suggests that a significant minority of the self-employed select themselves into an occupation, such as a professional trade in the construction sector or a profession such as lawyer or accountant, in which self-employment is the most common mode of employment.

Other motivations, reflecting 'pull' factors, attract significant response levels. 5.4 per cent of respondents cite the desire for 'better working conditions' and 8.8 per cent indicate as a motivation that they 'saw the demand' for the product or service which they felt they had to potential to provide. The least cited reason for choosing self-employment is the negative motivation of a lack of 'availability of jobs locally'. The nature of this option directly focuses attention on those respondents who were forced into self-employment as the only viable alternative to unemployment. The fact that only just over 3 per cent of individuals indicated that the lack of jobs available locally was a motivation behind their transition into self-employment implies that for most the decision to become self-employed is overwhelmingly a positive action. However, whilst there appears to be a low proportion motivated by the 'availability of jobs locally' it is important to note that the UK unemployment rate averaged only around 6 per cent over the time period in question. The restrictive nature of this question makes it clear that those individuals who cite this reason have been pushed into selecting self-employment. Many of the other possible motivations, such as 'more money', 'joined the family business' and 'family commitment' could operate as either 'push' or 'pull' factors. For example, 'more money' could be suggestive of attractive higher earnings in self-employment or could be suggestive of perceived poor wages in the paid-employment sector. Moreover, motivations that might typically be considered as attractors – for example, 'to be independent' and 'better conditions of work', can undoubtedly also operate as 'push' factors. That is, a lack of independence and poor working conditions in paid-employment, pushes

individuals into self-employment. The difficulty of separating 'push' and 'pull' factors is emphasised further by the multiple response nature of the question. Specifically, individuals may highlight both 'push' and 'pull' factors operating simultaneously to influence their decision to become self-employed.

We turn now the different pattern of responses between men and women. Table 4.2 reports the results of t-tests for the significance of the difference in the response rates between men and women for each motivating reason. In all but two cases these differences are statistically significant. However 'independence' and 'nature of the occupation' are the two most commonly cited motivations for both men and women, although the proportion of women citing 'independence' as a motivation is considerably lower than for men. The most important difference in the pattern of responses is that nearly 22 per cent of women cite 'family commitments' as a reason for choosing self-employment, compared to only 2 per cent of men. Corresponding to the importance for balancing family and work for women, it is also clear that women are less likely to cite the importance of money as a reason for choosing self-employment; self-employment for women is far more likely to be framed in broader quality of life terms, than in terms of narrow pecuniary advantage.

As an exercise in attempting to identify key dimensions in the pattern of reasons given for choosing self-employment, Table 4.4[26] reports the results of a factor analysis. Since it is clear that key demographic factors may be correlated with the pattern of responses, the factor analysis includes gender and age as well as reasons for choosing self-employment. The method of estimation is maximum likelihood and the preferred number of factors which

---

[26] The factor analysis was conducted by A. Henley, one of the co-authors involved in the IZA discussion paper. Factor analysis is a data reduction technique concerned with finding a small number of common unobserved variables called factors among observed variables. Variables that are highly correlated are likely to be influenced by the same factors, for example, it is possible that two, three or four observed variables can together represent another unobserved variable, and factor analysis searched for these possible combinations.

results is seven. Table 4 reports the eigenvalues of each factor in the first row and factor loadings for each variable (age, female and eleven different reasons for choosing self-employment[27]). Factor loadings above (absolute) thresholds of 0.1 and 0.2 are highlighted. We suggest the following typology of different dimensions of entrepreneurship, corresponding to the different estimated factors and their factor loadings, in the order of eigenvalue as reported in the Table:

1. *idiosyncratic entrepreneurship*; those choosing self-employment regardless of opportunity and fit with professional background for 'other reasons';

2. *market-facing opportunity entrepreneurship*; those choosing self-employment because of perceived external opportunity, but contrary to prior professional background;

3. *professional entrepreneurship*; those choosing self-employment to join professional partnerships and establish a professional practice;

4. *family entrepreneurship*; those choosing self-employment to join family businesses, some of which may be professional in nature;

5. *independence-seeking* entrepreneurship; those actively attracted to self-employment by a desire for independence, not associated with economic necessity;

6. *lifestyle entrepreneurs*; those, particularly women and younger people, who choose self-employment because it offers improved ability to balance work and family commitments, but not associated with economic necessity;

7. *reward-seeking entrepreneurship*; those younger people voluntarily leaving paid employment to pursue actively financial reward and improved working conditions.

This exercise in data description points to significant heterogeneity in the motivations behind particular individual decisions to choose self-employment. The majority of these dimensions

---

[27] "No reason given" is not included in the factor analysis.

entail considerable elements of 'pull'. In fact it is noticeable that 'push' factors tend to be absent. Indeed neither 'no jobs available' nor 'made redundant' attract positive loadings in any of the estimated factors. Conversely, the loadings for 'saw the demand/market' are also, across all estimated factors, low, suggesting that it is very unusual for someone to choose self-employment mainly because they have identified a market niche. Rather than focused on 'demand', opportunity entrepreneurship appears to be driven by 'supply' considerations related to the availability of resources. The significant dimensions of entrepreneurship appear to be related to the type of entrepreneurial activity (professional, family business), the need for independence and/or financial reward, and, particularly in the case of women, lifestyle considerations.

Descriptive Statistics – Motivations by UK Government Regions

The results in Table 4.5 and Table 4.6 illustrate the considerable regional disparities in motivating factors behind entry into self-employment. Looking at Table 4.5, 'independence' is the most commonly mentioned motivating factor, being cited by 30.19 per cent of individuals. At the regional level, 'independence' is most commonly cited in London (32.51 per cent), Northern Ireland (34.99 per cent) and the West Midlands (32.14 per cent) and least so in Wales (26.74 per cent). 'Wanted more money' as a motivating factor is most prevalent in Wales the North East and the West Midlands. It appears that 'family commitments' are more important within the East Midlands and the South East and least so in Wales. However, 'joined the family business' appears to be more important in Wales (10.32 per cent) and Northern Ireland (20.94 per cent) compared to London (3.10 per cent), the South East (4.77 per cent) and the East (5.48 per cent). For Wales, the high propensity to 'join the family business' may reflect the importance of agriculture in this region, given that especially in rural Wales self-employment in agriculture accounts for a large proportion of total self-

75

employment. Moreover self-employment in agriculture is likely to be heavily influenced by traditions of family ownership (see Chapter 3). It appears individuals in London (27.62 per cent) and Wales (27.24 per cent) are the most likely to selected themselves into self-employment due to the 'nature of the occupation', where as Yorkshire and Humber (17.15 per cent), the East Midlands (18.65 per cent) and West Midlands (18.08 per cent) are the least so. The least cited motivating factor is the 'availability of jobs locally'. The restrictive nature of this question makes it ideal in so much as it directly focuses upon those individuals who were forced into self-employment as the only viable alternative. The fact that only 3.35 per cent of individuals indicated that the 'availability of jobs locally' was the motivation behind their transition into self-employment, implies that the decision to become self-employed is overwhelmingly a positive action. The results suggest that individuals who have been pushed into self-employment because of the 'availability of jobs locally' are most prevalent in Wales (5.85 per cent) and the North East (6.12 per cent), and least so in the East Midlands (2.41 per cent), London (2.52 per cent) and the East (2.71 per cent). Whilst there appears to be a low proportion motivated by the availability of jobs locally it is important to note that the unemployment rate is only likely to be of a similar value. Table 4.8 reviews the regional unemployment rate for the years 1999, 2000 and 2001 and the corresponding regional responses. These results suggest that regional levels of unemployment are significantly related to the regional propensities to cite 'no jobs available locally' as a motivation to entry into self-employment. Moreover, generally speaking it appears progressively more buoyant conditions in 2000 and 2001 reflect a more positive attitude regarding the 'availability of jobs locally' from self-employed respondents. The exception to this pattern is London, with one of the highest unemployment rates yet with a proportionately small number of respondents citing 'availability of jobs locally' as a motivation. The resolution of this issue as discussed in Chapter 3 seems to be related to the way that the capital's labour market is structured. In

particular, the capital's labour market can be segregated into three sub-labour markets: 1) a high-skills, high pay market; 2) a low skills, low pay market and 3) the public sector market. The high-skills, high pay market principally contains high levels of sustained employment growth and low unemployment, as opposed to the second group, largely based in the service industries, characterised by high levels of unemployment. Whilst the supply of jobs in this market has risen, so has the supply of workers, resulting upon downward pressure on wages and the maintenance of the high levels of unemployment.

The regional disparities are further emphasised when we categorise our motivations into 3 commonly identified groups of motivations as seen in Table 4.7. The largest group, which accounts for 66.86 per cent of responses, are those 'classic entrepreneurs'. This category includes those citing 'to be independent / a change', 'wanted more money', 'for better working conditions', 'opportunity arose', 'saw the demand/market' and 'nature of the occupation'. The second largest category are those 'work-family entrepreneurs' accounting for 10.67 per cent of responses. This group includes those who choose as a motivating factor 'family commitments / wanted to work at home', and 'joined the family business'. Lastly there are those individuals which are forced into self-employment. This group includes those citing 'no jobs available (locally)', and 'made redundant'. The last group 'other' is added for completeness; this group includes those self-employed individual who choose either 'other reason' or 'no reason given' as a motivating factor. At the regional level London (71.63 per cent) has the largest proportion of 'classic entrepreneurs' and the lowest of both 'work-family' (6.94 per cent) and 'forced entrepreneurs' (6.83 per cent). 'Classic entrepreneurs' appear least prevalent in Yorkshire and Humber (64.69 per cent), East Midlands (63.41 per cent) and the South West (64.97 per cent). 'Work-family' entrepreneurs are most common in the East Midlands (12.62 per cent) and Wales (11.74 per cent), where 'forced entrepreneurs'

are most common in the North East (12.36 per cent) and Yorkshire and Humber (11.04 per cent).

4.4. Methodology

The purpose of this section is to describe the empirical methodology used to model associations between a range of background and demographic factors and particular motivations for choosing self-employment. This is in order to understand more about which individuals are more likely to indicate particular motivations for self-employment. The approach adopted recognises the problem of selection bias. Firstly, it is recognised that the self-employed are a non-random sample of the economically active, and corrects the modelling of motivations for self-employment for the non-random nature of the sample. Uncorrected estimates of the association between a particular background factor and one of the dimensions may provide biased estimates of the importance of that association. Secondly, and most important, selection into self-employment may not be captured perfectly, that is, some individuals will be self-employed due to some unobserved variables omitted from the selection equation. If we assume that education is the only positive measurable factor that that influences the decision to become self-employed. Some uneducated individuals will be observed as self-employment because they have a high value of some un-measurable characteristic, in this case assume intelligence. Consequently, those individuals in the sample for the outcome equation who have small values of measurable factors (i.e. education) will have large error terms, whilst individuals who have high values for the measurable factors will have a more usual range of errors. Subsequently, within the selected sample intelligence and education are correlated. Assuming that intelligence increases the propensity to be observed as self-employed, the effects of education on being observed as self-employed will

be underestimated, as self-employed individual who have low levels of education are unusually intelligent within the selected sample.

The conventional approach to this statistical issue has been to employ a Heckman selection correction (Heckman 1979). However identification in the Heckman model rests on establishing the validity of covariate exclusion restrictions. In short there must be at least one explanatory factor that influences sample selection but does not determine the outcome. Where the economic and social processes determining sample selection are very similar to those determining the outcome in question, such an exclusion restriction may not exist, or in practice may come down to finding *ex post* one or more covariates whose coefficients fail to attract statistical significance in the outcome equation and might on empirical grounds be restricted to zero. In the present case it seems unlikely, *ex ante*, that such restrictions might exist since the underlying processes which determine whether someone is self-employed or not are likely to very similar to those which determine the reason why someone chose to be self-employed.

Sartori[28] (2003) develops an estimator where selection and outcome equations can share a common structure and where identification is achieved on the assumption of identical errors in the selection and outcome equations. Equations (1) and (2) show selection and outcome processes under the case of non-random selection for individual i from a sample 1 to n. The dependent variable in equation (1) represents sample selection on the basis of an underlying

---

[28] Sartori (2003) performs two set of simulations comparing the Heckman and the Sartori estimator. In the first set of simulations Sartori (2003) assumes that identical explanatory factors influence both the selection and outcome equation. In the second set of simulations the estimators are evaluated assuming there is a legitimate but weak exclusion restriction. For the first set of simulations the Sartori estimator is a better solution to the problem of identical errors than the Heckman estimator – identifying from functional form alone or under the addition of an extra variable to the selection equation. For the second set of simulations even when the extra variable does belong in the selection equation, the variable must have a large effect on selection for the Heckman estimates to outperform the Sartori estimator.

standardised continuous process. The dependent variable in the outcome equation (2) is also unobserved, standardised and continuous. The explanatory variables, x, are the same in both selection and outcome equation, with γ and β denoting the different coefficient vectors in each. Each equation contains a normally distributed, mean zero error term, v_1 and v_2.

$$U_{1i} = \gamma' x_i + v_{1i} \tag{1}$$

$$U_{2i} = \beta' x_i + v_{2i} \tag{2}$$

Instead of observing the U's, we observe two dichotomous variables, S_{1i} and S_{2i}, shown as the dependent variables in equations (3) and (4). The relationship between the unobserved selection and outcome processes and the observed dichotomous variables is as follows:

$$S_{1i} = 0 \text{ if } U_{1i} < 0, \ S_{1i} = 1 \text{ if } U_{1i} \geq 0 \tag{3}$$

$$S_{2i} = 0 \text{ if } U_{2i} < 0, \ S_{2i} = 1 \text{ if } U_{2i} \geq 0 \tag{4}$$

Under the key identifying assumption that the error terms in equations (3) and (4) are identical, that is $v_1 = v_2$, Sartori then proceeds to derive a maximum likelihood estimator for the effect of the independent variables on the dependent outcome variable of interest, taking into account the selection process. This can be described by defining three random variables Y_{ij} such that:

$$
\begin{aligned}
Y_{0i} &= 1 \text{ if } S_{1i} = 0, \text{ and } 0 \text{ otherwise;} \\
Y_{1i} &= 1 \text{ if } S_{1i} = 1 \text{ and } S_{2i} = 0, \text{ and } 0 \text{ otherwise;} \\
Y_{2i} &= 1 \text{ if } S_{1i} = 1 \text{ and } S_{2i} = 1, \text{ and } 0 \text{ otherwise.}
\end{aligned}
\tag{5}
$$

Y_{0i} has a value of 1 if self-employment is not selected, Y_{1i} has a value of 1 if the self-employment is selected but the value of the motivating factor for entry into self-employment is 0, and Y_{2i} has a value of 1 if the self-employment is selected and the value of the outcome

variable (i.e. the motivating factor for choosing self-employment) is 1. In order to construct a

likelihood function for the model it remains to specify the data generating process for the

probability that $Y_{ji} = 1$ in each case. As shown by Sartori (2003) these probabilities are as

follows:

$$\Pr(Y_{0i} = 1) = \Phi(-\gamma'x_i)$$

$$\Pr(Y_{1i} = 1) = \begin{cases} \Phi(-\beta'x_i) - \Phi(-\gamma'x_i) \text{ if } (\gamma' - \beta')x_i = 0 \\ 0 \text{ otherwise} \end{cases}$$

(6)

$$\Pr(Y_{2i} = 1) = \begin{cases} \Phi(\beta'x_i) \text{ if } (\gamma' - \beta')x_i > 0 \\ \Phi(\gamma'x_i) \text{ if } (\gamma' - \beta')x_i \leq 0 \end{cases}$$

Φ is the cumulative standard normal density function. The likelihood function is then

conventionally defined as the product of the different probabilities, P_{ji}, for each combination

for each individual:

$$L^* \equiv \ln L = \sum_{i=1}^{n} \sum_{j=0}^{2} Y_{ji} \ln P_{ji}$$

(7)

where $Y_{ij} \ln P_{ij}$ equals 0 if $Y_{ij} = 0$ and $P_{ij} \leq 0$.

The critical assumption here is that the error terms in the selection and outcome equations are

identical. It is important to assess this model restriction. The assumption of (near) identical

errors can be expected to hold when the decision processes behind selection and the outcome

of interest are very similar, and result from the same causal process (see Sartori, 2003, p.

112).[29] In the present case this seems reasonable, since, as already noted, the process

governing the decision to be self-employed is likely to be very similar to that behind the

---

[29] The key assumption of perfectly positively correlated errors may however be more plausible for some outcome variables. More specifically if intelligence is assumed to be an un-measurable characteristic influencing the self-employment decisions, it is likely that the assumption of perfectly correlated errors may be more reasonable for the more positive motivations associated with self-employment as opposed to reasons such as 'joined family business' or 'no jobs available locally'.

motivation for that decision. Sartori also notes that the two processes should occur at the same time and/or in the same place, and in the present case this again seems to be reasonable, however clearly the motivation to enter self-employment could be made prior to the decision to become self-employed.

For the purposes of the selection analysis an individual is defined as self-employed (i.e. $S_{1i} = 1$) if they reported their employment status in their main occupation as self-employment and gave at least one response to the question concerning their motive for choosing to become self-employed.[30] The non-selected group are the paid-employed and are defined as those individuals reporting their employment status in their main occupation to be an employee.

The choice of covariates to include as having potential association with different motivations for choosing self-employment is to some extent constrained by the nature of the QLFS data source. The QLFS is deliberately designed as a large survey in order to allow the derivation of official estimates of labour market activity on a detailed spatial and occupational basis. However the trade-off here is that the questionnaire is kept fairly short, and therefore limited to largely factual questioning about household structure and housing circumstance, demographics, earnings and hours of work, educational attainment and health status. Little or no other attitudinal or cognitive background information is available. The previous discussion has highlighted the potentially crucial role of gender in moderating the formation of

---

[30] Individuals who reported their employment status in their main occupation as self-employed but did not however give at least one response to the question concerning their motive for choosing self-employment were omitted from the sample. Over the time period for which the data was available 18,605 self-employment individuals were observed. However, only 17,507 gave at least one response to the question concerning their motive for choosing self-employment. Therefore 1,098 (5.9 per cent) of self-employed individuals were omitted from the original data set. Within this sample it is important to note that 2.6 per cent of the self-employed had second jobs in paid-employment. This may partly influence their motivations to enter self-employment however given the size of the sample and the fact that self-employment is recorded as the main job this is not deemed important.

motivation towards self-employment and this is included as a key covariate, alongside other basic demographic information including age (in a non-linear quadratic form) and marital status. Membership of an ethnic minority is also included, since the relationship between ethnicity and entrepreneurial activity is one that has figured in previous literature.[31] The potential role of household structure is captured through the inclusion of the number of dependent children under the age of 16. Self-employed activities are highly heterogeneous and it is therefore important to control for the role of education in order to assess the extent to which both higher educated individuals may be motivated to choose self-employment as a route to professional status and less educated individuals may be motivated to choose self-employment due to a lack of other economic alternatives. Educational attainment is captured in the model through a series of dichotomous highest level of educational attainment variables. These are: university or college degree level; other non-degree higher education; A-levels or equivalent (post-compulsory examinations taken at 18 as qualifying exams for college or university entrance), GCSE or O-levels (age 16 schooling attainment qualifications); and other qualifications. The literature on education and self-employment is mixed; arguments can be made for both a positive and a negative relationship. Skills associated with successful entrepreneurship may not necessarily be obtained from formal qualifications. However, those with higher levels of education may select themselves into professional occupations where self-employment status, perhaps within the context of a professional partnership is more common. Housing tenure status is also included, not least because, as implied in the discussion above, owner-occupation status, either as a mortgagor or outright-owner, may provide access to business funding collateral. This may be associated with more positive motivations towards self-employment.

---

[31] Parker (2004), Chapter 4 provides a comprehensive and succinct summary of arguments and evidence concerning this relationship. See Clark and Drinkwater (2000) for recent British evidence.

A set of twelve regional dummy variables are also included to capture any broad spatial patterns in self-employment which are not otherwise captured through variation in demographic and housing factors. Finally, as the data is pooled from three years, year dummy variables are included to capture any effect on stated motivations of changing aggregate economic or societal conditions.

4.5. Empirical Results[32]

Motivations by Demographic Characteristics

Table 4.9 reports estimated marginal effects from the regression of the selection equation. Only one equation is reported as the marginal effects of the selection equation remain identical for each different outcome, with only very minor variation in levels of significance. Levels of statistical significance are very high for most of the covariates. Older individuals are, other things equal, more likely to be self-employed, but the significance of the quadratic term suggests that the likelihood of self-employment increases at a declining rate. Women are, other things equal, four percentage points less likely to be self-employed, a result that is well-established in the literature. The disabled are 0.6 percentage points more likely to be self-employed, almost certainly reflecting the greater flexibility in working conditions that self-employment may offer (Jones and Latreille, 2006). Members of ethnic minorities are nine percentage points more likely to be self-employed. The presence of dependent children raises the probability of self-employment. The precise explanation for this association is uncertain, but it may be related again to greater working flexibility. There is no statistically significant association between likelihood of self-employment and marital status. However the signs on the coefficients are plausible; negative for the married and positive for the widowed or divorced. Educational attainment is significantly related, other things equal, to

---

[32] Tables A4.4 and A4.5 report marginal effects of probit regressions without controlling for self-selection. These results indicate controlling for self-selection is important in obtaining accurate estimates of the association between certain background factors and motivations.

the probability of self-employment: those most likely to be self-employed have reached A-level qualifications but lack university or college qualifications. This is consistent with higher levels of self-employment amongst skilled individuals who have undertaken some post-compulsory schooling, but preferred perhaps to pursue vocational rather than professional skills. Housing tenure status is also significantly associated with self-employment. All tenure groups are more likely, other things equal, to be in self-employment compared to those in social rental housing. Outright owners are, other things equal, over 4 percentage points more likely to be self-employed. This may reflect access to capital resources which can be used to provide collateral for business finance. Finally the year dummies show that the rate of self-employment falls very slightly in the later years.

Table 4.10 reports the estimated marginal effects for each outcome equation. Results will be discussed for each group of covariates in turn across the different motivations for choosing self-employment. Turning first to age, it is clear that the strongest positive association is with 'independence' – older individuals appear to be more likely to value independence as a positive attribute associated with entrepreneurship, and the results suggest a positive but decreasing association with age up to 56 years of age. All other motivations are positively associated with age, but at a declining rate as indicated by negative quadratic terms. However the sizes of the associations are much smaller than for 'independence'.

There is a negative association between being female and the likelihood of stating a particular motivation for self-employment in all cases except for 'family / home'. However it is clear that women are significantly more likely than men to choose self-employment in order to balance work and home commitments. The marginal effect here is over eight percentage points. However there are some very large negative effects for other motivations: women are

for example 29 percentage points less likely to be state 'independence' as a motivation. Additionally, 'more money' and 'nature of the occupation' are both approximately 15 percentage points less likely to be chosen by women compared to men, suggesting that female entrepreneurs are less interested in pecuniary rewards compared to their male counterparts and are less likely to choose occupations more commonly associated with self-employment.

Disability is in most cases positively associated with the different motivations for choosing self-employment. The strongest associations are for 'working conditions', 'occupation', 'no jobs' and in particular 'other reasons'. It may be the case that the disabled are more likely to be pushed rather than pulled towards self-employment, either because of segregation into particular occupations or because of discrimination in the paid employment market. To this extent it is noticeable that the more economic motivations such as 'money' have smaller coefficients, and that the only negative (albeit insignificant) coefficient is in the equation for 'opportunity arose'.

Membership of an ethnic minority is in most cases positively associated with the different reasons for choosing self-employment. Ethnic minorities are particularly likely, other things equal, to state 'independence' as a reason (marginal effect: 9 percentage points). Other significant reasons are 'family business' and 'no jobs'. These findings are consistent with the view that members of ethnic minorities may choose self-employment because they are excluded from the formal labour market, and may prefer to build business ventures within their own communities, where formal skills, particularly host country language skills, are less necessary.

The presence of dependent children generally has a positive association with the different motivations. The role of children appears to be two-fold. On the one hand it raises the importance of financial motivations for self-employment – for example a dependent child raising the likelihood of stating 'money' as a motivation by 2.6 percentage points. On the other hand having a dependent child also raises the attractiveness of self-employment for those seeking independence (marginal effect of 4.2 percentage points per child) and flexibility to deal with family and home circumstances (marginal effect of 3.1 percentage points per child).

The marital status controls attract a mixed set of coefficients. Both those who are married and who are formerly married (widowed, divorced or separated) were more likely to report 'money' as a motivation compared to the never married. In either case however, the motivations may be different. In the case of the former married, bereavement or separation may have resulted in financial distress and the need to increase income. For the married the motivation may be more aspirational – related to a stronger desire to 'build' a home compared to those not married. Thus the results show that, other things equal, those who are married are 2.4 percentage points more likely to cite 'family / home' as a motivation, reinforcing the association already noted above with dependent children The results show negative associations between being married and 'independence' (marginal effect of -3.3 percentage points) and 'occupation' (marginal effect of -2.5 percentage points). Being married may be associated with a stronger desire for financial security, which is in turn associated with a greater tolerance for building a career working for an organisation. Those formerly married are less likely, other things equal, to report 'family business' and 'occupation' as motivations for self-employment. This suggests that for these people

entrepreneurship is pursued less as a long term career strategy and more for financial necessity.

The results in Table 4.10 show a complex and varied association between educational attainment and different motivations for choosing self-employment. The better educated, in particular those individuals with degree-level qualifications, are more likely to report that self-employment was chosen for such reasons as 'independence', 'better working conditions' and the 'nature of their occupation'. In particular, the table shows significant positive marginal effects for university graduates compared to someone with no formal qualifications for 'independence' (3.2 percentage points), for 'working conditions' (1.5 percentage points) and for 'occupation' (7.4 percentage points). Degree holders are also very significantly more likely to cite 'other reasons' (6.2 percentage points). More educated individuals are also less likely to report 'family business', 'no jobs' or 'redundancy' as motivations. Graduates in particular are significantly more likely than others to report that self-employment was chosen because of the nature of their occupation, consistent with self-employment being a normal status for sizeable numbers of university-educated professionals. It was noted in Table 4.9 that those whose highest academic qualification is A-levels (post-compulsory school examinations at age 18) are significantly more likely to be in self-employment. The pattern of coefficients in Table 4.10 for this group is rather different, with a number of significant positive associations with various motivations, especially 'independence' (marginal effect of 10.8 percentage points) and 'money' (marginal effect of 5.4 percentage point). In effect this group comprises individuals who have failed to achieve a standard of academic achievement for college or university entry, or have subsequently dropped out of higher education (although in the British context this seems less likely). They may be more independently minded, well-motivated individuals who have chosen not to pursue higher education because

of particular character traits associated with the desire to be successful as an entrepreneur outside of a usual organisational career path.

Those individuals who have no formal qualifications are more likely to enter into self-employment for reasons such as 'no jobs available locally', 'joined the family business' and 'more money' compared to most skill levels. These results are consistent with the unskilled being more likely to encounter greater problems in finding work, and less likely subsequently to command a high wage. Therefore individuals with no formal qualifications are significantly more likely to enter into self-employment due to the both the lack of jobs available locally and for pecuniary reasons, and therefore may ultimately find self-employment to be a less fulfilling occupational choice. Similarly, those individuals who report 'family business' as a motivation are less likely to have acquired skills and more likely to have left education at an early stage in order to start working for that family business. Entry into self-employment may for such individuals have presented itself as a relatively straight-forward opportunity. Others with educational qualifications are significantly less likely to have entered self-employment because of a family business, with marginal probability effects ranging from around minus two percentage points for those with age 16 school qualifications to minus 9 percentage points for higher education graduates.

As noted above, home-ownership and private sector renter status are significantly positively associated with self-employment. Consistent with this finding in Table 4.9, Table 4.10 reveals a wide range of significant associations between home ownership and different motivations for choosing self-employment. For every motivation excluding 'no jobs available locally', there appears to be a strong association between home ownership (mortgaged and outright ownership) and the self-employment motivations. The same is also true for private sector renter status. In particular, individuals that own their houses outright are 24 percentage

89

points more likely to be motivated by 'independence' than those renting social housing, 13 percentage points more likely to cite 'joined the family business' and 13 percentage points more likely to be motivated by 'nature of the occupation'. Perhaps the key issue here is to explain why those renting social housing are almost always less likely to report a particular motivation. Social housing status is associated with a wide range of other factors associated with poverty, such as low income, low skill and single parent status. These work additively to contribute to lack of economic opportunity. Thus self-employment is much more likely to associated with 'forced' entrepreneurship. However, as the discussion above has highlighted, such self-employed appear to comprise only a small proportion of the total and does not figure as a significant dimension of entrepreneurship.

Motivations by UK Government Regions

Table 4.11 provides marginal effects regression of the selection equation, where Table 4.12 provides marginal effects regressions of the outcome equation using Sartori selection methods. Within Table 4.11 only one equation is reported as the marginal effects of the selection equation remain identical for each different outcome, with only very minor variation in levels of significance. Levels of statistical significance are very high for most of the covariates. In particular individuals in the North East, North West, Yorkshire and Humber, West Midlands and Scotland are significantly less likely to report being self-employed than those in the East Midlands. On the other hand, those in the East, London, South East, South West and Northern Ireland are significantly more likely to report being self-employed then individuals in the East Midlands. These results are fairly succinct with the self-employment rates observed across the UK government regions within this time frame, and with the regional rates of self-employment discussed in Chapter 3.

Whilst a small proportion of the literature has reported variations in entrepreneurial motives across countries (Reynolds *et al.* 2002, Minniti *et al.* 2005), regional variations in entrepreneurial motives have yet to be investigated. The results in Table 4.12 suggest that the motivations behind the decision to become self-employed are significantly different across regions. In particular, 'independence' is significantly more likely to be cited in the East, London, the South East and South West then the East Midlands. To be more specific the positive marginal effect coefficient of 0.1053 for London, 0.1052 for the South West and 0.0704 for the South East suggest that individuals living in these areas are around 10.5, 10.5 and 7 respective percentage points more likely to choose 'independence' as a motivating factor to entry into self-employment then those individuals in the East Midlands. In more general terms there appears to be evidence of a north-south divide. That is, in the south such as the East, London, South East and South West individuals are significantly more likely to choose 'independence' whereas in the north, such as the North East the North West and Yorkshire and Humber they are less likely to cite 'independence' as a motivating factor.

This trend is also evident when we look at both 'nature of the occupation' and 'family commitments'. In particular, it appears that southern regions of the UK are more likely to select themselves into occupations with which self-employment is a natural progression, than northern areas. The positive marginal effects coefficients (.1099) for London, (0.0627) for the East, (.0447) for the South West and (.0425) for the South East suggest that individuals living in these southern regions are respectively 10.9, 6.3, 4.5 and 4.3 percentage points more likely to be motivated by 'nature of the occupation' then those areas in the East Midlands. Conversely, the negative marginal effect coefficients (-.0470) for the Yorkshire and Humber and (-.0442) for the North East imply that self-employed individuals in these northern regions are respectively 4.7 and 4.4 percentage points less likely to choose 'nature of the occupation' as a motivating factor then the East Midlands. A similar scenario is in evidence with 'family

commitments/wanted to work at home', with northern regions of the UK being less likely to cite this motivation compared with southern areas. More specifically, the results show a significant negative relationship between 'family/home' as a motivating factor and residence in the North East (marginal effect of -2.7 percentage points), North West (marginal effect of -1.8 percentage points), Yorkshire and Humber (marginal effect of -1.8 percentage points), West Midlands (marginal effect of -1.7 percentage points), Wales (marginal effect of -1.7 percentage points) and Scotland (marginal effect of -1.7 percentage points). Within southern regions the relationship is positive but not statistically significant.

Moving away from the north-south divide, we turn our attention to the 'availability of jobs locally'. The results suggest that those individuals pushed into self-employment are 2.8, 2.1, 1.7 percentage points more likely to be from Wales, the North East and the South West then the East Midlands. This result is perhaps not surprising for the North East and Wales which over the period had above average levels of unemployment. However for the South West which had relatively low levels of unemployment over the period the result is a little more surprising. 'Redundancy' also operating as a push factor regarding entry into self-employment, is in most cases negatively associated with UK regions. 'Redundancy' as a motivating factor is particularly less likely, other thing being equal, within northern regions of Britain and within Wales, Scotland and Northern Ireland.

The results for 'more money' perhaps operate against conventional wisdom, such that, one might expect persons in northern regions which are characterised by lower than average wages to be motivated to enter into self-employment for pecuniary rewards. The results however imply that persons in southern regions which are characterised with higher than average wages but higher than average living costs are significantly more likely to choose

92

'more money' as a motivating factor. In particular, self-employed individuals in London, the South West and South East are respectively 6.7, 5.5 and 4.3 percentage points more likely to cite 'more money' then self-employed individuals in the East Midlands. Consequently it may be that people are transitioning into self-employment as a result of increased living costs as opposed to the opportunity cost of entering self-employment.

'Family/business' shows a mixed spatial pattern across UK regions. As a motivating factor this is particularly more likely, other things being equal, within Wales (marginal effect of 1.7 percentage points) and Northern Ireland (marginal effect of -5.6 percentage points). Entry into self-employment through the route of a 'family business' is significantly less likely in the North West (marginal effect of -1.6 percentage points), London (marginal effect of -2.7 percentage points) and the South East (marginal effect of -1.2 percentage points).

'Working conditions' as a reason for choosing self-employment is in most cases positively associated with UK regions. 'Working conditions' is particularly likely to be cited within the southern regions, such that London the South East and South West are respectively 2.4, 1.7 and 2.5 percentage points more likely, other thing being equal to cite 'working conditions' as a motivating factor.

Turning our attention to what we would consider 'opportunity entrepreneurs' or those individuals that cited 'saw the demand' and or 'opportunity arose' as motivating factors, we see an un-uniformed spatial pattern. 'Opportunity' is in most cases negatively associated with UK regions and significantly negative with the North East (marginal effect of -1.7 percentage points). The exceptions are the South West (marginal effect of 2.2 percentage points) and Northern Ireland (marginal effect of 6.0 percentage points). 'Saw the demand' is also

significantly less likely to be cited within the North East (marginal effect of -2.6 percentage points), and significantly more likely in Northern Ireland (marginal effect of 5.1 percentage points).

4.6. Conclusion and Implications for Public Policy

The existing literature providing large scale survey evidence on why individuals choose self-employment is very limited. We currently know a good deal about who chooses self-employment, but not very much about why. This chapter has analysed data which are available over a particular time period between 1999 and 2001 within the UK Quarterly Labour Force Survey, a very large survey which asks a significant sample of the self-employed to indicate up to four choices from a list of eleven possible reasons for their decision. Clearly some of these respondents will have been self-employed for some considerable length of time, while others may have only recently transitioned from another economic status. To that extent responses may be subject to some unknown element of recall bias, or *ex post* rationalisation. Nevertheless such data are the best that are typically available. Longitudinal analysis, focusing on those recently transitioning into self-employment might be preferable, but such data, even where qualitative information on reasons for choice might be available, tend to yield much smaller samples.

This chapter has established that the reported motivations for choosing self-employment are highly multi-dimensional, revealing very considerable heterogeneity within the self-employed as a group. In very broad terms the different motivational dimensions can be summarised as relating to the existence of opportunity to start of business, the nature of an individual's profession (if they have one), the desire for a particular lifestyle and need to

balance family commitment with working life, and finally the opportunity afforded by having resources available to support a new business venture.

Significant differences in the pattern of response are apparent for certain groups. Women are much more likely to report lifestyle and family reasons for choosing self-employment than men – a conclusion that is perhaps not surprising but does imply issues of equal opportunity. Women are less likely to report financial gain as a motivating factor. Two other groups for whom lifestyle issues figure as more important are older individuals and members of ethnic minorities. However for the latter group, care must be taken in the interpretation of this finding, since we cannot rule out the possibility that it may be culturally more acceptable to provide a justification other than a financial reason for certain groups. Further research should look more thoroughly at differences between these groups. In particular, modelling men and women separately will give a better indication of the differences in associations between certain factors and the decision to become self-employed that are likely to exist across gender.

What we have termed opportunity entrepreneurship appears from the results to be associated with educational attainment. More educated individuals appear to be more likely to view self-employment in positive terms, offering independence and financial reward, as well as better working conditions. The least educated individuals, that is those lacking any formal academic qualifications, are the most likely to indicate that their choice of self-employment arose from a lack of alternative employment opportunity. They are also most likely to indicate that the reason for choosing self-employment was in order to join a family business. This is a rather worrying finding, since it may indicate that for some individuals the incentive to acquire qualifications and skills is severely reduced, because they feel that there is an existing family

business waiting for them. Such businesses may therefore perform poorly because of a lack of appreciation of the value of education and skills. This finding accords with other recent research on the relationship between management practice and firm performance (Van Reenen and Bloom, 2007). This research concludes that family-run businesses are significantly less likely to employ good management practices.

The present study has found little direct evidence for 'forced' entrepreneurship, that is significant numbers of individuals who appear to have chosen self-employment out of necessity, because of loss of previous paid employment and a lack of other paid alternatives.[33] The vast majority choose self-employment for positive reasons. However it should be noted that the time period covered by the data analysed extends across the middle of a period of sustained economic growth in the UK economy. Whether this conclusion would be as robust during the current period of severe economic downturn and rapidly rising unemployment is open to debate and, with suitable data, further future analysis. Indeed it would give cause for considerable concern if the proportion choosing self-employment because it represents the only alternative to economic inactivity rises significantly in the next few years. Such 'forced' choices may not lay solid foundations for well-resourced, successful new business ventures.

---

[33] However as discussed earlier, people may be reluctant to admit to negative factors ex-post. In addition some respondents will have been self-employed for some considerable length of time, while others may have only recently transitioned. As noted earlier responses may therefore be subject to some unknown element of recall bias, or *ex post* rationalization. Clearly these issues may be important in explaining the relatively small proportion of individuals who reported that they had chosen self-employment out of necessity. Within the LFS, data is available on the duration that an individual worked continuously as a self-employed person. For our sample of 16,860 self-employed individuals, 16,765 gave a valid response regarding their duration in self-employment. Of these 16,765 individuals, approximately 32 per cent had been continually self-employed up to a maximum of 5 years, 24 per cent up to a maximum of 10 years, 18 per cent up to a maximum of 15 year and the remaining 26 per cent had been self-employed continually for more than 15 years. While this data is available from the LFS it was not included in the present analysis due to the mechanics of the methodology and the assumption of identical errors (i.e. the variable containing information on duration would have had to be included in both the selection and the outcome equation).

For public policy, the finding of significant heterogeneity amongst reasons for choosing self-employment suggests that policies to encourage successful entrepreneurship need to be tailored carefully to different groups, particularly demographic groups. One feature of the results presented here is the rather limited number of individuals who report the perception of a market opportunity as a significant reason for choosing self-employment. Given the significant numbers who report financial reward as a motivation, observers may be left pondering how many of these individuals actually achieved the significant improvement in earnings that they appeared to desire. This in turn points to the need for policy interventions designed to promote more careful business planning amongst aspiring entrepreneurs. By contrast, what might be termed supply-side factors appear to play a relatively larger role – 'opportunity' entrepreneurs frame opportunity in terms of possessing sufficient resources to take advantage of a potential opportunity, rather than in terms of available market. Finally a small proportion of the self-employed chose this state because they joined a family business. Such individuals do not appear to be particularly well educated and may fail to appreciate the contribution that academic qualifications and other skills may make to business performance. Policy intervention needs to be designed carefully to target such individuals.

Furthermore the results have indicated that motivations for entry into self-employment vary across regions within the UK. The results imply evidence to support the unemployment push hypothesis, suggesting that unemployment or the 'availability of jobs locally' does affect the levels of entry into self-employment. Regions that are characterised by higher levels of unemployment over the period, such as Wales and the North East, have higher propensities to cite the 'availability of jobs locally' as a motivating factor. In addition there is an emergence of a north-south divide; in particular, areas in the south of the UK are more likely to cite 'independence', 'more money', 'family commitments', and 'nature of the occupation' than

areas in the north. Given that 'independence' and 'nature of the occupation' are the two most commonly cited motivating factors, being respectively cited by 30.19 per cent and 21.47 per cent of the sample, this amplifies the importance of the north-south result. In particular, the self-employed in London, the South West and the South East are respectively 11.9, 10.2 and 6.9 percentage points more likely to choose 'independence' as a motivating factor than individuals in the East Midlands. In northern areas such as the North East, the North West and Yorkshire and Humber individuals are less likely to be motivated by 'independence'. A similar scenario is evident when we look at 'nature of the occupation' as a motivating factor, with those in the southern regions of the UK being more likely to select themselves into occupations in which the transition into self-employment is a natural progression.

Consequently, regional variations and in particular the north-south divide in self-employment rates may be to an extent attributable to the industrial type or occupational structure, such that southern regions appear to have a higher proportion of occupations in which the transition into self-employment is a more natural progression. Secondly it appears that lifestyle considerations such as 'independence' and 'family commitments' are more important in those southern regions characterised by higher levels of self-employment. Consequently, regional policy makers should be aware of the limits of policy influence in promoting self-employment such that, underlying occupational structures and attitudes towards self-employment may not be susceptible to policy measures.

One limitation of this chapter is that the self-employed, and in particular, individuals who run larger businesses or SME's may have different entrepreneurial motives than individuals who are sub-contractors or even unpaid family workers. Within the Labour Force Survey (LFS) we are able at the basic level to separate between employers and individuals who are self-

employed but have no employees. Table A4.1, reports significant differences between these two-groups in terms of motivations. In particular, the self-employed with no employees are significantly more likely to have been 'pushed' into self-employment. More specifically, 4.1 per cent of self-employed individuals without employees cited 'no jobs available' as a motivating factor compared with 1.4 per cent of self-employed persons with employees. Further, 10.2 per cent of self-employed individuals with no employees entered as a direct result of seizing a perceived opportunity, compared to 19 per cent of self-employed, employers. These results support the conclusions made by Reynolds *et al.* (2002), Minniti *et al.* (2005) and Hessels *et al.* (2008), that is, opportunity driven entrepreneurs tend to have a higher prevalence of high-job growth then necessity entrepreneurs. Tables A4.2 and A4.3 illustrate the differences across gender between these two groups of self-employment. Further research looking particularly at occupational choice as a measurement of entrepreneurial activity should aim to separate the diverse categories of people who fit under the term 'self-employed'.

Table 4.1: Self Employment as Percent of Economically Active

Region:	1999	2000	2001	1999-2001
North East	8.0	9.1	7.7	8.3
Yorkshire and The Humber	9.7	10.0	9.7	9.8
East Midlands	11.3	10.9	11.0	11.0
West Midlands	10.1	10.2	9.6	10.0
East	13.4	12.1	12.4	12.6
London	12.7	12.8	13.4	13.0
South East	12.6	12.9	13.0	12.9
South West	14.4	14.2	14.4	14.3
Wales	11.6	11.7	11.8	11.7
Scotland	9.1	9.1	9.5	9.2
Northern Ireland	13.1	14.1	13.3	13.5
UK	11.5	11.4	11.5	11.5

Source: authors' tabulations from LFS Spring Quarters 1999-2001

Table 4.2: Reported Reasons for Becoming Self-Employed - by Individual

Reason (percentage)	All	Men	Women	t-test (p-value)
To be independent / a change	30.2	32.3	24.9	*0.000*
Wanted more money	12.7	14.5	8.0	*0.000*
For better conditions of working	5.4	6.0	4.0	*0.000*
Family commitments / wanted to work at home	7.7	2.2	21.5	*0.000*
Opportunity arose - Capital, space, equipment available	12.5	12.7	12.1	0.291
Saw the demand / market	8.8	8.8	8.6	0.722
Joined the family business	6.9	6.6	7.6	*0.025*
Nature of the occupation	21.5	21.1	22.5	*0.030*
No jobs available (locally)	3.4	3.7	2.4	*0.000*
Made redundant	9.3	11.6	3.6	*0.000*
Other reasons	14.6	13.8	16.6	*0.000*
No reason given	3.4	3.7	2.5	*0.000*
N	17507	12582	4925	

Source: authors' tabulations from LFS Spring Quarters 1999-2001

Notes: Columns do not sum to 100 per cent because respondents can give up to four reasons. The right hand side reports the significance of a t-test for the difference between men and women. **Bold italic** indicates p-value < 0.05

Table 4.3: Reported Reasons for Becoming Self-Employed – all Responses

Reason (percentage)	All	Men	Women	t-test (p-value)
To be independent / a change	22.2	23.6	18.5	*0.000*
Wanted more money	9.3	10.6	6.0	*0.000*
For better conditions of working	4.0	4.4	3.0	*0.000*
Family commitments / wanted to work at home	5.6	1.6	16.0	*0.000*
Opportunity arose - Capital, space, equipment available	9.2	9.3	9.0	0.520
Saw the demand / market	6.4	6.4	6.4	0.978
Joined the family business	5.0	4.8	5.6	*0.012*
Nature of the occupation	15.8	15.4	16.8	*0.009*
No jobs available (locally)	2.5	2.7	1.8	*0.000*
Made redundant	6.8	8.4	2.7	*0.000*
Other reasons	10.7	10.1	12.3	*0.000*
No reason given	2.5	2.7	1.9	*0.000*
N	23851	17227	6624	

Source: authors' tabulations from LFS Spring Quarters 1999-2001

Notes: The right hand side reports the significance of a t-test for the difference between men and women. ***Bold italic*** indicates p-value < 0.05

Table 4.4: Factor Analysis of Reasons for Choosing Self-Employment

	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Factor 7
Eigenvalue	1.158	1.060	1.105	1.142	0.853	0.724	0.578
Factor loadings:							
Age	0.074	0.047	-0.040	0.049	-0.035	-0.139	-0.182
Female	0.029	0.002	0.003	0.051	-0.049	*0.560*	0.011
To be independent / a change	-0.175	-0.071	*-0.210*	*-0.510*	*0.813*	0.000	-0.000
Wanted more money	-0.081	-0.021	-0.093	0.187	0.009	-0.147	*0.630*
For better conditions of working	-0.052	-0.010	-0.041	-0.118	0.064	-0.023	*0.234*
Family commitments / wanted to work at home	-0.056	-0.048	-0.065	-0.091	-0.139	*0.558*	0.059
Opportunity arose - Capital, space, equipment available	*-0.237*	*0.962*	0.095	0.089	0.037	0.000	0.000
Saw the demand / market	-0.094	0.091	-0.006	-0.083	0.013	-0.007	0.066
Joined the family business	*-0.112*	-0.138	*-0.523*	*0.820*	*0.150*	-0.000	0.000
Nature of the occupation	*-0.205*	*-0.288*	*0.865*	*0.330*	*0.134*	-0.000	0.000
No jobs available (locally)	-0.027	-0.029	-0.039	-0.069	-0.156	-0.043	-0.061
Made redundant	-0.079	-0.040	-0.100	-0.129	*-0.313*	*-0.234*	*-0.285*
Other reasons	*0.991*	*0.110*	0.050	0.047	0.035	-0.000	0.000

Source: authors' computations from QLFS 1999-2001
Note: maximum likelihood method (LogL=-240.8); loadings >0.1 in *italic*; >0.2 in ***bold italic***.

103

Table 4.5: A Regional Analysis of the Motivations Behind Self-Employment – by Individual

	North East	North West	Yorkshire & Humber	East Midlands	West Midlands	East	London	South East	South West	Wales	Scotland	Northern Ireland	Proport...
To be Independent	28.39	29.48	30.38	27.25	32.14	28.87	32.51	30.40	29.86	26.74	30.11	34.99	30.1
Wanted more money	14.47	12.90	13.08	10.37	13.76	12.92	13.71	12.67	12.73	13.56	12.17	9.09	12.7
Better working conditions	4.82	6.08	5.85	4.50	4.99	4.36	6.01	5.42	5.61	4.85	5.07	8.13	5.43
Family commitments/ wanted to work at home	6.12	6.33	7.23	9.00	6.99	7.60	6.49	9.80	8.33	5.72	6.86	8.54	7.66
Capital, space, equipment, opportunities	12.62	14.43	13.00	13.59	13.32	12.23	10.37	10.59	12.99	10.45	13.34	18.46	12.5
Saw the demand	7.98	9.52	9.31	9.24	9.15	8.83	8.87	7.57	7.91	8.46	7.96	12.95	8.75
Joined the family business	6.49	5.96	7.46	7.64	7.07	5.48	3.10	4.77	6.86	10.32	9.20	20.94	6.87
Nature of occupation	19.67	19.96	17.15	18.65	18.08	23.18	27.62	20.78	18.75	27.24	22.00	25.48	21.4
No jobs available locally	6.12	3.81	4.23	2.41	3.13	2.71	2.52	2.87	3.40	5.85	4.45	1.79	3.35
Made redundant	10.20	10.07	10.92	11.58	10.79	10.58	6.93	9.37	10.27	6.59	8.35	3.03	9.32
Other reasons	12.06	13.70	15.08	14.95	14.06	16.27	15.50	16.33	15.45	13.68	13.65	4.68	14.59
No reason given	3.15	3.56	3.54	2.65	3.42	3.03	4.70	3.98	3.04	3.23	2.42	1.10	3.36
N	539	1628	1300	1244	1344	1881	2064	2786	1909	804	1282	726	1750

Source: authors' tabulations from LFS Spring Quarters 1999 - 2001
Notes: Columns do not sum to 100 per cent because respondents can give up to four reasons.

104

Table 4.6: A Regional Analysis of the Motivations Behind Self-Employment – all Responses

	North East	North West	Yorkshire & Humber	East Midlands	West Midlands	East	London	South East	South West	Wales	Scotland	Northern Ireland	Proport
To be Independent	21.49	21.71	22.14	20.67	23.48	21.22	23.50	22.59	22.08	19.56	22.21	23.45	22.1
Wanted more money	10.96	9.50	9.53	7.87	10.05	9.50	9.91	9.42	9.41	9.92	8.98	6.09	9.33
Better working conditions	3.65	4.48	4.26	3.41	3.64	3.20	4.34	4.03	4.15	3.55	3.74	5.45	3.99
Family commitments/ wanted to work at home	4.63	4.66	5.27	6.83	5.11	5.59	4.69	7.28	6.16	4.19	5.06	5.72	5.62
Capital, space, equipment, opportunities	9.55	10.63	9.47	10.30	9.73	8.99	7.50	7.87	9.61	7.64	9.84	12.37	9.21
Saw the demand	6.04	7.01	6.78	7.01	6.68	6.49	6.41	5.63	5.85	6.19	5.87	8.68	6.42
Joined the family business	4.92	4.39	5.44	5.79	5.16	4.03	2.24	3.55	5.08	7.55	6.79	14.04	5.04
Nature of occupation	14.89	14.70	12.50	14.15	13.21	17.04	19.96	15.44	13.87	19.93	16.23	17.08	15.70
No jobs available locally	4.63	2.80	3.08	1.83	2.28	1.99	1.82	2.13	2.52	4.28	3.28	1.20	2.46
Made redundant	7.72	7.42	7.96	8.78	7.88	7.78	5.01	6.96	7.59	4.82	6.16	2.03	6.84
Other reasons	9.13	10.09	10.99	11.34	10.27	11.96	11.21	12.14	11.43	10.01	10.07	3.14	10.7
No reason given	2.39	2.62	2.58	2.01	2.50	2.23	3.40	2.96	2.25	2.37	1.78	0.74	2.47
N	712	2211	1784	1640	1840	2559	2855	3749	2581	1099	1738	1083	2385

Source: authors' tabulations from LFS Spring Quarters 1999 - 2001
Notes: The percentages are based upon 23851 responses from 17507 respondents.

Table 4.7: Typology of Motivations for Entry into Self-Employment

	North East	North West	Yorkshire & Humber	East Midlands	West Midlands	East	London	South East	South West	Wales	Scotland	Northern Ireland	Proportions
Classic Entrepreneurs	66.57	68.02	64.69	63.41	66.79	66.43	71.63	64.98	64.97	66.79	66.86	73.13	66.86
Work-Family Entrepreneurs	9.55	9.05	10.71	12.62	10.27	9.61	6.94	10.83	11.24	11.74	11.85	19.76	10.67
Forced Entrepreneurs	12.36	10.22	11.04	10.61	10.16	9.77	6.83	9.10	10.11	9.10	9.44	3.23	9.30
Other	11.52	12.71	13.57	13.35	12.77	14.19	14.61	15.10	13.68	12.37	11.85	3.88	13.37
N	712	2211	1784	1640	1840	2559	2855	3749	2581	1099	1738	1083	23851

Source: authors' tabulations from LFS Spring Quarters 1999 - 2001

Notes: Based on 23851 responses from 17507 respondents.

106

Table 4.8: Necessity Entrepreneurs and Regional Unemployment Rates[34]

	No jobs available locally (%)			Unemployment rate: economically active (%)		
	1999	*2000*	*2001*	*1999*	*2000*	*2001*
North East	7.2	5.1	6.2	9.9	8.8	7.2
North West	6.2	2.4	2.4	6.0	5.2	5.0
Yorkshire and The Humber	6.4	3.3	2.9	6.3	5.9	4.8
East Midlands	3.9	2.0	1.3	5.0	4.9	5.4
West Midlands	3.9	2.0	3.5	6.7	5.9	4.9
East	4.6	1.4	1.9	4.0	3.5	3.5
London	3.3	2.0	2.3	7.1	7.2	5.9
South East	3.7	2.5	2.4	3.4	3.2	3.0
South West	4.4	2.6	3.3	4.5	4.0	3.5
Wales	4.9	5.5	7.2	6.9	6.1	5.6
Scotland	5.3	3.3	4.7	7.5	7.1	5.4
Northern Ireland	1.7	1.5	2.2	7.3	6.3	5.8

Source: authors' tabulations from LFS Spring quarters 1999 - 2001

Notes: Unemployment is the ILO definition.

---

[34] The relationship between those individuals citing 'no jobs available locally' and the regional unemployment rate in the UK, using aggregated data over the 3 spring quarters is significant at the 10% level.

Table 4.9: Sartori Estimates of Self-Employment - Selection Equation

	Marginal Effect	p-value
Demographic factors:		
Age	0.0041	*0.000*
Age squared/100	-0.0024	*0.000*
Female	-0.0407	*0.000*
Disabled	0.0058	*0.000*
Ethnic minority	0.0088	*0.000*
Household and family status:		
No. dependent Children<16	0.0116	*0.000*
Marital Status (reference: never married		
Married	-0.0017	0.212
Widowed/divorced/separated	0.0007	0.670
Highest educational attainment		
(reference: no qualifications):		
Degree	-0.0016	0.317
Other higher education	-0.0146	*0.000*
A-levels	0.0091	*0.000*
O-levels/GCSEs	-0.0103	*0.000*
Other-qualifications	-0.0136	*0.000*
Housing tenure (reference: social renter):		
Outright owner	0.0437	*0.000*
Owner with mortgage	0.0237	*0.000*
Private sector renter	0.0333	*0.000*
Year effects (reference: 1999)		
2000	-0.0005	0.626
2001	-0.0019	*0.067*

Log Likelihood (combined model)	-58301.519
chi² (28) (p-value)	7661.3
N	147,668
	(of which 16,860 self-employed)

Source: authors' computations from QLFS 1999-2001

Notes: reported equation is from the model for "to be independent / a change". Selection equations for other motivations have identical marginal effects, with only minor differences in levels of coefficient statistical significance. Model also includes 12 regional controls – coefficients reported in Table 4.11. *Italic* indicates p-value < 0.10, ***bold italic*** indicates p-value < 0.05.

Table 4.10: Sartori Estimates of Motivations for Choosing Self-Employment – Outcome Equations

	(1) Independence		(2) Money		(3) Working conditions		(4) Family/home		(5) Opportunity	
	Marginal Effect	p-value	Marginal Effect	p-value	Marginal Effect	p-value	Marginal Effect	p-value	Marginal Effect	p-value
Demographic factors:										
Age	0.0418	**0.000**	0.0061	**0.000**	0.0044	**0.000**	0.0063	**0.000**	0.0139	**0.000**
Age squared/100	-0.0373	**0.000**	-0.0060	**0.001**	-0.0043	**0.001**	-0.0051	**0.000**	-0.0104	**0.000**
Female	-0.2853	**0.000**	-0.1557	**0.000**	-0.0582	**0.000**	0.0824	**0.000**	-0.0896	**0.000**
Disabled	0.0066	0.601	0.0094	0.240	0.0152	**0.003**	0.0090	**0.034**	-0.0076	0.353
Ethnic minority	0.0933	**0.000**	-0.0038	0.758	0.0132	*0.091*	0.0033	0.626	0.0017	0.897
Household and family status:										
No. dependent Children<16	0.0421	**0.000**	0.0261	**0.000**	0.0068	**0.000**	0.0311	**0.000**	0.0106	**0.001**
Marital Status (reference: never married)										
Married	-0.0330	**0.014**	0.0206	**0.014**	0.0036	0.523	0.0241	**0.000**	-0.0001	0.992
Widowed/divorced/separated	0.0170	0.311	0.0488	**0.000**	0.0106	0.138	0.0341	**0.000**	-0.0081	0.473
Highest educational attainment (reference: no qualifications):										
Degree	0.0321	**0.039**	-0.0231	**0.023**	0.0152	**0.025**	-0.0038	0.502	-0.0138	0.148
Other higher education	-0.0122	0.504	-0.0330	**0.006**	0.0050	0.529	-0.0060	0.329	-0.0397	**0.001**
A-levels	0.1077	**0.000**	0.0541	**0.000**	0.0254	**0.000**	0.0139	**0.009**	0.0091	0.290
O-levels/GCSEs	-0.0279	0.084	-0.0276	**0.006**	-0.0045	0.528	-0.0044	0.382	-0.0282	**0.004**
Other-qualifications	-0.0514	**0.003**	-0.0388	**0.000**	-0.0008	0.919	-0.0081	0.165	-0.0254	**0.014**
Housing tenure (reference: social renter)										
Outright owner	0.2392	**0.000**	0.0751	**0.000**	0.0371	**0.000**	0.0539	**0.000**	0.1107	**0.000**
Owner with mortgage	0.1754	**0.000**	0.0709	**0.000**	0.0415	**0.000**	0.0384	**0.000**	0.0848	**0.000**
Private sector renter	0.2339	**0.000**	0.0726	**0.000**	0.0453	**0.000**	0.0472	**0.000**	0.0655	**0.000**
Year effects (reference: 1999)										
2000	-0.0029	0.774	-0.0043	0.497	-0.0040	0.342	-0.0039	0.253	0.0026	0.688
2001	-0.0342	**0.001**	-0.0028	0.661	-0.0050	0.247	-0.0093	**0.009**	-0.0058	0.380
Log Likelihood (combined model)	-58301.519		-54342.503		-51654.381		-51674.104		-54430.764	
chi² (29) (p-value)	0.000		0.000		0.000		0.000		0.000	
N³⁵	5129		2177		932		1311		2115	

---

[35] N = 16,860 for every outcome. However the numbers reported represent the number of self-employed individual's choosing the particular motivating factor.

Table 4.10 (continued)

	(6) Saw the demand		(7) Family business		(8) Occupation		(9) No jobs		(10) Redundancy	
	Marginal Effect	p-value	Marginal Effect	p-value	Marginal Effect	p-value	Marginal Effect	p-value	Marginal Effect	p-value
Demographic factors:										
Age	0.0087	0.000	0.0021	0.014	0.0115	0.000	0.0039	0.000	0.0113	0.000
Age squared/100	-0.0070	0.000	-0.0004	0.630	-0.0061	0.009	-0.0031	0.000	-0.0087	0.000
Female	-0.0627	0.000	-0.0279	0.000	-0.1544	0.000	-0.0314	0.000	-0.0883	0.000
Disabled	0.0013	0.856	-0.0019	0.682	0.0256	0.022	0.0174	0.000	0.0042	0.271
Ethnic minority	0.0217	0.038	0.0363	0.000	-0.0176	0.322	0.0258	0.000	-0.0247	0.002
Household and family status:										
No. dependent Children<16	0.0103	0.000	0.0171	0.000	0.0522	0.000	0.0059	0.000	0.0026	0.113
Marital Status (reference: never married)										
Married	0.0054	0.473	0.0003	0.951	-0.0245	0.037	-0.0127	0.001	0.0063	0.191
Widowed/divorced/separated	-0.0033	0.738	-0.0272	0.001	-0.0268	0.081	-0.0067	0.147	0.0065	0.262
Highest educational attainment (reference: no qualifications):										
Degree	-0.0022	0.801	-0.0871	0.000	0.0742	0.000	-0.0069	0.095	-0.0041	0.398
Other higher education	-0.0008	0.932	-0.0445	0.000	-0.0592	0.000	-0.0123	0.020	-0.0009	0.872
A-levels	0.0226	0.003	-0.0269	0.000	-0.0023	0.856	-0.0011	0.772	0.0191	0.000
O-levels/GCSEs	-0.0147	0.096	-0.0165	0.001	-0.0574	0.000	-0.0082	0.061	-0.0021	0.675
Other-qualifications	-0.0052	0.563	-0.0249	0.000	-0.0364	0.013	-0.0063	0.149	-0.0132	0.015
Housing tenure (reference: social renter):										
Outright owner	0.0799	0.000	0.1320	0.000	0.1321	0.000	-0.0089	0.053	0.0302	0.000
Owner with mortgage	0.0614	0.000	0.0736	0.000	0.0416	0.003	-0.0136	0.000	0.0248	0.000
Private sector renter	0.0761	0.000	0.0743	0.000	0.1311	0.000	-0.0078	0.114	0.0023	0.791
Year effects (reference: 1999)										
2000	0.0061	0.275	-0.0042	0.267	-0.0029	0.746	-0.0188	0.000	-0.0082	0.010
2001	0.0019	0.739	-0.0060	0.117	0.0035	0.702	-0.0152	0.000	-0.0149	0.000
Log Likelihood (combined model)	-53105.7		-51918.914		-56707.727		-50504.177		-52983.946	
chi² (28) (p-value)	0.000		0.000		0.000		0.000		0.000	
N	1477		1141		3623		575		1589	

Table 4.10 (continued)

	(11) Other reason	
	Marginal Effect	p-value
Demographic factors:		
Age	0.0049	*0.001*
Age squared/100	0.0020	0.203
Female	-0.0704	*0.000*
Disabled	0.0441	*0.000*
Ethnic minority	0.0202	0.134
Household and family status:		
No. dependent Children<16	0.0208	*0.000*
Marital Status (reference: never married)		
Married	-0.0034	0.721
Widowed/divorced/separated	0.0071	0.540
Highest educational attainment (reference: no qualifications):		
Degree	0.0619	*0.000*
Other higher education	-0.0062	0.619
A-levels	0.0362	*0.000*
O-levels/GCSEs	-0.0064	0.558
Other-qualifications	-0.0080	0.478
Housing tenure (reference: social sector renter):		
Outright owner	0.0650	*0.000*
Owner with mortgage	0.0141	0.207
Private sector renter	0.0646	*0.000*
Year effects (reference: 1999)		
2000	-0.0104	0.135
2001	-0.0239	*0.001*
Log Likelihood (combined model)	-54859.0	
chi² (28) (p-value)	0.000	
N	2405	

Source: authors' computations from QLFS 1999-2001

Notes: Models also include 12 regional controls – coefficients reported in Table 4.12
Italic indicates p-value < 0.10, ***bold italic*** indicates p-value < 0.05.

111

Table 4.11: Sartori Estimates of Self-Employment - Selection Equation

	Marginal Effect	p-value
Regions: (Reference: East Midlands)		
North East	-0.0104	*0.000*
North West	-0.0058	*0.007*
Yorkshire and Humber	-0.0060	*0.006*
West Midlands	-0.0066	*0.002*
East	0.0060	*0.003*
London	0.0129	*0.000*
South East	0.0071	*0.000*
South West	0.0139	*0.000*
Wales	0.0042	0.102
Scotland	-0.0074	*0.001*
Northern Ireland	0.0081	*0.003*
Log Likelihood (combined model)	-58301.519	
chi^2 (28) (p-value)	7661.3	
N	147,668 (of which 16,860 self-employed)	

Source: authors' computations from QLFS 1999-2001

Notes: reported equation is from the model for "to be independent / a change". Selection equations for other motivations have identical marginal effects, with only minor differences in levels of coefficient statistical significance. Model also includes demographic controls – coefficients reported in Table 4.9.. *Italic* indicates p-value < 0.10, ***bold italic*** indicates p-value < 0.05.

Table 4.12: Sartori Estimates of Motivations for Choosing Self-Employment – Outcome Equations

	(1) Independence		(2) Money		(3) Working conditions		(4) Family/home		(5) Opportunity	
	Marginal Effect	p-value	Marginal Effect	p-value	Marginal Effect	p-value	Marginal Effect	p-value	Marginal Effect	p-value
Regions: (Reference: East Midlands)										
North East	-0.0437	0.123	0.0177	0.299	-0.0055	0.652	-0.0273	**0.006**	-0.0335	*0.055*
North West	-0.0104	0.619	0.0147	0.273	0.0112	0.209	-0.0175	**0.013**	-0.0091	0.472
Yorkshire and Humber	-0.0092	0.677	0.0119	0.399	0.0070	0.453	-0.0179	**0.012**	-0.0201	0.134
West Midlands	0.0144	0.368	0.0268	0.052	0.0011	0.912	-0.0173	**0.017**	-0.0177	0.179
East	0.0481	**0.020**	0.0357	**0.007**	0.0032	0.725	0.0014	0.833	-0.0084	0.506
London	0.1053	**0.000**	0.0669	**0.000**	0.0243	**0.006**	0.0036	0.598	-0.0035	0.788
South East	0.0704	**0.000**	0.0430	**0.001**	0.0172	**0.039**	0.0094	0.112	-0.0174	0.144
South West	0.1052	**0.000**	0.0547	**0.000**	0.0253	**0.005**	0.0106	0.107	0.0223	*0.075*
Wales	0.0154	0.555	0.0457	**0.004**	0.0084	0.452	-0.0169	0.062	-0.0266	0.106
Scotland	-0.0057	0.795	0.0012	0.953	-0.0015	0.875	-0.0169	**0.020**	-0.0197	0.142
Northern Ireland	0.1315	**0.000**	-0.0048	0.793	0.0439	**0.000**	0.0227	**0.007**	0.0596	**0.000**
Log Likelihood (combined model)	-58301.519		-54342.503		-51654.381		-51674.104		-54430.764	
chi² (29) (p-value)	0.000		0.000		0.000		0.000		0.000	
N [36]	5129		2177		932		1311		2115	

---

[36] N = 16,860 for every outcome. However the numbers reported represent the number of self-employed individual's choosing the particular motivating factor.

Table 4.12 (continued)

	(6) Saw the demand		(7) Family business		(8) Occupation		(9) No jobs		(10) Redundancy	
	Marginal Effect	p-value	Marginal Effect	p-value	Marginal Effect	p-value	Marginal Effect	p-value	Marginal Effect	p-value
Regions: (Reference: East Midlands)										
North East	-0.0258	0.097	0.0137	0.185	-0.0442	0.084	0.0213	0.003	-0.0168	0.046
North West	-0.0040	0.715	-0.0156	0.038	-0.0133	0.481	0.0081	0.201	-0.0135	0.029
Yorkshire and Humber	-0.0069	0.555	-0.0025	0.743	-0.0465	0.023	0.0103	0.109	-0.0064	0.315
West Midlands	-0.0075	0.514	-0.0119	0.119	-0.0391	0.052	0.0019	0.770	-0.0109	0.089
East	0.0038	0.731	-0.0078	0.299	0.0627	0.001	0.0051	0.432	-0.0003	0.960
London	0.0161	0.144	-0.0265	0.002	0.1099	0.000	-0.0006	0.928	-0.0043	0.504
South East	-0.0039	0.710	-0.0119	0.090	0.0425	0.014	0.0069	0.255	-0.0051	0.373
South West	0.0053	0.641	0.0109	0.134	0.0447	0.018	0.0172	0.006	0.0065	0.285
Wales	0.0011	0.937	0.0169	0.042	0.0845	0.000	0.0285	0.000	-0.0268	0.002
Scotland	-0.0226	0.061	0.0085	0.253	-0.0056	0.776	0.0135	0.035	-0.0244	0.000
Northern Ireland	0.0514	0.000	0.0555	0.000	0.0960	0.000	-0.0015	0.870	-0.0648	0.000
Log Likelihood (combined model)	-53105.7		-51918.914		-56707.727		-50504.177		-52983.946	
chi² (28) (p-value)	0.000		0.000		0.000		0.000		0.000	
N	1477		1141		3623		575		1589	

114

Table 4.12 (continued)

Regions: (Reference: East Midlands)	(11) Other Reason	
	Marginal Effect	p-value
North East	-0.0532	*0.007*
North West	-0.0277	*0.049*
Yorkshire and Humber	-0.0114	0.431
West Midlands	-0.0279	0.057
East	0.0273	*0.042*
London	0.0268	*0.048*
South East	0.0226	0.072
South West	0.0307	*0.025*
Wales	-0.0021	0.904
Scotland	-0.0318	*0.032*
Northern Ireland	-0.1263	*0.000*
Log Likelihood (combined model)	-54858.978	
chi² (28) (p-value)	0.000	
N	2405	

Source: authors' computations from QLFS 1999-2001

Notes: Models also includes demographic controls – coefficients reported in Table 4.10. *Italic* indicates p-value < 0.10, ***bold italic*** indicates p-value < 0.05.

115

CHAPTER 5

ENTREPRENEURIAL INTENTIONS OF STUDENTS ACROSS GENDER AND SPACE[37]

5.1. Introduction

Governments across the globe currently direct considerable efforts towards raising the entrepreneurial aspirations of the younger generation, as this is seen as a way of increasing entrepreneurial participation, future innovative capacity and entrepreneurial dynamism in the economy. Most important has been the introduction of enterprise within the curriculum of schools and higher education establishments, as policy makers have recognised that these institutions are paramount in creating the next generation of entrepreneurs and innovators. That is, educational institutions are where people acquire their vocational skills which for many will dictate their occupational choice. Alongside the growing emphasis placed upon stimulating entrepreneurial aspirations, there has been a marked increase in the proportion of university attendance over the last few decades.[38] Suggesting there is now an ever increasing importance placed upon universities in developing entrepreneurial skills with a view to encouraging levels of entrepreneurial intent and subsequently self-employment in the economy. Engulfed within the enterprise education exist interventions to foster creativity and innovation within students, through to policies designed to equip students with the skills to recognise, generate and seize entrepreneurial opportunities. A key element in enterprise education is the establishment of links between education institutions and enterprises to support the exchange of experience and learning between these two communities.

---

[37] This chapter draws heavily from a final report to the Welsh Assembly Government, entitled; "Entrepreneurial Aspirations and Activity Amongst Students", by Henley *et al* (2008). Dawson was not part of the team securing the funding for this project. Dawson's contribution to this project was in the capacity of a research assistant funded through a research studentship from the UK Economic and Social Research Council in association with the Welsh Assembly Government.

[38] OECD report indicates that between 1995 and 2003 university participation increased by 20 per cent in the UK. However, this was considerably below the OECD average of 38 per cent over the same period.

Within the entrepreneurship literature, scholars have reported a variety of factors responsible for the formation of entrepreneurial aspirations or intentions. According to the literature these factors can be grouped into two categories, 1) individual domains or, 2) contextual variables. Regarding the first category, the literature suggests that entrepreneurs differ from non-entrepreneurs in terms of a range of demographics, motivations, social ties and networks, personal traits and psychological characteristics (Carroll and Mosakowski, 1987; Cooper, Woo and Dunkleberg, 1988; Evans and Leighton, 1989; Bates, 1995; Kolvereid, 1996a and 1996b; Delmar and Davidsson, 2000). In terms of the second category, researchers have identified the impact of the external environment on influencing the formation of entrepreneurial intentions (Morris and Lewis, 1995; Wiklund and Shepherd, 2003). In particular, researchers have identified both social and economic factors, such as redundancy, unemployment, financial and political support, economic infrastructure, training and market opportunities (Niosi and Bas, 2001; Foo, Wong and Ong, 2005).

This chapter documents the analysis and findings of a comparative study of entrepreneurial aspirations amongst students. Three main objectives develop a body of evidence on how entrepreneurial intentions are formed for students and how these aspirations are formed firstly across gender and subsequently across space. This is undertaken by analysing information from a survey conducted by the School of Business and Economics at Swansea University, in association with a network of other British and European universities designed to find out more about students entrepreneurial involvement/aspirations.

In particular, the first objective examines empirically the factors driving entrepreneurial intent. The questionnaire survey instrument used in the study addresses a wide range of background influences and attitudes in a much more detailed manner than most previous

research, addressing a range of aspects of early stage entrepreneurial activity, the scale of preparatory training activity and the role of entrepreneurial family and peer-groups. Our results report that entrepreneurial peers, engaging in informal entrepreneurial activities and risk-loving tendencies are positively associated with entrepreneurial intent.

Our subsequent analysis then moves to the role of gender. Gender has been of particular interest, with the majority of studies identifying that males students are more likely to hold entrepreneurial aspirations then their female counterparts (Wang and Wong, 2004; Ramayah and Harun, 2005; Veciana et al., 2005; Ulla et al., 2005). In the same way we observe worldwide evidence that females are less likely than males to participate in entrepreneurship (GEM 2007). However, to understand why women are less likely to aspire and subsequently engage in entrepreneurial activity, it is critical to determine how the factors that are thought to shape entrepreneurial intent operate across gender. Most studies include gender as a dummy variable, and while this sheds some light on gender variations, it does not provide information upon the origins of those variations useful for public policy measures. In order to gain a clearer understanding, an extension of the Oaxaca-Blinder decomposition by Fairlie (2005) is applied to determine the strengths of various factors in shaping entrepreneurial intentions. The model gives both the total contribution of the independent variables in explaining the gap in entrepreneurial intent probabilities between the specified groups of students, as well as an estimation of the contribution of single independent variables which are of specific interest for deriving policy measures. Our results suggest that attitudes towards risk explain nearly 50 per cent of the total gap in entrepreneurial intent across gender.

The final contribution pays particular attention to Welsh-domiciled students, in comparison to those elsewhere in Europe. Within Wales there exists a perception that the population, and in

118

particular the younger generation, views entrepreneurship less positively than elsewhere in the UK. The 1999 Entrepreneurship Action Plan reports the findings of opinion polling in Wales, which suggest that only four percent of adults at that time would describe themselves as "entrepreneurial". Similarly, the GEM consistently highlights that adults in Wales are less likely to perceive good start up opportunities where they live than anywhere else in the UK. It is therefore not surprising that the impact of Welsh born entrepreneurs on entrepreneurial activity is far higher outside the land of their birth than for those remaining in Wales. In particular the 2004 GEM report for Wales finds that 6.1 per cent of Welsh-domiciled living in England are entrepreneurial active, 165 per cent higher than those individuals born and still living in Wales.

International evidence suggests that levels of entrepreneurial aspiration vary considerably across countries and regions (for example, Blanchflower *et al..*, 2001). The Global Entrepreneurship Monitor (GEM) has highlighted a wide variation of "early stage entrepreneurial activity" across nations. More specifically, we see that middle and low income countries have a higher proportion of entrepreneurial intent then high income countries. Within the UK, the GEM (2007) highlights that entrepreneurial intent ("I expect to start a business in the next three years") varies across regions within the UK. For Wales, entrepreneurial intentions were 6.8 per cent, below the UK average of 7.4 per cent, and well below the average of 11.3 per cent for all G7 member countries. Whilst most studies provide some interesting descriptive information on the levels of entrepreneurial aspirations across space, few studies deal with the issue more thoroughly. The question of whether people, and specifically young people, in Wales are less entrepreneurial is in itself an important question for more sophisticated multivariate analysis. To assess the variations in entrepreneurial intent between Welsh-domiciled and non-Welsh domiciled students we apply the extension of the

Oaxaca-Blinder decomposition by Fairlie (2005). The results report that variations in entrepreneurial intent can be explained by the composition of the sample and by risk attitudes.

The remainder of the chapter is structured as follows. Section 5.2 provides further background information and reviews the range of previous studies of entrepreneurial intent amongst young people. Section 5.3 provides detail on the research methodology and the questionnaire survey instrument, and basic descriptive information on the demographic characteristics of the sample obtained. Section 5.4 provides further descriptive information on the entrepreneurial intentions of students and factors affecting the propensities of intentions. Section 5.5 documents in detail the research findings and methodology, focusing on the formation of entrepreneurial aspirations and subsequently upon gender variations and variations between Welsh and non-Welsh domiciled students. Section 5.6 will provide overall conclusions and draw from these implications for the design of public policy.

5.2. Background and Previous Literature

The prior relevant research has predominantly focused upon the scale of student entrepreneurial intentions in various international contexts, and investigates a range of hypotheses concerning influences on aspirations. Comparisons between individual studies on the magnitude of entrepreneurial intentions are however, often problematic due to the format of questions and the subsequent response options. Scott and Twomey (1988) in their study of 436 undergraduate students report that 24.6 per cent of U.S. students aspired to be self-employed compared to 40.7 per cent of the U.K. sample. Goddard and Weihe (1992) using students across Germany and the U.S. report that while the majority of German students do not consider starting a new venture a possibility, 57 per cent of U.S. students indicated that

this was at least a possibility. Venesaar *et al.* (2006) using a sample of 443 students from Tallin University of Technology, reported that 61 per cent of respondents have thought about starting an enterprise and 13 per cent were starting a venture, while nearly one fifth had instead stated no intention to become an entrepreneur. Veciana *et al.* (2005), assessing students' attitudes towards entrepreneurship in Catalonia and Puerto Rico, report that in both countries a large proportion of students had a vague intention to create a new firm (Catalonia 51 per cent and Puerto Rico 40.3 per cent), whilst 28.7 per cent of the Catalan sample reported serious intentions to start a new business venture compared to 12.1 per cent of the Puerto Rican sample. Similarly Wang and Wong (2004) found interest in business start up in Singapore to be high amongst students, with 51 per cent of 5326 Singaporean students stating an 'above average' interest in starting a business. However, they found the business knowledge of undergraduate students to be poor, with only 4 per cent perceiving that they had an above average knowledge to do so. Venesaar *et al.* (2006), report that despite a considerable share of respondents thinking about entrepreneurship, most wished to delay starting a business to the more distant future as opposed to immediately after graduation. Kraaijenbrink *et al.* (2007) report that 6 per cent of 2415 university students stated an intention to start a business in the next year compared with 30 per cent who intended to start a business some time later in the future.

In addition to the individual studies on entrepreneurial intentions of students, there are a number of on-going international surveys designed to create a concise picture of student career aspirations. In particular the International Survey on Collegiate Entrepreneurship (ISCE) coordinated internationally by the Swiss Research Institute of Small Business and Entrepreneurship at the University of St. Gallen, examines entrepreneurial intent within 93 universities in 14 countries. The advantage of this survey is that it allows for accurate cross

country comparisons as it uses standardised indicators. From a sample of 37,000 respondents, the survey categorises entrepreneurial intentions into two groups, for the first five years after graduation and secondly the time after students' first professional occupation (> 5 years after graduation). For the first category, approximately two-thirds of all students expect their first job after graduation to be in paid-employment, 2.8 expected to start up a new business and 2.6 per cent expected to be self-employed. For the second category a higher proportion of participants could envisage either starting up a new business (14.9 per cent) or becoming self-employed (7.1 per cent). This suggests students are more inclined to gain professional experience before entering into new business ventures. The survey also highlights some degree of entrepreneurial participation with 3.2 per cent of all students having already established a business. This percentage increases for each country when considering only students that are taking business related subjects. Students are also asked about obstacles for establishing a business. The survey reports that students perceive risk and financial support as the main obstacles to fulfilling entrepreneurial intention.

Within the UK, the Centre for Excellence in Teaching and Learning in Enterprise at the University of York was commissioned by Yorkshire Forward to examine entrepreneurial intentions and the factors that make students entrepreneurial. The 2007/8 survey included 8000 students from HEI's across the Yorkshire region. The survey asked respondents about the likelihood of being self-employed after the completion of their studies. The survey reports that around 5 per cent of HEI leavers 'definitely' intend to start their own business, while nearly 30 per cent 'probably' intend to start a new venture. As with the ISCE survey, students enrolled in business courses were the most inclined to cite 'definitely' or 'probably' in terms of their propensity to start a new business.

The previous research suggests a relatively high degree of entrepreneurial intent amongst students across countries. However, current estimates suggest that only 5 per cent of HE leavers actually start a new business venture. Clearly intending to start a business and actually starting a business are two very different things. Consequently, factors that may affect the propensity to be self-employed may not necessarily be the same as those influencing the formation of entrepreneurial intent.[39] To gain a greater understanding of how entrepreneurial intentions are formed, a number of studies undertake conceptual approaches to determine what factors may influence this decision. The literature has acknowledged a variety of factors associated with the formation of entrepreneurial intentions. These include demographic factors, social ties and networks, personal and psychological traits as well as prior knowledge and entrepreneurial training. In the following section, we review this literature.

Demographics

A robust conclusion to emerge from the literature on entrepreneurial intentions of students is that males show higher levels of interest in entrepreneurship then females. For example, Ulla et al. (2005) reports that male students are approximately 2.5 times more likely to start a new business in the next 5 years then women. Similarly, Veciana et al. (2005) assessing the attitudes towards entrepreneurship of students in Catalonia and Puerto Rico, report that in Catalonia males have a higher desire to start a new firm. Ramayah and Harun (2005) reported that amongst the students of Universiti Sains Malaysia, males showed both higher self-efficacy (i.e. a person's belief in his or her ability to succeed in a new business venture) and entrepreneurial intentions compared to females. Similarly, Wang and Wong (2004) reported that female university students are less interested in becoming entrepreneurs because of their

---

[39] Within Chapter 6 multivariate analysis is employed to determine and compare factors that influence self-employment status and the formation of entrepreneurial intent.

lack of entrepreneurial knowledge. Other studies, particularly those where the age range of students surveyed is wider, also note that levels of intentions are higher amongst older students (Ward et al., 2008). The most commonly identified background influence in the entrepreneurship literature is the effect of entrepreneurial families. There are a number of ways in which self-employed parents can influence the probability of their children entering into self-employment. This may be in terms of "social learning" (Krueger, 1993), access to capital, equipment and business networks. Davidsson (1995) notes that 40 percent of small business owners in Sweden have self-employed parents, and Stanworth et al.. (1989) find that between 30 and 47 per cent of actual and aspiring British entrepreneurs had a self-employed parent. A number of studies have identified significant correlations between parental background in business venturing and student interest in entrepreneurship. Scott and Twomey (1988) report that those respondents whose parents owned a small business showed the highest penchant for self-employment. Crant (1996), using a sample of 181 students, reported that entrepreneurial intentions were positively influenced when at least one parent owned their own business. More recent findings suggest that parental role models may be gender dependant. Kirkwood (2007) suggests that the importance of father role models may be more important for male graduate entrepreneurs then for their female counterparts. Similarly, Verheul et al. (2008) suggests that parental self-employment status was found to be more likely to affect male preferences then female preferences.

Social Ties and Networks

Entrepreneurial intent may also be promoted through social networks, including friends, clubs and other family members of the same generation. To date the evidence is minimal. However, arguments concerning the role of social capital in forming entrepreneurial intentions suggest the differences in entrepreneurial aspirations across gender may be partly

accounted for by differences in social capital accumulation. Krueger (1993) indicates the "span" of "entrepreneurial exposure", including family business, business started by a relative or friend and working in someone else's small business to be positively and significantly related to entrepreneurial aspirations. Kim *et al.* (2003) found no evidence that entrepreneurial friends increase the chance of entrepreneurial intentions, but find that the percentage of relatives who are business owners is positively related to the propensity of becoming a nascent entrepreneur.

Psychological Characteristics and Personal Traits

Several psychological characteristics and personal traits proposed to influence entrepreneurial intent have emerged from the literature. In terms of personal traits, theoretical research has argued that over-confidence (Busenitz and Barney, 1997), and unrealistic optimism (De Meza and Southey, 1996) may impact on levels of entrepreneurial intent.[40] In terms of psychological characteristics, the literature claims that entrepreneurs are characterised by certain traits that predispose them to entrepreneurship. McClelland (1961) argued that individuals with a high level of "need for achievement" show a higher willingness to enter into entrepreneurial ventures. Other studies demonstrate that entrepreneurial intentions are driven by "locus of control" (Evans and Leighton, 1989), "tolerance of ambiguity" (Schere, 1982) and the propensity to take risks (Van Praag and Cramer, 2001). Studies of student entrepreneurial intentions find some evidence for the latter. The International Survey of Collegiate Entrepreneurship asked participants what type of obstacles they may encounter establishing a business and to rate these obstacles on a scale. The survey reports that most students viewed taking personal financial risk as the biggest obstacle to starting a business. Segal *et al.* (2005) indicated that tolerance for risk predicted self-employment intentions for a

---

[40] This issue is addressed empirically in Chapter 6.

sample of 114 undergraduate business students in Florida. Evidence from Franke and Luthje (2004) suggests that risk attitudes vary considerably internationally. The study compares the entrepreneurial intentions of students at two German Universities against students at the Massachusetts Institute of Technology (MIT), they report that students at MIT displayed less risk aversion and had a corresponding higher level of entrepreneurial intent than the students from the German universities.

Evidence from psychology implies that females have higher risk aversion tendencies than males (Arch, 1993; Byrnes et al., 1999). More specific to entrepreneurship, Jianakopolos and Bernasek (1998) report that women display greater financial risk aversion than men. To data however, there are few studies that have specifically focused upon the risk attributes of female entrepreneurs, and little or no empirical support that the relationship between attitudes to risk and entrepreneurial intentions may be gendered, and may in part explain the commonly observed differences in rates of intention between men and women. Among the evidence that does exist, Sexton and Bowman-Upton (1990) show that female entrepreneurs have lower risk propensity scores then male entrepreneurs. Mallette and McGuiness, (2004) report evidence that female entrepreneurs focus more on minimising risk then male entrepreneurs. Similarly, Kepler and Shane (2007) find robust evidence that male entrepreneurs are less likely to prefer low-risk/low-return businesses then female entrepreneurs.

Entrepreneurial training and informal experience

Whilst the literature concerning education and entrepreneurship is rich, less is known about the influence of entrepreneurial-type training and its influence upon entrepreneurial intent and participation. Webb et al. (1982) reported that students were more likely to start their

own business if they had taken part in entrepreneurship programs. Fleming (1994) also found participation in enterprise programs to be positively related to students starting their own business. Ramayah and Harun (2005) reported that students attending entrepreneurial courses indicated significantly higher entrepreneurial aspirations. Matthews and Moser (1995) reported that small firm work experience enhanced interest in small firm employment. Alongside entrepreneurial training, the survey used in this chapter includes the concept of informal entrepreneurship, that is, involvement in informal business or profit making activities, for example, internet auctions, car boot sales, franchised selling to friends or family etc. To date there exists little or no measure of informal entrepreneurship and consequently there exists no evidence of a relationship between participation in informal entrepreneurship and interest levels in formal entrepreneurial activity. We propose that informal entrepreneurial participation may act as a stepping stone into formal entrepreneurial activity. However, in terms of the relationship between informal entrepreneurship, enterprise training and the formation of entrepreneurial intentions, there exists the issue of endogeneity, that is, individuals with serious aspirations of starting a new business may actively seek entrepreneurial training programs, in the same way students with entrepreneurial aspirations may engage in informal entrepreneurial activity as a means of 'tasting' an entrepreneurial existence. Whichever the direction of causality, we suggest that informal activity will increase the propensity to cite entrepreneurial intentions amongst the participating students.

5.3. Student Entrepreneurship Survey Instrument

The data used for the empirical analysis is from a project funded through the Welsh Assembly Government's Economic Research Grant scheme in 2007/8 to provide a comparative assessment of the scale of entrepreneurial aspirations amongst students in higher education. The survey was conducted by the School of Business and Economics at Swansea

University, in association with a network of other British and European universities. These included; Aberystwyth University, Warwick University, University College Cork, The Royal Institute of Technology (KTH) Stockholm, Abo Akademi University Turku, University of St Gallen and The University of Cooperative Education (Berufsakademie) in Stuttgart. The British, Irish and Finnish Institutions all offer programmes across a broad range of sciences, social sciences, arts and humanities. However KTH Stockholm specialises in architecture, applied science and engineering subjects. Also the University of St Gallen specialises in social sciences and the University of Cooperative Education is a vocational institution, specialising in engineering, information technology and management programmes. Table 5.1 provides further details of the size of each institution and Table 5.2 provides sample information by participating University.

The questionnaire design was assembled using a prior review of the literature, in order to address important issues and hypotheses. In essence the survey was designed to find out more about student involvement in entrepreneurial activity as well as students' aspirations to set up new ventures in the future. More specifically, the questionnaire includes individual questions covering demographics, family and peer-group background in entrepreneurship, attitudes towards entrepreneurship, education and training in entrepreneurship, entrepreneurial intent, participation in formal and informal entrepreneurial activity, attitudes towards financial risk and self-efficacy and views about public support for young entrepreneurs.[41]

The questionnaire was distributed as an internet survey (www.surveymonkey.com) to particular populations of students between December 2007 and April 2008. In the case of

---

[41] Within this chapter primary data was accumulated to meet the research objectives of the subsisting project. Information on entrepreneurial aspirations, risk attitudes, informal entrepreneurship, peer group background in entrepreneurship and entrepreneurial training of students is not commonly available amongst existing data sets.

Swansea University, group email addresses for all final year and for all second year undergraduates were used. Second year students were included once it had become apparent that response rates to an internet questionnaire were likely to be low. For Aberystwyth University, group email addresses for all final year undergraduates were used. A number of follow-up emails were sent to improve response rates. At Warwick University no group emailing system is available and communications to students are via department intranet notices. At Warwick University the questionnaire was announced and distributed via the main learning support website using by students (my.wbs). A similar approach was adopted at University College Cork and the University of Cooperative Education, Stuttgart, targeting business school students. Our contacts at Cork, St. Gallen, KTH and Åbo Akademi personally emailed students taking their classes (most of these had a spread of students from various disciplines but business students dominated) a slightly adapted version of the Swansea email, pointing them to the surveymonkey internet link.

Table 5.3 provides sample information by subject area. The table shows a spread of responses throughout the 6 categories, although nearly 35 per cent of responses were from participants studying business management/economics. This reflects both a higher response rates from business school students but also the greater specialisation of some participating universities.

Table 5.4 provides further sample information on gender, age and ethnicity. There is an even spread between male and female students, however as expected most respondents (over 90 per cent) are aged between 18 and 25. Similarly, most students reported they are white ethnicity (86.4 per cent). However there are sizeable South Asian (5.1 per cent) and Chinese (6.9 per cent) groups within the sample.

Lastly table 5.5 provides a breakdown of the sample by country of residence. Over 50 per cent of the sample are UK-domiciled.[42] However there are a sizeable number of Swedish (10.3 per cent), German (7.1 per cent) and Finish (5.2 per cent) students in the sample.

5.4. Descriptive Statistics on Entrepreneurial Intentions

In this section we describe and document information from the survey on students stated aspirations towards setting up their own business in the future, as well as factors that might influence these levels of aspirations. The questionnaire includes direct questions about students' intentions to start a business as well as their involvement within both informal and formal businesses. In this study the intention for entrepreneurial activity is measured by way of the following question:

'If you think that you will set up a business within the first three years of finishing your course, what type of business would that be?'

Table 5.6 shows percentages of the levels of entrepreneurial intent based on the number of respondents for the full sample, males and females, and for countries of domicile. Across the whole sample, a total of 32 per cent of students indicate that they will set up a business within three years after graduation. Male students are (statistically) significantly more likely to report entrepreneurial aspirations: over 40 per cent of men report that they will set up a business, compared to only 24 per cent of women. However, as Table 5.6 indicates, a rather lower proportion of Welsh-domiciled students indicate such positive entrepreneurial aspirations. Aspirations are however slightly higher amongst Welsh compared to other UK

---

[42] Throughout the analysis in this chapter country of domicile and country of residence are both used to describe country of family residence. Information containing country of respondent's institution is primarily used in the multivariate analysis, comparing those individuals who are at Welsh universities with those who are not.

students. More specifically, 51.3 per cent of Non-European respondents reported entrepreneurial intent, compared to 37.0 per cent of Europeans, 25.7 per cent of Welsh respondents and 23.6 per cent of UK respondents.[43]

The questionnaire also asked respondents about involvement in informal entrepreneurial activities such as internet auctions, car boot sales, and franchised selling activity. Such activities typically require little or no start-up finance and are therefore usually associated with very little financial risk. Consequently these activities may be little more than hobby activities for the purposes of earning a small amount of additional income. However engagement in such activity may indicate a willingness to participate in profit-seeking or in entrepreneurship that might indicate a higher predisposition towards a career running one's own business venture in the future. Table 5.7 indicates the total proportion of respondents who indicated engagement in informal entrepreneurial activity was 14.3 per cent or approximately one in every seven students. There exist few or no previous estimates of the intensity of such activity, so we have little way of telling whether this is high. It seems likely that student engagement with such activity may have increased over recent years due to the growth in popularity and ease of access to internet trading sites such as eBay. Nearly 18 per cent of Welsh-domiciled individuals are engaged in informal entrepreneurship. In general British students are a little more likely to engage in this activity than students from other countries although this result is not significant. It also appears that both males (14.4 per cent) and females (14.2 per cent) are equally as likely to engage in informal entrepreneurship

---

[43] Clearly the high levels of entrepreneurial intentions amongst the sample are subject to certain biases. Firstly, individuals who are more interested in self-employment and entrepreneurship will be potentially more likely to respond to the questionnaire. Secondly, the inclusion of the University of St Gallen, Switzerland, and the University of Cooperative Education, Stuttgart which are both specialist institutions, specialising in management programmes may well affect the distribution of responses to particular questions in the survey instrument.

The importance of a formative entrepreneurial background to the development of individual entrepreneurial intentions and to the choice of entrepreneurship as a career option has been widely acknowledged in the literature. At an early stage the questionnaire asks respondents to provide information on whether either or both parents are running their own business at present, or if they were running a business while the respondent was in school. They are also asked if that business employed other people. Respondents were asked about sibling involvement in a business venture, as well as that of any "close personal friend".

Table 5.8 provides information on entrepreneurial background by gender. 61 per cent of male students report that neither parent is currently running their own business, whereas the rate for women is much higher at nearly 71 per cent. The reported level of significance for the Chi-squared statistic confirms that the difference between men and women is statistically significant. Although similar in pattern, a difference between men and women is apparent in the responses to whether a parent was running a business while the respondent was in school (section b). The difference here is not statistically significant. Within the data the main difference is that male students appear to be rather more likely to report that they have an entrepreneurial father.

Sections c) and d) of the table report results for two questions which are rarely asked in surveys of entrepreneurial background. The first concerns whether a sibling is engaged in a business venture. Overall the number of positive responses is very small. 6 per cent of men report either a brother or a sister, or both, running a business. For women the overall reported rate of sibling entrepreneurship is slightly higher at 8.5 per cent. However, the difference between men and women here is not statistically significant. Section d) of the table reports levels of entrepreneurial engagement amongst "close personal" friends. It is left to the

respondent to interpret the adjectives "close, personal". (It should be noted that over 19 per cent of respondents report that they are either married or in a co-habiting relationship.) Over a third of male students report they have a close, personal friend who is running their own business. However, only a quarter of women students report the existence of such an individual. This difference is statistically significant. So, although the exact pattern shows some variability, there is here some support for the conclusion that male students are more likely to report positively on a family and peer-group background in entrepreneurship.

Figures 5.1 and 5.2 illustrate parental involvement in running a business by country of domicile. Students who come from Wales are less likely to have parents who are or have been involved in running a business compared to Europeans and Non-EU domiciled students. The difference in the pattern between the two groups is statistically significant. Perhaps the most pronounced aspect of the difference is the lower likelihood amongst students from Wales of having a father engaged in entrepreneurship

Figure 5.3 shows the relationship between peer group involvement in entrepreneurial activity by country of domicile. Levels of sibling involvement in entrepreneurial activity, as seen in Table 5.8, are very low, and no clear relationships between country of domicile emerge. However, for close friend involvement in entrepreneurship peer group effects are stronger and differences between student groups pronounced. Welsh domiciled students are a little more likely to report such friends than students from other parts of the UK (England) although less so compared to Europeans and Non-EU domiciled students.

A number of previous studies of entrepreneurial intention and choice highlight the additional dimension of whether parents or other significant background figures employed others. Some

find the existence of a stronger relationship with entrepreneurial intention and choice than with simple indicators of entrepreneurial activity. There may be a range of reasons for this. Employment of others may provide an indicator of the intensity or success of entrepreneurial activity. It may also provide an indicator of individual exposure to business leadership and human resource management practice. Figure 5.4 illustrates the relationship between whether or a parent is employing others by country of domicile. Again there appear to be significant differences. Welsh-domiciled students are less likely to report that a parent is running a business which employs other people compared to Europeans and Non-EU domiciled students. A very similar pattern is present in terms of whether a close, personal friend has a business which employs others in Figure 5.5. In this case Wales-domiciled students seem particularly less likely to report that they have a close friend running a business which employs other people. We do not report any analysis here by gender as there is no significant difference in rates of response between men and women.

One further important aspect of entrepreneurial background is exposure to education or training on entrepreneurship or small business management. 33 per cent of respondents reported that they had at some point taken part in formal entrepreneurship or small business management course. Table 5.9 provides a further breakdown of the type of training. The most common training experience was as an element of a university course, while the least likely form of training is a course taken outside of school or university study, voluntarily attended by the trainee. Women are slightly less likely in all cases to have attended entrepreneurship training. A small number of respondents provided summary details of other forms of training, the most common response being as part of an extra-curricular business venturing competition such as Young Enterprise. A very small number reported training as part of a work experience placement. Figure 5.6 shows that the main difference here may be between

the UK and non-UK experience. Welsh domiciled students appear to be more likely than other British students to have taken part in training, but still have a much lower rate than students from outside the UK. Differences between the groups are highly statistically significant.

It seems a significant minority of students do have parents with experience of running their own business, and this background influence may be important in influencing positive perceptions of entrepreneurship later in life. However, there is some evidence in the survey that students from Welsh-domiciled families are less likely to have parents with experience in entrepreneurship. There are also differences between male and female students. For men, peer groups may have the potential to exercise a stronger positive role on the formation of interest in entrepreneurship. In-depth interviewing with students who have a well-informed interest in setting up a business venture often reveals the presence of a formative background figure, although this individual need not necessarily be a parent. There is considerable variation in experience of entrepreneurship education or training across different universities and countries. Welsh students may be less likely to have taken part in entrepreneurship training, whether as part of their university study or outside.

Respondents were also asked a series of questions about risk, a number of which invited them to consider particular issues and hypothetical scenarios and their likely behaviour in those. Table 5.10 tabulates the response rates of the specific survey questions referred to in the text and provides information on differences in the rates between males and females. Questions 1 and 5 provide information on perceived financial self-efficacy. A sizeable majority in both cases seem to have at least a reasonable level of confidence in their ability to manage financially. The results, however, show that women have a somewhat lower level of

135

confidence than men. Questions 2 and 6 show also that women are more likely than men to see risk in negative rather than positive terms. A quarter of men but only 8 per cent of women see risk as an opportunity. Around 60 per cent of women see themselves as low or very low risk takers, whereas less than a third of men see themselves in these terms. Questions 3, 4 and 7 ask about attitude to risk in specific employment and financial scenarios. Women are generally more risk averse, being significantly more likely to report that they prefer salaried employment to performance-based remuneration, job security to the opportunity to have higher earnings, and are more likely to choose a safer, lower return investment. In all cases the differences between men and women are statistically significant. For example, whereas well over 60 per cent of men state that they would prefer less job security if it was associated with a bigger pay rise, fewer than 30 per cent of women do so. Nearly a quarter of men state that they would invest in a new company if there was the chance of a higher (but risky) return. In contrast, only eight per cent of women state that they would do this.

These differences in attitudes to risk between men and women have been well-documented in the literature. However the questions used here are hypothetical, rather than observations of actual behaviour. A criticism here is that women may simply be more realistic about how they might actually behave compared to men, and that experimental or preferably observational evidence might reveal rather less difference between men and women. Nevertheless perceptions of how an individual might behave in certain possible future circumstances might provide useful antecedent information which correlates with entrepreneurial intentions. If women on average viewed financial risk more 'positively' then they might entertain higher levels of aspiration or intention towards entrepreneurship.

Figure 5.7 shows the responses to question 1 concerning perceived ease of adapting to financial difficulty by country of domicile. No significant differences between the groups are observed. Figure 5.8 groups responses to question 2 concerning understanding of risk. Here the pattern of responses is significantly different between the groups. However as Figure 5.8 shows, once again the issue is more a difference between British and other nationalities rather than Welsh-domiciled students being inherently more risk averse. In Figure 5.9 very much the same pattern is shown for preference over job security and pay; that is little or no difference between Welsh and Other UK domiciled students. The same applies in Figures 5.10 (preference between pay and commission) and in Figure 5.13 (preference between "risk and return" when asked to consider a particular financial investment). However in Figure 5.10 it is of note that, of all groups, Welsh domiciled students are most likely to report that they would prefer an occupation which was remunerated entirely by salary.

Figures 5.11 and 5.12 report the patterns of response to the question on perceived financial self-efficacy. Here is there is little or no difference between the country of domicile groups. Overall we may conclude that evidence of higher risk aversion in Wales is at best limited. Welsh students are probably no different from other British students, with both groups displaying higher risk aversion than students from overseas. An important caveat about selection bias should be made here. Our sample does include significant numbers of students who are studying in a country which is not their country of domicile (other than English students in Wales). These students may have an inherently greater tolerance of risk compared to their compatriots who have chosen to study at home, evidenced by their revealed willingness to travel abroad to study.

5.5. Multivariate Analysis of Factors Associated with Entrepreneurial Aspirations

In this section we test directly, using regression analysis and regression decomposition techniques, various hypotheses concerning potential factors associated with the formation of student entrepreneurial aspiration or intent. Entrepreneurial intent is captured by a binary variable for whether the individual student reports that they think they will set up a business within three years of graduation. Using a two-pronged methodology we firstly assess how entrepreneurial intent is formed separately for different groups of students. We focus specifically on difference between male and female students, and separately between Wales-domiciled and non-Wales domiciled students.

The regression models estimated include a range of covariates constructed from the information available in the survey, much of which has already been described up to this point in the report. A first group of variables capture demographic status, and include age band, gender (in the case of regressions by domicile), self-reported disability status, country of residence (in the case of regressions by gender), and marital/cohabitation status. In addition the broad subject discipline categorisation, as shown in Table 5.3, is also included. A second group of variables concern background and include the type of variables capturing prior background exposure to entrepreneurship typically included in previous studies of self-employment choice and entrepreneurial intention. Specifically this list includes indicators of whether father and mother, or both, are running a business, and indicators of whether the individual has a sibling or close friend running a business. It also includes an indicator of whether the student reports having taken part in any training programme in entrepreneurship, and a binary indicator for whether the student is current involved in any informal entrepreneurial activity. A final group of variables were included to assess the association between entrepreneurial intent and attitude to risk. As has been described above, the survey

includes a range of indicators and questions concerning attitude to risk. Some initial experimentation with model specification was undertaken and the preferred approach, reported here, was to include a categorisation of question 6 in Table 5.10; that is an indicator of different self-reported levels of willingness to accept financial risk.[44]

Table 5.11 provides the results of three logit regression models for the likelihood of expressing entrepreneurial aspirations. The reported coefficients are marginal effects, that is, they show the impact of a change in a particular variable on the probability that a student will express entrepreneurial intent. The table reports a full sample regression and separate sub-sample regressions for male and female students. The results for the full sample suggest that entrepreneurial friends and family, gender, attitudes towards risk and entrepreneurial involvement are important factors associated with the formation of entrepreneurial intentions. In particular the results suggest that female students are 7 percentage points less likely then there male counterparts to show entrepreneurial intent[45].

The results reported in earlier in this report (see Table 5.6 section b) suggest the existence of large differences in entrepreneurial intent between students of different countries of domicile (family residence). However, an important conclusion to emerge from this multivariate analysis is that the "raw" differences seen in Table 5.6 can be explained by the role of other independent variables used in the analysis. The same is true when we consider subject of

---

[44] Clearly some questions concerning risk presented in Table 5.10 are closely associated with the decisions to start your own business. In particular, questions 3, 4 and 7 are clearly designed to infer entrepreneurial intent and are therefore inappropriate for inclusion in the multivariate analysis. Initially experimentation included taking the means scores of questions 1, 2, 5 and 6 for each individual, however problems then occurred categorising the string variable. Final experimentation involved running the decomposition for each of these four questions. Given that the questions have similar distributions across gender these various questions concerning risk used in the decomposition analysis produced similar estimates. Question 6 was preferred as it was deemed to have the least inference to entrepreneurship and therefore most appropriate in the preceding analysis.

[45] This result is only significant at the 90 per cent level due to the inclusion of the risk variables in the logistic regression. Removing the risk variables from the regression gives us a p-value of 0.001. Consequently this highlights the argument that including gender as a dummy variable sheds little light on gender variations.

study: no significant country of domicile or subject of study effects are found for the full sample, once we control for other potential influences on the formation of entrepreneurial intent.

Regarding entrepreneurial background, the results suggest that a student with a father who is involved in running a business is 13 percentage points more likely to show entrepreneurial intent. Having a mother running a business or for that matter both parents running a business will increase the propensity for entrepreneurial intent by 16 and 20 percentage points, respectively. In addition, individuals with entrepreneurial friends and siblings are 9 and 18 percentage points respectively more likely to report entrepreneurial intent. The same is true for both entrepreneurial training (9 percentage points) and engagement within informal entrepreneurship (16 percentage points). The results also suggest risk aversion is associated with a significantly reduced probability of entrepreneurial intent. In particular, individuals categorised with a high or moderate willingness to take financial risks are approximately 49 percentage points more likely to show entrepreneurial intent opposed to individuals with a low willingness to take risk whereas individuals with a very low willingness to take financial risks are 19 percentage points less likely to show entrepreneurial intent compared to those individual with a low willingness to take risk.

We now consider the sub-sample results for males and females. For male students, engagement in informal entrepreneurship seems to be an important factor associated with the formation of entrepreneurial intent. That is, male respondents who engage in informal entrepreneurship are approximately 26 percentage points more likely to report entrepreneurial intent. However for female students the coefficient is positive but not statistically significant.

For male students, having a father or mother involved in running a business is positively associated with entrepreneurial intention. However for female respondents this is not the case: while for female respondents the coefficients are positive they are not statistically significant. The only exception is that where both parents are involved in business, the positive effect is significant at 9 per cent. This suggests that while parental role models are important for male students, they seem to be rather less important for females. Having a sibling running a business is also associated with a significant positive impact on the likelihood of entrepreneurial intent in the full sample, although from the sub-sample results this is again seen to be associated with male rather than female students. A similar conclusion emerges for the variable capturing whether the respondent has a close friend running a business; here the coefficient is significant in the full sample, but is not in either sub-sample. However the coefficient is larger for male students. There is also a positive association between the likelihood of entrepreneurial intent and participation in entrepreneurship training. Once again it is noticeable that the association is significant for male students but not be females.

As we have seen in the previous sections risk aversion had been shown to be inversely associated with the propensity to cite entrepreneurial intent. The results in Table 5.11 suggest that this true for both male and female students. While having a very low willingness to take financial risk is negatively associated with the probability of expressing entrepreneurial intent for the male sample, the relationship is not significant. For female respondents this relationship is negative and statistically significant. Specifically female students with very low risk tolerance are approximately 16 percentage points less likely to report entrepreneurial intent. For men having a moderate and high willingness to accept risk is strongly associated with entrepreneurial intent. Those with a moderate willingness for risk are 21 percentage

points more likely to state entrepreneurial intent, while males with high willingness to accept risk are 52 percentage points more likely. The results suggest that, for both male and female students, attitude to financial risk is positively associated with entrepreneurial intent.

In order to provide a clearer understanding of the differences between men and women in the strength of the various factors in the regression model, we undertake a decomposition analysis. When outcomes of interest are continuous and modelled using linear regression (e.g. wages) the Blinder-Oaxaca (1973) decomposition technique is widely used in identifying and quantifying the contributions of characteristics in group differences. Thus for a linear regression, the standard Blinder-Oaxaca decomposition for the male/female gap in the average value of the dependant variable, Y, can be expressed as:

$$\overline{Y}^M - \overline{Y}^F = \left[(\overline{X}^M - \overline{X}^F)\hat{\beta}^M \right] + \left[\overline{X}^F (\hat{\beta}^M - \hat{\beta}^F) \right] \tag{1}$$

where $\overline{Y}^M - \overline{Y}^F$ is the difference between the average outcome of the male sample and the average outcome of the female sample. Let $\overline{X}^j$ be a row vector of average vales of the independent variables and $\hat{\beta}^j$ a vector of coefficient estimates for gender j. The difference in the outcome due to characteristics is captured by the first term on the right hand side of equation (1), while the second term shows the differential that is due to differences in the estimated coefficients.

However this technique cannot be used directly when the outcome of interest is not continuous but binary, such as here, and the coefficients obtained from a logit or probit model, rather than an ordinary least squares model. For this purpose Fairlie (2005) proposes a

decomposition technique for applications in which it is inappropriate to model the dependent variable as a linear function:[46]

$$\bar{Y}^M - \bar{Y}^F = \left[\sum_{i=1}^{N^M} \frac{F(X_i^M \hat{\beta}^M)}{N^M} - \sum_{i=1}^{N^F} \frac{F(X_i^F \hat{\beta}^M)}{N^F} \right] + \left[\sum_{i=1}^{N^F} \frac{F(X_i^F \hat{\beta}^M)}{N^F} - \sum_{i=1}^{N^F} \frac{F(X_i^F \hat{\beta}^F)}{N^F} \right] \quad (2)$$

with N^j being the sample size for gender j. To calculate the decomposition, $\bar{Y}^j$ is defined as the average probability of entrepreneurial intent for gender j and F as the cumulative distribution function from the logistic distribution. Equation (2) will thus hold exactly for a logit model that includes a constant term, because the average value of the dependent variable must equal the average value of the predicted probabilities in the sample (Fairlie, 2005). In this case the male coefficient estimates, $\hat{\beta}^M$ are used as weights for the differences in the outcome due to characteristics, with $\hat{\beta}^F$ being used as a weight for deriving the differences in coefficients capturing the contribution of the characteristics.

Equation (2) gives us the total contribution of all independent variables in explaining the gap in average entrepreneurial intent probabilities between male and females. However, estimation of the contribution of individual independent variables is also of interest, and may provide indication for the specific direction of public policy, in this case to promote female participation in entrepreneurship.

---

[46] Several non-linear decomposition techniques have been developed. Gomulka and Stern (1990) and Yun (2000, 2004) have both developed simple methods of computing the combined contribution of explanatory variables for non-linear models, but fail to explicitly solve the problem of separately estimating the contribution of each explanatory variable. In addition to Fairlie (2005), Kapteyn *et al.* (2004) develop a fully non-linear decomposition method for observing the independent contributions of the explanatory variables to the explained difference. However, Kapteyn *et al.* (2004) requires progressively replacing both groups' observed values with a reference case. Fairlie (2005) however uses a matching strategy which avoids the need for a reference case. This methodology appears much more intuitive than Kapteyn *et al.* (2004) and as such this method has been chosen and implemented in the present chapter.

Assuming that $N_F = N_M$ and that there is natural one-to-one matching of female and male observations, the independent contribution of X_1 to the gender gap (using coefficient estimates from a logit regression for a pooled sample, $\hat{\beta}^*$) can be expressed as:

$$\frac{1}{N^F}\sum_{i=1}^{N^F} F(\hat{\alpha}^* + X_{1i}^M \hat{\beta}_1^* + X_{2i}^M \hat{\beta}_2^*) - F(\hat{\alpha}^* + X_{1i}^F \hat{\beta}_1^* + X_{2i}^M \hat{\beta}_2^*)$$

(3)

Thus the change in the average predicted probability from replacing the female distribution with the male distribution of that variable holding the other variables constant gives the contribution of each variable to the gender gap. However, unlike in the linear case, the independent contributions of X_1 and X_2 depend on the value of the other variables, which implies that any inference about the contribution of a particular variable will be conditional on the properties of the sample used.

In most cases however the sample size of both groups will not be exactly equal. In this case there are observations on 333 males and 316 females. In such instances a one-to-one matching of observations, obtained through repeated replications of random sub-sampling is done in order to compute the contribution of single independent variables. Here, a random sub-sample of males equal in size to the full female sample (N_F) is drawn. Each observation in the male sub-sample and female full-sample is then separately ranked by the predicted probabilities and matched by their respective rankings (Fairlie 2005). The decomposition estimates will depend on the randomly chosen sub-sample of males (the larger group), and

therefore to obtain estimates for the hypothetical decomposition 1000 random sub-samples are drawn and the mean value of the estimates are used to provide decomposition results. [47]

Table 5.12 provides the results of this decomposition analysis for the entrepreneurial intention gap between female and male students. The upper panel of the table shows the average propensity of entrepreneurial intention for both the male and female samples. The differences in intentions are then reported, followed by the total explained proportion of the difference explained by the choice of explanatory variables. In this model the gender gap in entrepreneurial intent is 16.2 per cent. Of this gap, 66.8 per cent (10.8 percentage points) can be explained by the model and the choice of explanatory variables, with the remaining differences being down to unobserved factors (that is differences in the coefficients in the male and female models). [48] The lower panel provides contributions to the gender gap from each independent variable, along with indicators of statistical significance and, for ease of interpretation, the contribution in percentage terms.

The table shows that only a small number of factors provide a statistically significant contribution to the difference in the average level of entrepreneurial intent between male and female students. Some of the difference can be explained by the different subject group composition of male and female students, and in particular the lower likelihood that women will study science and engineering subjects, which are strongly associated with entrepreneurial intent. Perhaps the most striking result is the contribution of risk attitudes to the gap in intentions between male and female students. In particular, the greater propensity

---

[47] Due to the fact the sample size of males is larger than the sample size of females and the subsequent one-to-one matching of observations, the decomposition is evaluated at the male coefficients.

[48] The unexplained proportion of the model may be an extent attributable to the fact aspirations of men appear to be more sensitive to parental role models. However, estimates of the separate contributions of sets of variables to the unexplained components of the decomposition are not attempted due to the identification problem identified by Jones (1983).

for male students to report a moderate or high willingness to accept financial explains 30 percentage points and 13 percentage points of the total gap respectively. Moreover, summing up the total contribution of variation in attitude to risk explains very nearly half of the total gap in intentions. That means that if female students were the same in their attitude towards financial risk as their male counterparts, the entrepreneurial intentions gap of over 16 percent would be reduced to around 8 percent.

Table 5.13 reports logit regression results for a separate sample partition into Welsh domiciled and non-Welsh domiciled students (152 and 497 respondents respectively). There are a number of significant differences in the way in which the various factors in the model are associated with differences in the likelihood of entrepreneurial intention between Welsh and non-Welsh students. Firstly female students in Wales are not significantly less likely to report entrepreneurial intent, whereas in other countries they are. Students in Wales studying business management and economics subjects are very significantly more likely to report entrepreneurial intention than is the case for students living elsewhere. Generally family background is positively associated with entrepreneurial intent for both groups, although in the smaller Welsh sample statistical significance is not as high. However Welsh students appear not to be influenced by entrepreneurial siblings compared to non-Welsh students, but much more likely to be influenced by entrepreneurial friends. There is also no significant association for Welsh students between entrepreneurship education and entrepreneurial intent, whereas for other students participation in entrepreneurship training is associated with an increase in the probability of entrepreneurial intent of 0.1. Finally there is some difference between Welsh and non-Welsh students in terms of the strength of association between attitude to financial risk and entrepreneurial intent. Because of the relatively small size of the Welsh sub-sample, it was necessary to simplify the model structure in terms of student

attitudes towards risk. The association seems to be somewhat higher for non-Welsh students.[49]

Table 5.14 reports the decomposition analysis. The methodology used is as already described for decomposing the gender gap. 1000 repeated random samples of the larger non-Welsh group are used to obtain the estimates.[50] The gap to be explained is smaller than for the gender decomposition, amounting to 8.7 per cent. Differences in the average characteristics of non-Welsh and Welsh students explain over 80 percent of this gap. The significant components of the explained gap are gender (15 per cent), father's background as an entrepreneur (10 per cent) and joint parental background as entrepreneurs (12 per cent), and experience of training in entrepreneurship (9 per cent). Thus Welsh students have on average lower levels of entrepreneurial aspiration because (in the sample) more are female, fewer have an entrepreneurial parental background and fewer have had training in entrepreneurship. However, by far most important component of the gap is attitude to risk (32 per cent). Welsh students are much less likely on average to report a positive attitude to taking on financial risk. One statistically significant contribution militates against these associations however, namely that Welsh students are more likely to report engagement in informal entrepreneurship.

The findings in this section reveal that Welsh students have less positive attitudes towards risk, as do female students. It appears to be that in both cases there is a significant association between a more negative attitude towards risk and lower levels of entrepreneurial intent.

---

[49] An important caveat about selection bias should be made here. The sample does include a significant number of students who are studying in a country which is not their country of domicile (other than English students in Wales). These students may have an inherently greater tolerance of risk compared to their compatriots who have chosen to study at home, evidenced by their revealed willingness to travel abroad to study.

[50] As with the analysis of the male/female decomposition, due to the fact the sample size of non-Welsh is larger than the sample size of the Welsh, the decomposition is evaluated at the non-Welsh coefficients.

Differences in risk attitude appear to provide the largest single component of the explained gap between the levels of entrepreneurial intent of male and females students, and of non-Welsh domiciled and Welsh domiciled students. Family and other background influences are also important contributors to the non-Welsh and Welsh gap, including the lower levels of entrepreneurship training experienced by Welsh students.

5.6. Conclusion and Implications for Public Policy

Entrepreneurship is now widely recognised as a driver of business creation, innovation and growth in market economies. Public policy, in a whole variety of guises, recognises that governmental authorities can and should take actions to promote a positive view of entrepreneurship. While some of these actions have focused on groups who are under-represented or disadvantaged amongst the self-employed or those who venture new businesses, considerable attention has been paid to the issue of raising the entrepreneurial aspirations of young people. In the Welsh context this was one of the key actions highlighted in the 1999 Entrepreneurship Action Plan. However, the issue here appears to be more a difference between British and other nationalities rather than Welsh-domiciled students.[51]

Analysis of the entrepreneurial background of student respondents provides some support for the view that Welsh-domiciled students may be at a disadvantage. This is in the sense that fewer have parents who are or were running their own businesses. It is not easy to see how public policy can effect change in this regard, except in the very long term. Policy intervention cannot engineer the creation of a better family background to support the

---

[51] Table A5.1 provides the results of a decomposition analysis for the entrepreneurial intention gap between UK-domiciled and non UK-domiciled students. The gap to be explained is larger than for the non-Welsh and Welsh domiciled students, amounting to 16.1 per cent. Differences in the average characteristics of non-UK and UK students explain over 80 per cent of the gap. The significant components of the explained gap are gender (12 per cent), Business Management/Economics (69.2 per cent), Law (-7.8 per cent), Social Science, (-28.4 per cent), Science/Engineering (23.8) and risk attitudes which account for over 20 per cent of the difference.

development of entrepreneurial aspirations amongst young people. Wales, to some extent, may bear the consequences of historical reliance on large scale heavy industry, such that stable, well-paid employment opportunities were available to the parents and grandparents of current generations of young people. For these earlier generations there was less economic pressure or social support for considering venturing or working for a small business. The results also suggest that entrepreneurial role models may be gender dependant. Our results suggest that parental, siblings and friends role models are more important for male students then their female counterparts, the exception being when both parents are involved in running a business. Similarly, for men, engagement in informal entrepreneurship and entrepreneurial training significantly and positively affect intentions while for women the results are not significant.

Attitude to risk is found to be a major factor associated with the gap in the average levels of entrepreneurial intentions between male and female students. It is also the major component of the difference between Welsh and non-Welsh students. Acceptance of risk is unlikely to be independent of background and education. In the current media frenzy surrounding excessive risk-taking in the financial sector, policy to address this needs to be carefully designed – encouraging students, especially women, to be more positive about the risks associated with entrepreneurship needs to matched with improved education about how to manage financial risk.

The findings provide several implications for university administrators and government initiatives. Government initiatives and institutions should seek to promote the awareness of successful entrepreneurial role-models. More research is needed to identify the causality between informal business ventures and subsequent intentions. If, as our results suggest,

engagement in informal enterprises is important in forming entrepreneurial intentions, perhaps entrepreneurial educational programmes should aim to be more 'hands-on'.

Table 5.1: Size of Participating Universities

	Total students	Total under-graduates	Total full-time under-graduates	year
Aberystwyth University	12,245	8,255	6,155	2006/7
Swansea University	15,525	11,370	8,770	2006/7
University of Warwick	30,320	20,375	10,635	2006/7
University College Cork	15,544	12,648	11,857	2006/7
KTH Stockholm	13,671	11,927[1]	7,612[1]	2007
Åbo Akademi Turku	7,545	6,000	n.a.	2008
University of St Gallen	5,300		n.a.	2008
University of Cooperative Education, Stuttgart	5,500	5,500	n.a.	2008

Source: Henley *et al.* (2008).
Notes: [1] Bachelors and masters students.

Table 5.2: Sample Information by Participating University

	Total responses	Total complete responses	Per cent of total
Aberystwyth University	162	116	17.9
Swansea University	360	251	38.7
University of Warwick	47	41	6.3
University College Cork	45	25	3.9
KTH Stockholm	127	111	17.1
Åbo Akademi Turku	39	33	5.1
University of St Gallen	69	51	7.9
University of Cooperative Education, Stuttgart	28	21	3.2
Total	*877*	*649*	*100.0*

Source: Henley *et al.* (2008).

Table 5.3: Sample Information by Subject Area

	Total complete responses	Per cent of total
Business Management / Economics	221	34.1
Law	46	7.1
Other Social Science	51	7.9
Arts and Humanities	114	17.6
Science and Engineering	191	29.4
Medicine / Health care subjects	26	4.0
Total	*649*	*100.0*

Source: Henley *et al.* (2008).

Table 5.4: Sample Breakdown by Gender, Age and Ethnicity

	Total complete responses	Per cent of total
a) Gender		
Male	333	51.3
Female	316	48.7
b) Age		
18-21	402	61.9
22-25	184	28.4
26-30	31	4.8
31-39	20	3.1
40 and over	12	1.8
c) Ethnicity		
White	561	86.4
Black Afro-Caribbean	10	1.5
South Asian	33	5.1
Chinese	45	6.9

Source: Henley *et al.* (2008).

Table 5.5: Sample Breakdown by Country of Residence

	Total complete responses	Per cent of total
England	181	27.9
Wales	152	23.4
Scotland	1	0.2
Ireland	23	3.5
Sweden	67	10.3
Finland	34	5.2
Germany	46	7.1
Switzerland	28	4.3
Other EU	37	5.7
Other non-EU	80	12.3
Total	*649*	*100.0*

Source: Henley *et al.* (2008).

Table 5.6: Students Indicating they will Set-Up a Business within Three Years of Graduation

	Number (Percentage)	Pearson Chi-sq (p-value)
a) Gender		
Male	134 (40.2%)	
Female	76 (24.05)	*0.000*
b) Country of domicile		
Wales	39 (25.7%)	
Other UK	43 (23.6%)	
EU/Switzerland	87 (37.0%)	
Non-EU	41 (51.3%)	*0.000*
c) *Total*	210 (32.4%)	

Source: Henley *et al.* (2008).
Notes: The right hand side reports the significance of a t-test for the difference between men and women and for the difference between country of domicile. ***Bold italic*** indicates p-value < 0.05.

153

Table 5.7: Students Currently Engaged in Informal Activity

	Number (Percentage)	Pearson Chi-sq (p-value)
a) *Gender*		
Male	48 (14.4%)	
Female	45 (14.2%)	0.949
b) *Country of domicile*		
Wales	27 (17.8%)	
Other UK	29 (15.9%)	
EU/Switzerland	25 (10.6%)	
Non-EU	12 (15.0%)	0.214
c) *Total*	93 (14.3%)	

Source: Henley *et al.* (2008).

Notes: The right hand side reports the significance of a t-test for the difference between men and women and for the difference between country of domicile. ***Bold italic*** indicates p-value < 0.05

Table 5.8: Entrepreneurial Background by Gender

Percentage	Male	Female	All	Pearson Chi-sq (p-value)
a) *Parent currently running own business*				
Father	25.8	18.7	22.3	
Mother	4.8	6.6	5.7	
Both parents	8.1	4.1	6.2	
Neither	61.3	70.6	66.8	*0.012*
b) *Parent ran business when at school*				
Father	27.9	21.8	25.0	
Mother	6.0	7.6	6.8	
Both parents	11.1	9.5	10.3	
Neither	55.0	61.1	57.9	0.215
c) *Sibling currently running own business*				
Brother	3.0	6.0	4.5	
Sister	2.4	2.2	2.3	
Both	0.6	0.3	0.5	
Neither (or no siblings)	94.0	91.5	92.8	0.295
d) *Close personal friend currently running own business*				
Yes	36.3	25.3	31.0	
No	63.7	74.7	69.0	*0.002*

Source: Henley *et al.* (2008).
Notes: The right hand side reports the significance of a t-test for the difference between men and women. ***Bold italic*** indicates p-value < 0.05

Table 5.9: Training for Entrepreneurship

	Male	Female
Training as part of school study prior to university	40	28
	(12.0%)	(8.9%)
Training as part of university course	72	56
	(21.6%)	(17.7%)
Separate training course, which choose to attend	24	21
	(7.2%)	(6.6%)

Source: Henley *et al.* (2008).
Note: Some respondents may have engaged in more than one type.

Table 5.10[52]: Attitudes to Risk – Mean Scores by Gender

percentage	All	Men	Women	Pearson Chi-sq (p-value)
1. How easily to you adapt when things go wrong financially?				
a) very uneasily	6.9	6.9	7.0	
b) somewhat uneasily	30.1	27.0	33.5	
c) somewhat easily	51.1	49.5	52.8	
d) very easily	11.9	16.5	6.6	*0.001*
2. When you think of the word 'risk' in a financial context, which of the following words comes to mind first?				
a) danger	16.2	13.5	19.0	
b) uncertainty	64.2	56.5	72.2	
c) opportunity	17.0	25.5	8.2	
d) thrill	2.6	4.5	0.6	*0.000*
3. If you had to choose between more job security with a small pay rise and less security with a big pay rise, which would you pick?				
a) definitely more job security	8.0	4.5	11.7	
b) probably more job security	28.1	15.6	41.4	
c) not sure	17.7	17.1	18.7	
d) probably less job security	32.9	41.4	23.7	
e) definitely less job security	13.3	21.3	4.7	*0.000*
4. Imagine you were in a job where could choose whether to be paid salary, commission or a mix of both. Which would you pick?				
a) all salary	12.4	7.8	17.4	
b) mainly salary	41.7	36.9	47.2	
c) equal mix	35.5	37.5	32.6	
d) mainly commission	9.3	15.9	2.5	
e) all commission	1.1	1.8	0.3	*0.000*
5. How much confidence do you have in your ability to make good financial decisions?				
a) none	2.5	3.0	1.9	
b) a little	10.7	5.1	16.8	
c) a reasonable amount	49.2	42.6	56.0	
d) a great deal	31.4	40.5	21.8	
e) complete	6.3	8.7	3.5	*0.000*

Source: Henley *et al.* (2008).

Notes: The right hand side reports the significance of a t-test for the difference between men and women. ***Bold italic*** indicates p-value < 0.05.

---

[52] Mean scores by country of domicile are not included due to sample sizes

Table 5.10: Attitudes to Risk – Mean Scores by Gender (continued)

percentage	All	Men	Women	Pearson Chi-sq (p-value)
6. How would you assess your willingness to take financial risks?				
a) very low risk taker	7.3	3.3	11.7	
b) low risk taker	37.9	28.5	48.1	
c) moderate risk taker	49.4	59.2	39.2	
d) high risk taker	5.4	9.0	0.9	*0.000*
7. If you received €100k that could only be used in three years' time, how would you invest it?				
a) in a savings account with a guaranteed 3% p.a. yield	25.2	12.0	39.2	
b) in a portfolio of large companies with a yield range of -2% p.a. to +10% p.a.	59.3	65.8	52.8	
c) in a new company with a yield range of -20% p.a. to +30% p.a.	15.4	22.2	7.9	*0.000*

Notes: The right hand side reports the significance of a t-test for the difference between men and women. ***Bold italic*** indicates p-value < 0.05.

Table 5.11: Logit Regressions for Entrepreneurial Intent - by Gender

	Full sample		Males		Females	
	Marginal effect	P>|z|	Marginal effect	P>|z|	Marginal effect	P>|z|
Demographics (reference category: male, over 25, able-bodied)						
Age 18-25	-0.083	0.342	-0.071	0.561	-0.230	*0.072*
Female	-0.072	*0.093*	-	-	-	-
Disabled	-0.111	0.178	-0.088	0.569	-0.029	0.793
Country of family residence (reference category: Wales)						
Other UK	-0.025	0.659	-0.036	0.724	0.029	0.668
European	0.043	0.596	0.060	0.689	0.034	0.687
Non-European	0.089	0.321	0.083	0.572	0.158	0.205
University (reference category: outside Wales)						
Welsh University	0.025	0.707	-0.077	0.523	0.108	*0.086*
Degree subject (reference category: Arts and Humanities)						
Business Management/Economics	0.097	0.176	0.109	0.419	0.206	**0.022**
Law	0.082	0.438	0.216	0.269	0.039	0.701
Social Science	0.079	0.456	0.400	**0.011**	-0.023	0.785
Science/Engineering	0.112	0.133	0.275	**0.031**	-0.049	0.489
Medicine/Health	0.010	0.938	0.202	0.522	-0.063	0.455
Cohabitation status (reference category: single)						
Partner in self- or paid employment	0.074	0.304	0.215	0.110	-0.007	0.913
Partner inactive or in education	-0.061	0.323	-0.063	0.491	-0.155	**0.003**
Parental background (reference category: neither parent running a business)						
Father running a business	0.131	**0.012**	0.191	**0.012**	0.077	0.270
Mother running a business	0.167	*0.072*	0.345	**0.007**	0.084	0.431
Both running a business	0.201	**0.030**	0.190	0.122	0.266	*0.091*
Peer group background						
Sibling running a business	0.186	**0.042**	0.270	*0.071*	0.093	0.343
Close friend in business	0.091	**0.044**	0.101	0.145	0.074	0.210
Own background						
Entrepreneurial training	0.092	**0.040**	0.114	*0.098*	0.051	0.354
Informal entrepreneurship	0.163	**0.009**	0.262	**0.004**	0.066	0.367
Willingness to take financial risk (reference category: low)						
Very low	-0.194	**0.004**	-0.163	0.406	-0.155	**0.003**
Moderate	0.146	**0.001**	0.215	**0.002**	0.086	*0.087*
High	0.486	**0.000**	0.517	**0.000**	0.503	*0.077*
Log-likelihood	-337.4		-176.6		-142.8	
Pseudo R-squared	0.175		0.213		0.181	
Sample size	649		333		316	

Note: *Italic* indicates significance level (p-value) below 0.10, ***bold italic*** below 0.05
Source: Authors calculations from 2007/2008 student survey data.

Table 5.12: Decomposition of the Gender Gap in Entrepreneurial Intention

	Coef	P>|z|	% explained
Group 1 (Males)	0.4024		
Group 2 (Females)	0.2405		
Difference	0.1619		
Total explained	0.1082		66.82%
Demographics (reference category: male, over 25, able-bodied)			
Age 18-25	0.0021	0.550	1.30%
Disabled	-0.0009	0.581	-0.56%
Country of family residence (reference category: Wales)			
Other UK	0.0005	0.726	0.31%
European	0.0041	0.679	2.53%
Non-European	0.0021	0.565	1.30%
University (reference category: outside Wales)			
Welsh University	0.0090	0.551	5.56%
Degree subject (reference category: Arts and Humanities)			
Business Management/Economics	0.0026	0.391	1.61%
Law	-0.0073	0.279	-4.51%
Social Science	-0.0258	*0.021*	*-15.94%*
Science/Engineering	0.0427	*0.029*	*26.37%*
Medicine/Health	-0.0043	0.576	-2.66%
Cohabitation status (reference category: single)			
Partner in self- or paid employment	-0.0119	0.103	-7.35%
Partner inactive or in education	-0.0029	0.506	-1.79%
Parental background (reference category: neither parent running a business)			
Father running a business	0.0057	*0.051*	*3.52%*
Mother running a business	0.0004	0.810	0.25%
Both running a business	0.0042	0.111	2.59%
Peer group background			
Sibling running a business	-0.0054	0.125	-3.34%
Close friend in business	0.0076	0.146	4.69%
Own background			
Entrepreneurial training	0.0044	0.129	2.72%
Informal entrepreneurship	0.0009	0.568	0.56%
Willingness to take financial risk (reference category: low)			
Very low	0.0113	0.430	6.98%
Moderate	0.0479	*0.005*	*29.59%*
High	0.0207	*0.000*	*12.79%*

Note: *Italic* indicates significance level (p-value) below 0.10, ***bold italic*** below 0.05.
Source: Authors calculations from 2007/2008 student survey data.

Table 5.13: Logit Regressions for Entrepreneurial Intent - by Country of Residence

	Non-Wales		Wales	
	Marginal effect	P>|z|	Marginal effect	P>|z|
Demographics (reference category: male, over 25, able-bodied)				
Age 18-25	-0.0658	0.539	-0.2565	0.136
Female	-0.1151	*0.020*	0.0100	0.899
Disabled	-0.0230	0.864	-0.1712	*0.004*
University (reference category: outside Wales)				
Welsh University	-0.0279	0.599	0.0358	0.870
Degree subject (reference category: Arts and Humanities)				
Business Management/Economics	0.0523	0.541	0.3605	*0.022*
Law	0.0964	0.449	0.2071	0.310
Social Science	0.0015	0.991	0.2401	0.177
Science/Engineering	0.0927	0.294	0.2093	0.185
Medicine/Health	0.1227	0.616	-0.1223	0.185
Cohabitation status (reference category: single)				
Partner in self- or paid employment	0.1251	0.171	0.0621	0.592
Partner inactive or in education	-0.0312	0.687	-0.1453	*0.028*
Parental background (reference category: neither parent running a business)				
Father running a business	0.1237	*0.034*	0.2354	*0.078*
Mother running a business	0.1857	*0.081*	0.2723	0.225
Both running a business	0.2230	*0.022*	0.0134	0.954
Peer group background				
Sibling running a business	0.2650	*0.008*	-0.1216	0.162
Close friend in business	0.0854	*0.093*	0.2427	*0.035*
Own background				
Entrepreneurial training	0.1009	*0.050*	0.0417	0.600
Informal entrepreneurship	0.1883	*0.011*	0.2371	*0.063*
Willingness to take financial risk (reference category: low)				
Moderate or high	0.2019	*0.000*	0.1831	*0.018*
Log-likelihood	-269.6		-68.5	
Pseudo R-squared	0.157		0.208	
Sample size	497		152	

Note: *Italic* indicates significance level (p-value) below 0.10, **bold italic** below 0.05
Source: Authors calculations from 2007/2008 student survey data.

Table 5.14: Decomposition of the Country of Residence Gap in Entrepreneurial Intention

	Coef	P>|z|	% explained
Group 1 (Non-Wales)	0.3440		
Group 2 (Wales)	0.2567		
Difference	0.0874		
Total explained	0.0718		82.18%
Demographics (reference category: male, over 25, able-bodied)			
Age 18-25	-0.0082	0.538	-9.39%
Female	0.0128	*0.025*	*14.73%*
Disabled	0.0010	0.868	1.20%
University (reference category: outside Wales)			
Welsh University	0.0132	0.601	15.11%
Degree subject (reference category: Arts and Humanities)			
Business Management/Economics	0.0080	0.533	9.24%
Law	-0.0021	0.526	-2.41%
Social Science	-0.0001	0.991	-0.09%
Science/Engineering	0.0089	0.346	10.21%
Medicine/Health	-0.0114	0.602	-13.14%
Cohabitation status (reference category: single)			
Partner in self- or paid employment	-0.0076	0.177	-8.73%
Partner inactive or in education	0.0001	0.904	0.20%
Parental background (reference category: neither parent running a business)			
Father running a business	0.0084	*0.054*	*9.67%*
Mother running a business	0.0004	0.787	0.51%
Both running a business	0.0101	*0.020*	*11.66%*
Peer group background			
Sibling running a business	0.0017	0.384	1.99%
Close friend in business	0.0086	0.110	9.88%
Own background			
Entrepreneurial training			
Informal entrepreneurship	-0.0076	*0.015*	*-8.69%*
Willingness to take financial risk (reference category: low)			
Moderate or high	0.0277	*0.000*	*31.75%*

Note: *Italic* indicates significance level (p-value) below 0.10, ***bold italic*** below 0.05.
Source: Authors calculations from 2007/2008 student survey data.

Figure 5.1: Parental Current Business Involvement - by Country of Domicile

parent currently running own business

■ Europe ■ Non-Europe □ Other UK ▣ Wales
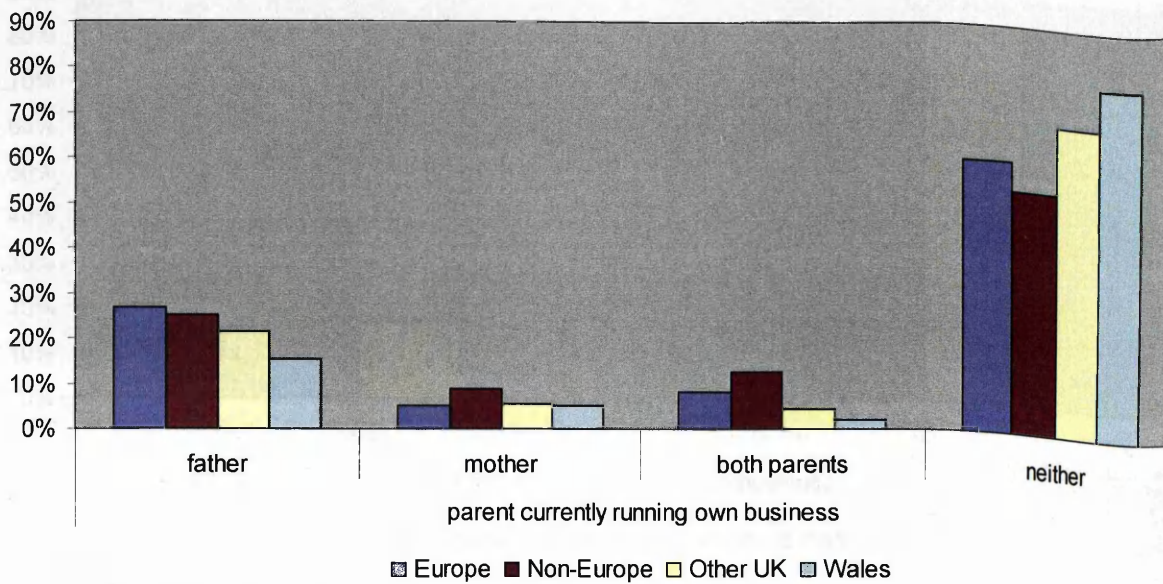
Source: Henley *et al.* (2008).
Note: Pearson Chi-squared p-value = 0.013

Figure 5.2: Parental Business Involvement when at School - by Country of Domicile

parent ran business when at school

■ Europe ■ Non EU □ Other UK ▣ Wales
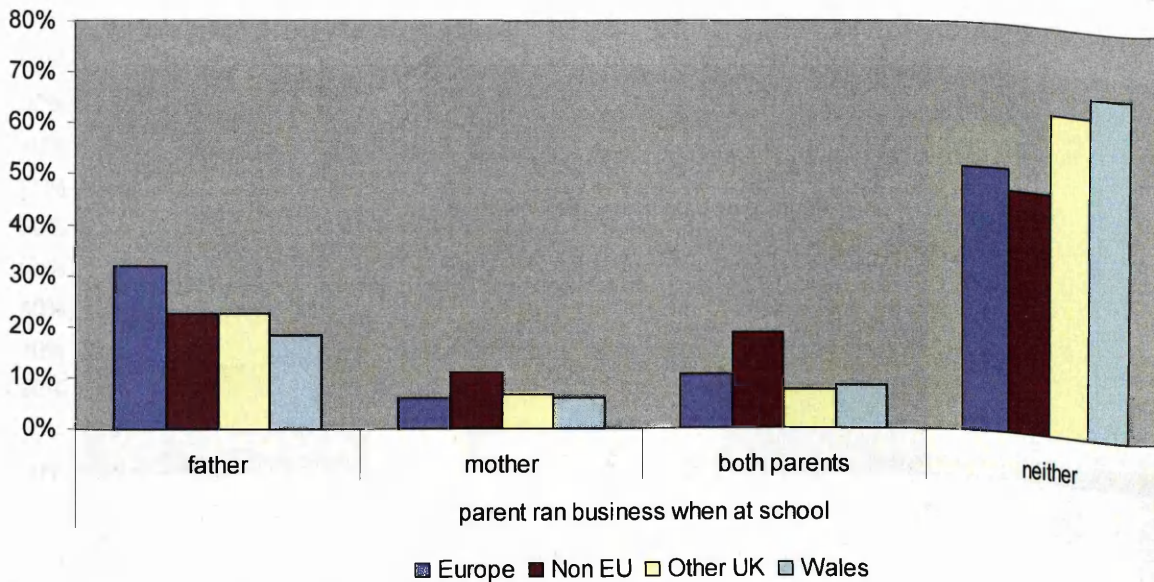
Source: Henley *et al.* (2008).
Note: Pearson Chi-squared p-value = 0.004

Figure 5.3: Close Friend Current Business Involvement - by Country of Domicile

friend currently running own business

■ Europe ■ Non EU □ Other UK □ Wales
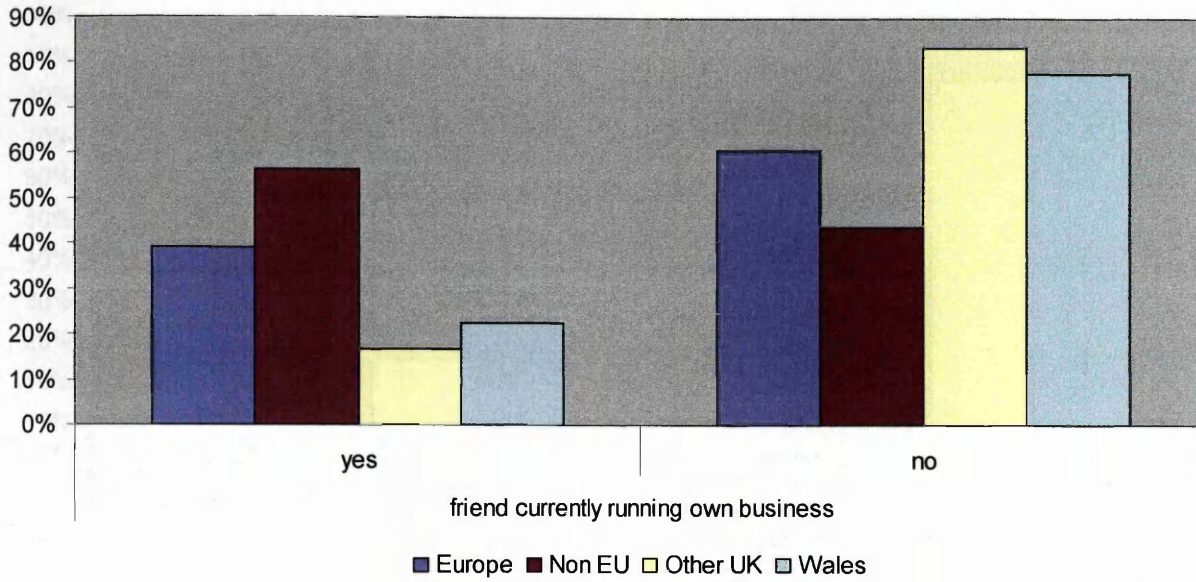
Source: Henley *et al.* (2008).
Note: Pearson Chi-squared p-value = 0.000

Figure 5.4: Parent Currently Employs Other - by Country of Domicile

parent currently employing others

■ Europe ■ Non EU □ Other UK □ Wales
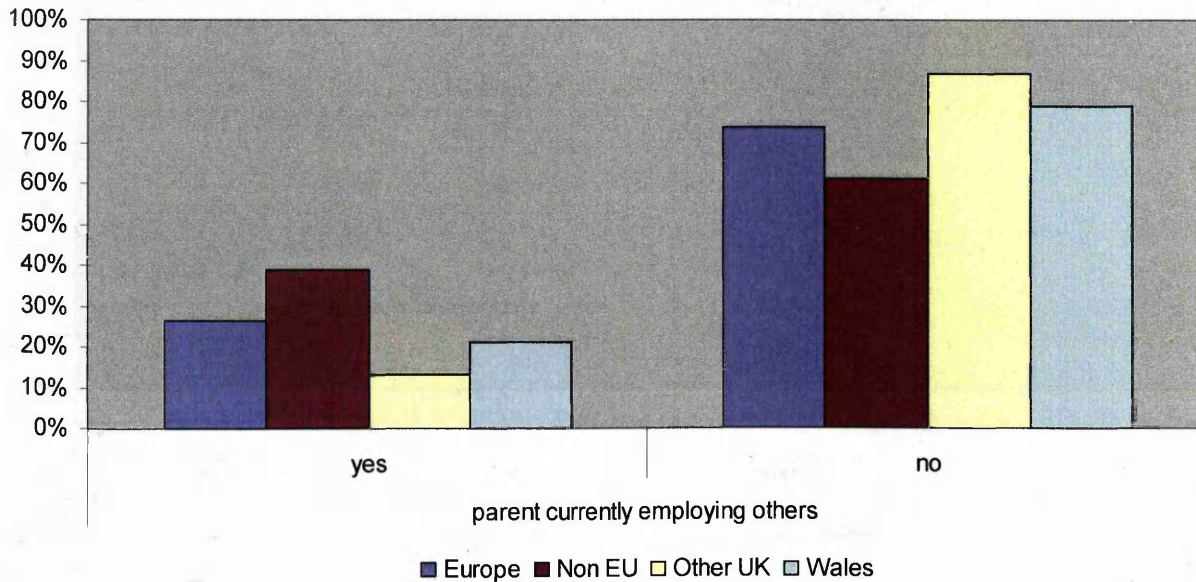
Source: Henley *et al.* (2008).
Note: Pearson Chi-squared p-value = 0.000

Figure 5.5: Close Friend Currently Employs Other - by Country of Domicile
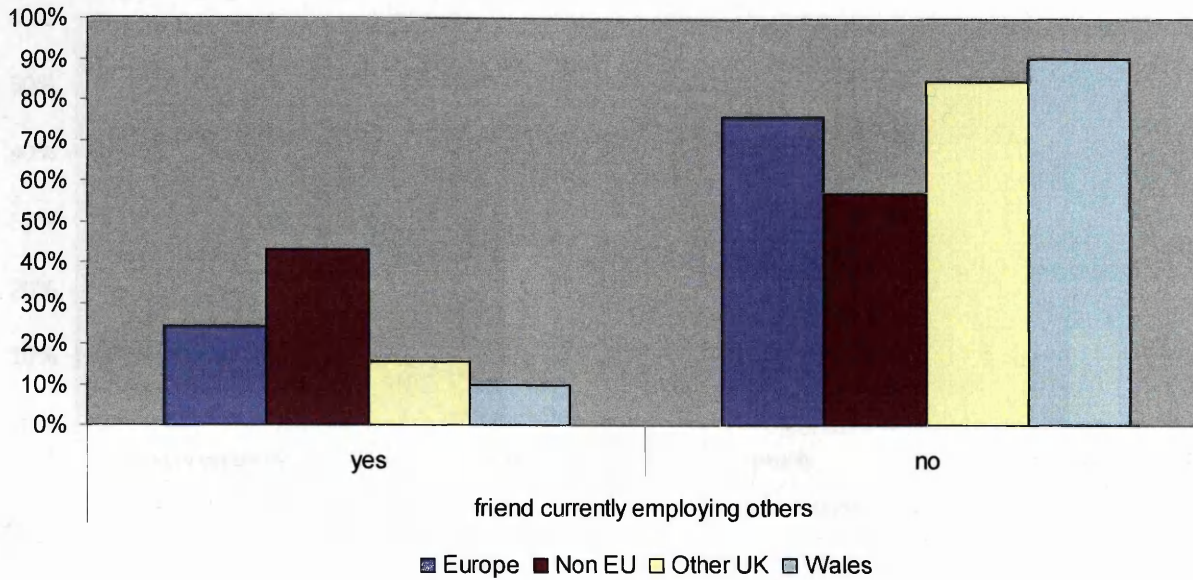
Source: Henley *et al.* (2008).
Note: Pearson Chi-squared p-value = 0.000

Figure 5.6: Participation in Entrepreneurship Training - by Country of Domicile
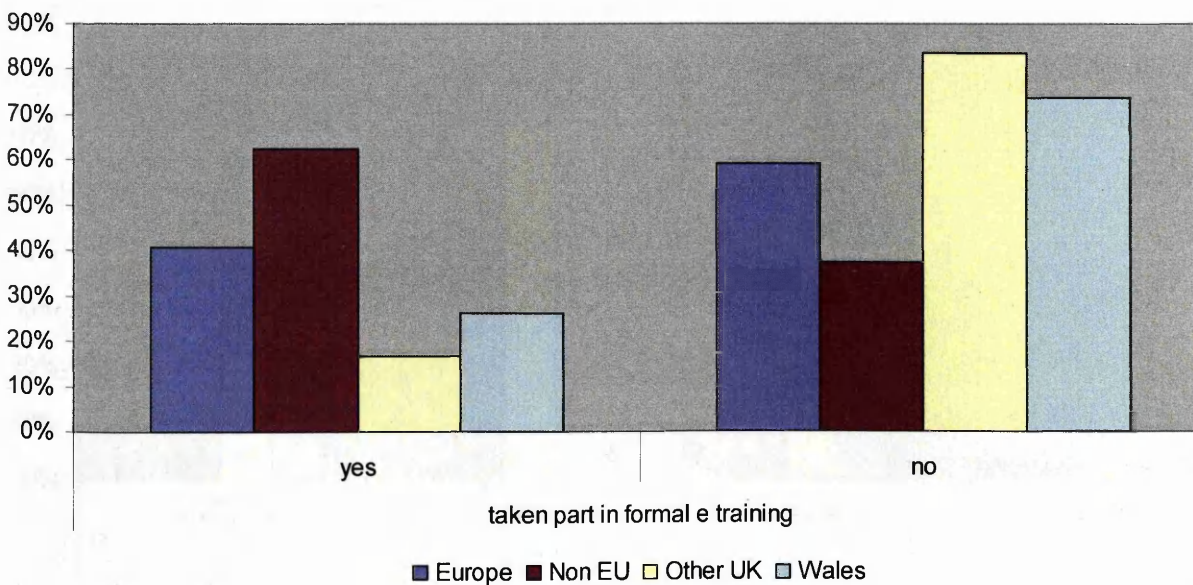
Source: Henley *et al.* (2008).
Note: Pearson Chi-squared p-value = 0.000

Figure 5.7: Ease of Adapting to Financial Difficulty - by Country of Domicile
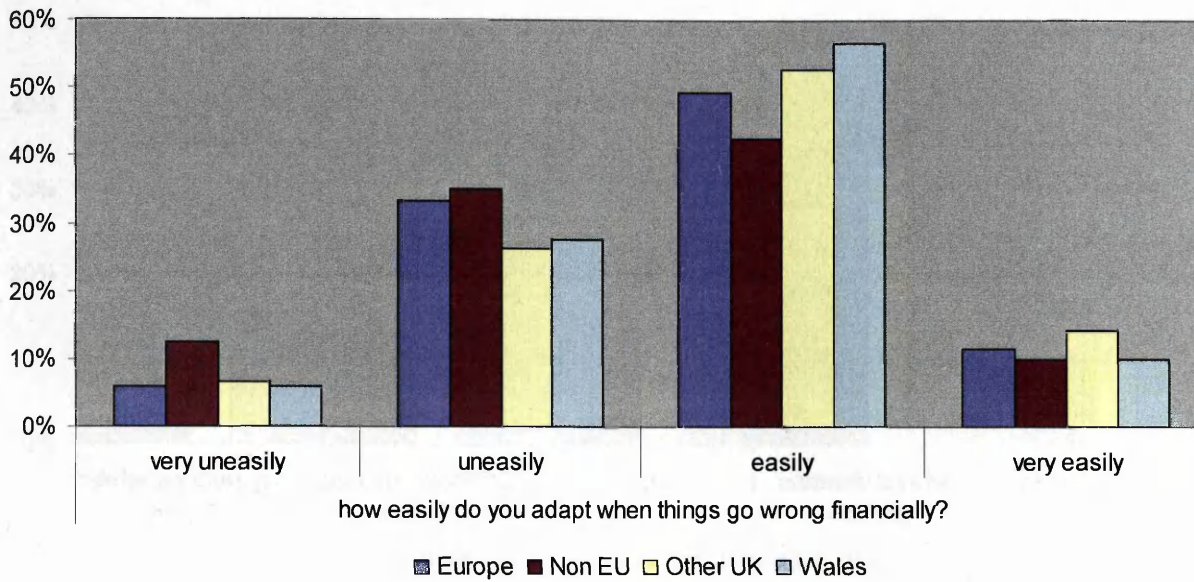
Source: Henley *et al.* (2008).
Note: Pearson Chi-squared p-value = 0.301

Figure 5.8: Understanding of Risk - by Country of Domicile
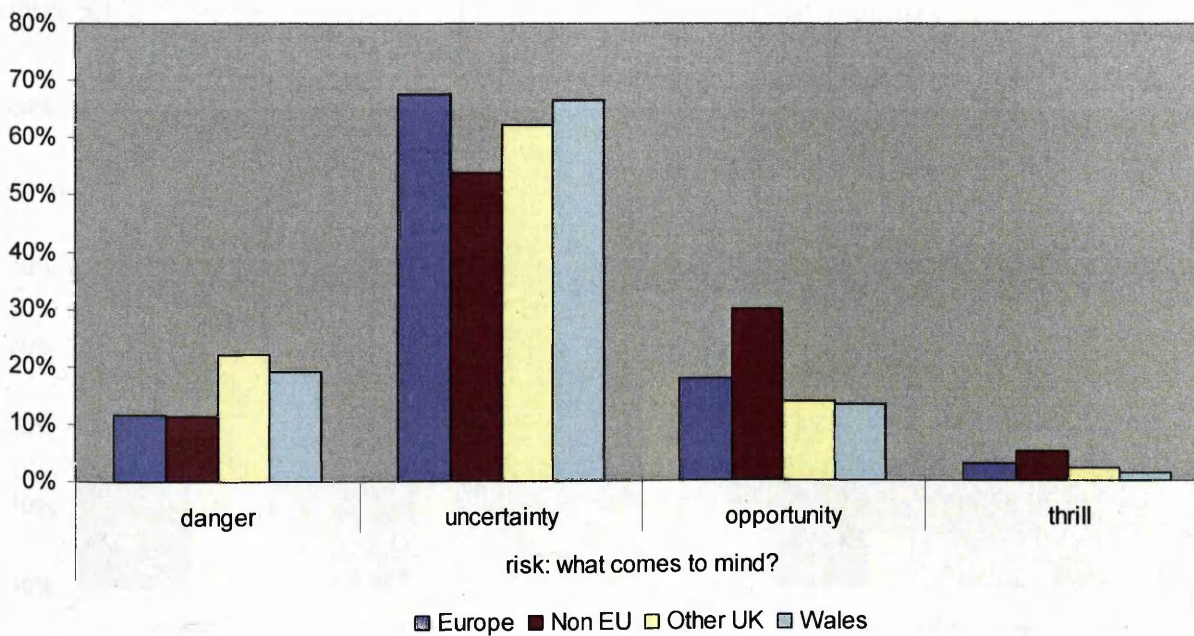
Source: Henley *et al.* (2008).
Note: Pearson Chi-squared p-value = 0.004

Figure 5.9: Preference Between Job Security and Pay - by Country of Domicile
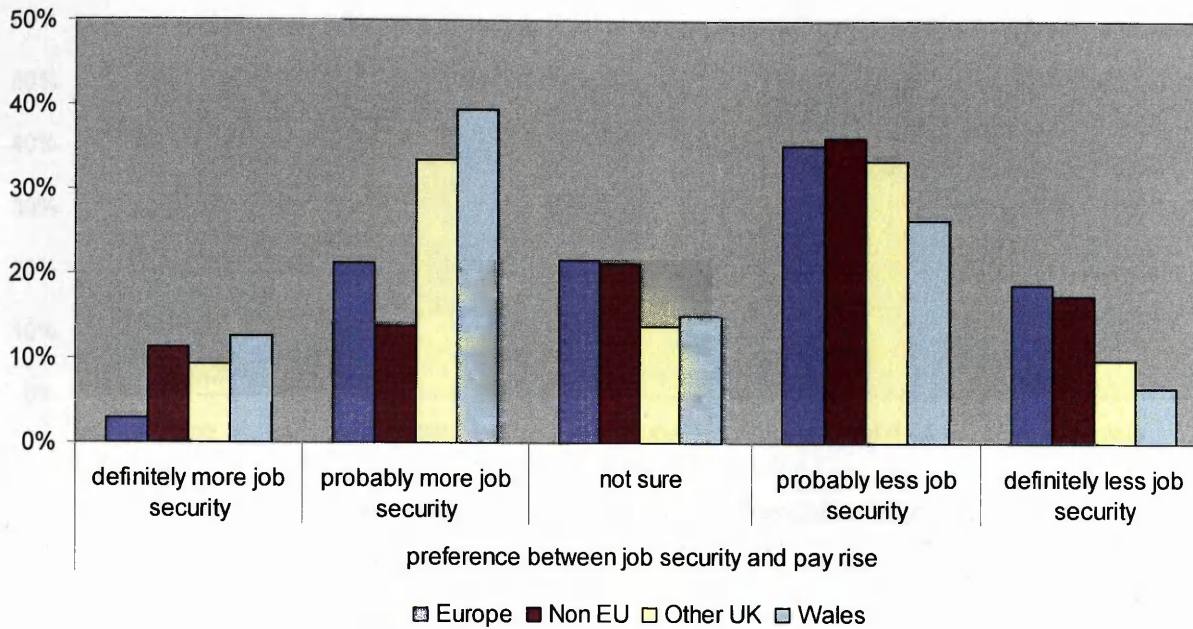
Source: Henley *et al.* (2008).
Note: Pearson Chi-squared p-value = 0.000

Figure 5.10: Preference Between Salary and Commission - by Country of Domicile
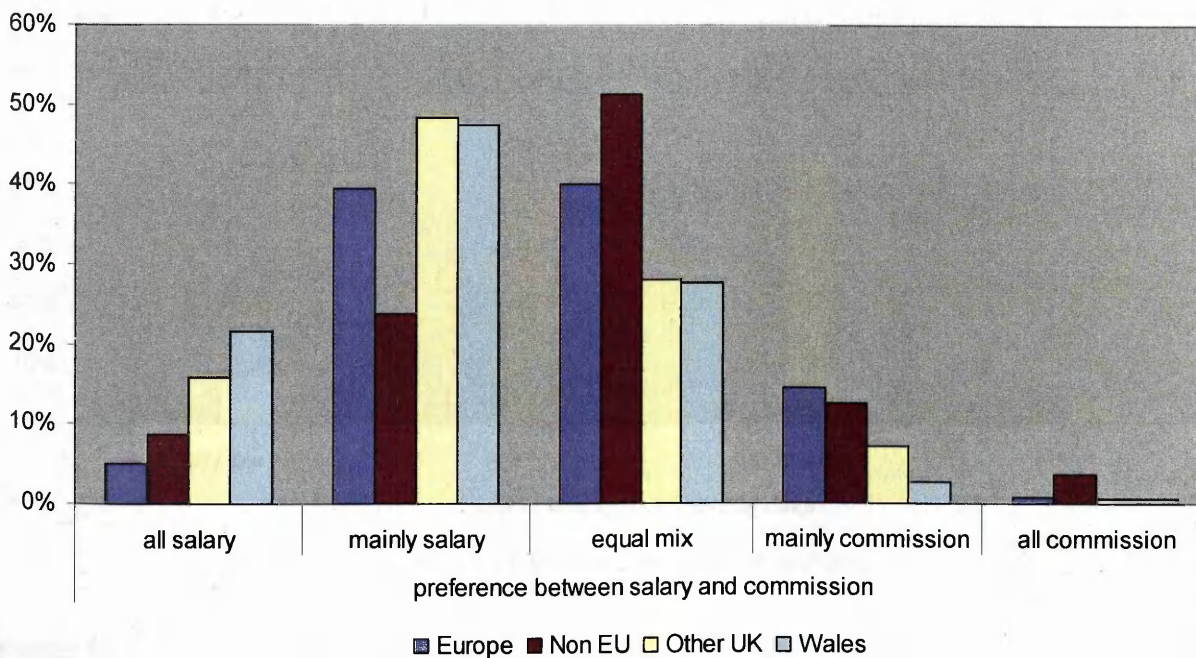
Source: Henley *et al.* (2008).
Note: Pearson Chi-squared p-value = 0.000

Figure 5.11: Confidence to Make Good Financial Decisions - by Country of Domicile

how much confidence to make good financial decisions

▨ Europe ■ Non EU ☐ Other UK ▨ Wales
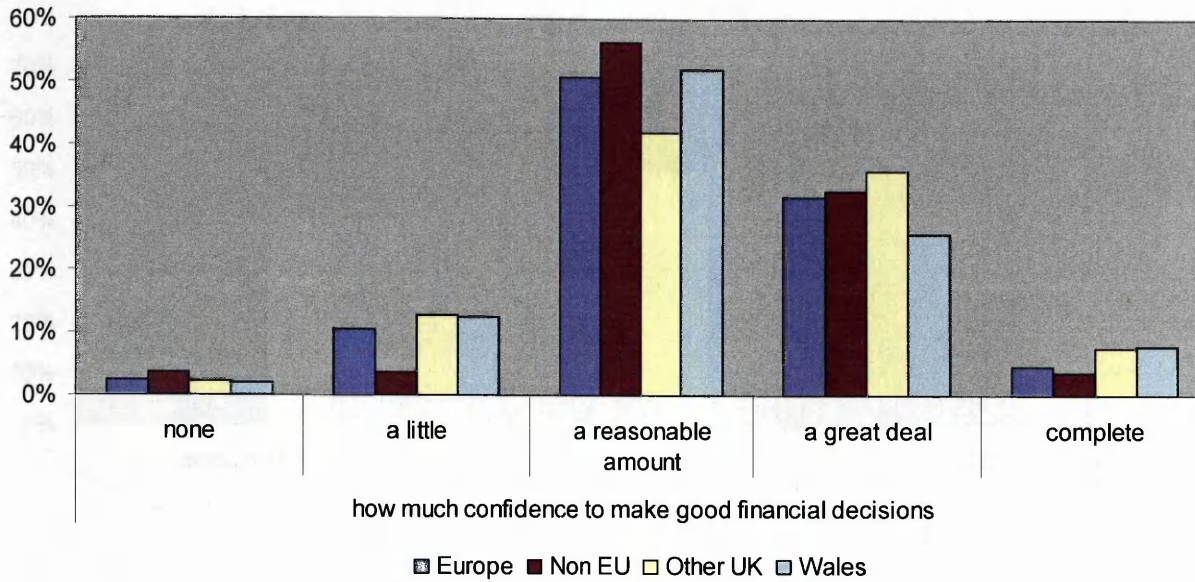
Source: Henley *et al.* (2008).
Note: Pearson Chi-squared p-value = 0.280

Figure 5.12: Willingness to Take Financial Risks - by Country of Domicile

willingness to take financial risks

▨ Europe ■ Non EU ☐ Other UK ▨ Wales
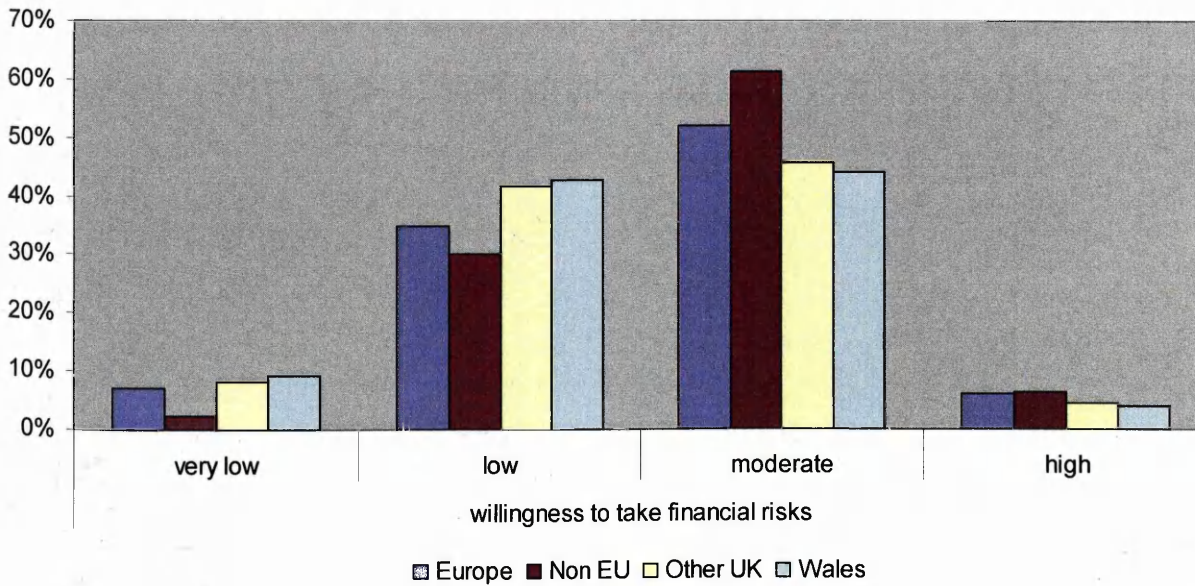
Source: Henley *et al.* (2008).
Note: Pearson Chi-squared p-value = 0.209

Figure 5.13: "Risk versus Return" - by Country of Domicile
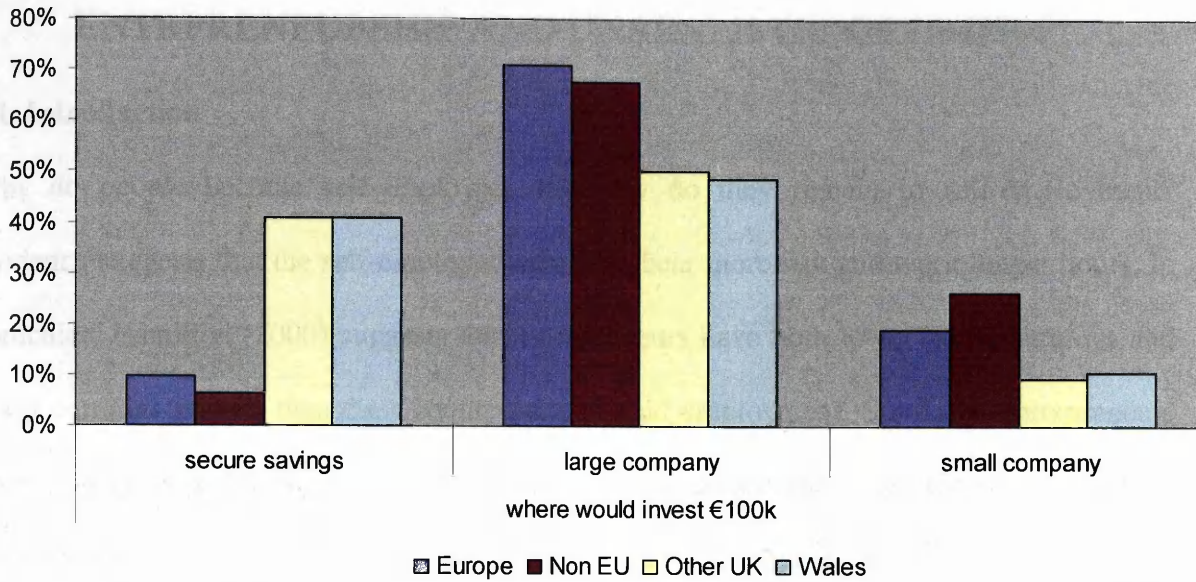
Source: Henley *et al.* (2008).
Note: Pearson Chi-squared p-value = 0.000

CHAPTER 6

ENTRPRENEURSHIP AND UNREALISTIC OPTIMISM[53]

6.1. Introduction

Why do people become self-employed, and why do they remain in self-employment? Evidence suggests that the self-employed earn less, bear more risk and work longer hours. In particular, Hamilton (2000) suggests that entrepreneurs have both lower initial earnings and lower earnings growth than their counterparts in paid employment. Similarly, entrepreneurs invest, on average, 70 per cent of their wealth in the business they run, whilst the return on their investment is equal to investing in a market tracking scheme (Moskowitz and Vissing-Jorgensen, 2002). So why do people enter into self-employment? Empirical research has identified several reasons for explaining entry, including: taste for independence, job satisfaction (as identified in Chapter 4) and superstar theory (i.e. attracted by the upper tail of the earnings distribution). Another possible reason given is that the self-employed are unrealistically optimistic or over confident, which induces individuals to undertake ventures that more rational individuals may not.

The phenomenon of overconfidence and unrealistic optimism has been widely observed and documented in the cognitive psychology literature. More recently, these behavioural biases have been adopted within the economics literature, especially within finance. Within this literature these behavioural tendencies are related to excess trading volume (Barber and Odean 2000) and stock market bubbles (Gervais and Odean 2001). Unrealistic optimism has also been adopted into the entrepreneurship literature, in particular, theoretical models have suggested that entrepreneurs may be more prone to unrealistic optimism, empirical testing of this theory is however limited. These theoretical models propose that unrealistic optimism

---

leads to excessive entry into self-employment, subsequently leading to higher exits rates, as individuals make negative expected returns (De Meza and Southey 1996; Camarer and Lovallo 1999). This is found to have a distortionary effect on capital markets as entrepreneurial over-optimism increases the tendency for banks to over-lend (De Meza 2002; Manove and Parilla 1999). However, the majority of these papers within the economics literature take unrealistic optimism as a given result from psychology. Subsequently, if the robustness of unrealistic optimism as a finding erodes in psychology, so will the credibility and appeal of the aforementioned research within economics.

The aim of this chapter is to provide empirical evidence to support the theoretical literature on self-employment and unrealistic optimism. Unrealistic optimism is defined within this chapter when individuals make negative expected returns, that is, when their financial forecasts exceed reality. This chapter undertakes three main empirical studies to develop a body of evidence on the impact of unrealistic optimism on entering self-employment, exiting self-employment and lastly assessing the dynamics of unrealistic optimism, that is, does unrealistic optimism persist? This is undertaken by analysing information from Waves 1 – 16 (1991–2006) of the British Household Panel Survey (BHPS).

More specifically, the first analytical piece (section 6.4) examines empirically whether aspiring entrepreneurs are disproportionately chosen from the most unrealistically optimistic part of the population, and whether pessimists and realists tend to opt for and prefer to remain in salaried employment. Whilst previous empirical research has reported that the self-employed are more prone to unrealistic optimism than employees (Arabsheibani *et al.*, 2002), the idea that aspiring entrepreneurs (i.e. individuals in paid-employment who aspire to start a business venture) are systematically over-optimistic in assessing their futures has yet to be

empirically tested. This result is clearly important given the consequences of entrepreneurial over-optimism proposed by the theoretical literature. We conclude that employees with entrepreneurial aspirations are significantly more likely to forecast better financial outcomes and experience worse realisations than their counterparts in paid employment who indicate no entrepreneurial intent.

The second analytical piece (section 6.5) attempts to provide empirical evidence that over-optimistic forecasts lead to excess entry into self-employment and consequently higher exit rates supporting the theoretical literature by de Meza and Southey (1996), Manove (1997) and de Meza (2000). In assessing this, transitions into self-employment are observed from other employment statuses. These transitions are then fragmented into certain groups depending on the duration they remain in self-employment after making the initial transition. Forecast errors are measured for each group of transitions, the forecast error relating to the individual's forecast made in the last year of not being self-employed about the first year of self-employment (i.e. the transition period). Our results suggest that unrealistic optimism is a factor in explaining high levels of exit rates from self-employment. In particular, individuals who remain in self-employment for less than two periods after making the initial transition are more likely to have forecast better outcomes, and experienced worse outcomes during their transition period. Conversely, we find individuals who become 'long-stay' or serial entrepreneurs'[54] are more likely to experience outcomes more in tune with their forecasts during their period of transition.

---

[54] 'Serial entrepreneurship' is a subset of multiple or habitual entrepreneurs. Serial entrepreneurs can be those that undertake multiple venture, those who dispose of one venture before funding another, multiple corporate entrepreneurship or simply those individuals who are self-employed for a large proportion of their working life. In this case our definition of serial entrepreneurs' is the latter.

The final contribution (section 6.6) assesses the dynamics of unrealistic optimism. Whilst we have seen empirical evidence to suggest that the self-employed are more liable to unrealistic optimism, we extend the analysis to identify whether unrealistic optimism persists. That is, do people remain in self-employment despite making negative expected returns because they persistently have unrealistic financial expectations? This is clearly an important issue and it is sensible to suppose that both past successes and failures will be recalled with equal weighting, and that over time individuals should be able to make realistic forecasts and formulate accurate views. However, cognitive dissonance suggests that we will inevitably forget our past failures, and will focus instead upon past successes. How does this relate to self-employment? Simply put, if we consider a perfectly efficient market, then individuals who persistently make unrealistic forecasts about their future financial status will be driven out of the market. Therefore, if individuals are remaining in self-employment despite persistently making optimistic forecast errors then they are overinvesting both time and money in their current venture. To assess persistence a modelling approach accounting for state-dependence and unexplained heterogeneity effects is employed. The evidence suggests that state dependence is highly significant for both the self-employed and their counterparts in paid employment. However the self-employed are found to have a significantly higher level of persistence than those in paid-employment.

The remainder of this paper is structured as follows. Section 6.2 provides further background and reviews the literature. Section 6.3 describes the data source used. Sections 6.4, 6.5 and 6.6 discuss the three empirical investigations separately. Within each of these three sections there is a brief introduction, descriptive statistics, followed by a methodologies section, the results are then explained and lastly we provide concluding statements. Section 6.7 summarises the key findings from the three empirical pieces in a concluding discussion.

172

6.2. Background and Previous Literature

The psychological literature has consistently claimed that unrealistic optimism is a pervasive human trait. In particular De Bondt and Thaler (1995) suggest that overconfidence is perhaps the most robust finding in psychology. Individuals tend to think they are invulnerable, expecting others to be casualties of adversity. For instance, when asked about automobile accidents and disease, most people state they have lower than average levels of risk, where as few state their risk as above average. Weinstein (1980) found that experimental subjects rated their own chances to be above average for positive events and below average for negative events. Taylor (1988) distinguishes between individuals being over-optimistic about events under their control or events out of their control. Empirical evidence suggests that expectations are even less realistic when there exists a degree of perceived controllability. In particular, McKenna (1993) found subjects perceived themselves as less likely to be involved in an accident when they were driving but when they were a passenger they perceived their chances of being involved in an accident as average.

These results from the psychology literature would suggest that entrepreneurs may be more prone than most to unrealistic optimism. That is, optimism tends to be highest when the chances of success are uncertain, when outcomes are under the individual's control and when individuals have emotional commitments to the outcome. As Moskowitz *et al.* (2002) point out, from the proportion of wealth invested by entrepreneurs in their business ventures it is clear there will be some emotional commitment present. The empirical evidence thus far supports the notion that the self-employed are unrealistically optimistic in assessing their future. Arabsheibani *et al.* (2000), using BHPS panel data covering the years 1990-96, compares expectations of future prosperity with actual outcomes of the self-employed and their counterparts in paid-employment. Their results suggest that both the self-employed and

employees are over-optimistic, that the self-employed forecast better financial outcomes than the employed but experience worse outcomes. Similarly, Fraser and Greene (2006) using British data for the period 1984-99, find evidence that entrepreneurs are more optimistic than employees, but that the effect of this optimism on the decision to become an entrepreneur diminishes with experience.

More recent contributions to the literature have distinguished optimism from human traits, such as over-confidence, cognitive dissonance and aversion to risk. Puri and Robinson (2007), measuring optimism by comparing self-reported life expectancy to that implied by statistical tables, find that while the correlation between optimism and risk-taking is significant, it is low. Greenberg (2007) argues that, while previous research has treated optimism and over-confidence interchangeably, these two traits are correlated but conceptually distinct. Whilst optimism involves over-estimating the likelihood of an action resulting in a favourable outcome, over-confidence, on the other hand, is an unwarranted belief in one's own ability when predicting a future outcome. Busenitz and Barney (1997), suggest that entrepreneurs are over-confident people, since inherently over-confident individuals select into self-employment. Forbes (2005) suggests that due to the noisy environment, in terms of unpredictability, within which the self-employed operate, over-confidence is needed to deal with it.

The proposition that entrepreneurs may suffer from cognitive biases could have many implications for the efficiency of capital markets. De Meza and Southey (1996) argue that optimists crowd out realists from entrepreneurship who choose to assemble in paid employment and that unrealistic optimism leads to excess entry. By over-estimating their chances of success, optimists prefer to self-finance, but make negative expected returns,

leading to high exit rates. Manove (2000) reports that optimistic entrepreneurs are found to have a distortionary effect on the economy, reducing aggregate output and significantly changing the distribution of income, making workers better off and other entrepreneurs worse off. De Meza (2002) infers that unrealistic optimism will affect capital markets, suggesting that small-business loan markets may be characterised by excessive lending, with entrepreneurial over-optimism increasing the tendency for banks to over-lend. Furthermore, he suggests that dampening optimism may be helpful in reducing redlining and credit rationing, such that optimistic low-ability applicants may prevent high-ability types, whether or not optimists, from receiving bank loans. Similarly, Cooper *et al.* (1988), recommend that entrepreneurs form relationships with non-executive board members and professional advisors, as they have the objectivity to neutralise unrealistic optimism. Manove and Parilla (1999) apply the same rationale to credit markets; their theoretical model suggests that conservative bank lending policies may well be justified, given that banks face asymmetric information about which entrepreneurs are optimists and which are realists, and tend to lend too much. Brown *et al.* (2005) finds similar evidence using UK data, reporting that optimistic financial expectations are positively related to the quantity and growth of debt at the individual and household levels.

More recently the dynamics of over-confidence have been assessed, but not within the self-employment literature. Within financial economics a growing literature has documented evidence of persistent overconfidence concerning savings and wealth. The dynamics of overconfidence is without a doubt an important topic. On one hand it is logical to suppose that individuals recall past success and failures with an equal weighting, and given time, experience should enable individuals to recall an accurate and realistic view. On the other hand, individuals forget events and decisions that did not go to plan, yet remember past

successes with clarity if not exaggeration. The empirical evidence suggests evidence of the latter. Camerer (1997) reports that drivers who have suffered severe car accidents, still rate themselves as above average. Evidence within the securities market finds substantial persistence of investor overconfidence (Barber and Odean 2000). Deaves *et al.* (2005) report that professional market analysts are also persistently overconfident and that this overconfidence increases with their longevity. Brown and Taylor (2006) suggest that past financial optimism has a positive effect on current expectations.

6.3. British Household Panel Survey Data Source

The data source used for the empirical analysis undertaken in this chapter is from the British Household Panel Survey (BHPS). The BHPS has been designed as an annual survey of more than 5,000 households and approximately 10,000 individuals aged 16 and above. At present the survey contains 16 waves covering the period between 1991 and 2006. Individuals are re-interviewed in successive waves. However if they split-off from original households, all adult members of their new households will be interviewed. Children in each of the 5,000 households are interviewed once they reach the age of 16. The original sample in Wave 1 consisted of 8167 issued addresses drawn from the Postcode Address File. Interviews were attempted at all private households found at these addresses; all respondents became part of the longitudinal sample. The sample for the subsequent waves consists of all adults in all the households containing at least one individual who was a resident in one of the original households in Wave 1.

Each questionnaire package consists of a household coversheet, which contains information on household outcomes and the type of accommodation. Also included is a household composition form containing a complete listing of household members, together with a

summary of their sex, date of birth, marital and employment status and their relationship to the household reference person (HRP – defined as the person legally/financially responsible for the accommodation). The household questionnaire administered with the HRP contains information on housing tenure and levels of household consumption. Information on neighbourhood, individual demographics, residential mobility, health and caring, current employment and earnings, employment changes over the past year, lifetime childbirth, marital and relationship history, employment status history, values and opinion, household finances and organisation are contained in the individual schedule which is administered with every adult (16+) of the household. Subjective and attitudinal questions susceptible to influence of others are recorded using a self-completion questionnaire. The self-completion question contains a reduced version of the General Health Questionnaire (GHQ) developed originally as a screening instrument for psychiatric illness, but used also as an indicator of subjective well-being.

The main objective of the BHPS is the understanding of social and economic change within Britain. The panel design of the survey permits researchers and analysts to control for unobserved heterogeneity in cross-sectional models as well as allowing analysis on how individuals and households experience change in their socio-economic environment and how they react to these observed changes. Moreover, panel data allows analysis of how life conditions, behaviour and life events are linked with each other dynamically over time.

Since the start of the BHPS, several additional sub-samples have been added. This includes a Scotland and Wales extension sample, introduced at Wave 9. The main aim of these extensions was to increase the relatively small Welsh and Scottish sample sizes to initiate independent analysis of the two countries and furthermore to allow comparisons against

England. In Wave 11 a substantial new sample for Northern Ireland was added in order that coverage of the panel was UK wide rather than Great Britain only.

6.4. Aspiring Entrepreneurs, the Self-Employed and Unrealistic Financial Expectations

6.4.1. Introduction

Empirical studies examining the difference between the mean earnings of salaried employees and those of self-employed status are mixed. However, there is an emerging consensus that the self-employed earn less on average than those individuals in paid employment. Brook Evans (1986), Rees and Shah (1986) and Evans and Leighton (1989) find evidence that male entrepreneurs experience on average larger initial earnings growth than those within paid employment and that the potential wages of entrepreneurs are not significantly different from the wages of those in paid-employment. However these results are subject to a number of caveats. Rosen (1981) suggests that comparisons of mean earnings will be distorted by a small proportion of entrepreneurial superstars; consequently mean earnings may not truly reflect the majority of incomes of the self-employed. More recent literature presented by Hamilton (2000), using median rather than mean income because of the pronounced variations in self-employed earnings, suggested that entrepreneurs have both lower initial earnings and lower earnings growth than in paid employment. If this emerging consensus is to be believed, then why are individuals willing to remain in self-employment or enter into self-employment despite earning less, working longer hours and bearing more risk than their alternatives in paid-employment?

Empirical research has identified possible answers to this question. It has been frequently suggested that perhaps the most attractive feature of entrepreneurship is satisfaction from work and independence, irrespective of income and hours worked[55]. Similarly, other studies identify personal characteristics, family circumstances, family backgrounds, control and attitudes towards risk in explaining propensities to becoming self-employed. This chapter

---

[55] See Dennis (1996) and Benz and Frey (2004).

explores whether or not entrepreneurial aspirations are fuelled by unrealistic financial optimism, that is, do people aspire to become entrepreneurs, despite earning less and working harder, because they are unrealistically optimistic in assessing their financial future?

The idea that aspiring entrepreneurs are systematically over-optimistic in evaluating their future prospects has, of course, been suggested before, but has not been directly tested outside the realms of theoretical and experimental models[56]. Alongside the experimental literature, empirical studies suggest that entrepreneurs (i.e. individuals already classified as self-employed) are more prone to over-optimistic tendencies than their counterparts in paid-employment.[57] However, these studies do not account for the unpredictable nature of financial returns ubiquitous with self-employment. More specifically, it is sensible to suppose that the financial outcomes of the self-employed are less predictable than the outcomes of their counterparts in paid-employment.[58] For that reason, these results may simply be over-emphasising the human nature of people to be optimistic under uncertainty, rather than representing a true unrealistic optimism bias. The principal contribution of this piece therefore, is to reduce the notion of optimism under uncertainty by examining those and only those in paid employment, making the comparison between those individuals who show entrepreneurial intent and those who do not. Given these considerations, this chapter empirically examines whether aspiring entrepreneurs are disproportionately taken from the most over-optimistic part of the population, and whether pessimists and realists tend to opt for and prefer to remain in paid-employment.

---

[56]See de Meza and Southey (1996) who derive testable implications of this model, Manove (2000) and Bernardo and Welch (2001).
[57] See Arabsheibani et al (2000) and Fraser and Greene (2006).
[58] Clearly however employees will also face uncertainty such as redundancy and changes in real wages.

6.4.2. Data and Descriptive Statistics

The data used for empirical analysis is from the British Household Panel Survey (BHPS) and covers the years 1998-2006. From Wave 8 (1998) onwards, all adults whom are economically active were asked about their entrepreneurial aspirations, reading;

"I am going to read out a list of things which you may or may not want to happen to your current employment situation. For each one can you please tell me whether you would like this to happen to you in the next twelve months. Would you like to ... start up your own business (a new business)?"[59]

Our data comprises of all individuals of working age who reported they were either employed or self-employed. Unrealistic optimism is derived from two questions asked continuously throughout the BHPS. Each year panel member were asked *"Would you say that you yourself are better off, worse off or about the same financially than you were a year ago?"* and also *"Looking ahead, how do you think you yourself will be financially a year from now; better than you are now, worse than you are now, or about the same?"* Consequently, for each individual there will be a total of nine possible outcomes, that is, the three forecasts multiplied by the three outcomes.[60] Using the pooled data for the 8 years between 1998 and

---

[59] Individuals who stated that they would like to start up a new business in the next twelve months are referred to as showing entrepreneurial intent/aspirations. Other questions included on the list of things which you may or may not want to happen to your current employment situation were as follows; 1) Get a better job with your current employer? 2) Take up any work related training? 3) Start a new job with a new employer? 4) Give up paid work?

[60] While these questions act as useful tools for analysing unrealistic optimism, they are however subject to certain caveats. Clearly the somewhat vague nature of the financial expectations question means that it is not clear whether reference is made to income or wealth. Furthermore, the subjective nature of the realisations questions suggests individual may state that they are better off when this is not necessarily the case. Brown and Taylor (2006) actually compare responses to these questions with real and nominal changes in actual income and real and nominal changes in the total financial situation. The results reassuringly report the consistency between an individual's forecasting accuracy and the actual changes in their financial situation.

2006[61] for which the forecasts and outcomes were available, yields Tables 6.1a, 6.1b, 6.2a and 6.2b. Tables 6.1a and 6.1b compare the forecasts and outcomes for employees who would not like to start a new business with those who would. Entrepreneurial intent is recorded in the forecast year. The figures in brackets show the percentage of those making the specified forecast who experienced the particular outcome.

Comparing the two sets of results, it is clear that aspiring entrepreneurs expect better outcomes than those who do not aspire to start a business with 34.1 per cent of those in paid employment who do not wish to start a business expecting to be better off financially in a year's time, compared to 47.2 per cent of employees with entrepreneurial aspirations. Moreover, for those individuals with entrepreneurial aspirations, 5.7 times as many people forecast an improvement but experienced a decline as forecast a decline but actually experienced an improvement. For those employees who do not wish to start a business the ratio is 3.9. Furthermore, the ratio of those individuals making any sort of optimistic error compared to individuals making any sort of pessimistic error is 2.0 for employees with entrepreneurial aspirations and 1.5 for those without. These results indicate both groups of individuals have tendencies to be unrealistically optimistic, but with aspiring entrepreneurs appear to be the most financially (over-)optimistic.

Tables 6.2a and 6.2b illustrate the percentage of individuals making the specified forecast who experienced the specific outcomes for all employees (i.e. those employees with and without entrepreneurial aspirations) compared to those in self-employment. Comparing the two sets of results, it is clear that the self-employed expect better outcomes then employees. 35.6 per cent of employees expect to be better off, while 38.0 per cent of the self-employed

---

[61] Whilst we have nine years of data between 1998–2006, the forecasts from year t were matched to the realisation from the year $t + 1$. Consequently we therefore have $n - 1$ years of data.

sample expected to be better off. Moreover, for the self-employed, 5.7 times as many people forecast an improvement but experienced a decline as those forecasting a decline but actually experienced an improvement. For employees the ratio is 4.1. Furthermore, the ratio of those individuals making any sort of optimistic errors compared to individuals making any sort of pessimistic error is 2.0 and 1.5, for the self-employed and employees, respectively. These results indicate both groups of individuals again have tendencies to be unrealistically optimistic, but the self-employed are more financially optimistic.

The results thus far suggest that both the self-employed and individuals in paid-employed who have entrepreneurial aspirations are the most optimistic and subsequently over-optimistic about their financial future.

6.4.3. Methodology

In the subsequent sections of this chapter we test the determinants of entrepreneurial aspirations, the determinants of forecast errors and finally the determinants of financial expectations. Initially then we are concerned with the determinants of entrepreneurial aspirations and in particular whether employees with entrepreneurial aspirations forecast better outcomes than employees who have no intention of starting a business. The dependant variable is equal to '1' if the employee expresses an intention to start a new business and '0' if the particular employee has no intention to start a new business. The subsequent analysis tests directly whether aspiring entrepreneurs are liable to unrealistic financial optimism. The dependent variable is constructed as follows. Employment status and stated entrepreneurial aspiration are observed at time t. At the same point in time, we are able to observe the given financial forecasts of those within the group, that is, "looking ahead, how do you think yourself will be financially a year from now; better than you are now, worse than you are now, or about the same?" For those who expressed financial forecasts, individuals were

matched with their financial realisations[62] taken at the period $t + 1$, and from this information we can identify those individuals whose expectations about their future are realistic and those whose forecasts differ from reality. This yields 5 outcomes, from those individuals with the highest upside forecast error (i.e. those who forecast an improvement but experienced a decline) to those individuals with the most pessimistic error (i.e. those who forecast a decline but experienced an improvement).[63] The final part of our analysis investigates the determinants of financial expectations. The dependant variable is derived from the financial expectations question and constructed using a financial expectation index whereby individuals who answer 'Better off' are coded '1', individuals who answer 'Same' are coded '0' whilst individuals who answer 'Worse off' are coded '-1'.

The choice of which covariates to include as having potential association with unrealistic optimism is limited by the lack of prior research. Previous literature has highlighted unrealistic optimism is more pronounced for events that are perceived to be more controllable (Lin *et al.*, 2003a, 2003b), and greater for individuals who have a higher illusion of control (Harris and Middleton, 1994; McKenna, 1993). Given that men have been shown to display higher levels of the illusion of control and overconfidence (Barber and Odean, 2001), this would imply that men would demonstrate higher levels of unrealistic optimism. Moreover, Arabsheibani *et al.* (2000) report that unrealistic financial optimism is lower for females, thus gender is included as a key covariate, alongside other basic demographic information including age and marital status. The role of education is also controlled for in order to assess the extent to which knowledge is associated with more informed perceptions of future life events. Educational attainment is captured in the model through a series of dummy variables

---

[62] "Would you say that you yourself are better off, worse off or about the same financially than you were a year ago?"

[63] The financial expectations questions are asked at the individual level, consequently there are multiple observations for some households within the sample.

indicating the highest level of attainment. These are: university or college degree level; other non-degree higher education; A-levels or equivalent (post-compulsory examinations taken at 18 as qualifying exams for college or university entrance), GCSE or O-levels (age 16 schooling attainment qualifications); and other qualifications. Housing tenure status is also included, as a potential wealth effect. That is, owner-occupation status, either with a mortgage or outright-owner, may be positively associated with wealth. Higher wealth may be associated with more positive attitudes towards future life events and hence optimism. Following the same rationale we control for county level changes in house prices, and county levels of unemployment. Finally, year dummies are included to capture any effect on unrealistic optimism of changing aggregate economic or societal conditions.

To test these relationships more precisely an ordered logit model was used. The ordered logit model is an extension of the binomial logit model and deals with situations where the dependent variable is ordered (from low to high) and categorical. As previously mentioned the dependent variable is on a 5 point scale from -2 through to 2, with 2 being the most unrealistically optimistic through to -2 being the most unrealistically pessimistic. More specifically the 5 categories are:

2 = *Those individuals who forecast 'better off' (time t) but experienced 'worse off' (time t + 1).*

1 = *Those individuals who forecast 'better off' (time t) but experienced 'the same' (time t + 1)* **or** *those individuals who forecast 'the same' (time t) but experienced 'worse off' (time t + 1).*

0 = *Those individuals whose forecast (time t) matched their outcome (time t + 1).*

-1 = *Those individuals who forecast 'worse off' (time t) but experienced 'the same' (time t +*

1) or those individuals who forecast 'the same' (time t) but experienced 'better off' (time t +

1).

-2 = *Those individuals who forecast 'worse off' (time t) but experienced 'better off' (time t +*

1).

As with the binomial logit model, we assume a latent regression model of the form:

$$y^* = \beta x + \varepsilon \tag{1}$$

where y^* is the unobserved dependent variable, x is a vector of explanatory variables, β an

unknown parameter vector and ε the error term.

The latent variable y^* is not observed, but the response indicating the likelihood of being

unrealistically optimistic is observed. The observed responses are associated with the latent

variable in the following way:

$$y = j \quad if \quad \mu_{j-1} \leq y^* \tag{2}$$

where y is the category of unrealistic optimism ranked into 5 categories, μ is the vector of

unknown threshold parameters, estimated with the β vector and ε is assumed to have a

standard logistic distribution.

For the logistic cumulative distribution function, the model predicts the following

probabilities for observing a particular outcome:

$$\text{Pr}ob(y = j) = \Lambda(\mu_j - \beta x) - \Lambda(\mu_{j-1} - \beta x) \tag{3}$$

where $\Lambda(.) = \exp(.)/(1 + \exp(.))$. This implies:

$$\Pr ob(y = j) = \frac{1}{1 + e^{-u_j + \beta x}} - \frac{1}{1 + e^{-u_{j-1} + \beta x}} \tag{4}$$

which can be used to derive a likelihood function and, subsequently, maximum likelihood estimates of μ and β. It is important to note that all logistic regressions presented in the following sections control for repeated observations using the cluster (*personal id*) command, which adjusts the standard errors for intergroup correlations.

6.4.4. Empirical Results

Before reviewing the analysis on unrealistic optimism we firstly consider whether employees with entrepreneurial aspirations forecast better outcomes than employees who have no intention of starting a business. Alongside this analysis we repeat a similar framework for the self-employed compared to all employees (i.e. those with entrepreneurial aspirations and those without) as a comparative exercise. In essence we are therefore testing whether these groups are prone to optimism. Column (1) of Table 6.3 reports marginal effects of a logit regression for all employees, with entrepreneurial aspiration as the dependent variable (i.e. employee expresses the intention to start a new business = 1, employee with no intention to start a new business = 0).[64] Column (2) of Table 6.3 provides the same analysis with employment status as the dependent variable (i.e. self-employed = 1, employee = 0). The first marginal effect in each column is the effect of a dummy for forecasting 'better off', with 'worse off' as the benchmark, while the second marginal effect is the effect of a dummy for forecasting 'no change', again with 'worse off' as the benchmark. The results suggest that the self-employed are more likely to forecast 'better off' and forecast 'same' than employees.

---

[64] Column (1) of Table 6.3 focuses on a sample of individuals who are in paid-employment. A note of caution is warranted regarding the estimates from the logit model, given the potential for sample selection bias.

These results support those made in Arabsheibani *et al.* (2000); that is, optimism is a hallmark of self-employment. For employees with entrepreneurial aspirations, the marginal effect on 'better off' is positive but not significant, while the coefficient on the 'same' is negative and significant.

Males are found to be significantly more likely to be self-employed and state entrepreneurial intentions then women. The likelihood of both is also increased with age, albeit at a decreasing rate. Marital status does not seem to have a significant effect on employment status. However couples and those who have been widowed/divorced/separated are significantly more likely then singles to state entrepreneurial intent. Next, looking at educational attainment it appears that entrepreneurial aspirations diminish with education. More specifically, university educated employees and those whose highest educational attainment is A-levels are significantly less likely to state entrepreneurial intent than those employees without formal qualifications. The marginal effects on HND/HNC and GCSEs are both negative but not significant. This suggests that entrepreneurial aspirations in this context are fuelled by the low-skilled and probably the low-paid workforce. Educational attainment is found however, not to be significantly related to employment status.

Entrepreneurial intentions amongst employees are found to be significant and negatively related to owning a house outright compared with owning a house with a mortgage. However the relationship is positive and significant when we turn our attention to employment status. Both sorts of renters are positively associated with entrepreneurial intent but this difference is not significant. For employment status however, social renters are significantly less likely and private renters significantly more likely to be self-employed.

The results are interesting when we turn our attention to family background in self-employment. For employment status the results follow the bulk of the empirical literature, suggesting that having parents involved in self-employment has a positive influence on the propensity of becoming self-employed. In particular, individuals with self-employed parents are nearly 16 percentage points more likely to be self-employed, and those with self-employed fathers are 7 percentage points more likely to be self-employed. The marginal effect for a self-employed mother is positive but not significant. However, for entrepreneurial aspirations amongst the employed, parental background is found to have a positive but not significant relationship. Furthermore, the marginal effects are considerably smaller than those observed when looking at employment status. This suggests that while parental background in self-employment is important for forming aspirations and subsequent entry into self-employment, it appears more important for the latter.

The subsequent analysis undertaken considers whether employees with entrepreneurial aspirations are more likely to be unrealistically optimistic than employees who have no intention of starting a business. As before we repeat a similar framework for the self-employed compared to all employees (i.e. those with entrepreneurial aspirations and those without) as a comparative exercise. Within this approach we rescale the likelihood of unrealistic optimism to create three dummy variables. As previously illustrated the original variable is on a scale of -2 through 2. The three rescaled dummies created are; 1) Over-optimists - those *individuals whose financial forecasts at time t were better than their realised financial outcomes at time t + 1*, 2) Realists - *those individuals whose financial forecasts at time t were the same as their financial outcomes at time t + 1* and 3) Over-pessimists - *those individuals whose financial forecasts at time t were worse than their financial outcomes at time t + 1.*

189

Columns (1) and (2) of Table 6.4 provide logistic regressions reporting marginal effects. As before, entrepreneurial aspirations and employment status are the dependent variables in each table, respectively. In this case however, the first marginal effect is the effect of the dummy for being unrealistically optimistic about future financial success while the second marginal effect is the effect of the dummy for individuals who are realistic about their financial future. The benchmark for these first two marginal effects are those individuals who are unrealistically pessimistic about their financial future. The results suggest that the self-employed and employees with entrepreneurial aspirations are inclined to be unrealistically optimistic about their financial futures. This suggests that realists and pessimists prefer to remain in the relative safety-net of being in paid employment. To be more specific, the marginal effect (0.02528) suggests that those individuals who are unrealistically optimistic are around 2.5 percentage points more like to state entrepreneurial aspirations. Similarly, unrealistic optimism increases the chances of being self-employed by approximately 2.8 percentage points.

Our subsequent analysis in Table 6.5 investigates the intrinsic determinants of unrealistic financial expectations. The likelihood of being unrealistically optimistic is the dependent variable using the original scale of -2 through 2. Table 6.5 reports coefficients and p-values of an ordered logistic regression.[65] The results show that unrealistic optimism is higher for those individuals with entrepreneurial aspirations and the self-employed. Unrealistic optimism is lower for the better educated and diminishes with age, both of which are consistent with previous research (Arabsheibani *et al.* 2000). Males appear to be more susceptible to unrealistic optimism than females, whilst unrealistic financial optimism is lower for singles. Unrealistic optimism is also higher for individuals that rent either from

---

[65] Marginal effects are reported in the appendix (Table A6.1).

private or social landlords, but is lower for people that own their houses outright. It appears that unrealistic optimism is not significantly affected by county levels of unemployment, or changes in county level house prices.

Our final analysis investigates the determinants of optimism. The likelihood of being optimistic is the dependent variable using the three forecasts on a scale of 1 through -1. The three categories are: 1 (forecast 'better off'), 0 (forecast 'same') and -1 (forecast 'worse off'). Table 6.6 reports coefficients and p-values of an ordered logistic regression.[66] The results suggest that both the self-employed and employees with entrepreneurial aspirations are more likely to forecast better financial outcomes then those in paid-employment. As with unrealistic optimism, forecasting more favourable financial outcomes is more likely for males, diminishes with age and is more likely for individuals that rent properties either from social or private landlords. However, the likelihood of forecasting more favourable financial outcomes increases for the better educated and is significantly and positively affected by real changes in county level house prices.

6.4.5 Conclusion

In this section we have been concerned with the question; are aspiring entrepreneurs predominantly from the most over-optimistic proportion of the population? Our results suggest that both employees with entrepreneurial aspirations and those already classified as self-employed are more likely to forecast better financial outcomes, and experience worse realisations. For example, 5.7 times as many employees with entrepreneurial aspirations forecast an improvement but experienced a decline in earnings as forecast a decline but

---

[66] Marginal effects are reported in the appendix (Table A6.2).

actually experienced an improvement. For the self-employed the ratio is also 5.7 and for employees 4.1. This result was found to be robust to the inclusion of controls.

What damage is then wrought by over optimistic nascent entrepreneurs? The theoretical literature suggests that this trait will lead to excess entry which in turn leads to high exit rates as individuals make negative expected returns. This suggests that the small-business loan market may be characterised by excessive lending, which in the long run may lead to credit rationing. Given the implications of this literature, public policy may wish to address educating latent entrepreneurs (i.e. those with a preference for self-employment compared to paid-employment) on the realities of entering self-employment.

It appears that males, as identified by previous research, are more likely to show entrepreneurial intent and subsequently participate in self-employment. Moreover, males are more likely to forecast better financial outcomes and are more susceptible to unrealistic optimism. Unrealistic optimism is also found to be lower for the better educated and diminishes with age. On the other hand it appears forecasting better financial outcomes appears to be higher for the better educated, that is, while the better educated are generally more optimistic about their financial futures they are less likely to be unrealistically optimistic. It also appears that while changes in county level house prices positively affects optimism (i.e. forecasting better financial outcomes), they do not significantly affect unrealistic optimism. This suggests that while optimism may be affected by region specific factors, unrealistic optimism is an innate trait and possibly an immovable state of mind for some individuals regardless of external factors.

There is further scope for research into identifying whether these optimistic biases remain from stating aspirations to transitioning into self-employment. It would be realistic to expect that unrealistic optimism might be eroded away as aspiring entrepreneurs transition into a potentially sobering self-employment. Similarly, further research should look at the persistence of unrealistic optimism.

6.5. Entry into Self-Employment; A Sobering Thought

6.5.1. Introduction

Empirical studies have shown a large degree of business failure.[67] There are three main explanations for the observed frequency of business failure. Firstly, some entrants are hit-and-run, where they only have short opportunities to make profits. Secondly, business entries can be viewed as expensive lottery tickets: whilst most firms expect to make negative returns and subsequently fail, entry still maximises expected profits because the rewards of success are substantial. Lastly, many entry decisions are mistakes, often based upon overconfidence or unrealistic optimism.

People's inherent propensity to look on the bright side of life may therefore help to explain the high failure rates of new businesses. Aspiring entrepreneurs, by overestimating their chances of success coupled with the limited information of financial lenders, boost the number of new businesses being formed. Subsequently these unrealistically optimistic entrants make negative expected returns leading to high exit rates. This is the scenario suggested by more recent theoretical models by De Meza and Southey (1996), Manove (1997), De Meza (2000) and Camerer and Lovallo (1999). In particular, Camerer and Lovallo (1999) using experimental data suggest that entrants overestimate their chances of success due to misplaced confidence in their own abilities. When the criterion for success is more vague, as is the nature of entrepreneurship, firms/individuals are more likely to over-compete, since uncertainty enhances excess optimism. Given these propositions, overconfidence encourages excess entry into self-employment, subsequently leading to high exit rates. Similarly, De Meza and Southey (1996) suggest that high failure rates, credit rationing and

---

[67] See Dunne *et al* (1988), Dunne *et al* (1989a and 1989b) and Baldwin (1995).

low interest rate margins can all be explained by the tendency for those who are excessively optimistic to dominate new entrants.

However, experimental data and theoretical models hardly present irrefutable evidence that misplaced optimism influences entry into self-employment or for that matter leads to high business failure rates. The overriding aim of this chapter is to test the theoretical and experimental approaches previously undertaken; that is, is unrealistic optimism associated with higher levels of exit rates from self-employment. In assessing this, transitions into self-employment are observed from other employment statuses. These transitions are then fragmented into certain groups depending on the duration they remain in self-employment after making the initial transition. Forecast errors are measured for each group of transitions. The forecast error relates to the individuals forecast made in the last year of not being self-employed about the first year of self-employment (i.e. transition period). Therefore we have data on expectations of the returns of self-employment prior to becoming self-employed.[68] We suggest that the experience of self-employment would be sobering, thus we propose individuals will transition into self-employment with high expectations (forecasts) but experience worse outcomes, therefore making negative expected returns, subsequently exiting out of self-employment. In essence this is a validation exercise, testing whether people who are disappointed by the returns to self-employment exit more quickly. This is important as it evidences rationality in decision making.

---

[68] It is worth noting however, that individuals may not always know they will be entering self-employment when responding to the financial expectations question.

6.5.2. Data and Descriptive Statistics

The data used for empirical analysis are again from the British Household Panel Survey (BHPS) and cover the years 1991–2006. Our data comprises of all individuals of working age who reported their current labour force situation.[69]

The first step is to identify those individuals who have made the transition into self-employment, that is, those individuals who were self-employed at period t but not self-employed at period $t - 1$. The transition can be made from any previous labour force status, i.e. people can transition into self-employment at time t from either paid employment, unemployment, being retired, maternity leave, looking after the family at home, full time student, being long term sick or disabled or having been on a government training scheme at time $t - 1$. For simplicity individuals are either self-employed, in paid-employment, or other[70]. Table 6.7 identifies the number of individuals who have transitioned into self-employment, and subsequently how long they remained in self-employment thereafter between the years 1992–2005[71]. For the pooled years we have a total of 1010 transitions (people may transition more than once) into self-employment. From Table 6.7 it is clear that entry into self-employment is only short lived for many respondents. In particular, of the 100 that transitioned into self-employment in 1992 only 54 of these individuals remained in self-employment after the initial transition year. Subsequently, only 35 remained in self-employment two years after the initial transition period. The same rate of attrition is evident when we follow entrants from other waves. Given that the data are right-censored (i.e.

---

[69] See Chapter 2, variable JBSTAT.

[70] 'Other' is an aggregation of individuals who are in unemployment, retired, are on maternity leave, looking after the family at home, are full time students, are long term sick or disabled or have been on a government training scheme.

[71] While the BHPS data source is available from 1991–2006, our data set is limited to 1992–2005. This is due to the fact that individuals cannot be observed to transition into self-employment at Wave 1 (1991), furthermore the construction of our optimism variable measured at time t which matches a forecast observed at time t to an observed outcome in $t + 1$ means that the variable will not be observed in Wave 16 (2006).

196

observations will exit the study before failure is observed) we construct a sample that controls for this event. In essence we are removing respondents who made the transition into self-employment after 2002 (i.e. the shaded region in Table 6.8), and subsequently grouping the duration (x) in self-employment following the initial transition for either less than 1 (x < 1), between 1 and 2 ($1 \leq x < 2$), between 2 and 3 ($2 \leq x < 3$) or more than 3 ($x \geq 3$) periods.[72] Consequently the span of the data is shortened to between 1992 and 2002, reducing the number of transitions from 1010[73] to 822[74]. Table 6.8 illustrates the new sample of entrants into self-employment pooled between 1992–2002 and their subsequent duration in self-employment. Table 6.8 reports that out of the 822 transitions into self-employment, 359 (43 per cent) left within 1 period after making the transition, 137 individuals (17 per cent) stayed in self-employment between 1 and 2 periods after making the transition, 77 individuals (9 per cent) stayed in self-employment between 2 and 3 periods after the initial transition and lastly 249 individuals (30 per cent) stayed in self-employment for more than 3 years after making the initial transition.[75] These results suggest high levels of exit from self-employment from transition individuals. Given that we have observed high levels of transition out of self-employment, we subsequently analyse whether the 'short-stay' self-employed are more unrealistically optimistic at the time of entry into self-employment than our 'long-stay' self-employed.

---

[72] Duration in self-employment has been segmented into these specific groups as it appears from Table 6.7 that exit rates from self-employment are most prominent for individuals up to four periods (i.e. x > 3) after making the initial transition. After this time period exit rates seem to stabilise.

[73] Of the 1010 transitions, 614 make the transition into self-employment once, 152 transit twice, 24 transit three times and 5 transit four times over the duration of the sample.

[74] Of the 822 transitions, 555 make the transition into self-employment once, 113 transit twice, 11 transit three times and 2 transit four times over the duration of the sample.

[75] Of the 822 observed transitions into self-employment, 69.0 per cent entered from paid-employment, 11.5 per cent from unemployment, 4.9 per cent from retirement, 1.8 per cent went from maternity leave, 8.7 per cent from being full-time students, 1.2 per cent from long term sick or disabled, 0.2 per cent from a government training scheme, 1.2 per cent from look after the family at home and 1.5 per cent from some other status. Of the observed transitions out of self-employment, 63.3 per cent entered paid-employment, 9.4 per cent became unemployment, 11.8 per cent retired, 2.3 per cent went on maternity leave, 10.1 per cent became full-time students, 1.3 per cent became long term sick or disabled, 0.27 per cent started a government training scheme, 0.13 per cent left to look after the family at home and 1.3 per cent left for some other reason.

Unrealistic optimism is defined as in section 6.4.3. That is, individuals who expressed a financial forecasts (i.e. "looking ahead, how do you think yourself will be financially a year from now; better than you are now, worse than you are now, or about the same?") at time t were matched with their financial realisations (i.e. "would you say that you yourself are better off, worse off or about the same financially than you were a year ago?") taken at the period $t + 1$. This yields 5 outcomes, from those individuals with the highest optimistic forecast error (i.e. those who forecast an improvement but experienced a decline) to those individuals with the most pessimistic forecast (i.e. those who forecast a decline but experienced an improvement). Tables 6.9a and 6.9b identify the forecast error at the time of transition into self-employment for individuals who remained in self-employment for $x < 1$, $1 \leq x < 2$, $2 \leq x < 3$ and $x \geq 3$ after making the initial transition. The forecast error relates to the individual's forecast made in the last year of not being self-employed about their first year of self-employment (i.e. the transition period). The first set of percentages are derived as a percent of all transitions, whereas the percentages in parentheses are as a percent of each forecast error. The first set of percentages in Table 6.9b suggest that individuals who transition into self-employment and left within either $x < 1$ or $1 \leq x < 2$, are more likely to make optimistic forecast errors at the time of transition into self-employment than individuals who remain in self-employment for $2 \leq x < 3$ or $x \geq 3$ after making the initial transition. In particular, 33.98 per cent and 37.96 per cent of individuals who remained in self-employment for $x < 1$ and $1 \leq x < 2$ respectively made optimistic forecast errors, compared to 25.97 per cent and 24.90 per cent of individuals who remained in self-employment $2 \leq x < 3$ or $x \geq 3$ after making the initial transition. In addition, the percentages in brackets report that out of the 256 unrealistically optimistic transitions into self-employment, 62 (24.22 per cent) lasted $x \geq 3$, whereas of the 566 individuals who did not make optimistic forecast errors, 187 (33.04 per cent) lasted for $x \geq 3$. Our results therefore suggest that unrealistic optimism may indeed

be related to higher rates of poor quality entrants, subsequently leading to high exit rates. However, the results also suggest that a large proportion of individuals who are unrealistically optimistic persist in self-employment and become so-called 'serial-entrepreneurs'. It maybe that these 'serial entrepreneurs' who enter self-employment with unrealistic optimism subsequently adjust their forecasts at $t + n$, becoming more realistic. On the other hand individuals may persistently be unrealistically optimistic and therefore maybe over-investing in self-employment. This issue is investigated in the next empirical section of this chapter (section 6.6).

6.5.3. Methodology

In the subsequent sections of this chapter we test directly whether the 'short-stay' self-employed, that is, individuals who make the transition into self-employment and leave within a short proximity after making the initial transition are significantly more likely to be over-optimistic at the time of transition compared with individuals who transition into self-employment and become 'serial entrepreneurs'. The dependent variable is unrealistic optimism and is constructed in the same manner as explained in section 6.4.3., as is the rationale for the inclusion of key covariates. As noted earlier, the forecast error relates to the individual's forecast made in the last year of paid-employment about their first year of self-employment (i.e. the transition period).

To test the relationship between unrealistic optimism and duration in self-employment we employ an ordered logit model as we are dealing with an ordered dependent variable. For a full description of the model see section 6.4.3. We also derive and test a binary variable for unrealistic optimism for two reasons. Firstly, to assess whether the results from the ordered logit are skewed by individuals at either ends of the distribution, and secondly, to assess any

differences between the ordered and binary models as the subsequent empirical paper discussed in section 6.6 identifying the presence of persistence requires a binary dependent variable. In the binary model individuals are defined as unrealistically optimistic and given the value 1 if they make a forecast error which is optimistic (i.e. individuals who forecast a better financial outcome at time t then actually occurs at time t + 1). This is compared against individuals whose forecasts matched their outcomes and individuals whose forecasts were unrealistically pessimistic given their observed outcomes (i.e. individuals who forecast a worse financial outcome at time t then actually occurs at time t + 1).

It is important to note that all logistic regression models presented in the following sections control for repeated observations using the cluster (*personal id*) command, which adjusts the standard errors for intergroup correlations.

6.5.4. Empirical Results

Table 6.10 reports an ordered logistic regression with our forecast error as the dependent variable.[76] The first set of coefficients report the individuals who have transitioned into self-employment and have remained in self-employment after the transition for $x < 1$, $1 \leq x < 2$, $2 \leq x < 3$ and $x \geq 3$ after the transition, alongside this are those individuals who transition between modes of employment excluding those individuals who are observed to make the transition into self-employment. The reference category is individuals who remain in the same employment status for their duration in the sample. The results suggest that at the time of transition t, people who enter self-employment but exit after either $x < 1$, $1 \leq x < 2$ are significantly more unrealistically optimistic then individuals who remain in the same mode of employment throughout their duration in the sample. However, for individuals transitioning

---

[76] Marginal effects are reported in the appendix (Table A6.3).

into self-employment and staying for either $2 \leq x < 3$ or $x \geq 3$ the coefficients are positive and small but not significant. What is also evident is that individuals who transition between modes of employments are significantly more likely to be unrealistically optimistic opposed to individuals who remain in the same mode of employment. These results are perhaps highlighting optimism under uncertainty. That is, individuals who remain in an employment status are more able to realistically assess their financial futures than those who transition between employment states, and therefore whose financial forecasts may involve a higher element of guess work.

The results in Table 6.10 also reveal that males are significantly more likely to be unrealistically optimistic than females. Unrealistic optimism diminishes with age although this result is not significant. Unrealistic financial optimism appears to be lower for singles, that is, individuals who are part of a couple or are widowed/divorced/separated are significantly more susceptible to unrealistic optimism then singles, while the coefficient for married individuals also positive, albeit not significant. The results also show that unrealistic optimism diminishes with education. In particular, for university graduates and those individuals whose highest educational attainment are A-levels, there is a negative and significant association with unrealistic optimism compared to individuals with no formal qualifications. The coefficient for HND/HNC is also negative but significant, whereas the coefficient on GCSEs is positive but again not significant. Unrealistic optimism is also significantly higher for individuals who rent either from private landlords and for individuals who own their houses outright, compared to owners with mortgages. Lastly it appears that unrealistic optimism is not significantly affected by county levels of unemployment, or by changes in county level house prices as previously identified in section 6.4.4.

Table 6.11 reports marginal effects of a binary logit regression. The results suggest that at the time of transition t, people who enter self-employment but exit after either $x < 1$ or $1 \leq x < 2$ are 8 percentage points or 13 percentage points respectively more likely to be unrealistically optimistic when assessing their financial future than individuals who remain in the same mode of employment throughout their duration in the sample. For individuals transitioning into self-employment and staying for $2 \leq x < 3$ the marginal effect is positive (0.3 percentage points) but not significant and for those who remained in self-employment for $x \geq 3$ the marginal effect is negative (-1.2 percentage points) but again not significant. This suggests that high rates of exit from self-employment are associated with unrealistic optimism. We also see that individuals who transition between modes of employment are significantly more likely to be over-optimistic than individuals who remain in the same employment state.

The marginal effects on the remaining covariates are not too dissimilar from those reported in Table 6.10 using the ordered approach. Unrealistic optimism is lowest for females, singles and diminishes with age. University graduates are significantly less likely to be unrealistically optimistic although the opposite is true for those individuals whose highest educational attainment are HND/HNC or GCSEs. Private renters are also significantly more likely to be over-optimistic.

6.5.5. Conclusion

Section 6.5 provides evidence to suggest that unrealistic optimism is associated with poor quality entrants who make negative expected returns, resulting in higher exit rates. Our results suggest that the super-optimists will enter self-employment, subsequently finding self-employment a rather sobering experience and consequently leaving within $x < 1$ or $1 \leq x \leq 2$ after making the initial transition. On the other hand, transition individuals who have more

realistic forecasts (and who accordingly are likely to be more satisfied with the returns of self-employment) at their time of transition will find self-employment a far more habitable career choice. Subsequently, 'short-stay' super-optimists may be crowding out more realistic entrepreneurs. Certain policy implications maybe that dampening optimism will result in fewer but higher quality transitions into self-employment.

Further research should seek to identify transitions into self-employment from different labour force statuses and subsequently analyse whether these individuals who are exiting self-employment are exiting because of business failure or for more lucrative paid-employment opportunities. It would appear that this last distinction is very important. In the same way, making a successful transition into self-employment may well depend upon whether the individual has made the transition from paid-employment as opposed to unemployment. In addition, these high rates of transitions out of self-employment may be attributable to short-term, small scale ventures by solo-traders (i.e. self-employed individuals with no employees) or as aforementioned by hit-and-run entrants who only have short opportunities to make profits. On the other hand self-employed employers may be less prone to business failure/exit given both the stringent nature of banks to sanction loans and the capital intensity of larger scale ventures.

6.6. The Self-Employed: Learning from Experience or Persistently Over-Optimistic?

6.6.1. Introduction

We have seen the phenomenon of over optimism has been widely documented in cognitive psychology, and among the behavioural biases that had been readily adopted by economics and finance. More recent literature has documented a body of empirical evidence on the persistence of overconfidence and excess optimism. Camerer (1997) reports that drivers who have suffered severe car accidents, still rate themselves as above average. Research within the securities market has revealed that individuals persistently believe they have superior abilities in generating income. Barber and Odean (2000) report evidence of persistence in investor overconfidence. Similarly, Deaves *et al.* (2005) using a monthly survey of 350 financial market specialists, find evidence that professional market analysts are persistently overconfident; moreover, the degree of their overconfidence even increases with their longevity. So why do individuals persistently over estimate their chances of success even after past failures? It has been suggested, in particular within activities such as savings and investments, that past successes inflate overconfidence whilst past failures are ignored as individuals blame these failures on external forces beyond their control.

In the previous sections of this chapter the statics of unrealistic optimism and occupational choice have been examined, suggesting that the self-employed and individuals with entrepreneurial aspirations are, as a group, unrealistically optimistic in assessing their financial futures. The purpose of this section is to examine the dynamics of unrealistic optimism and the propensity of individuals to remain in self-employment. In essence, if individuals remain in self-employment despite persistently forecasting better financial outcomes, and experiencing worse outcomes, then they are potentially overinvesting both time and money in their current venture. If this is the case then this may have a distortionary

effect on the economy in terms of market efficiency as well as excess lending in the capital markets, as serial entrepreneurs overinvest and banks over lend (De Meza, 2002). In assessing the dynamics of unrealistic optimism, this section uses data from the British Household Panel Survey (BHPS) between 1991-2006. The modelling approach adopted has been used previously by studies assessing the dynamics of unemployment (Arulampalam *et al.,* 2000) and self-employment (Henley, 2004). The model uses a 'lagged dependent variable' for the analysis of unrealistic optimism dynamics following the two-step procedure suggested by Orme (1997, 2001), which incorporates the initial conditions correction necessary to avoid bias in the estimates of the lagged effect.

6.6.2. Data and Descriptive Statistics

The data is from Wave 1 (1991) to Wave 16 (2006) of the British Household Panel Survey (BHPS). The sample has been chosen according to Wave 1 characteristics. More specifically, it limits the sample to all individuals who have an observable response to being unrealistically optimistic, who are working age and reported they were either employed or self-employed. Individuals remain in the sample until they exit the sample through having unobserved relevant information or are not interviewed in a particular wave. While individuals may exit the sample for the reasons aforementioned, individuals are restricted from entering the sample. This is critical to accommodate estimation of the initial condition and lagged unrealistic optimism. In the previous section (section 6.5) the results suggested that transition individuals between labour force classifications are significantly more unrealistically optimistic than those who remain in the same mode of employment through their observed periods within the data set. To correct for the presence of transition individuals we define the self-employed as those who are 'serial entrepreneurs' that is individuals who at time t are self-employed and have been self-employed for at least 50 per cent of the time span

in which they have been observed.[77] Employees are defined as individuals who are employed at time t and are not 'serial entrepreneurs' at any point within their duration in the sample. Our subsequent analysis therefore is restricted to those individuals in either self-employment or paid employment.

Tables 6.12 and 6.13 summarise the distribution of unrealistic optimism across the 15 Waves for the self-employed and those in paid employment respectively.[78] At Wave 1 (1991), 42.46 per cent of the initial sample of 398 self-employed were unrealistically optimistic. The sample size falls over the 15 periods to 198 individuals. The fall in sample size is largely due to attrition within the survey and not due to falling self-employment levels, which have stayed fairly constant over the time span. In Wave 1 (1991), 35.36 per cent of the initial sample of 4041 employees were unrealistically optimistic. Again sample attrition is evident with 2108 employed individuals left in the sample at Wave 15. Between Wave 1 and Wave 2 (1992) sample attrition is most prominent falling from 4041 to 3400, which is widely observed in the BHPS and other similar panels. However the degree of sample attrition may be amplified given that unrealistic-optimism is constructed using data at time t and $t + 1$, therefore individuals must be observed at Wave 3 (1993) to be observed at Wave 2 (1992).

The second half of tables 6.12 and 6.13 give the transition probabilities and degree of state dependence. This highlights that throughout the 14 Waves between 33 per cent and 56 per cent of the self-employed will be unrealistically optimistic given they were unrealistically optimistic at the previous year. By contrast, the probability of being unrealistically optimistic

---

[77] Robustness checks were conducted using various definitions of 'serial entrepreneurs'. In particular, the definitions of 'serial entrepreneurs' ranged from individuals who were at time t self-employed and had been self-employed for between 40 and 100 per cent of the time span in which they were observed. These various definitions used in the random effects probit model produced similar estimates.
[78] These tables suggest that levels of unrealistic optimism vary considerably over time within the UK. Time dummies were added to the model used within the empirical analysis but found not to be jointly significant.

conditional on not being unrealistically optimistic in the previous year is relatively smaller, that is, between 20 per cent and 29 per cent over the 14 Waves. For employees the figures are slightly smaller, in particular, across the 14 Waves between 33 per cent and 44 per cent of employees will be unrealistically optimistic given they were unrealistically optimistic during the previous year. Again as with the self-employed, for employees the probability of being unrealistically optimistic conditional on not being unrealistically optimistic in the previous year is relatively smaller, between 21 per cent and 27 per cent.

The next section presents the econometric modelling of unrealistic optimism accounting for state dependence and unobserved heterogeneity effects. The use of covariates are justified in the same way as in section 6.4.3.

6.6.3. Methodology

Our dependent variable is constructed in the same way as the binary dependent variable in the previous section, i.e. taking the value of 1 if the individual makes an optimistic forecast error or 0 otherwise. To model persistence in optimistic forecast errors our approach follows that as described in Orme (2001). This approach uses a lagged dependant variable, which has been used in previous studies of the dynamics of unemployment and of self-employment (Arulampalam *et al.* 2000; Henley 2004 respectively). This approach is commonly referred to as a dynamic random effects probit model.[79] Orme (2001) develops a two-step test procedure

---

[79] Cappellari and Jenkins (2008), find evidence that the Heckman, Wooldridge and Orme estimators of dynamic random effects probit models produce similar estimates. Furthermore, Sousounis (2008) "compares three different estimation approaches for the random effects dynamic panel data model, under the probit assumption on the distribution of the errors. These three approaches are attributed to Heckman (1981), Wooldridge (2005) and Orme (2001). The results are then compared with those obtained from generalised method of moments (GMM) estimators of a dynamic linear probability model, namely the Arellano and Bond (1991) and Blundell and Bond (1998) estimators. This evaluation adds to the existing body of empirical evidence on the performance of these estimators using real data, which supplements the conclusions from simulation studies. The results suggest that for the dynamic random effects probit model the performance of no one estimator is superior to the others" (Sousounis 2008).

for assessing the so-called initial conditions problem that incorporates unobserved heterogeneity for non-linear dynamic panel models. The initial condition problem arises in longitudinal data because individuals are first observed in a particular state that is dependent on a function of past experiences. That is, at Wave 1(1991) an individual may be observed to be unrealistically optimistic because of a history of unrealistic optimism or because of unobservable characteristics that have predisposed them to being unrealistically optimistic. We specify the model for individual i at time t as:

$$y_{it}^* = x_{it}'\beta + \gamma y_{it-1} + v_{it},$$
$$i = 1,\dots, n \; and \; t = 2,\dots, T_i . \tag{1}$$

Where y^* denotes the unobservable propensity to be unrealistically optimistic, x are observable covariates affecting y^*, β are coefficients and v is an error term. An individual is observed to be unrealistically optimistic $(y_{it} = 1)$ when his/her propensity to be unrealistically optimistic exceeds a threshold (zero in this case).

In equation (1) y_{it}^* is a function of y_{it-1} (the observed degree of unrealistic optimism in the previous period). The inclusion of this lagged dependant variable allows us to test the presence of genuine state dependence. That is, past experiences of unrealistic optimism will have a behavioural impact on the propensity of being observed as unrealistically optimistic in the future. However, spurious correlations between y_{it}^* and y_{it-1} can arise due to past experiences as a proxy for temporally persistent unobservable factors that determine the outcome in question. To deal with this issue we control for any unobserved heterogeneity, by decomposing the error term v_{it} in (1) as:

$$v_{it} = \varepsilon_i + u_{it} \qquad\qquad\qquad (2)$$

where ε_{it} is an individual-specific unobservable effect and u_{it} is a random error. Assuming

that ε_i is random, that $u_{it} \sim IN(0, \sigma_u^2)$ and the u_{it} are independent of the x_{it} for all i and t,

estimation of (1) can be undertaken using a random effects probit estimator. We make

another assumption that $\varepsilon_i \sim IN(0, \sigma_\varepsilon^2)$ but relax the assumption of independence of ε_i and

x_{it} to avoid omitted variable bias. Instead the dependence between ε and x is modelled by

assuming that the regression function of ε_i is a linear function of the individual means of the

time-varying covariates (denoted by $\overline{x}$) and therefore we can write this as:[80]

$$\varepsilon_i = a_0 + a_i \overline{x}_i + \eta_i \qquad\qquad\qquad (3)$$

where $\eta_i \sim IN(0, \sigma_i^2)$ and $E(\eta_i\, x_{it}) = 0$ and $E(\eta_i\, u_{it}) = 0$ for all i and t. Thus equation (1)

becomes:

$$y_{it}^* = x_{it}'\beta + \gamma y_{it-1} + a_i \overline{x}_i + \eta_i + u_{it},$$
$$i = 1,\ldots,n \ and \ t = 2,\ldots,T_i. \qquad\qquad\qquad (4)$$

Next we consider the initial conditions problem which arises in equation (4) if y_{i1} is

correlated with the unobservable η_i. That is, individuals who are observed to be

unrealistically optimistic in Wave 1 (1991) may be there because of a previous history of

being unrealistically optimistic or because of observable and unobservable information dated

---

[80] The inclusion of the means of the time varying parameters is essentially the Mundlak (1978) approach which is an approximation to a standard panel fixed effects estimator with dummies for individuals rather than their means.

prior to 1991. To account for this problem we follow Heckman (1991c) and specify a reduced

form equation for the initial observation:

$$y_{i1}^* = \lambda' z_i + \omega_i,$$ (5)

where z_i are exogenous instruments, where $\text{var}(\omega_i) = \sigma_\omega^2$ and $\text{corr}(\eta_i, \omega_i) = \rho$. The 1991

observation on unrealistic-optimism, y_{i1}, is assumed independent of u_{it}. The following step

involves a linear relationship between the error components of equation (4) and (5), to

account for the possibility of non-zero ρ :

$$\omega_i = \theta \eta_i + u_{i1}.$$ (6)

We assume that η_i and u_{i1} are uncorrelated, u_{i1} is uncorrelated with the x_{it} and that $\theta =$

$\rho \sigma_\omega / \sigma_\eta$ and $\text{var}(u_{i1}) = \sigma_\omega^2 (1 - \rho^2)$. From equations (5) and (6) we obtain:

$$y_{i1}^* = \lambda' z_i + \theta \eta_i + u_{i1}$$
$$i = 1, \ldots, n.$$ (7)

Whilst equations (5) and (7) can be estimated jointly by maximum likelihood as shown in

Heckman (1981a, 1981b), Orme (2001) suggests a two-step method of estimation. To

account for the correlation between the initial condition and unobserved heterogeneity η_i, a

correction term is added to the random effects probit models represented by equation (4). To

show the form of the random effects model under this process, the new specification of

equation (6) is as follows:

$$\eta_i = \delta \omega_i + \mu_i$$ (8)

where $\delta = \rho\sigma_n / \sigma_w$ and $\mathrm{var}(u_i) = \sigma_\eta^2(1-\rho^2)$. We next substitute equation (8) into equation (4), which gives:

$$y_{it}^* = x_{it}'\beta + \gamma y_{it-1} + a_1\bar{x}_i + \delta\omega_i + \mu_i + u_{it},$$
$$i = 1,\dots,n \ and \ t = 2,\dots,T_i. \tag{9}$$

The first stage of Orme's procedure estimates a probit model for the initial observation for each individual, i.e. the estimation of equation (5). The second stage estimates the random effects probit model with the generalised residual from the first stage regression included in the main regression, i.e. the estimation of equation (9). The next section presents the results of the two-stage estimation of equations (7) and (9).

6.6.4. Empirical Results

Table 6.14 reports probit model estimates, with column (1) presenting probit estimates on the pooled sample between 1991 and 2005 disregarding any state dependence and initial conditions. The results suggest that females, singles and university graduates are significantly less likely to be unrealistically optimistic. Regarding housing tenure, outright owners are significantly less likely to unrealistically optimistic than homeowners who have a mortgage. The opposite is true for both social and private renters, who are significantly more likely to be over-optimistic. Both county specific factors seem to be statistically significant although the results seem strange. Unrealistic optimism is increased by higher levels of unemployment and by smaller changes in house prices. The reason for this result may follow the same rationale with housing tenure, that is, people who have nothing (i.e. renters) are forced into believing that things must get better but yet do not realise these expectations, whereas people that own their own home outright have no need to be unrealistically optimistic when assessing the future and instead make more realistic judgements on their prospective success.

211

Column (2) presents results for the initial conditions equation, estimated using Wave 1 (1991). The results contrast somewhat from the pooled probit in column (1). There appears to be a strong initial relationship between age and initial unrealistic optimism, with increasing age reducing the tendency to be unrealistically optimistic. Females are still significantly less likely to be unrealistically optimistic. Housing tenure variables become insignificant as does county level unemployment.

Columns (3), (4) and (5) report three alternative estimates of the random effects probit model, including state dependence and initial conditions. Column (5) excludes housing tenure variables for robustness. The state-dependence effects in the random effects models are highly significant. In columns (4) and (5) we interact the lagged optimism variable with employment status in order to investigate whether the relationship between previous and current unrealistic optimism is different for the self-employed compared to employees. The results show that whilst state-dependence is highly significant for both groups the self-employed are significantly more likely to be persistently unrealistically optimistic than those in paid employment.[81] A significant negative impact on the probability of being unrealistically-optimistic is also found for females and university graduates, whereas higher

---

[81] Table A6.5 reports two alternative estimates of the random effect probit model, including state dependence and initial conditions. Column (2) excludes housing variable for robustness. Columns (1) and (2) include lagged dependent variables for 5 periods and interactions of the lagged optimism variable and employment status for these 5 periods. The results reveal that state dependence is highly significant for both groups for all 5 periods. The results found previously (Table 6.16) suggested that the self-employed are significantly more likely to be persistently unrealistically optimistic than those in paid employment. However this result is no longer significant with the inclusion of 4 further lagged dependent variables. Table A6.6 reports the coefficients and p-values of the time-means of time-varying covariates included in the probit models to allow for correlation between time-varying covariates and unobserved heterogeneity. Tables A6.7 and A6.9 report two further alternative estimates of the random effects probit models. Columns (1) to (5) of Table A6.7 include lagged dependent variables for five different time periods (i.e. $t-1$ to $t-5$). The results suggest that being unrealistically optimistic at times $t-1$, $t-2$, $t-3$ and $t-5$ are significantly related to unrealistic optimism at time t, however the coefficients on these lagged terms fall significantly after time $t-1$. Table A6.9 repeats the analysis in Table A6.7 but includes interaction terms of the lagged dependent variable and employment status again for five different time periods. The results suggest, along with Table 6.13, that the self-employed are more likely to be persistently unrealistically optimistic than employees. However this result is only significant for $t-1$ but not for the other lags.

levels of county level unemployment are positively related to unrealistic optimism. Furthermore the coefficient on the generalised residual from the reduced form initial conditions equation is highly significant in columns (3), (4) and (5). This suggests that initial conditions are not exogenous to being observed as unrealistically optimistic.

6.6.5. Conclusion

The primary conclusion from this empirical section suggests that unrealistic optimism is persistent. While we find evidence that there is a strong state-dependence effect for employees and the self-employed alike, the self-employed are significantly more likely to persistently make optimistic forecast errors. In particular, the analysis suggests that persistent unrealistic optimism is a factor of longevity in self-employment. There are several possible explanations for the existence of this result. Firstly, it may be the case that these entrepreneurs are subject to cognitive dissonance, such that, past failures are forgotten and past successes are the subject of their focus. Secondly, these individuals are born optimists and are not influenced by past experiences, whether they be positive or negative. Lastly, it could be that these individuals have made such a large investment into their business venture, that they are forced to be optimistic about its future. Whatever the reason, these results suggest that people are remaining in self-employment despite persistently making negative expected returns. This has particular implications for market efficiency as individuals are over-investing in ventures instead of being driven from the market. This may further contribute to excess lending in the capital market, in turn amplifying the conservative nature of banks to lend and increasing the tendency for credit rationing.

6.7. Overall Conclusions and Public Implications

The purpose of this chapter has been to explore the statics and dynamics of unrealistic optimism and its association with occupational choice. Unrealistic optimism is measured by miscalculating future financial outcomes. The theoretical literature has inferred the damages wrought by overconfident entrepreneurs, specifically excess entry, high failure rates and credit rationing. The empirical analysis conducted in this chapter finds that the self-employed and individuals with entrepreneurial aspirations are systematically over-optimistic in assessing their financial futures, more specifically they forecast better outcomes but experience worse realisations. More interestingly, individuals do not appear to learn from past failures. It is sensible to suppose that, given strict market efficiency, individuals misled by unachievable hopefulness would be driven from the marketplace. The results however suggest that both employees and self-employed individuals persistently make optimistic forecast errors. However, the self-employed are found to have significantly higher levels of persistence. This suggests that self-employed individuals who persistently make unrealistic forecasts are not driven out, as perfectly efficient markets would suggest, but instead are over-investing both time and money in an occupational status. More worryingly still is the fact we find persistence in unrealistic optimism for employees and self-employed individuals for 5 periods. This suggests that unrealistic optimism is a pervasive human trait, but one that is also extremely difficult to eradicate.

This chapter also finds evidence that unrealistic optimism is associated with excess entry and subsequently to higher rates of exit from self-employment. In a survey by Cooper *et al.* (1988) of 3,000 new business owners, 81 per cent believed that their business would have a greater than 70 per cent chance of success, while only 33 per cent believed that they would definitely succeed. However in reality, 75 per cent of new ventures do not even survive the

first five years. In this chapter 822 transitions into self-employment were analysed. 57 per cent of these transitions lasted more than one period and only 30 per cent of transitions remained in self-employment for more than three years after making the initial transition. More interestingly, only 24 per cent of individuals who made optimistic forecast errors at the time of transition into self-employment remained in self-employment for three or more years, compared to 33 per cent of individuals who made either no forecast error or a pessimistic forecast error. These results suggest that high exit rates from self-employment are associated with unrealistic optimism. As with evidence presented by De Meza (2002) and Manove and Parilla (1999), dampening optimism maybe helpful in attracting fewer higher quality transitions into self-employment, reducing excessive lending in the capital markets subsequently leading to credit rationing. Similarly, the conservative nature of banks lending policies may be well justified, given that entrepreneurs are inherently and persistently unrealistically optimistic, and given the evidence linking unrealistic entrepreneurs and higher rates of exit from self-employment.

Table 6.1a: Financial Forecast and Outcomes for Employees without Entrepreneurial Intent

Realisation				
Forecast	Better	Same	Worse	Total
Better	4861/9485 (51.2%)	3006/9485 (31.7%)	1618/9485 (17.1%)	9485/27823 (34.1%)
Same	4159/16198 (25.7%)	9059/16198 (55.9%)	2980/16198 (18.4%)	16198/27823 (58.2%)
Worse	418/2140 (19.5%)	642/2140 (30.0%)	1080/2140 (50.5%)	2140/27823 (7.7%)

Table 6.1b: Financial Forecast and Outcomes for Employees with Entrepreneurial Intent

Realisation				
Forecast	Better	Same	Worse	Total
Better	855/1707 (50.1%)	499/1707 (29.2%)	353/1707 (20.7%)	1707/3615 (47.2%)
Same	490/1630 (30.1%)	754/1630 (46.3%)	386/1630 (23.7%)	1630/3615 (45.1%)
Worse	62/278 (22.3%)	81/278 (29.1%)	135/278 (48.6%)	278/3615 (7.7%)

Table 6.2a: Financial Forecast and Outcomes for Employees

Realisation				
Forecast	Better	Same	Worse	Total
Better	5716/11192 (51.1%)	3505/11192 (31.3%)	1971/11192 (17.6%)	11192/31438 (35.6%)
Same	4649/17828 (26.1%)	9813/17828 (55.0%)	3366/17828 (18.9%)	17828/31438 (56.7%)
Worse	480/2418 (19.9%)	723/2418 (30.0%)	1215/2418 (50.2%)	2418/31438 (7.7%)

Table 6.2b: Financial Forecast and Outcomes for the Self-Employed

Realisation Forecast	Better	Same	Worse	Total
Better	687/1552 (44.3%)	584/1552 (37.6%)	281/1552 (18.1%)	1552/4084 (38.0%)
Same	531/2286 (23.2%)	1291/2286 (56.5%)	464/2286 (20.3%)	2286/4084 (56.0%)
Worse	49/246 (19.9%)	81/246 (32.9%)	116/246 (47.2%)	246/4084 (6.0%)

Table 6.3: Logistic Regression Measuring the Effects of Forecasts on Entrepreneurial Aspirations and Employment Status

variable	(1) Entrepreneurial Aspirations[82]		(2) Employment Status[83]	
	Marginal Effect	P>z	Marginal Effect	P>z
Financial Expectations (reference category: forecast worse off)				
Forecast better off	0.0116	0.113	0.0590	*0.000*
Forecast same	-0.0243	*0.001*	0.0229	*0.001*
Demographics (reference category: females)				
Age	0.0075	*0.000*	0.0099	*0.000*
Age Squared	-0.0001	*0.000*	-0.0001	*0.000*
Male	0.0590	*0.000*	0.0769	*0.000*
Marital Status (reference category: single)				
Married	-0.0082	0.334	-0.0040	0.735
Couple	0.0208	*0.013*	0.0148	0.231
Widowed/divorced/separated	0.0242	*0.077*	-0.0025	0.861
Educational Attainment (reference category: no qualifications)				
University	-0.0216	*0.015*	0.0003	0.976
HND/HNC	-0.0009	0.937	-0.0115	0.350
A-Level	-0.0221	*0.010*	0.0190	0.101
O-Levels/GCSE's	-0.0128	0.133	0.0015	0.879
Housing Tenure (reference category: own with mortgage)				
Own Outright	-0.0180	*0.017*	0.0311	*0.001*
Renter – Social Landlord	0.0008	0.918	-0.0189	*0.049*
Renter – Private Landlord	0.0009	0.905	0.0224	*0.055*
Parental Background (reference category: neither parent self-employed)				
Both parents self-employed	0.0287	0.240	0.1585	*0.000*
Father self-employed	0.0081	0.331	0.0707	*0.000*
Mother self-employed	0.0246	0.263	0.0340	0.160
Year Dummies (reference category: 2005)				
1998	0.0027	0.679	0.0037	0.453
1999	-0.0030	0.620	-0.0012	0.797
2000	-0.0013	0.834	-0.0016	0.720
2001	-0.0131	*0.021*	-0.0027	0.514
2002	-0.0106	*0.063*	0.0002	0.954
2003	-0.0068	0.232	0.0009	0.812
2004	0.0040	0.481	-0.0027	0.391

[82] Employees who aspire to start a business = 1, employees who have no intention of starting a new business venture.= 0.

[83] Self-employed = 1, employees (with or without intention to start new business venture) = 0.

Table 6.3 (continued)

	(1) Entrepreneurial Aspirations[84]		(2) Employment Status[85]	
Log Likelihood	-10735.4		-11552.9	
chi² (25) (p-value)	436.47	*0.000*	540.56	*0.000*
R²	0.043		0.0884	
N	31438		35522	

Note: *Italic* indicates significance level (p-value) below 0.10, ***bold italic*** below 0.05.

---

[84] Employees who aspire to start a business = 1, employees who have no intention of starting a new business venture.= 0.

[85] Self-employed = 1, employees (with or without intention to start new business venture) = 0.

Table 6.4: Logistic Regression Measuring the Effects of Forecast Errors on Entrepreneurial Aspirations and Employment Status

variable	(1) Entrepreneurial Aspirations[86]		(2) Employment Status[87]	
	Marginal Effect	P>z	Marginal Effect	P>z
Financial Expectations (reference category: pessimists)				
Unrealistic optimism	0.0253	*0.000*	0.0281	*0.000*
Realists	-0.0013	0.781	0.0060	0.200
Demographics (reference category: females)				
Age	0.0066	*0.000*	0.0095	*0.000*
Age Squared	-0.0001	*0.000*	-0.0001	*0.001*
Male	0.0613	*0.000*	0.0789	*0.000*
Marital Status (reference category: single)				
Married	-0.0090	0.291	-0.0055	0.645
Couple	0.0210	*0.013*	0.0153	0.222
Widowed/divorced/separated	0.0242	*0.079*	-0.0028	0.848
Educational Attainment (reference category: no qualifications)				
University	-0.0185	*0.043*	0.0017	0.884
HND/HNC	0.0003	0.982	-0.0108	0.384
A-Level	-0.0214	*0.014*	0.0193	*0.098*
O-Levels/GCSE's	-0.0127	0.142	0.0014	0.887
Housing Tenure (reference category: own with mortgage)				
Own Outright	-0.0193	*0.010*	0.0289	*0.002*
Renter – Social Landlord	-0.0003	0.974	-0.0195	*0.043*
Renter – Private Landlord	0.0029	0.717	0.0245	*0.040*
Parental Background (reference category: neither parent self-employed)				
Both parents self-employed	0.0298	0.230	0.1590	*0.000*
Father self-employed	0.0085	0.310	0.0713	*0.000*
Mother self-employed	0.0260	0.244	0.0333	0.168
Year Dummies (reference category: 2005)				
1998	0.0045	0.489	0.0047	0.345
1999	-0.0017	0.786	-0.0002	0.971
2000	-0.0001	0.989	-0.0003	0.945
2001	-0.0126	*0.027*	-0.0021	0.616
2002	-0.0103	*0.074*	0.0006	0.888
2003	-0.0072	0.207	0.0014	0.718
2004	0.0035	0.538	-0.0028	0.371

---

[86] Employees who aspire to start a business = 1, employees who have no intention of starting a new business venture = 0.

[87] Self-employed = 1, employees (with or without intention to start new business venture) = 0.

Table 6.4 (continued)

	(1) Entrepreneurial Aspirations[88]		(2) Employment Status[89]	
Log Likelihood	-10759.9		-11591.9	
chi² (25) (p-value)	420.600	*0.000*	518.45	*0.000*
R²	0.041		0.0854	
N	31438		35522	

Note: *Italic* indicates significance level (p-value) below 0.10, ***bold italic*** below 0.05.

---

[88] Employees who aspire to start a business = 1, employees who have no intention of starting a new business venture = 0.

[89] Self-employed = 1, employees (with or without intention to start new business venture) = 0.

Table 6.5: Ordered Logistic Regression with Forecast Error as the Dependant Variable

Variable	Coefficient	P>z
LFS Status (reference category: employees with no entrepreneurial aspirations)		
Employees with entrepreneurial aspirations	0.2241	*0.000*
Self-employed	0.2523	*0.000*
Demographics (reference category: females)		
Age	-0.0270	*0.000*
Age squared	0.0002	*0.002*
Male	0.0481	*0.058*
Marital Status (reference category: single)		
Married	0.0634	0.142
Couple	0.0763	*0.084*
Widowed/divorced/separated	0.1614	*0.005*
Educational Attainment (reference category: no qualifications)		
University	-0.1722	*0.000*
HND/HNC	-0.1175	*0.035*
A-level	-0.0477	0.244
O-levels/GCSEs	0.0151	0.675
Housing Tenure (reference category: own with mortgage)		
Outright owner	-0.0571	*0.083*
Renter – social landlord	0.1843	*0.000*
Renter – private landlord	0.1597	*0.001*
County Specific Factors		
County level Δ real house prices*1000	-0.0015	0.231
County level unemployment	0.0020	0.838
Year Dummies (reference category: 2005)		
1998	-0.1117	*0.016*
1999	-0.0717	0.155
2000	-0.1599	*0.000*
2001	-0.1337	*0.002*
2002	-0.0544	0.273
2003	-0.0565	0.184
2004	0.0820	*0.055*
/cut1	-4.8349	
/cut2	-2.1331	
/cut3	0.2910	
/cut4	2.0809	
Log Likelihood	-42752.4	
chi^2 (24) (p-value)	254.29	*0.000*
R^2	0.0041	
N	35522	

Note: *Italic* indicates significance level (p-value) below 0.10, ***bold italic*** below 0.05

Table 6.6: Ordered Logistic Regression with Forecasts as Dependant Variable

Variable	Coefficient	P>z
LFS Status (reference category: employees with no entrepreneurial aspirations)		
Employees with entrepreneurial aspirations	0.2757	*0.000*
Self-employed	0.4094	*0.000*
Demographics (reference category: females)		
Age	-0.0765	*0.000*
Age squared	0.0004	*0.000*
Male	0.2005	*0.000*
Marital Status (reference category: single)		
Married	-0.1697	*0.002*
Couple	0.0406	0.445
Widowed/divorced/separated	-0.0026	0.971
Educational Attainment (reference category: no qualifications)		
University	0.1076	*0.052*
HND/HNC	0.0445	0.527
A-level	0.0438	0.402
O-levels/GCSEs	0.0346	0.455
Housing Tenure (reference category: own with mortgage)		
Outright owner	-0.2889	*0.000*
Renter – social landlord	0.0767	0.135
Renter – private landlord	0.2799	*0.000*
County Specific Factors		
County level Δ real house prices*1000	0.0030	*0.028*
County level unemployment	-0.0015	0.899
Year Dummies (reference category: 2005)		
1998	0.0491	0.327
1999	0.0198	0.713
2000	0.0197	0.662
2001	-0.0542	0.230
2002	-0.0801	0.121
2003	-0.0631	0.153
2004	-0.0229	0.602
/cut1	-4.8453	
/cut2	-1.5459	
Log Likelihood	-29771.3	
chi² (24) (p-value)	1755.48	*0.000*
R²	0.052	
N	35522	

Note: *Italic* indicates significance level (p-value) below 0.10, ***bold italic*** below 0.05

Time of transition into self-employment

	Wave 1 (1991)	Wave 2 (1992)	Wave 3 (1993)	Wave 4 (1994)	Wave 5 (1995)	Wave 6 (1996)	Wave 7 (1997)	Wave 8 (1998)	Wave 9 (1999)	Wave 10 (2000)	Wave 11 (2001)	Wave 12 (2002)	Wave 13 (2003)	Wave 14 (2004)	Wave 15 (2005)
Wave 1 (1991)	0														
Wave 2 (1992)		100	54	35	31	26	20	16	16	13	10	8	7	7	7
Wave 3 (1993)			85	42	34	27	23	18	16	13	11	11	8	4	4
Wave 4 (1994)				78	44	33	24	15	12	8	7	7	7	5	4
Wave 5 (1995)					84	47	28	20	14	10	8	7	5	3	3
Wave 6 (1996)						73	47	34	24	19	15	8	6	4	4
Wave 7 (1997)							75	37	28	22	18	13	13	10	8
Wave 8 (1998)								64	34	21	17	13	10	7	6
Wave 9 (1999)									65	41	32	26	21	16	14
Wave 10 (2000)										62	34	27	18	13	11
Wave 11 (2001)											72	40	29	20	15
Wave 12 (2002)												64	43	25	20
Wave 13 (2003)													68	40	28
Wave 14 (2004)														61	41
Wave 15 (2005)															59

Table 6.8: Duration in Self-Employment after Initial Transition - by Year

Duration in self-employment after the initial transition:	$x < 1$	$1 \leq x < 2$	$2 \leq x < 3$	$x \geq 3$	Total
Year					
1992	46	19	4	31	100
1993	43	8	7	27	85
1994	34	11	9	24	78
1995	37	19	8	20	84
1996	26	13	10	24	73
1997	38	9	6	22	75
1998	30	13	4	17	64
1999	24	9	6	26	65
2000	28	7	9	18	62
2001	32	11	9	20	72
2002	21	18	5	20	64
Total	359	137	77	249	822

Table 6.9a: Forecast Errors and Duration in Self-Employment – Ordered Dependent Variable

Duration in self-employment after the initial transition:		x < 1	1 ≤ x < 2	2 ≤ x < 3	x ≥ 3	Total
Forecast Error						
Pessimistic	-2	6/359	3/137	1/77	4/249	14/822
		1.67%	2.19%	1.30%	1.61%	1.70%
		(42.68%)	(21.43%)	(7.14%)	(28.57%)	(100%)
	-1	58/359	19/137	13/77	35/249	125/822
		16.16%	13.87%	16.88%	14.06%	15.21%
		(46.40%)	(15.20%)	(10.40%)	(28.00%)	(100%)
Realistic	0	173/359	63/137	43/77	148/249	427/822
		48.19%	45.99%	55.84%	59.44%	51.95%
		(40.52%)	(14.75%)	(10.07%)	(34.66%)	(100%)
	1	92/359	36/137	15/77	48/249	191/822
		25.63%	26.28%	19.48%	19.28%	23.24%
		(48.42%)	(18.85%)	(7.85%)	(25.13%)	(100%)
Optimistic	2	30/359	16/137	5/77	14/249	65/822
		8.36%	11.68%	6.49%	5.62%	7.91%
		(46.95%)	(24.62%)	(7.69%)	(21.53%)	(100%)
Total		100%	100%	100%	100%	100%

Table 6.9b: Forecast Errors and Duration in Self-Employment – binary dependent variable

Duration in self-employment after the initial transition:	x < 1	1 ≤ x < 2	2 ≤ x < 3	x ≥ 3	Total
Forecast Error					
No Optimistic Forecast Error	237/359	85/137	57/77	187/249	566/822
	66.02%	62.04%	74.03%	75.10%	68.86%
	(41.87%)	**(15.02%)**	**(10.07%)**	**(33.04%)**	**(100%)**
Optimistic Forecast Error	122/359	52/137	20/77	62/249	256/822
	33.98%	37.96%	25.97%	24.90%	31.14%
	(47.66%)	**(20.31%)**	**(7.81%)**	**(24.22%)**	**(100%)**
Total	100%	100%	100%	100%	100%

Table 6.10: Ordered Logistic Regression with Forecast Error as the Dependent Variable

Variable	Coefficient	p-value
LFS status: (reference category is self-employed (mean)=1 or employee(mean)=1 or other (mean)=1)		
Transition, x < 1	0.3565	*0.003*
Transition, 1 ≤ x < 2	0.5720	*0.003*
Transition, 2 ≤ x < 3	0.0671	0.780
Transition, x ≥ 3	0.0874	0.459
Self-employed(mean)≠1 or employee(mean)≠1 or *other (mean)≠1*	0.1705	*0.000*
Demographics (reference category: Male)		
Age	0.0021	0.568
Age Squared	-0.0001	*0.004*
Female	-0.0911	*0.000*
Marital status (reference category: single)		
Married	0.0323	0.339
Couple	0.1197	*0.010*
Widowed/divorced/separated	0.1080	*0.006*
Educational Attainment: (reference category: no qualifications)		
University	-0.1728	*0.000*
HND/HNC	-0.0314	0.485
A-Level	-0.0563	*0.089*
O-Level/GCSE's	0.0230	0.382
Housing Tenure (reference category: own with mortgage)		
Outright Owner	0.0599	*0.016*
Renter - social landlord	0.0207	0.505
Renter - private landlord	0.1535	*0.000*
County Specific Factors		
County level Δ real house prices*1000	0.0003	0.830
County level unemployment	0.0061	0.279
Year Dummies (reference category: 2002)		
1992	-0.1057	*0.079*
1993	-0.0577	0.308
1994	-0.0191	0.717
1995	-0.1182	*0.019*
1996	-0.1411	*0.002*
1997	-0.0359	0.389
1998	-0.0470	0.255
1999	-0.0165	0.659
2000	-0.0851	*0.032*
2001	-0.0710	*0.049*

Table 6.10 (continued)

	Coefficient	p-value
Cut 1	-4.1462	
Cut 2	-1.5861	
Cut 3	0.9819	
Cut 4	2.9476	
Log Likelihood	-72394.4	
chi^2 (25) (p-value)	431.19	***0.000***
R^2	0.004	
N	62415	

Note: *Italic* indicates significance level (p-value) below 0.10, ***bold italic*** below 0.05.

Table 6.11: Logistic Regression Reporting Marginal Effects with Forecast Error as the Binary Dependent Variable

Variable	Marginal Effect	p-value
LFS status: (reference category is self-employed (mean)=1 or employee(mean)=1 or other (mean)=1)		
Transition, $x < 1$	0.0848	*0.001*
Transition, $1 \leq x < 2$	0.1303	*0.002*
Transition, $2 \leq x < 3$	0.0039	0.938
Transition, $x \geq 3$	-0.0124	0.647
Self-employed(mean)≠1 or employee(mean)≠1 or *other (mean)≠1*	0.0376	*0.000*
Demographics (reference category: Male)		
Age	0.0031	*0.000*
Age Squared	-0.0001	*0.000*
Female	-0.0254	*0.000*
Marital status (reference category: single)		
Married	0.0157	*0.033*
Couple	0.0306	*0.002*
Widowed/divorced/separated	0.0353	*0.000*
Educational Attainment: (reference category: no qualifications)		
University	-0.0203	*0.016*
HND/HNC	0.0179	*0.070*
A-Level	0.0000	0.997
O-Level/GCSE's	0.0106	*0.092*
Housing Tenure (reference category: own with mortgage)		
Outright Owner	-0.0058	0.336
Renter - social landlord	0.0063	0.366
Renter - private landlord	0.0274	*0.002*
County Specific Factors		
County level Δ real house prices*1000	0.0002	0.386
County level unemployment	0.0006	0.650
Year Dummies (reference category: 2002)		
1992	0.0177	0.214
1993	0.0270	*0.046*
1994	0.0248	*0.049*
1995	-0.0018	0.877
1996	-0.0143	0.165
1997	0.0050	0.617
1998	-0.0005	0.957
1999	0.0035	0.700
2000	0.0030	0.758
2001	-0.0046	0.595

Table 6.11 (continued)

	Coefficient	p-value
Log Likelihood	-34803.4	
chi² (25) (p-value)	743.63	***0.000***
R²	0.0189	
N	62415	

Note: *Italic* indicates significance level (p-value) below 0.10, ***bold italic*** below 0.05.

Table 6.12: Sample Properties - Self-employed

	W1 1991	W2 1992	W3 1993	W4 1994	W5 1995	W6 1996	W7 1997	W8 1998	W9 1999	W10 2000	W11 2001	W12 2002	W13 2003	W14 2004	W15 2005
Overoptimistic	169	106	107	99	94	84	107	98	94	98	75	68	61	78	55
% of total	42.46	29.36	31.85	29.64	27.49	24.21	30.06	30.34	29.94	33.91	27.88	26.56	26.07	35.94	27.78
Prob(overopt|overopt $_{t-1}$)		0.392	0.447	0.418	0.337	0.372	0.350	0.461	0.429	0.443	0.374	0.409	0.421	0.560	0.403
Prob(overopt|not-overopt $_{t-1}$)		0.225	0.251	0.245	0.241	0.200	0.275	0.234	0.231	0.292	0.227	0.206	0.213	0.261	0.242
Sample Size	398	361	336	334	342	347	356	323	314	289	269	256	234	217	198

Table 6.13: Sample Properties - Employees

	W1 1991	W2 1992	W3 1993	W4 1994	W5 1995	W6 1996	W7 1997	W8 1998	W9 1999	W10 2000	W11 2001	W12 2002	W13 2003	W14 2004	W15 2005
Overoptimistic	1429	984	988	944	812	787	833	740	767	702	628	647	601	643	598
% of total	35.36	28.94	30.74	30.32	25.96	25.29	27.31	25.23	27.07	26.38	24.67	27.04	26.33	29.48	28.37
Prob(overopt|overopt $_{t-1}$)		0.344	0.396	0.398	0.338	0.338	0.417	0.335	0.394	0.370	0.355	0.440	0.374	0.438	0.408
Prob(overopt|not-overopt $_{t-1}$)		0.263	0.278	0.268	0.223	0.223	0.225	0.221	0.233	0.227	0.211	0.220	0.226	0.245	0.230
Sample Size	4041	3400	3214	3113	3128	3112	3050	2933	2833	2661	2546	2393	2283	2181	2108

Table 6.14: Persistence in Forecast Errors

Variable	(1) 1991-2005 Pooled Probit		(2) Initial conditions Probit		(3) Random effects Probit	
	Coefficient	p-value	Coefficient	p-value	Coefficient	p-value
over-optimism $t-1$					0.2592	**0.000**
Interaction:						
Self-employed*Financial over-optimism (t-1)						
Demographics (reference category: male and single)						
Age	-0.0020	**0.000**	0.0131	0.080	0.0170	**0.002**
Female	-0.0218	**0.000**	-0.0338	0.023	-0.0523	0.006
Married	0.0191	**0.006**	0.0592	0.153	0.0837	0.144
Couple	0.0365	**0.000**	0.0577	0.182	0.0551	0.311
Widowed/divorced/separated	0.0538	**0.000**	-0.0679	0.221	0.0905	0.198
Educational Attainment: (reference category: no qualifications						
University	-0.0312	**0.000**	-0.0435	0.111	-0.0944	**0.005**
HND/HNC	-0.0007	0.942	0.0235	0.471	-0.0312	0.426
A-Level	-0.0050	0.463	-0.0198	0.405	-0.0260	0.402
O-Level/GCSE's	0.0023	0.705	0.0327	0.099	0.0089	0.742
Housing Tenure (reference category: own with mortgage)						
Outright Owner	-0.0388	**0.000**	-0.0123	0.708	-0.0286	0.446
Renter - social landlord	0.0316	**0.000**	0.0081	0.851	-0.0287	0.632
Renter - private landlord	0.0246	**0.004**	-0.0238	0.541	0.0076	0.881
County Specific Factors						
County level Δ real house prices*1000	-0.0007	**0.006**	-0.0029	0.085	0.0009	0.370
County level unemployment	0.0013	0.093	0.0080	0.340	0.0378	**0.000**
Generalised residual from initial conditions probit					0.0672	**0.000**
Log-Likelihood	-27941.9		-2848.3		-18715.8	
LR (ρ = 0) chi²					**217.6**	
LR chi²	**368.5**		**91.14**			
Wald chi²					**442.6**	
			4428		3924	
	47178				33032	

233

Table 6.14 (continued)

Variable	(4) Random effects probit Coefficient	p-value	(5) Random effects probit Coefficient	p-value
Over-optimism *t-1*	0.2464	*0.000*	0.2490	*0.000*
Interaction:				
Self-employed*Financial over-optimism (t-1)	0.1447	*0.006*	0.1343	*0.010*
Demographics (reference category: male and single)				
Age	0.0171	*0.002*	0.0170	*0.002*
Female	-0.0485	*0.011*	-0.0497	*0.010*
Married	0.0833	0.145	0.0861	0.126
Couple	0.0553	0.309	0.0575	0.285
Widowed/divorced/separated	0.0912	0.195	0.0892	0.202
Educational Attainment: (reference category: no qualifications				
University	-0.0952	*0.005*	-0.1076	*0.001*
HND/HNC	-0.0319	0.416	-0.0494	0.205
A-Level	-0.0261	0.400	-0.0400	0.193
O-Level/GCSE's	0.0080	0.768	-0.0025	0.925
Housing Tenure (reference category: own with mortgage)				
Outright Owner	-0.0298	0.428		
Renter - social landlord	-0.0287	0.631		
Renter - private landlord	0.0075	0.883		
County Specific Factors				
County level Δ real house prices	0.0006	0.363	0.0004	0.359
County level unemployment	0.0378	*0.000*	0.0375	*0.000*
Generalised residual from initial conditions probit	0.0661	*0.000*	0.0657	*0.000*
Log-Likelihood	-18711.9		-18767.7	
LR (ρ = 0) chi²	*216.1*		*230.5*	
LR chi²				
Wald chi²	*451.0*		*393.5*	
N	3924		3924	
NT	33032		33089	

Note: Columns (2), (3), (4) and (5) include time-means of time-varying covariates to allow for correlation between time-varying covariates and unobserved heterogeneity. The coefficient and p-values of these time-varying coefficients are presented in the Appendix (Table A6.4). *Italic* indicates significance level (p-value) below 0.10, ***bold italic*** below 0.05

CHAPTER 7

CONCLUSION

The empirical evidence presented in this thesis has documented findings which contribute to and extend the previous literature on self-employment. Overall, the evidence confirms that individuals who participate in self-employment are conceptually different from those in paid-employment, whether it be through entrepreneurial backgrounds or psychological traits such as unrealistic optimism or risk attitudes. However, the research also investigates other issues which have been relatively neglected within the literature such as motivations for entry into self-employment, regional disparities, gender variations and duration in self-employment. This chapter highlights and uses the key results from each of the preceding empirical chapters to develop overall conclusions, focusing particularly on issues that feature throughout and across various empirical chapters.

Throughout the thesis, regional variations in self-employment have been a major theme. The descriptive analysis undertaken in Chapter 3 highlighted large variations in self-employment rates across the UK and within Welsh Unitary regions. Within the UK self-employment rates clearly reflect a north-south divide; these regional disparities seem to be the product of the regional labour and housing markets with northern regions being characterised by low-pay, low levels of housing wealth, high unemployment and low levels of self-employment, and southern regions characterised by higher pay, higher levels of housing wealth, lower levels of unemployment and relatively higher levels of self-employment. The relationship between unemployment and self-employment is analysed further within Chapter 4. The results suggest that 3 per cent of the sample in the LFS between 1999-2001 indicated that a lack of available jobs was a motivation behind their transition into self-employment. Whilst this figure seems small it important to note that the UK unemployment rate averaged around 6 per cent over the

time period. Furthermore, regions that were characterised by higher levels of unemployment over the period, such as Wales and the North East, had higher propensities to cite the 'availability of jobs locally' as a motivating factor.

Chapter 4 also revealed that motivations to enter self-employment vary considerably throughout UK regions. More specifically the emergence of a north-south divide in stated motivations for entry in self-employment is found, which may provide original insights into explaining the observed north-south divide in self-employment rates across the UK. In particular, we suggest that these variations in self-employment rates may be to an extent attributable to the industry type or occupational structure, such that southern regions appear to have a higher proportion of occupations in which the transition into self-employment is a more natural progression. Subsequently, this may affect the success of policy measures designed to close the gap in self-employment rates between southern and northern regions, such that occupational structures and attitudes towards self-employment may not be susceptible to policy measures.

Within Welsh unitary regions the variations in self-employments rates appear to be less clear cut (Chapter 3). While unitary authority level variations exist, there seems to be a strong rural/urban dimension. More specifically, Welsh rural locations are characterised by high levels of self-employment and low pay whilst Urban Wales has significantly lower levels of self-employment and higher wages. However, a large proportion of this variation can be explained by agriculture; in particular, in Powys, Anglesey and Carmarthenshire, self-employment in agriculture accounts for approximately 37, 25 and 24 per cent of those in self-employment. Consequently controlling for agriculture may give a better indication of regional levels of entrepreneurial activity within Wales.

Within Wales as a whole there seems to exist a belief that the younger generation view entrepreneurship less positively than their counterparts elsewhere in the UK (GEM 2007). Within Chapter 5 this issue is explored using decomposition methods to examine whether differences in entrepreneurial intention probabilities between Welsh-domiciled and non-Welsh domiciled students can be explained by a range of individual-specific factors. The initial results suggested that a rather lower proportion of Welsh-domiciled students indicated entrepreneurial intent compared to students from Europe. In particular, 51.3 per cent of Non-Europeans respondents reported entrepreneurial intent, compared to 37.0 per cent of Europeans, 25.7 per cent of Welsh respondents and 23.6 per cent of other UK respondents. We find differences in the average characteristics of non-Welsh and Welsh students explain over 80 per cent of the 8.7 per cent gap between the entrepreneurial intentions between these two groups. The significant components of the explained gap are gender (15 per cent), father's background as an entrepreneur (10 per cent), joint parental background as an entrepreneur (12 per cent), and experience of training in entrepreneurship (9 per cent). However, by far the most important component of the gap is attitude toward risk (32 per cent), with Welsh students on average reporting a more risk averse attitude. However the initial results on entrepreneurial intent between the four groups of domiciled students suggest the issue here seems to be more a difference between British and other nationalities rather than Welsh–domiciled students being less entrepreneurial. In answering this question the previous decomposition analysis is repeated for British-domiciled students against non-British students. In this model the gap in entrepreneurial intentions between the two groups of students is 16.1 percent. Of this gap, 82.2 percent can be explained by the model and the choice of explanatory variables. Of particular interest again is the variations in levels of risk aversion between the two groups, more specifically over 20 percent of the variation can be explained by the risk averse nature of British students. These results provide some support

that UK-domiciled students may be at a disadvantage, in the sense that within the UK there appears to be an ingrained cultural fear of risk taking and failure. However, given the findings within Chapter 6, this may not necessarily be a bad thing. In addition, Welsh-domiciled students may be at a disadvantage in the sense they have fewer parents who are running or were currently running their own business. It is not easy to identify how public policy can effect changes in this regard. Wales therefore, may to some extent bear the consequence of a historical reliance on large scale heavy industry, such that well paid stable opportunities were available to the parents and grandparents of the current generation. Public policy which aims to promote entrepreneurial role models may have some benefit in overcoming a lack of parental background among young people in Wales. Programmes such as Go Wales[90], which allow students to gain experience in a small business venture are also important; they may simultaneously allow students to acquire skills 'on-the-job', as well as exposure to positive role models.

Despite its fundamental interest and importance, female entrepreneurship has been largely neglected in the prior relevant literature, consequently little is known why precisely there are lower levels of entrepreneurial intent and actual participation in entrepreneurship among females as opposed to males. The subject of female entrepreneurship has been a major theme throughout the empirical chapters in this thesis. Within Chapter 5 entrepreneurial intentions of male and female students were analysed, the results proving consistent with other studies, that is, the entrepreneurial intent of females students is lower than for their male counterparts. More specifically, over 40 per cent of males expressed entrepreneurial intent compared to just 24 per cent of women. In the decomposition model the gender gap in entrepreneurial intent is 16.2 per cent, of this gap, 66.8 per cent (10.8 percentage points) can be explained by the

---

[90] For reference to the 'Go Wales' initiative see: **http://www.gowales.co.uk**

model and the choice of explanatory variables. Summing up the total contribution of risk, this explains nearly half of the total gap in intentions. Thus if female students were the same in their attitudes towards financial risk as their male counterparts, the entrepreneurial intentions gap of over 16 percent would be reduced to around 8 percent. In addition, Chapter 6 provides evidence that females are less likely than males to be unrealistically optimistic, which may again contribute to the observed variations in self-employment participation across gender. It is however, difficult to separate risk completely from optimism, since evidence suggests entrepreneurs construe the same business stimuli more positively that non-entrepreneurs (Palich and Bagby 1995). However, these results suggest female participation in self-employment may be subject to innate psychological traits. In the current media frenzy surrounding excessive risk-taking, policy needs to be carefully designed to encourage females to be more positive about the risks and the rewards associated with entrepreneurship.

This thesis also presents evidence that females are motivated to transition into self-employment for different reasons than males (Chapter 4). In particular, 22 per cent of women cite 'family commitments' as a reason for choosing self-employment, compared with only 2 per cent of men. Females are also significantly less likely to cite pecuniary rewards. Accordingly it appears self-employment for women is far more likely to be framed in a broader quality of life terms, than in terms of a narrow pecuniary advantage. Chapter 4 also reveals that motivations for choosing self-employment are highly multidimensional, with significant differences in the patterns of responses for certain groups. More educated individuals appear to view self-employment in more positive terms, offering independence and financial rewards, as well as better working conditions. The least educated individuals are the most likely to indicate that their choice of self-employment arose from a lack of alternative employment opportunity. They are also the most likely to indicate that the reason

for choosing self-employment was in order to join a family business. This is a rather worrying finding, since it may indicate that for some individuals the incentive to acquire qualifications and skill is severely impeded; such businesses may therefore perform poorly because of a lack of appreciation of the vale and education and skills. Family run businesses may correspondingly be significantly less likely to employ good management practices.

What is clear from these results is that public policy measures aimed at stimulating self-employment must cater for the heterogeneous groups of individuals that transition into self-employment. In particular, public policy measures should include programmes to develop entrepreneurial skills for those individuals with low levels of formal education, in order to make the decision to enter into self-employment a positive career choice as opposed to a last viable alternative. Similarly the importance of the 'work-family' balance must surely be of interest to policy makers in stimulating female entrepreneurship. However, given that a large proportion of the sample are self-employed as a natural progression from their previous occupation and or for lifestyle consideration, policy makers should be aware of the limits of policy influence in promoting self-employment.

The analysis of data from the BHPS in Chapter 6 reports that alongside positive risk attitudes discussed in Chapter 5, unrealistic optimism is a factor in shaping entrepreneurial intention as well as labour force status. In particular our results suggest that employees with entrepreneurial aspirations and those already classified as self-employed are more likely to forecast better financial outcomes and experience worse realisations. Subsequent analysis reveals that unrealistic optimism is associated with poor quality entrants resulting in higher rates of exit from self-employment. More specifically, of the 822 transitions into self-employment observed in the time frame, 359 (43 per cent) left self-employment less than 1

period (1 year) after making the initial transition. These individuals tended to be the most unrealistically optimistic about their financial future. Given the state of the financial markets today, with particular focus on credit rationing, policy objectives should aim to dampen optimism, hopefully resulting in fewer but higher quality transitions into self-employment. In addition Chapter 6 presents evidence that unrealistic optimism is persistent, especially for the self-employed. These results imply that individuals do not seem to learn from past failures; perhaps past successes inflate optimism and counteract past failures which individuals blame on external forces outside their control. These results have certain implications, in particular, individuals may be overinvesting in self-employment which in turn may contribute to credit rationing.[91]

The analysis in this thesis is not without limitation and many of the issues were drawn out during the individual chapters. One overarching limitation of the analysis employed throughout the thesis is the measure of self-employment. The self-employed are an incongruent group, ranging from innovative entrepreneurs, to destitute workers unable to find work in the conventional employee labour market. However within this thesis, employers, sub-contractors and sole traders are treated alike. Chapter 4 highlights these issues, reporting that motivations are highly multidimensional between self-employed employers and solo-traders. The same limitation can be advanced for Chapter 6: it is highly plausible that the high rates of business failure observed may be down to short-term ventures by sole traders, conversely it is likely that employers would not be as prone to business failure due to the strict nature of banks when sanctioning loans for larger more capital intensive business ventures. Further research should aim to separate the self-employed, looking in particular at

---

[91] However as previously noted the choice of covariates included as having potential association with unrealistic optimism was limited by the lack of prior research. Further research should seek to investigate the effects of net housing wealth and various other household effects upon forecast errors. In particular a working spouse may allow individuals to consider riskier financial options.

the differences in characteristics between the groups as well as their duration and relative success in self-employment. In addition transitioning into self-employment is clearly not the same process for all individuals. While some individual may enter self-employment from a relatively stable position in paid-employment for others the transition may be from a relatively more desperate economic situation. Clearly these factors are likely to influence the motivations for entry into self-employment. This point is touched upon in the analysis within Chapter 4, regarding 'forced' entry into self-employment. However further research should aim to measure the duration, contribution to employment and sustainability of ventures undertaken by individuals from various labour force states.

BIBLIOGRAPHY

Acs, Z.J., D.B. Audretsch and D.S. Evans (1994), The Determinants of Variations in Self-Employment Rates Across Countries and Over Time, Centre for Economic Policy Research, London School of Economics, Discussion Paper No.871.

Acs, Z.J. (2006), How is Entrepreneurship Good for Economic Growth? *Innovations: Technology, Governance, Globalization*, 1(1): 97-107.

Acs, Z.J. The Geographic Concentration of New Firm Formation and Human Capital: Evidence from the Cities, Working Papers 03-05, Centre for Economic Studies, U.S. Census Bureau.

Ajzen, I. (1991), The Theory of Planned Behaviour, *Organizational Behaviour and Human Decision Processes*, 50:179-211.

Akerlof, G. and W.T. Dickens (1982), The Economic Consequences of Cognitive Dissonance, *The American Economic Review*, 72(3): 307-319.

Arai, B. (1997), The Road Not Taken: The Transition from Unemployment to Self-Employment in Canada, 1961-1994, *Canadian Journal of Sociology*, 22(3): 365-382.

Arabsheibani, G., De Meza, D., Maloney, J. and B. Pearson (2000), And a Vision Appeared Unto them of a Great Profit: Evidence of Self-Deception Among the Self-Employed, *Economics Letters*, 67(1): 35-41.

Arch, E. (1993), Risk-Taking: A Motivational Basis for Sex Differences, *Psychological reports*, 73(3): 6-11.

Armington, C. and Z.J. Acs (2002), The Determinants of Regional Variation in New Firm Formation, *Regional Studies*, 36(1): 33-45.

Aronson, R.L. (1991), *Self-Employment: A Labour Market Perspective*, Ithaca, NY, ILR Press.

Arulampalam, W., A.L. Booth and M.P. Taylor (2000), Unemployment Persistence, *Oxford Economic Papers*, 52: 24-50.

Ashcroft, B.K. and Love, J.H. (1996), Firm births and employment change in British counties, *Papers in Regional Science*, 75(4): 1-18.

Astebro, T. (2007), Entrepreneurship and Finance, Presentation at the 3rd ESRC and SBS Seminar, University of Warwick, June 25.

Audretsch, D.B. (2007), Entrepreneurship capital and economic growth, *Oxford Review of Economic Policy*, 23(1): 63–78.

Audretsch, D.B. and Z.J. Acs (1994), New Firm Start-Ups, Technology and Macroeconomic Fluctuations, *Small Business Economics*, 6: 439-449.

Audretsch, D. and M. Fritsch (1994), The Geography of Firm Births in Germany, *Regional Studies*, 28(4): 359-365.

Bandura, A. (1986), Social Foundations of Thought and Action: A Social Cognitive Theory, Prentice Hall, Englewood Cliffs.

Barber, B.M. and T. Odean (2000), Trading is Hazardous to your Wealth: The Common Stock Investment Performance of Individual Investors, *Journal of Finance*, 55: 773–806.

Barber, B.M. and T. Odean (2001), Boys will be Boys: Gender, Overconfidence, and Common Stock Investment, *Quarterly Journal of Economics*, 116: 261–292.

Bar-Gill, O. (2005), The Evolution and Persistence of Optimism in Litigation, *The Journal of Law, Economics, and Organization*, 22(2): 490-507.

Bates, T. (1995), Self-Employment Entry Across Industry Groups, *Journal of Business Venturing*, 10: 143-156.

Baum, R.J., Olian, J.D., Erez, M., Schnell, E.R., Smith, K.G., Sims, H.P., Scully, J.S. and K.A. Smith (1993), Nationality and Work Role Interactions: A Cultural Contrast of Israeli and U.S. Entrepreneurs' Versus Managers' Needs, *Journal of Business Venturing*, Elsevier, 8(6): 499-512.

Baycan-Levent, T., Masurel, E. and P. Nijkamp (2006), Gender Differences in Ethnic Entrepreneurship, *International Journal of Entrepreneurship and Innovation Management*, 6(3): 173-190.

Bernardo, A.E. and I. Welch (2001), On the Evolution of Overconfidence and Entrepreneurs, *Yale Cowles Foundation*, Discussion Paper No. 1307.

Bernhardt, I. (1994), A Comparative Advantage in Self-Employment and Paid Work, *Canadian Journal of Economics*, 27(2): 273-289.

Bhola, R., Verheul, I., Grilo, I., and A.R. Thurik (2006), *Explaining Engagement Levels of Opportunity and Necessity Entrepreneurs*. Research Report H200610. Zoetermeer: EIM Business and Policy Research.

Birley, S. and Westhead, P. (1994), A Taxonomy of Business Start-Up Reasons and their Impact on Firm Growth and Size, *Journal of Business Venturing*, 9:7-31.

Black, J., D. de Meza and D.Jeffreys (1996), House Prices, the Supply of Collateral and the Enterprise Economy, *Economic Journal*, 106(434): 60-75.

Blanchflower, D.G. (2000), Self-employment in OECD countries, *Labour Economics*, 7(5): 471-505.

Blanchflower, D.G. and Meyer, B.D. (1994), A longitudinal analysis of the young self-employed in Australia and the United States, *Small Business Economics*, 6(1): 1-19.

Blanchflower, D.G., Oswald, A., and Stutzer, A. (2001), Latent Entrepreneurship Across Nations, *European Economic Review,* 45: 680-691.

Blanchflower, D.G., Oswald, A.J. (1990), Self-Employment and the Enterprise Culture, *British Social Attitudes: The 1990 Report,* edited by Jowell, R.,Witherspoon, S., Jowell, R.,Gower Press, Aldershot.

Blanchflower, D.G. and A.J. Oswald (1998), What Makes an Entrepreneur? *Journal of Labour Economics,* 16(1): 26-60.

Blinder, A. (1973), Wage Discrimination: Reduced Form and Structural Estimates, *Journal of Human Resources,* 8: 436-455.

Block, J. and S. Philipp (2006), *The Effect of Motivation on Self-Employment Duration in Germany: Necessity Versus Opportunity Entrepreneurs, Unpublished.*

Blume, L. (2006), Local Economic Policies as Determinants of the Local Business Climate: Empirical Results from a Cross-section Analysis among East German Municipalities, *Regional Studies,* 40(4): 321-333.

Boden, R (1999), Flexible Working Hours, Family Responsibilities, and Female Self-Employment: Gender Differences in Self-Employment Selection, *American Journal of Economics and Sociology,* 58(1): 71-83.

Bogenhold, D. and U. Staber (1991), The Decline and Rise of Self-Employment, *Work, Employment & Society,* 5(2): 223-239.

Boheim, R. and U. Muehlberger (2006), Dependent Forms of Self-Employment in the UK: Identifying Workers on the Border between Employment and Self-Employment, Vienna University, Department of Economics Working Paper No.91.

Borooah, V.K. and M. Hart (1999), Factors Affecting Self-Employment Among Indian and Black Caribbean men in Britain, *Small Business Economics,* 13:111-29.

Borjas, G.J. (1986), The Self-Employment Experience of Immigrants, *Journal of Human Resources,* 21: 485-506.

Bosma, N., Jones, K., Autio, E. and J. Levie (2008): Global Entrepreneurship Monitor, 2007 Executive Report.

Boyd, R.L. (1990), Black and Asian Self-Employment in Large Metropolitan Areas: A Comparative Analysis, *Social Problems,* 37: 258-269.

Brindley, C. (2005), Barriers to Women Achieving their Entrepreneurial Potential: Women and Risk, *International Journal of Entrepreneurial behaviour and Research,* 11(2): 144-161.

British Household Panel Survey, Questionnaire Overview, Available at: http://qb.soc.surrey.ac.uk/surveys/bhps/bhpsintro.htm.

Brixy, U. and R. Grotz (2006), Regional Patterns and Determinants of New Firm Formation and Survival in Western Germany, *IAB Discussion Paper*, No.5/2006.

Brockhaus, R.H. (1980), Risk Taking Propensity of Entrepreneurs, *Academy of Management Journal*, 23(3): 509-520.

Brown, S., Garino, G., Taylor, K.B. and S.W. Price (2005), Debt and Financial Expectations: An Individual- and Household-Level Analysis, *Economic Inquiry*, 43(1): 100 -120.

Brown, S. and K. Taylor (2006), Financial Expectations, Consumption and Saving: A Microeconomic Analysis, *Fiscal Studies*, 27(3): 313–338.

Burchell, B., S. Deakin and S. Honey (1999), The Employment Status of Individuals in Non-Standard Employment, DTI Report, 1999, URN 98/943.

Busenitz, L.W. and J.B. Barney (1997), Differences Between Entrepreneurs and Managers in Large Organizations: Biases and Heuristics in Strategic Decision-Making, *Journal of Business Venturing*, 12(1): 9–30.

Buttner, E.H. and. Moore, D.P (1997), Women's organizational exodus to entrepreneurship: self-reported motivations and correlates with success, *Journal of Small Business Management*, 35(1): 34-46.

Byrnes, J., Miller, D. and W. Schafer (1999), Gender Differences in Risk Taking: A Meta-Analysis, *Psychological Bulletin*, 125(3): 367-383.

Caliendo, F. and K.X.D. Huang (2007), Overconfidence and Consumption Over the Life Cycle, Department of Economics Vanderbilt University, Working Paper No. 07-W12.

Caliendo, M and A. Uhlendorff (2008), Self-Employment Dynamics, State Dependence and Cross-Mobility Patterns, *IZA Discussion Paper*, No. 3900.

Camerer, C. (1997), Progress in Behavioral Game Theory, *Journal of Economic Perspectives*, 11: 167–188.

Camerer, C. and D. Lovallo (1999), Overconfidence and Excess Entry: An Experimental Approach, *The American Economic Review*, 89(1): 306-318.

Cantillon, R. (1755), *Essai Sur la Nature du Commerce en General*, 1931 edn.,ed. and tran. By H. Higgs, London, Macmillan.

Cappellari, L. and S.P. Jenkins (2008), The Dynamics of Social Assistance Receipt: Measurement and Modelling Issues, with an Application to Britain, *IZA Discussion Paper*, No.3765.

Carrasco, R. (1999), Transitions to and from Self-Employment in Spain: An Empirical Analysis, *Oxford Bulletin of Economics and Statistics*, 61(3): 315-341.

Carroll, G.R. and Mosakowski, E. (1987), The Career Dynamics of Self-Employment, *Administrative Science Quarterly*, 32: 570-589.

Carter, N.M., Gartner, W.B., and Reynolds, P.D. (1996), Exploring Start-Up Sequences, *Journal of Business Venturing,* 11:151-166.

Carter, N.M., Gartner, W.B., Shaver, K.G. and Gatewood, E.J. (2003), The Career Reasons of Nascent Entrepreneurs, *Journal of Business Venturing*, 18(1): 13-39.

Carter, S.L. and Anderson, S. and E. Shaw (2003): Women's Business Ownership: A Review of the Academic, Popular and Internet Literature. Technical Report. Department of Trade and Industry, London, United Kingdom.

Cassar, G. (2008), Are Individuals Entering Self-Employment Overly-Optimistic? An Empirical Tests of Plans and projections on Nascent Entrepreneur Expectations, Available at http://ssrn.com/abstract=945206

Casson, M. (2003), *The Entrepreneur: An Economic Theory,* 2nd edn. Cheltenham, Edward Elgar.

Clark, K. and S. Drinkwater (2000), Pushed Out or Pulled in? Self-Employment Among Ethnic Minorities in England and Wales, *Labour Economics*, 7(5): 603-628.

Cooper, S.Y. and Lucas, W.A. (2006), Developing entrepreneurial self-efficacy and intentions: lessons from two programmes, *unpublished paper*, Hunter Centre for Entrepreneurship, University of Strathclyde.

Cooper, A.C., C.Y. Woo and W.C. Dunkelberg (1988), Entrepreneurs' Perceived Chances for Success, *Journal of Business Venturing*, Elsevier, 3(2): 97-108.

Cooper, S. (2006), Knowledge and Expertise for High-Technology Entrepreneurship: a Tale of Two Sectors, *International Journal of Knowledge Management Studies*, 1(1/2): 59-78.

Cowling, M. and Mitchell, P. (1997), The evolution of UK self-employment: a study of government policy and the role of the macro-economy, *The Manchester School*, 65(4): 427-442.

Cowling, M. and M. Taylor (2001), Entrepreneurial Women and Men: Two Different Species? *Small Business Economics*, 16(3): 167-175.

Crant, M. (1996), The Proactive Personality Scale as a Predictor of Entrepreneurial Intentions, *Journal of Small Business Management*, 34(3): 42-49.

Curran, J., Burrows, P. (1988), Enterprise in Britain: A National Profile of Small Business Owners and the Self-Employed, Small Business Research Trust.

Curran, J. and R. Burrows (1989), National Profiles of the Self-Employed, *Employment Gazette*, 97: 376-385.

Daly, M (1987), Lifespan of Businesses Registered for VAT, *British Business*, 3 April, pp 28-29.

Davidsson, P. (1995), Culture, Structure and Regional Levels of Entrepreneurship, *Entrepreneurship and Regional Development*, 7:41-62

Davidsson, P., L. Lindmark and C. Olofsson (1994), New Firm Formation and Regional Development in Sweden, *Regional Studies*, 28(4): 395-410.

Dawson, C., A. Henley & P. Latreille (2009)."Why Do Individuals Choose Self-Employment?" *IZA Discussion Paper*, No. 3974.

Deaves, R., E. Luders and M. Schroder (2005), The Dynamics of Overconfidence: Evidence from Stock Market Forecasters. Working Paper.

De Bondt, W.F.M and R.H. Thaler (1995), Financial Decision Making in Markets and Firms: A Behavioural Perspective, in (R. Jarrow *et al..*, eds.) Handbooks in Operations Research and Management Science, Vol. 9, Ch.13, 385–410, Amsterdam: Elsevier Science.

Delmar, F. and Davidsson, P., (2000), Where do they come from? Prevalence and characteristics of nascent entrepreneurs. *Entrepreneurship and Regional Development*, 12:1-23.

De Meza, D. and C. Southey (1996), The Borrower's Curse: Optimism, Finance and Entrepreneurship, *The Economic Journal*, 106(435): 375-386.

De Meza, D. (2002), Overlending? *The Economic Journal*, 112(477): 17-31.

Dennis, J. (1996), Self-Employment: When Nothing Else is Available? *Journal of Labour Research*, 17(4): 645-661.

Department for Business, Enterprise and Regulatory Reform (2006), Annual Survey of Small Business Opinions, Available at http://www.berr.gov.uk/files/file42727.doc.

Department for Business, Enterprise and Regulatory Reform (2008), Enterprise: Unlocking the UK's Talent, Available at http://www.berr.gov.uk/files/file44992.pdf.

De Wit, G. and F.A.A.M. Van Winden (1990), An Empirical Analysis of Self-Employment in the Netherlands, *Economic Letters*, 32(1): 97-100.

Dittrich, D., W. Guth and B. Maciejovsky (2001), Overconfidence in Investment Decisions: An Experimental Approach, *CESifo Working Paper*, No. 626.

Dolton, P.J. and G.H. Makepeace (1990), Self-Employment Among Graduates, *Bulletin of Economic Research*, 42(1): 35-53

Dorsett, R. (1999), An Econometric Analysis of Smoking Prevalence among Lone Mothers, *Journal of Health Economics*, 18: 429-441.

Douglas, E. J., and D.A. Shepherd (2002), Self-Employment as a Career Choice: Attitudes, Entrepreneurial Intentions, and Utility Maximization, *Entrepreneurship Theory & Practice*, 26(3): 81–90.

Dunn, T. and D. Holtz-Eakin (2000), Financial Capital, Human Capital and the Transition to Self-Employment: Evidence from Intergenerational Links, *Journal of Labour Economics*, 18: 282:305.

Dunne, T., Roberts, M. and L. Samuelson (1988), Patterns of Firm Entry and Exit in U.S. Manufacturing Industries, *Rand Journal of Economics,* 19(4): 495–515.

Dunne, T., Roberts, M. and L. Samuelson (1989a), The Growth and Failure of U.S. Manufacturing Plants, *Quarterly Journal of Economics,* 104(4): 671–688.

Dunne, T., Roberts, M. and L. Samuelson (1989b), Firm Entry and Post Entry Performance in the U.S. Chemical Industries, *Journal of Law and Economics,* 32(2): 5233–5272.

Earle, J.S. and Z. Sakova (2000), Business Start-ups or Disguised Unemployment? Evidence on the Nature of Self-Employment from Transition Economies, *Labour Economics,* 7(5): 575-601.

Earle, J.S. and Z. Sakova (2000), Business Start-ups or Disguised Unemployment? Evidence on the Character of Self-employment from Transition Economies, *Labour Economics*, 7(5): 575-601.

European Commission Flash Barometer 192, Entrepreneurship Survey of EU (25 Member States) United States, Iceland and Norway: Analytical Report April 2007 accessible at http://ec.europa.eu.

Evans D.S. and L.S. Leighton (1987), The Effects of Demographic and Industry Changes on U.S. Self-Employment, Working Papers 87-34, C.V. Starr Center for Applied Economics, New York University.

Evans D.S. and L.S. Leighton (1989b), Some Empirical Aspects of Entrepreneurship, *The American Economic Review*, 79(3): 519-535.

Fairlie, R. (2005), An Extension of the Blinder-Oaxaca Decomposition Technique to Logit and Probit Models, *Journal of Economic and Social Measurement*, 30(4): 305-316.

Fairlie, R.W. and B.D. Meyer (1996), Ethnic and Racial Self-Employment: Differences and Possible Explanations, *Journal of Human Resources*, 35: 643-669.

Feldman, M.P. (2001), The Entrepreneurial Event Revisited: Firm Formation in a Regional Context, *Industrial and Corporate Change*, 10(4): 861-891.

Fini, R., Grimaldi, R., Marzocchi, G.L. and M. Sobrero (2009), The Foundation of Entrepreneurial Intention, Working Paper, Available at: http://ssrn.com/abstract=1313225.

Fleming, P. (1994), The Role of Structured Interventions in Shaping Graduate Entrepreneurship, *Irish Business Administrative Research*, 15: 146-164.

Foo, M.D., Wong, P.K. and A. Ong (2005), Do Others Think You Have a Viable Business Idea? Team Diversity and Judges' Evaluation of Ideas in a Business Plan Competition, *Journal of Business Venturing*, 20(3): 385-402.

Forbes, D.P. (2005), Are some Entrepreneurs more Overconfident than Others? *Journal of Business Venturing*, 20: 623-640.

Foreman-Peck, J.S. (1985), The Comparative Efficiency of Public and Private Enterprise in Britain: Electricity Generation between the World Wars, *Economic Journal*, **95**, (380a): 83-95.

Franke, N. and Lüthje (2004), Entrepreneurial Intentions of Business Students: A Benchmarking Study, *International Journal of Innovation and Technology Management*, 1(3): 269-288.

Fraser, S. and F.J. Greene (2006), The Effects of Experience on Entrepreneurial Optimism and Uncertainty, *Economica*, 73(290): 169-192.

Frey, B. and M. Benz (2003), Being Independent is a Great Thing: Subjective Evaluations of Self-Employment and Hierarchy, *CESifo Working Paper*, No. 959, Munich.

Fritsch, M. (1992), Regional Differences in New Firm Formation: Evidence from West Germany, *Regional Studies*, 26(3): 233-241.

Fueglistaller, U, Klandt, H. and Halter, F (2006), International Survey on Collegiate Entrepreneurship 2006, University of St. Gallen (HSG) and European Business School (ebs).

Gartner, W.B. (1985), A Conceptual Framework for Describing the Phenomenon of New Venture Creation, *Academy of Management Review*, 10:696-706.

Gartner, W.B. and S.A. Shane (1995), Measuring Entrepreneurship Over Time, *Journal of Business Venturing*, 10: 283-301.

Gartner, W.B., Carter, N.M. and Reynolds, P.D. (2004), Business start-up activities in Gartner W.B., Shaver, K.G., Carter, N.M. and Reynolds, P.D. (eds.) *Handbook of Entrepreneurial Dynamics* (Sage: Thousand Oaks), 285-298.

Gatewood, E.J., Shaver, K.G. and Gartner W.B. (1995), A Longitudinal Study of Cognitive Factors Influencing Start-Up Behaviours and Success at Venture Creation, *Journal of Business Venturing*, 10:371-391.

Georgellis, Y. and H.J. Wall. (2000), What Makes a Region Entrepreneurial? Evidence from Britain, *Annals of Regional Science*, 34(3): 385-403.

Georgellis, Y., Sessions, J.G. and Tsitsianis, N. (2005), Windfalls, Wealth and the Transition to Self-Employment, *Small Business Economics*, 13(2):407-428.

Gervais, S. and T. Odean (2001), Learning to Be Overconfident, *The Review of Financial Studies*, 14(1): 1-27.

Gill, A.M. (1988), Choice of employment status and the wages of employees and the self-employed: some further evidence, *Journal of Applied Econometrics*, 3(3): 229-234.

Goddard, R.D. and H.J. Weihe (1992): Attitudes of MBA Students towards Entrepreneurship: A cross-cultural study, Paper presented at the Annual Eastern Michigan University Conference on Languages and Communication for World Business and the Professions.

Gomulka, J. and N. Stern (1990), The Employment of Married Women in the United Kingdom 1970–83, *Economica*, 57: 171–199.

Greene, W.H. (1997), Econometric Analysis (Third Edition), *Prentice Hall International Inc.*

Greenberg, J, (2007), Overconfidence and Optimism in Self-Employment, available at: http://ssrn.com/abstract=1273337.

Grilo, I., and A.R. Thurik (2008), Determinants of Entrepreneurial Engagement Levels in Europe and the US, *Industrial and Corporate Change*, forthcoming.

Guesnier, B. (1994), Regional Variations in New Firm Formation in France, *Regional Studies*, 28(4): 347-358.

Hamilton, B.H. (2000), Does Entrepreneurship Pay: An Empirical Analysis of the Returns of Self-Employment, *The Journal of Political Economy*, 108(3): 604-631.

Hamilton, R.T. (1989), Unemployment and business formation rates: reconciling time series and cross-section evidence, *Environment and Planning*, 21(2): 249-255.

Harding, R., Hart, M., Jones-Evans, D. and Levie, J. (2007), Global Entrepreneurship Monitor: United Kingdom 2007 Monitoring Report, London Business School.

Harris, P. and W. Middleton (1994), The Illusion of Control and Optimism About Health: On Being Less at Risk but no More in Control than Others. *British Journal of Social Psychology*, 33: 369-386.

Harrison, R.T. and M. Hart (1983), Factors Influencing New Business Formation: A Case Study of Northern Ireland, *Environment and Planning*, 15(10): 1395-1412.

Hart, M. and G. Gudgin (1994), Spatial Variations in New Firm Formation in the Republic of Ireland, 1980-1990, *Regional Studies*, 28(4): 367-380.

Hatton, T.S. and Ruhland, S.K. (1995), Student Attitudes towards Entrepreneurship as Affected by Participation in an SBI Program, *Journal of Education for Business*, 70(4): 224.

Harvey, M. (2003), The United Kingdom. Privatization, Fragmentation, and Inflexible Flexibilization in the UK Construction Industry. In: Bosch, G. and Philips, P.(eds.), *Building Chaos. An International Comparison of Deregulation in the Construction Industry*. London and New York: Routledge, pp. 188–209.

Heckman, J. (1979), Sample Selection Bias as a Specification Error, *Econometrica*, 47(1): 153-161.

Heckman, J.J. (1981a), Statistical Models for Discrete Panel Data, in C.F. Manski and D. McFadden (eds), Structural Analysis of Discrete Data with Econometric Applications, MIT press, Cambridge, MA, 114-78.

Heckman, J.J. (1981b), Heterogeneity and State Dependence, in S. Rosen (ed.), Studies in Labour Markets, Chicago Press, Chicago, IL.

Heckman, J.J. (1981c), The Incidental Parameters Problem and the Problem of Initial Conditions in Estimating a Discrete time-discrete data stochastic process, in C.F. Manski and D. McFadden (eds), Structural Analysis of Discrete Data with Econometric Applications, MIT press, Cambridge, MA, 114-78.

Henley, A. (2004), Self-employment status: the role of state dependence and initial conditions, *Small Business Economics* 22(1): 67-82.

Henley, A. (2007), Entrepreneurial aspiration and transition into self-employment: evidence from British longitudinal data, *Entrepreneurship and Regional Development*, 19(3): 253-280

Henley, A., C. De Cock, P. Latreille, C. Dawson & I. Humphreys (2009). "Entrepreneurial Aspirations and Activity amongst Students: A Comparative Study for Wales," Final Report to the Welsh Assembly Government. Available at:
http://www.swan.ac.uk/sbe/People/decockc/Student%20Entrepreneurial%20Aspirations%20-%20WAG%20Report%202008.pdf

Hessels, J., Van Gelderen, M. and R. Thurik (2008), Entrepreneurial Aspirations, Motivations, and their Drivers, *Small Business Economics*, 31: 323-339.

Hey, J.D. (1984), The Economics of Optimism and Pessimism – A Definition and some Applications, *Kyklos*, 37(2): 181-205.

Hinz, T. and M. Jungbauer-Gans (1999), Starting a Business after Unemployment: Characteristics and Chances of Success (Empirical evidence from a regional German labour market), *Entrepreneurship and Regional Development*, 11(4): 317-333.

Hisrich, R. and C. Brush (1984), The Woman Entrepreneur: Management Skills and Business Problems, *Journal of Small Business Management*, 22(1): 30-7.

Hoffman, A., Junge, M. (2006) Documenting Data on High-growth Firms and Entrepreneurs across 17 countries, Available at:
http://www.foranet.dk/upload/documentation_of_high_growth_firms_oct_2006.pdf

Hofstede, G. (1980), Culture's Consequences: International Differences in Work-Related Values. London: Sage Publications.

Hofstede, G., N.G. Noorderhaven, A.R.M. Wennekers, L. Uhlaner, A.R. Thurik and R.E. Wildeman (2004): Culture's Role in Entrepreneurship: Self-Employment out of Dissatisfaction, Innovation, Entrepreneurship and Culture: The Interaction between Technology, Progress and Economic Growth, Cheltenham, UK and Brookfield, US: Edward Elgar, 162-203.

Holtz-Eakin, D., D. Joulfarian and H. S. Rosen (1994), Entrepreneurial Decisions and Liquidity Constraints, *RAND Journal of Economics*, 25: 334–347.

Hudson, J. (1987a), Company Births in Britain and the Institutional Environment, *International Small Business Journal, 6(1), 57-69.*

Hughes, K (2003), Pushed or Pulled? Women's Entry into Self-Employment and Small Business Ownership, *Gender, Work and Organization*, 10(4): 433-454.

Hughes, K (2006), Exploring Motivation and Success among Canadian Women Entrepreneurs, *Journal of Small Business and Entrepreneurship*, 19(2): 107-120.

Hytti, U., Paasio, K. and Pukkinen, T. (2005), Entrepreneurial Intentions of University Students and Graduates – a Finnish Perspective, *unpublished paper*, Turku School of Economics and Business Administration.

ILO (2003), *The Scope of the Employment Relationship.* Report V. International Labour Conference. 91st Session. Geneva. Available at http://www.ilo.org/public/english/standards/relm/ilc/ilc91/pdf/rep-v.pdf

Iversen, J., Jørgensen, R., Malchow-Møller, N. and B. Schjerning (2005), Defining and Measuring Entrepreneurship, *CEBR Discussion Paper*, No. 2005-17.

Jianakoplos, N. and A. Bernasek (1998), Are Women more Risk Averse? *Economic Inquiry*, 36(4): 620-630.

Johannisson, B. (1984.), A Cultural Perspective on Small Business Local Climate, *International Small Business Journal,* 2(2): 32-43.

Johannisson, B. (1988), Business Formation - A Network Approach, *Scandinavian Journal of Management*, 4(3/4):83–99.

Johannisson, B. (1995a), Paradigms and Entrepreneurial Networks – Some Methodological Challenges, *Entrepreneurship and Regional Development*, 7(3): 215–232.

Johannisson, B. (1995b), Entrepreneurial Networking in the Scandinavian Context: Theoretical and Empirical Positioning, *Entrepreneurship and Regional Development*,7(3): 189–192.

Jones, D.R. and G.H. Makepeace (1996), Equal Worth, Equal Opportunities: Pay and Promotion in an Internal Labour Market, *The Economic Journal*, 106: 401-409.

Jones, F.L. (1983), On Decomposing the Wage Gap: A Critical Comment on Blinder's Method, Journal of Human Resources, 18(1): 126-130.

Jones, M.K. (2003), The Rural Labour Market: A Welsh Example, *Welsh Economy Labour Market Evaluation and Research Centre (WELMERC) discussion paper*, No. 2004-01.

Jones, M.K. and Latreille, P.L. (2006) Disability and Self-Employment: Evidence from the UK LFS, *Welsh Economy Labour Market Evaluation and Research Centre (WELMERC) discussion paper,* No. 2006-07.

Kangasharju, A. (2000), Regional Variations in Firm Formation: Panel and Cross-Section Data Evidence from Finland, *Papers in Regional Science,* 79: 355-373.

Kapteyn, A., Smith, J. and A. van Soest (2004), Self-Reported Work Disability in the U.S. and the Netherlands. Pub. no. WR-206, Rand Corporation, Santa Monica, CA.

Katz, J. (1990), Longitudinal Analysis of Self-Employment Follow-Through, *Entrepreneurship and Regional Development,* 2: 15-25.

Keeble, D and S. Walker (1994), New Firms, Small Firms and Dead Firms: Spatial Patterns and Determinants in the United Kingdom, *Regional Studies,* 28(4): 411-427.

Kepler, E. and S. Shane (2007), Are Male and Female Entrepreneurs Really that Different? *An Office of Advocacy Working Paper,* No.309.

Khwaja, A., Silverman, D., Sloan, F. and Y. Wang (2007), Smoking, Wealth Accumulation and the Propensity to Plan, *Economics Letters,* 94(1): 96-103.

Kidd, M. (1993), Immigrant Wage Differentials and the Role of Self Employment in Australia, *Australian Economics Papers,* 32(60): 92.

Kirkwood, J. (2007), Igniting the Entrepreneurial Spirit: Is the Role Parents Play Gendered? *International Journal of Entrepreneurial Behaviour and Research,* 13(1): 39-59.

Kim, P.H., Aldrich, H.E. and L.A. Keister (2003), If I were Rich? Financial and Human Capital's Impact on Becoming a Nascent Entrepreneur, Paper presented at the annual meeting of the American Sociological Association, Atlanta Hilton Hotel, Atlanta, GA, Aug 16, 2003.

Kirzner, I. (1973), *Competition and Entrepreneurship,* Chicago, University of Chicago Press.

Knight, F.H. (1921), *Risk, Uncertainty and Profit,* New York, Houghton-Mifflin.

Kolvereid, L. (1992), Growth Aspirations Among Norwegian Entrepreneurs, *Journal of Business Venturing,* 7: 209-222.

Kolvereid, L. (1996a), Organizational Employment Versus Self-Employment: Reasons for Career Choice Intentions, *Entrepreneurship Theory and Practice,* 20:23-31.

Kolvereid, L. (1996b), Prediction of Employment Status Choice Intentions, *Entrepreneurship Theory and Practice,* 21:47-57.

Kourilsky, M.L. and W.B. Walstad (1998), Entrepreneurship and Female Youth: Knowledge, Attitudes, Gender Differences, and Educational Practices, *Journal of Business Venturing,* 13(1): 77-88.

Kraaijenbrink, J. Bos, G. and Groen, A. (2007), Perceived and Desired University Support and Students' Entrepreneurial Intent and Behavior: A Study of Five ECIU Universities, *unpublished paper*, Netherlands Institute for Knowledge-Intensive Entrepreneurship, University of Twente.

Krueger, N.F. (1993), The Impact of Prior Entrepreneurial Exposure on Perceptions of New Venture Feasibility and Desirability, *Entrepreneurship Theory and Practice*, 18(1): 5-21.

Krueger, N.F., Reilly, M.D., and Carsrud, A.L. (2000), Competing Models of Entrepreneurial Intentions, *Journal of Business Venturing*, 15: 411-432.

Kuhn, P.J. and H.J. Schuetze (2001), Self-Employment Dynamics and Self-Employment Trends: A Study of Canadian Men and Women, 1982-1998, *Canadian Journal of Economics*, 34: 760-784.

Laferrère, A. and P. McEntee (1995), Self-Employment and Intergenerational Transfers of Physical and Human Capital: An Empirical Analysis of French Data, *The Economic and Social Review*, 27(1): 43-54.

Landier, A. amd D. Thesmar (2008), Financial Contracting with Optimistic Entrepreneurs, *The Review of Financial Studies*, 22(1): 117-150.

Landy, F.J. (1989), *Psychology of Work Behaviour*, 4th ed., Brooks/Cole Publishing Company, Pacific Grove, CA.

Le, A. (1999), Empirical Studies of Self-Employment. *Journal of Economic Surveys* 13:381-416.

Lee S.M. and S.J. Peterson (2000), Culture, Entrepreneurial Orientation, and Global Competitiveness, *Journal of World Business*, 35(4): 401-416.

Lee, S.Y., R. Florida and Z.J. Acs (2004), Creativity and Entrepreneurship: A Regional Analysis of New Firm Formation, *Regional Studies*, 38(8): 879-891.

Lentz, B.F. and D.N. Laband (1990), Entrepreneurial Success and Occupational Inheritance Among Proprietors, *Canadian Journal of Economics*, 23: 563-579.

Levent, T.B., E. Masurel and P. Nijkamp (2003), Gender Differences in Ethnic Entrepreneurship, 43rd European Congress, European Regional Science Association (ESRA).

Lin, Y -C., Lin, C -H. and P. Raghubir (2003a), Avoiding Anxiety, Being in Denial or Simply Stroking Self-Esteem: Why Self-Positivity? *Journal of Consumer Psychology*, 13:464-477.

Lin, C-H., Lin, Y -C. and P. Raghubir (2003b), The Interaction Between Order Effects and Perceived Controllability on the Self-Positivity Bias, *Advances in Consumer Research*, 31:523-529.

Lin, Y -C. and P. Raghubir (2005), Gender Differences in Unrealistic Optimism About Marriage and Divorce: Are Men More Optimistic and Women More Realistic? *Personality and Social Psychology Bulletin*, 31(2): 198-207.

Linan, F., Rodriguez-Cohard, J.C. and Rueda-Cantuche, J.M. (2005), Factors Affecting Entrepreneurial Intention Levels, paper presented to the 45th Congress of the European Regional Science Association, Amsterdam

Lindh, T. and H. Ohlsson (1996), Self-Employment and Windfall Gains: Evidence from the Swedish Lottery, *Economic Journal*, 106(439): 1515-1526.

Lipko, A.R., J. Dunlosky and W.E. Merriman (2009), Persistent Overconfidence Despite Practice: The Role of Task Experience in Preschoolers' Recall Predictions, *Journal of Experimental Child Psychology*, 103: 152-166.

Lloyd, P.E. and C.M Mason (1984), Spatial Variations in New Firm Formation in the United Kingdom: Comparative Evidence from Merseyside, Greater Manchester and South Hampshire, *Regional Studies*, 18(3): 207-220.

Lucas, R.E. (1978), On the Size Distribution of Business Firms, *Bell Journal of Economics*, 9: 508-523.

Lucas, W.A., Cooper, S.Y. and Rodriguez-Falcon, E.M. (2007), Entrepreneurial Alertness and the Recognition of Technology-Based Opportunity, *unpublished paper*, Cambridge-MIT Institute.

Mallette, H. and N. McGuinness (1999), Gender Differences in the Entrepreneurial Start-Up Process, *Working paper*, Mount Saint Vincent University.

Manove, M. (1995), Entrepreneurs, Optimism and the Competitive Edge, *UFAE and IAE Working Papers* 296.95, Unitat de Fonaments de l'Anàlisi Econòmica (UAB) and Institut d'Anàlisi Econòmica (CSIC).

Manove, M. and A.J. Padilla (1999), Banking (Conservatively) with Optimists, *RAND Journal of Economics*, 30(2): 324-350.

Marshall, A (1920), *Principles of economics*, 8th edn. Macmillan, London.

Masters, M. and R. Meier (1988), Sex Differences and Risk-Taking Propensity of Entrepreneurs, *Journal of Small Business Management*, 26.

Mata, J., Portugal, P. and P. Guimarães (1995), The Survival of New Plants: Start-Up Conditions and Post-Entry Evolution, *International Journal of Industrial Organization*, 13(4): 459-481.

Matthews, C.H. and S.B. Moser (1995), Family Background and Gender: Implications for Interest in Small Firm Ownership, *Entrepreneurship and Regional Development*, 7(4): 365-378.

Matthews, C.H. and S.B. Moser (1996), A Longitudinal Investigation of the Impact of Family Background and Gender on Interest in Small Firm Ownership, *Journal of Small Business Management*, 34(2): 29-43.

McClelland, D. C. (1961), *The Achieving Society*. Princeton: Van Nostrand.

McClelland, D. C. (1975), *Power: The Inner Experience*. New York: Irvington.

McClelland, E. and J. Swail (2005), Following the Pathway of Female Entrepreneurs: A Six-Country Investigation, *International Journal of Entrepreneurial Behaviour and Research*, 11(2): 84-107.

McKenna, F.P. (1993), It Won't Happen to me: Unrealistic Optimism or Illusion of Control, *British Journal of Psychology*, 84: 39-50.

Merkle, C. and M. Weber (2009), True Overconfidence – The Inability of Rational Information Processing to Account for Apparent Overconfidence, Available at SSRN: http://ssrn.com/abstract=1373675.

Minniti, M., Bygrave, W.D. and E. Autio (2005), *Global Entrepreneurship Monitor: 2005 Executive Report*. Babson College and London Business School.

Mischel, W. (1968), *Personality and Assessment*, Wiley, New York, NY.

Morris, M. and P. Lewis (1995), The Determinants of Entrepreneurial Activity, *European Journal of Marketing*, 29(7): 31-48.

Morris, J. and B. Wilkinson (1989), Divided Wales, Report produced for HTV, 2nd February 1989.

Moskowitz, T. J. and A. Vissing-Jorgensen (2002), The Returns to Entrepreneurial Investment: A Private Equity Premium Puzzle? *American Economic Review*, 92:745-778.

Muehlberger, U. (2004), *From Relational Employment to Relational Contracting. Theory and Evidence of Dependent Self-employment*. PhD Thesis. European University Institute.

Mueller, S.L. and M.C. Dato-On (2008), Gender-Role Orientation as a Determinant of Entrepreneurial Self-Efficacy, *Journal of Developmental Entrepreneurship*, 13(1): 3-20.

Mueller S.L. and A.S. Thomas (2001), Culture and Entrepreneurial Potential: A Nine Country Study of Locus of Control and Innovativeness, *Journal of Business Venturing*, 16(1): 51-75.

Mundlak, Y. (1978) On the pooling of time series and cross section data. *Econometrica*, 46, 69-85.

Naffziger D.W., J.S. Hornsby and D.F. Kuratko (1994), A Proposed Research Model of Entrepreneurial Motivation, *Entrepreneurship Theory and Practice*, 18(3): 29-42.

Niehans, J. (1997), Adam Smith and the Welfare Cost of Optimism, *History of Political Economy*, 29(2): 185-200.

Niosi, J. and T.G. Bas (2001), The Competencies of Regions: Canada's Clusters in Biotechnology, *Small Business Economics*, 17: 31-42.

Oaxaca, R. (1973), Male-Female Wage Differentials in Urban Labour Markets, *International Economic Review*, 14: 693-709;

Orme, C.D. (1997), The Initial Conditions Problem and Two-step Estimation in Discrete Panel Data Models, Mimeo, Department of Economics, University of Warwick, Coventry.

Orme, C.D. (2001), Two-step Inference in Dynamic Non-Linear Panel Data Models, School of Economic Studies, University of Manchester, U.K.

Parker, S. (2005), Explaining Regional Variations in Entrepreneurship as Multiple Equilibria, *Journal of Regional Science*, 45: 829-850.

Parker, S. and C. Van Praag (2006), The Entrepreneur's Mode of Entry: Business Takeover or New Venture Start? Available at SSRN: http://ssrn.com/abstract=937260.

Parker, S.C. (2004), The Economics of Self-Employment and Entrepreneurship, *Cambridge University Press:* Cambridge UK.

Parker, S.C. and Belghtar, Y. (2006), What Happens to Nascent Entrepreneurs? *Small Business Economics*, 27:81-101.

Parker, S.C. and Johnson, P. (1996), Spatial Variations in the Determinants and Effects of Firm Births and Deaths, *Regional Studies*, 30(7): 679-688.

Parker, S.C. and M. Robson (2004), Explaining International Variations in Self-Employment: Evidence from a Panel of OECD Countries, *Southern Economic Journal*, 71(2): 287-301.

Parker, S.C. (2006), New Agendas in the Economics of Entrepreneurship: Optimism, Education, Wealth and Entrepreneurship, Chapter prepared for Princeton University Press Volume based on AEA 2006 Special Session on Entrepreneurship.

Peterman, N.E. and Kennedy, J. (2003), Enterprise Education: Influencing Student's Perceptions of Entrepreneurship, *Entrepreneurship Theory and Practice*, 28(2): 129-144.

Puri, M. and D.T. Robinson (2006), Optimism and Economic Choice, *Journal of Financial Economics*, doi10.1016/j.jfineco.2006.09.003.

Pietrobelli, C., R. Rabellotti and M. Aquilina (2004), An Empirical Study of the Determinants of Self-Employment in Developing Countries, *Journal of International Development,* 16: 803-820.

Pylypchuk, Y. and T. M. Selden (2008), Discrete Choice Decomposition Analysis of Racial and Ethnic Differences in Children's Health Insurance Coverage, *Journal of Health Economics*, 27: 1109–1128.

Quinn, J.F. (1980), Labour-Force Participation Patterns of Elder Self-Employed Workers, *Social Security Bulletin*, 43: 17-28.

Ramayah, T. and Harun, Z. (2005), Entrepreneurial Intention Among the Students of Universiti Sains Malaysia, *International Journal of Management and Entrepreneurship*, 1(1): 8-20.

Rees, H. and Shah, A. (1986), An Empirical Analysis of Self-Employment in the UK, *Journal of Applied Econometrics*, 1(1): 95-108.

Renzulli, L.A., Aldrich, H. and J. Moody (2000), Family Matters: Gender, Networks, and Entrepreneurial Outcomes, *Social Forces*, 79(2): 523-546.

Reynolds, P.D. (1997), Who Starts New Firms? Preliminary Explorations of Firms-in-Gestation, *Small Business Economics*, 9:449-462.

Reynolds, P.D., Bygrave, W.D., Autio, E., Cox, L. and M. Hay (2002), *Global Entrepreneurship Monitor: 2002 Executive Report*. Kansas City, MO: Kauffman Centre for Entrepreneurial Leadership.

Reynolds, P.D. and Miller, B. (1992), New Firm Gestation: Conception, Birth and Implications for Research. *Journal of Business Venturing*, 7:405-417.

Reynolds, P., D.J. Storey and P. Westhead (1994), Cross-National Comparisons of the Variation in New Firm Formation Rates, *Regional Studies*, 28(4): 443-456.

Ritsila, J.J. (1999), Regional Differences in Environments for Enterprises, *Entrepreneurship and Regional Development*, 11: 187-202.

Robson, M.T. (1998a), Self-Employment in the UK Regions, *Applied Economics*, 30: 313-322.

Robson, M.T. (1998b), The Rise in Self-employment Amongst UK Males, *Small Business Economics*, 10(3); 199-212.

Rosen, S. (1981): The Economics of Superstars, *American Economic Review*, 71(5): 845–858.

Rotefoss, B. and Kolvereid, L. (2005), Aspiring, Nascent and Fledgling Entrepreneurs: an Investigation of the Business Start-Up Process, *Entrepreneurship and Regional Development*, 17:109-127.

Sartori, A (2003), An Estimator for Some Binary-Outcome Selection Models Without Exclusion Restrictions, *Political Analysis*, 11(2): 111-138.

Schere, J. (1982), *Tolerance of Ambiguity as a Discriminating Variable Between Entrepreneurs and Managers*. Paper presented at the Academy of Management Annual Meeting.

Schmitz, J.A, (1989), Imitation, Entrepreneurship and Long-Run Growth, *Journal of Political Economy*, 97: 721-39.

Schubert, R., Gysler, M., Brown, M. and H. Brachinger (2000), Gender Specific Attitudes Towards Risk and Ambiguity. An Experimental Investigation, Institut für Wirtschaftsforschung, Eidgenössische Technische Hochschule.

Schultz, T.W. (1975), The Value of the Ability to Deal with Disequilibria, *Journal of Economic Literature.* 13(3): 827–46.

Segal, G. Borgia, D. and Schoenfeld, J. (2005), The Motivation to Become an Entrepreneur, *International Journal of Entrepreneurial Behaviour and Research,* 11(1): 42-57

Sexton, D.L. and N. Bowman-Upton (1985), The Entrepreneur: A Capable Executive and More, *Journal of Business Venturing,* 1(3): 129-140.

Sexton, D.L. and N. Bowman-Upton (1990), Female and Male Entrepreneurs: Psychological Characteristics and their Role in Gender-Related Discrimination, *Journal of Business Venturing,* 5(1): 29-36.

Scott, M.G. and Twomey, D.F. (1988), The Long-Term Supply of Entrepreneurs: Students' Career Aspirations in Relation to Entrepreneurship, *Journal of Small Business Management,* 26(4): 5-13.

Shane, S., Kolvereid, L., and P. Westhead (1991), An Exploratory Examination of the Reasons Leading to New Firm Formation Across Country and Gender, *Journal of Business Venturing,* 6(6): 431-446.

Shane, S. (1996), Explaining Variation in Rates of Entrepreneurship in the United States: 1899-1988, *Journal of Management,* 22(5): 747-781.

Shane, S., Locke E.A. and C.J. Collins (2003), Entrepreneurial Motivation, Human Resource Management Review, 13: 257-279.
Shapero, A. (1982), Social Dimensions of Entrepreneurship in C. Kent, D. Sexton and K. Vesper, eds., *The Encyclopaedia of Entrepreneurship,* Prentice-Hall: Englewood Cliffs, 72-90.

Shaver, K.G. and L.R. Scott (1991), "Person, Process, Choice: The Psychology of New Venture Creation", *Entrepreneurship Theory and Practice,* 16 (2): 23-45.

Shook, C.L., Priem, R.L. and McGee, J.E. (2003), Venture Creation and the Enterprising Individual: A Review and Synthesis, *Journal of Management,* 29:379-399.

Simon, M., Houghton, S.M. and Aquino, K. (2000), Cognitive Biases, Risk Perception, and Venture Formation: How Individuals Decide to Start Companies. *Journal of Business Venturing,* 15: 113-134.

Smeaton, D (2003), Self-Employed Workers: Calling the Shots or Hesitant Independents? A Consideration of the Trends, *Work, Employment & Society,* 17(2): 379-391.

Souitaris, V., Zerbinati, S. and Al-Laham, A. (2007), Do Entrepreneurship Programmes Raise Entrepreneurial Intention of Science and Engineering Students? The Effect of Learning, Inspiration and Resources, *Journal of Business Venturing,* 22: 566-591.

Sousounis, P (2008), *State Dependence in Work-Related Training Participation among British Employees: A Comparison of Different Random Effects Probit Estimators,* Unpublished.

Staber, U. and D. Bognehold (1993), Self-Employment: a Study of Seventeen OECD Countries, *Industrial Relations Journal,* 24(2): 126-137.

Stanworth, J., Blythe, S., Granger, B. and Stanworth, C. (1989), Who Becomes an Entrepreneur? *International Small Business Journal,* 8: 11-22.

Storey, D.J. (1982), Entrepreneurship and the New Firm, Westport CT: Praeger Publishers.

Storey, D.J. (1991), The Birth of New Firms – Does Unemployment Matter? A Review of the Evidence, Small Business Economics, 3: 167-178.

Sutaria, V. and D.A. Hicks (2004), New Firm Formation: Dynamics and Determinants, *The Annuals of Regional Science,* 38:241-262.

Tamasy, C. (2006), Determinants of Regional Entrepreneurship Dynamics in Contemporary Germany: A Conceptual and Empirical Analysis, *Regional Studies,* 40(4): 365-384.

Taylor, M (1996), Earnings, Independence or Unemployment: Why Become Self-Employed? *Oxford Bulletin of Economics and Statistics,* 58(2): 253-66.

Taylor, S.E. and J.D. Brown (1988), Illusion and Well-Being: A Social Psychological Perspective on Mental Health, *Psychological Bulletin,* 103(2): 193-210.

Taylor, S. E. (1989), Positive illusions, New York, Basic Books.

Tervo, H. (2006), Regional Unemployment, Self-Employment and Family Background, *Applied Economics,* 38: 1055-1062.

Thandi, H. and Sharma, R. (2004), MBA Students' Preparedness for Entrepreneurial Efforts, *Tertiary Education and Management,* 10: 209-226

Thomsen, S. (2008), Explaining the Employability Gap of Short-Term and Long-Term Unemployed Persons, *FEMM Working Paper,* No.18.

Tkachev, A. and Kolvereid, L. (1999), Self-Employment Intentions Among Russian Students, *Entrepreneurship and Regional Developmen,t* 11: 269-280

Uhlaner, L.M., Thurik, R. and J. Hutjes (2002), Post-Materialism as a Cultural Factor Influencing Entrepreneurial Activity Across Nations, *ERIM Report Series Reference,* No. ERS-2002-62-STR.

Ulla, H., Paasio, K. and T. Pukkinen (2005), Entrepreneurial Intentions of University Students and Graduates: A Finnish Perspective, Paper presented at the ICSB 2005 World Conference, Washington DC, USA, 15-18.6.2005.

Van Auken, H. (2006), The influence of role models on entrepreneurial intentions, *Journal of Developmental Entrepreneurship*

Van Praag, C.M. and J.S. Cramer (2001), The Roots of Entrepreneurship and Labour Demand: Individual Ability and Low Risk Aversion, *Economica*, 68(269): 45-62.

Van Praag, C.M., Cramer, J.S., Hartog, J. and N. Jonker (2002), Low Risk Aversion Encourages the Choice for Entrepreneurship: An Empirical Test of Truism, *Journal of Economic Behaviour and Organization*, 48(1): 29-36.

Van Reenen, J. and Bloom, N. (2007), Measuring and Explaining Management Practices Across Firms and Countries, *Quarterly Journal of Economics*, 122 (4): 1351-1408.

Van Stel, A.J. and D.J. Storey (2004), The Link between Firm Births and Job Creation: Is there a Upas Tree Effect? *Regional Studies*, 38(8): 893-909.

Veciana, J., Aponte, M. and Urbano, D. (2005), University Students' Attitudes Towards Entrepreneurship: A Two Countries Comparison, *International Entrepreneurship and Management Journal*, 1: 165-182

Venesaar, U., Kolbre, E. and Piliste, T. (2005), Students' attitudes and intentions toward entrepreneurship at Tallinn University of Technology, *Working Paper*, No. 154, School of Economics and Business Administration, Tallinn University of Technology.

Verheul, I., Thurik, A. R. and I. Grilo (2008), Explaining Preferences and Actual Involvement in Self-Employment: New Insights into the Role of Gender, *ERIM Report Series*, Reference No. ERS-2008-03-ORG. Available at SSRN: http://ssrn.com/abstract=1265429

Wagner, J (2005), Nascent Necessity and Opportunity Entrepreneurs in Germany: Evidence from the Regional Entrepreneurship Monitor *(REM)*, University of Lüneburg, *Working Paper Series in Economics*, No.10.

Wagner, J. and R. Sternberg (2004), Start-Up Activities, Individual Characteristics, and the Regional Milieu: Lessons for Entrepreneurship Support Policies from German Micro Data, *The Annuals of Regional Science*, 38: 219-240.

Wang, C.K. and Wong, P-K (2004), Entrepreneurial Interest of University Students in Singapore, *Technovation*, 24: 163-172.

Ward, T. Robertson, M. and Holden, R. (2008), Entrepreneurial Intentions Survey 2007/8, University of York Centre for Excellence in Teaching and Learning in Enterprise.

Watson, J. and R. Newby (2005), Biological Sex, Stereotypical Sex-Roles, and SME Owner Characteristics, *International Journal of Entrepreneurial Behaviour and Research*, 11(2): 129-143.

Webb, T., Quince, T. and D. Wathers (1982), Small Business Research, the Development of Entrepreneurs. Gower: Aldershot.

Weinstein, N.D. (1980): Unrealistic Optimism about Future Life Events, *Journal of Personality and Social Psychology*, 39(5): 806-820.

Welch, I. and A. Bernardo (2001): On the Evolution of Overconfidence and Entrepreneurs, Yale School of Management Working Papers ysm211, Yale School of Management.

Welsh Assembly Government (2002), A Winning Wales: The National Economic and Development Strategy of the Welsh Assembly Government, Welsh Assembly Government, Cardiff.

Welsh Assembly Government (2005), Wales: A Vibrant Economy: The Welsh Assembly Government's Strategic Framework for Economic Development, Welsh Assembly Government, Cardiff.

Welsh Development Agency (1999), Entrepreneurship Action Plan for Wales, Welsh Development Agency, Cardiff.

Whittington, R.C. (1984), Regional Bias in New Firm Formation in the UK, *Regional Studies,* 18(3): 253-256.

Wiklund, J. and D. Shepherd (2003), Knowledge-Based Resources, Entrepreneurial Orientation, and the Performance of Small and Medium-Sized Businesses, *Strategic Management Journal*, 24: 1307-1314.

Wright, M., K. Robbie and C. Ennew (1997), Serial Entrepreneurs, *British Journal of Management*, 8: 251-268.

Wright, M., K. Robbie and C. Ennew (1997), Venture Capitalists and Serial Entrepreneurs, *Journal of Business Venturing*, 12: 227-249.

Yun, M. (2000), Decomposition Analysis for a Binary Choice Model. *Working paper.* University of Western Ontario.

Yun, M. (2004), Decomposing Differences in the First Moment. *Economics Letters,* 82: 275–280.

APPENDICIES

Table A4.1: Reported Reasons for Becoming Self-Employed (with employees or without) - by Individual

Reason (percentage)	All	Self-employed: No employees	Self-employed: With employees	t-test (p-value)
To be independent / a change	30.2	29.3	32.6	*0.000*
Wanted more money	12.7	12.8	12.4	0.495
For better conditions of working	5.4	5.5	5.2	0.484
Family commitments / wanted to work at home	7.7	9.3	3.2	*0.000*
Opportunity arose - Capital, space, equipment available	12.5	10.2	19.0	*0.000*
Saw the demand / market	8.8	8.3	10.1	*0.000*
Joined the family business	6.9	4.8	12.6	*0.000*
Nature of the occupation	21.5	22.5	18.6	*0.000*
No jobs available (locally)	3.4	4.1	1.4	*0.000*
Made redundant	9.3	10.3	6.6	*0.000*
Other reasons	14.6	15.4	12.3	*0.000*
No reason given	3.4	3.4	3.1	0.351
N	17503	12807	4696	

Source: authors' tabulations from LFS Spring Quarters 1999-2001

Notes: Columns do not sum to 100 per cent because respondents can give up to four reasons. The right hand side reports the significance of a t-test for the difference between men and women. **Bold italic** indicates p-value < 0.05

Table A4.2: Reported Reasons for Becoming Self-Employed (on own, with partner(s) but no employee) - by Individual

Reason (percentage)	All	Men	Women	t-test (p-value)
To be independent / a change	29.3	31.4	24.5	*0.000*
Wanted more money	12.8	14.7	8.4	*0.000*
For better conditions of working	5.5	6.1	4.2	*0.000*
Family commitments / wanted to work at home	9.3	2.4	25.6	*0.000*
Opportunity arose - Capital, space, equipment available	10.2	10.4	9.8	0.334
Saw the demand / market	8.3	8.2	8.4	0.808
Joined the family business	4.8	4.9	4.5	0.362
Nature of the occupation	22.5	21.9	24.0	*0.010*
No jobs available (locally)	4.1	4.5	3.0	*0.000*
Made redundant	10.3	13.1	3.8	*0.000*
Other reasons	15.4	14.7	17.2	*0.000*
No reason given	3.4	3.8	2.5	*0.000*
N	12807	8991	3816	

Source: authors' tabulations from LFS Spring Quarters 1999-2001

Notes: Columns do not sum to 100 per cent because respondents can give up to four reasons. The right hand side reports the significance of a t-test for the difference between men and women. **Bold italic** indicates p-value < 0.05

Table A4.3: Reported Reasons for Becoming Self-Employed (with employees) - by Individual

Reason (percentage)	All	Men	Women	t-test (p-value)
To be independent / a change	32.6	34.5	26.3	*0.000*
Wanted more money	12.4	14.2	6.7	*0.000*
For better conditions of working	5.2	5.8	3.5	*0.003*
Family commitments / wanted to work at home	3.2	1.8	7.8	*0.000*
Opportunity arose - Capital, space, equipment available	19.0	18.6	20.1	0.254
Saw the demand / market	10.1	10.2	9.6	0.522
Joined the family business	12.6	10.9	18.1	*0.000*
Nature of the occupation	18.6	18.9	17.6	0.332
No jobs available (locally)	1.4	1.7	0.6	*0.011*
Made redundant	6.6	7.8	2.9	*0.000*
Other reasons	12.3	11.7	14.2	*0.027*
No reason given	3.1	3.3	2.6	0.262
N	4696	3588	1108	

Source: authors' tabulations from LFS Spring Quarters 1999-2001

Notes: Columns do not sum to 100 per cent because respondents can give up to four reasons. The right hand side reports the significance of a t-test for the difference between men and women. ***Bold italic*** indicates p-value < 0.05

Table A.4.4: Probit Regressions Reporting Marginal Effects on Motivations for Choosing Self-Employment

	(1) Independence		(2) Money		(3) Working conditions		(4) Family/home		(5) Opportunity	
	Marginal Effect	p-value	Marginal Effect	p-value	Marginal Effect	p-value	Marginal Effect	p-value	Marginal Effect	p-value
Demographic factors:										
Age	0.0157	*0.000*	-0.0065	*0.000*	-0.0005	0.659	0.0007	0.480	0.0044	*0.006*
Age squared/100	-0.0002	*0.000*	0.0000	*0.038*	0.0000	0.543	0.0000	0.366	0.0000	*0.010*
Female	-0.0768	*0.000*	-0.0653	*0.000*	-0.0198	*0.000*	0.1818	*0.000*	-0.0045	0.435
Disabled	-0.0208	*0.045*	-0.0022	0.771	0.0105	*0.041*	0.0036	0.394	-0.0175	*0.016*
Ethnic minority	0.0495	*0.003*	-0.0200	0.070	0.0056	0.476	-0.0030	0.633	-0.0147	0.217
Household and family status:										
No. dependent Children<16	-0.0154	*0.000*	0.0023	0.387	-0.0035	0.061	0.0205	*0.000*	-0.0124	*0.000*
Marital Status (reference: never married)										
Married	-0.0263	*0.026*	0.0255	*0.002*	0.0050	0.362	0.0208	*0.000*	0.0039	0.652
Widowed/divorced/separated	0.0134	0.364	0.0552	*0.000*	0.0109	0.142	0.0417	*0.000*	-0.0093	0.381
Highest educational attainment (reference: no qualifications):										
Degree	0.0386	*0.003*	-0.0195	*0.031*	0.0180	*0.009*	-0.0028	0.597	-0.0095	0.280
Other higher education	0.0631	*0.000*	-0.0037	0.748	0.0201	*0.021*	0.0091	0.168	-0.0089	0.419
A-levels	0.0598	*0.000*	0.0363	*0.000*	0.0176	*0.004*	0.0027	0.588	-0.0082	0.301
O-levels/GCSEs	0.0229	0.097	-0.0074	0.436	0.0047	0.503	0.0048	0.383	-0.0061	0.516
Other-qualifications	0.0132	0.362	-0.0113	0.258	0.0151	*0.048*	0.0041	0.484	0.0035	0.725
Housing tenure (reference: social renter)										
Outright owner	0.0184	0.299	-0.0135	0.255	0.0005	0.955	0.0083	0.272	0.0221	0.103
Owner with mortgage	0.0506	*0.002*	0.0190	0.077	0.0198	*0.011*	0.0104	0.111	0.0357	*0.003*
Private sector renter	0.0632	*0.002*	-0.0010	0.939	0.0157	0.143	0.0121	0.183	-0.0040	0.796
Year effects (reference: 1999)										
2000	-0.0003	0.974	-0.0034	0.573	-0.0039	0.340	-0.0035	0.310	0.0036	0.558
2001	-0.0237	*0.007*	0.0007	0.910	-0.0033	0.422	-0.0069	*0.049*	-0.0024	0.699
Log Likelihood (combined model)	-10178.199		-6213.774		-3527.2746		-3572.754		-6302.222	
chi² (29) (p-value)	0.000		0.000		0.000		0.000		0.000	
N	16860		16860		16860		16860		16860	

268

	(6) Saw the demand		(7) Family business		(8) Occupation		(9) No jobs		(10) Redundancy	
	Marginal Effect	p-value	Marginal Effect	p-value	Marginal Effect	p-value	Marginal Effect	p-value	Marginal Effect	p-value
Demographic factors:										
Age	0.0014	0.310	-0.0028	*0.003*	-0.0075	*0.000*	0.0016	*0.043*	0.0119	*0.000*
Age squared/100	0.0000	0.167	0.0000	*0.004*	0.0001	*0.002*	0.0000	0.070	-0.0001	*0.000*
Female	0.0001	0.985	0.0109	*0.004*	0.0103	0.155	-0.0110	*0.000*	-0.0704	*0.000*
Disabled	-0.0070	0.267	-0.0069	0.142	0.0007	0.938	0.0185	*0.000*	-0.0016	0.776
Ethnic minority	0.0077	0.447	0.0374	*0.000*	-0.0455	*0.001*	0.0317	*0.000*	-0.0374	*0.000*
Household and family status:										
No. dependent Children<16	-0.0064	*0.007*	0.0074	*0.000*	0.0057	0.094	0.0002	0.868	-0.0110	*0.000*
Marital Status (reference: never married)										
Married	0.0078	0.274	0.0025	0.651	-0.0210	*0.043*	-0.0143	*0.001*	0.0123	0.081
Widowed/divorced/separated	-0.0042	0.642	-0.0230	*0.001*	-0.0331	*0.009*	-0.0080	0.075	0.0100	0.267
Highest educational attainment (reference: no qualifications):										
Degree	0.0008	0.917	-0.0598	*0.000*	0.0819	*0.000*	-0.0061	0.144	-0.0037	0.606
Other higher education	0.0235	*0.022*	-0.0282	*0.000*	-0.0066	0.637	-0.0049	0.350	0.0197	*0.037*
A-levels	0.0100	0.162	-0.0337	*0.000*	-0.0342	*0.001*	-0.0046	0.225	0.0189	*0.003*
O-levels/GCSEs	0.0006	0.940	-0.0063	0.229	-0.0207	0.078	-0.0032	0.480	0.0111	0.165
Other-qualifications	0.0158	*0.079*	-0.0131	*0.015*	0.0141	0.262	0.0003	0.945	-0.0028	0.729
Housing tenure (reference: social renter):										
Outright owner	0.0148	0.199	0.1502	*0.000*	-0.0459	*0.001*	-0.0278	*0.000*	-0.0102	0.302
Owner with mortgage	0.0239	*0.019*	0.0535	*0.000*	-0.0635	*0.000*	-0.0333	*0.000*	0.0064	0.498
Private sector renter	0.0257	*0.064*	0.0685	*0.000*	-0.0039	0.813	-0.0107	*0.024*	-0.0332	*0.002*
Year effects (reference: 1999)										
2000	0.0068	0.206	-0.0039	0.326	-0.0011	0.887	-0.0180	*0.000*	-0.0123	*0.009*
2001	0.0040	0.459	-0.0049	0.222	0.0113	0.150	-0.0140	*0.000*	-0.0206	*0.000*
Log Likelihood (combined model)	-4974.1364		-3782.2026		-8561.2632		-2377.5598		-4854.1829	
chi² (28) (p-value)	0.001		0.000		0.000		0.000		0.000	
N	16860		16860		16860		16860		16860	

Table A4.4 (continued)

	(11) Other reason	
	Marginal Effect	p-value
Demographic factors:		
Age	-0.0063	**0.000**
Age squared/100	0.0001	**0.000**
Female	0.0292	**0.000**
Disabled	0.0327	**0.000**
Ethnic minority	-0.0009	0.941
Household and family status:		
No. dependent Children<16	-0.0061	**0.045**
Marital Status (reference: never married)		
Married	0.0005	0.954
Widowed/divorced/separated	0.0056	0.616
Highest educational attainment		
(reference: no qualifications):		
Degree	0.0745	**0.000**
Other higher education	0.0313	**0.013**
A-levels	0.0173	0.052
O-levels/GCSEs	0.0194	0.065
Other-qualifications	0.0255	**0.022**
Housing tenure		
(reference: social sector renter):		
Outright owner	-0.0425	**0.000**
Owner with mortgage	-0.0501	**0.000**
Private sector renter	-0.0197	0.147
Year effects (reference: 1999)		
2000	-0.0102	0.115
2001	-0.0183	**0.005**
Log Likelihood (combined model)	-6726.0534	
chi² (28) (p-value)	0.000	
N	16860	

Table A4.5: Probit Regressions Reporting Marginal Effects on Motivations for Choosing Self-Employment

	(1) Independence		(2) Money		(3) Working conditions		(4) Family/home		(5) Opportunity	
	Marginal Effect	p-value	Marginal Effect	p-value	Marginal Effect	p-value	Marginal Effect	p-value	Marginal Effect	p-value
Regions: (Reference: East Midlands)										
North East	0.0078	0.752	0.0487	*0.010*	0.0033	0.787	-0.0150	*0.077*	-0.0088	0.596
North West	0.0208	0.250	0.0305	*0.027*	0.0177	*0.063*	-0.0150	*0.016*	0.0040	0.744
Yorkshire and Humber	0.0247	0.196	0.0292	*0.044*	0.0147	0.138	-0.0099	0.139	-0.0067	0.599
West Midlands	0.0590	*0.002*	0.0485	*0.001*	0.0068	0.478	-0.0131	*0.044*	-0.0021	0.870
East	0.0196	0.267	0.0286	*0.033*	-0.0018	0.840	-0.0076	0.229	-0.0178	0.125
London	0.0416	*0.019*	0.0477	*0.001*	0.0136	0.134	-0.0123	*0.046*	-0.0275	*0.017*
South East	0.0373	*0.024*	0.0353	*0.005*	0.0111	0.189	-0.0009	0.886	-0.0290	*0.007*
South West	0.0342	0.053	0.0323	*0.017*	0.0143	0.119	-0.0061	0.333	-0.0049	0.676
Wales	-0.0022	0.920	0.0445	*0.009*	0.0043	0.696	-0.0166	*0.025*	-0.0311	*0.029*
Scotland	0.0317	0.099	0.0214	0.137	0.0052	0.588	-0.0099	0.144	-0.0040	0.757
Northern Ireland	0.0908	*0.000*	-0.0150	0.353	0.0448	*0.000*	0.0188	*0.049*	0.0472	*0.004*
Log Likelihood (combined model)	-10178.199		-6213.774		-3527.2746		-3572.754		-6302.222	
chi² (29) (p-value)	0.000		0.000		0.000		0.000		0.000	
N	16860		16860		16860		16860		16860	

Table A4.5 (continued)

	(6) Saw the demand		(7) Family business		(8) Occupation		(9) No jobs		(10) Redundancy	
	Marginal Effect	p-value	Marginal Effect	p-value	Marginal Effect	p-value	Marginal Effect	p-value	Marginal Effect	p-value
Regions: (Reference: East Midlands)										
North East	-0.0102	0.476	-0.0047	0.663	-0.0023	0.918	0.0405	*0.000*	-0.0109	0.373
North West	0.0045	0.672	-0.0106	0.153	0.0101	0.532	0.0127	0.088	-0.0129	0.147
Yorkshire and Humber	0.0029	0.799	0.0026	0.753	-0.0231	0.167	0.0175	*0.029*	-0.0025	0.797
West Midlands	0.0033	0.770	-0.0070	0.375	-0.0117	0.483	0.0057	0.438	-0.0076	0.424
East	-0.0042	0.678	-0.0139	*0.052*	0.0405	*0.012*	0.0026	0.706	-0.0079	0.370
London	-0.0031	0.761	-0.0314	*0.000*	0.0647	*0.000*	-0.0062	0.319	-0.0214	*0.014*
South East	-0.0137	0.144	-0.0180	*0.007*	0.0131	0.373	0.0044	0.495	-0.0164	*0.044*
South West	-0.0140	0.163	-0.0029	0.695	-0.0071	0.650	0.0128	*0.080*	-0.0082	0.353
Wales	-0.0059	0.642	0.0157	0.112	0.0760	*0.000*	0.0414	*0.000*	-0.0370	*0.000*
Scotland	-0.0110	0.317	0.0177	*0.048*	0.0227	0.188	0.0224	*0.007*	-0.0254	*0.005*
Northern Ireland	0.0444	*0.002*	0.0763	*0.000*	0.0705	*0.001*	-0.0041	0.637	-0.0629	*0.000*
Log Likelihood (combined model)	-4974.1364		-3782.2026		-8561.2632		-2377.5598		-4854.1829	
chi² (28) (p-value)	0.001		0.000		0.000		0.000		0.000	
N	16860		16860		16860		16860		16860	

272

Table A4.5 (continued)

	(11) Other Reason	
	Marginal Effect	p-value
Regions: (Reference: East Midlands)		
North East	-0.0254	0.144
North West	-0.0134	0.296
Yorkshire and Humber	0.0032	0.815
West Midlands	-0.0110	0.413
East	0.0139	0.281
London	-0.0043	0.734
South East	0.0081	0.495
South West	-0.0023	0.855
Wales	-0.0130	0.403
Scotland	-0.0140	0.301
Northern Ireland	-0.0927	***0.000***
Log Likelihood (combined model)	-6726.0534	
chi² (28) (p-value)	0.000	
N	16860	

Source: authors' computations from QLFS 1999-2001

Notes: *Italic* indicates p-value < 0.10, ***bold italic*** indicates p-value < 0.05.

273

Table A5.1: Decomposition of the Country of Residence Gap in Entrepreneurial Intention

	Coef	P>|z|	% explained
Group 1 (Non-UK)	0.4063		
Group 2 (UK)	0.2455		
Difference	0.1608		
Total explained	0..1322		82.21%
Demographics (reference category: male, over 25, able-bodied)			
Age 18-25	-0.0038	0.402	-2.36%
Female	0.0193	*0.011*	*12.00%*
Disabled	0.0024	0.115	1.49%
University (reference category: outside Wales)			
Welsh University	-0.0756	0.191	-47.01%
Degree subject (reference category: Arts and Humanities)			
Business Management/Economics	0.1113	*0.001*	*69.22%*
Law	-0.0126	*0.001*	*-7.84%*
Social Science	-0.0457	*0.000*	*-28.42%*
Science/Engineering	0.0383	*0.015*	*23.82%*
Medicine/Health	-	-	
Cohabitation status (reference category: single)			
Partner in self- or paid employment	0.0024	0.447	1.49%
Partner inactive or in education	-0.0015	0.273	-0.93%
Parental background (reference category: neither parent running a business)			
Father running a business	0.0036	0.360	2.24%
Mother running a business	0.0052	0.103	3.23%
Both running a business	0.0043	0.293	2.67%
Peer group background			
Sibling running a business	0.0091	0.138	5.66%
Close friend in business	0.0205	0.135	12.75%
Own background			
Entrepreneurial training			
Informal entrepreneurship	0.0173	0.139	10.76%
Willingness to take financial risk (reference category: low)			
Very low	0.0056	0.404	3.48%
Moderate	0.0278	*0.024*	*17.29%*
High	0.0050	*0.024*	*3.11%*

Note: *Italic* indicates significance level (p-value) below 0.10, ***bold italic*** below 0.05.

Variable	Marginal Effect (Outcome = 2)	P>z	Marginal Effect (Outcome = 1)	P>z
LFS Status (reference category: employees with no entrepreneurial aspirations)				
Employees with entrepreneurial aspirations	0.0142	*0.000*	0.0332	*0.000*
Self-employed	0.0161	*0.000*	0.0374	*0.000*
Demographics (reference category: females)				
Age	-0.0016	*0.000*	-0.0039	*0.000*
Age squared*1000	0.0138	*0.002*	0.0342	*0.002*
Male	0.0028	*0.058*	0.0069	*0.058*
Marital Status (reference category: single)				
Married	0.0037	0.140	0.0092	0.141
Couple	0.0046	*0.091*	0.0112	*0.086*
Widowed/divorced/separated	0.0101	*0.008*	0.0238	*0.005*
Educational Attainment (reference category: no qualifications)				
University	-0.0096	*0.000*	-0.0247	*0.000*
HND/HNC	-0.0066	*0.027*	-0.0168	*0.032*
A-level	-0.0028	0.238	-0.0069	0.242
O-levels/GCSEs	0.0009	0.675	0.0021	0.675
Housing Tenure (reference category: own with mortgage)				
Outright owner	-0.0033	*0.079*	-0.0083	*0.081*
Renter – social landlord	0.0116	*0.000*	0.0272	*0.000*
Renter – private landlord	0.0099	*0.001*	0.0236	*0.001*
County Specific Factors				
County level Δ real house prices*100,000	-0.0089	0.231	-0.0222	0.231
County level unemployment*100	0.0116	0.838	0.0288	0.838
Year Dummies (reference category: 2005)				
1998	-0.0063	*0.013*	-0.0161	*0.015*
1999	-0.0041	0.146	-0.0104	0.152
2000	-0.0089	*0.000*	-0.0229	*0.000*
2001	-0.0075	*0.002*	-0.0192	*0.002*
2002	-0.0031	0.265	-0.0079	0.271
2003	-0.0033	0.176	-0.0082	0.182
2004	0.0049	*0.062*	0.0120	*0.057*
Log Likelihood	-42752.4		-42752.4	
chi² (24) (p-value)	254.29	*0.000*	254.29	*0.000*
R²	0.0041		0.0041	
N	35522		35522	

Note: *Italic* indicates significance level (p-value) below 0.10, ***bold italic*** below 0.05

Variable	Marginal Effect (Outcome = 0)	P>z	Marginal Effect (Outcome = -1)	P>z
LFS Status (reference category: employees with no entrepreneurial aspirations)				
Employees with entrepreneurial aspirations	-0.0160	*0.000*	-0.0284	*0.000*
Self-employed	-0.0184	*0.000*	-0.0318	*0.000*
Demographics (reference category: females)				
Age	0.0015	*0.000*	0.0036	*0.000*
Age squared*1000	-0.0131	*0.002*	-0.0315	*0.002*
Male	-0.0027	*0.059*	-0.0065	*0.058*
Marital Status (reference category: single)				
Married	-0.0035	0.134	-0.0085	0.143
Couple	-0.0046	0.108	-0.0101	*0.079*
Widowed/divorced/separated	-0.0109	*0.017*	-0.0208	*0.003*
Educational Attainment (reference category: no qualifications)				
University	0.0078	*0.000*	0.0238	*0.000*
HND/HNC	0.0055	*0.008*	0.0162	*0.040*
A-level	0.0025	0.221	0.0064	0.247
O-levels/GCSEs	-0.0008	0.677	-0.0020	0.674
Housing Tenure (reference category: own with mortgage)				
Outright owner	0.0030	*0.065*	0.0077	*0.086*
Renter – social landlord	-0.0127	*0.001*	-0.0236	*0.000*
Renter – private landlord	-0.0108	*0.003*	-0.0205	*0.000*
County Specific Factors				
County level Δ real house prices*100,000	0.0085	0.232	0.0205	0.231
County level unemployment*100	-0.0110	0.838	-0.0265	0.838
Year Dummies (reference category: 2005)				
1998	0.0054	*0.005*	0.0153	*0.019*
1999	0.0036	0.116	0.0098	0.162
2000	0.0071	*0.000*	0.0222	*0.000*
2001	0.0062	*0.000*	0.0184	*0.003*
2002	0.0028	0.237	0.0074	0.279
2003	0.0029	0.150	0.0077	0.190
2004	-0.0050	*0.080*	-0.0108	*0.050*
Log Likelihood	-42752.4		-42752.4	
chi² (24) (p-value)	254.29	*0.000*	254.29	*0.000*
R²	0.0041		0.0041	
N	35522		35522	

Note: *Italic* indicates significance level (p-value) below 0.10, ***bold italic*** below 0.05

Variable	Marginal Effect (Outcome = -2)	P>z
LFS Status (reference category: employees with no entrepreneurial aspirations)		
Employees with entrepreneurial aspirations	-0.0030	*__0.000__*
Self-employed	-0.0033	*__0.000__*
Demographics (reference category: females)		
Age	0.0004	*__0.000__*
Age squared*1000	-0.0034	*__0.002__*
Male	-0.0007	*0.058*
Marital Status (reference category: single)		
Married	-0.0009	0.144
Couple	-0.0011	*0.077*
Widowed/divorced/separated	-0.0022	*__0.003__*
Educational Attainment (reference category: no qualifications)		
University	0.0026	*__0.000__*
HND/HNC	0.0018	*__0.046__*
A-level	0.0007	0.251
O-levels/GCSEs	-0.0002	0.674
Housing Tenure (reference category: own with mortgage)		
Outright owner	0.0008	*0.090*
Renter – social landlord	-0.0025	*__0.000__*
Renter – private landlord	-0.0022	*__0.000__*
County Specific Factors		
County level Δ real house prices*100,000	0.0022	0.231
County level unemployment*100	-0.0029	0.838
Year Dummies (reference category: 2005)		
1998	0.0017	*__0.022__*
1999	0.0011	0.167
2000	0.0024	*__0.001__*
2001	0.0020	*__0.004__*
2002	0.0008	0.283
2003	0.0008	0.194
2004	-0.0011	*__0.049__*
Log Likelihood	-42752.4	
chi² (24) (p-value)	254.29	*__0.000__*
R²	0.0041	
N	35522	

Note: *Italic* indicates significance level (p-value) below 0.10, *__bold italic__* below 0.05

Variable	Marginal Effect (Outcome = 1)	P>z	Marginal Effect (Outcome = 0)	P>z
LFS Status (reference category: employees with no entrepreneurial aspirations)				
Employees with entrepreneurial aspirations	0.0646	*0.000*	-0.0496	*0.000*
Self-employed	0.0969	*0.000*	-0.0755	*0.000*
Demographics (reference category: females)				
Age	-0.0174	*0.000*	0.0129	*0.000*
Age squared*1000	0.1007	*0.000*	-0.0743	*0.000*
Male	0.0456	*0.000*	-0.0336	*0.000*
Marital Status (reference category: single)				
Married	-0.0388	*0.002*	0.0288	*0.002*
Couple	0.0093	0.446	-0.0069	0.449
Widowed/divorced/separated	-0.0006	0.971	0.0004	0.971
Educational Attainment (reference category: no qualifications)				
University	0.0247	*0.054*	-0.0185	*0.057*
HND/HNC	0.0102	0.530	-0.0076	0.533
A-level	0.0100	0.403	-0.0074	0.406
O-levels/GCSEs	0.0079	0.456	-0.0058	0.457
Housing Tenure (reference category: own with mortgage)				
Outright owner	-0.0637	*0.000*	0.0449	*0.000*
Renter – social landlord	0.0176	0.139	-0.0132	0.143
Renter – private landlord	0.0657	*0.000*	-0.0506	*0.000*
County Specific Factors				
County level Δ real house prices*100,000	0.0672	*0.028*	-0.0496	*0.028*
County level unemployment*100	-0.0353	0.899	0.0260	0.899
Year Dummies (reference category: 2005)				
1998	0.0113	0.329	-0.0084	0.333
1999	0.0045	0.714	-0.0033	0.715
2000	0.0045	0.663	-0.0033	0.664
2001	-0.0123	0.227	0.0090	0.223
2002	-0.0181	0.117	0.0132	0.112
2003	-0.0143	0.150	0.0104	0.146
2004	-0.0052	0.601	0.0038	0.600
Log Likelihood	-29771.3		-29771.3	
chi² (24) (p-value)	1755.48	*0.000*	1755.48	*0.000*
R²	0.052		0.052	
N	35522		35522	

Note: *Italic* indicates significance level (p-value) below 0.10, ***bold italic*** below 0.05

Variable	Marginal Effect (Outcome = -1)	P>z
LFS Status (reference category: employees with no entrepreneurial aspirations)		
Employees with entrepreneurial aspirations	-0.0150	*0.000*
Self-employed	-0.0214	*0.000*
Demographics (reference category: females)		
Age	0.0046	*0.000*
Age squared*1000	-0.0264	*0.000*
Male	-0.0120	*0.000*
Marital Status (reference category: single)		
Married	0.0100	*0.002*
Couple	-0.0024	0.439
Widowed/divorced/separated	0.0002	0.971
Educational Attainment (reference category: no qualifications)		
University	-0.0062	*0.044*
HND/HNC	-0.0026	0.520
A-level	-0.0026	0.396
O-levels/GCSEs	-0.0021	0.453
Housing Tenure (reference category: own with mortgage)		
Outright owner	0.0188	*0.000*
Renter – social landlord	-0.0045	0.126
Renter – private landlord	-0.0151	*0.000*
County Specific Factors		
County level Δ real house prices*100,000	-0.0176	*0.028*
County level unemployment*100	0.0092	0.899
Year Dummies (reference category: 2005)		
1998	-0.0029	0.319
1999	-0.0012	0.712
2000	-0.0012	0.660
2001	0.0033	0.239
2002	0.0049	0.131
2003	0.0039	0.162
2004	0.0014	0.605
Log Likelihood	-29771.3	
chi² (24) (p-value)	1755.48	*0.000*
R²	0.052	
N	35522	

Note: *Italic* indicates significance level (p-value) below 0.10, ***bold italic*** below 0.05

Variable	Marginal Effect (Outcome = 2)	P>z	Marginal Effect (Outcome = 1)	P>z
LFS status: (reference category is self-employed (mean)=1 or employee(mean)=1 or other (mean)=1)				
Transition, x < 1	0.0184	*0.010*	0.0550	*0.004*
Transition, 1 ≤ x < 2	0.0326	*0.021*	0.0899	*0.005*
Transition, 2 ≤ x < 3	0.0030	0.786	0.0099	0.783
Transition, x ≥ 3	0.0040	0.477	0.0130	0.465
Self-employed(mean)≠1 or employee(mean)≠1 or *other (mean)≠1*	0.0075	*0.000*	0.0250	*0.000*
Demographics (reference category: Male)				
Age*100	0.0094	0.568	0.0314	0.568
Age Squared*1000	-0.0043	*0.004*	-0.0143	*0.004*
Female	-0.0040	*0.000*	-0.0133	*0.000*
Marital status (reference category: single)				
Married	0.0014	0.337	0.0047	0.338
Couple	0.0055	*0.014*	0.0179	*0.011*
Widowed/divorced/separated	0.0049	*0.008*	0.0160	*0.007*
Educational Attainment: (reference category: no qualifications)				
University	-0.0071	*0.000*	-0.0247	*0.000*
HND/HNC	-0.0014	0.479	-0.0046	0.483
A-Level	-0.0024	*0.083*	-0.0082	*0.086*
O-Level/GCSE's	0.0010	0.384	0.0034	0.383
Housing Tenure (reference category: own with mortgage)				
Outright Owner	0.0027	*0.017*	0.0088	*0.017*
Renter - social landlord	0.0009	0.507	0.0030	0.506
Renter - private landlord	0.0071	*0.001*	0.0230	*0.000*
County Specific Factors				
County level Δ real house prices*100,000	0.0012	0.830	0.0039	0.830
County level unemployment*100	0.0265	0.279	0.0887	0.279
Year Dummies (reference category: 2002)				
1992	-0.0045	*0.068*	-0.0152	*0.074*
1993	-0.0025	0.298	-0.0084	0.304
1994	-0.0008	0.716	-0.0028	0.717
1995	-0.0050	*0.014*	-0.0170	*0.017*
1996	-0.0059	*0.001*	-0.0202	*0.001*
1997	-0.0015	0.383	-0.0052	0.387
1998	-0.0020	0.246	-0.0068	0.252
1999	-0.0007	0.657	-0.0024	0.658
2000	-0.0036	*0.027*	-0.0123	*0.030*
2001	-0.0030	*0.043*	-0.0103	*0.047*

Variable	Marginal Effect (Outcome = 0)	P>z	Marginal Effect (Outcome = -1)	P>z
LFS status: (reference category is self-employed (mean)=1 or employee(mean)=1 or other (mean)=1)				
Transition, x < 1	-0.0260	*0.034*	-0.0424	*0.001*
Transition, $1 \leq x < 2$	-0.0519	*0.050*	-0.0634	*0.000*
Transition, $2 \leq x < 3$	-0.0032	0.805	-0.0087	0.776
Transition, $x \geq 3$	-0.0042	0.525	-0.0113	0.447
Self-employed(mean)≠1 or employee(mean)≠1 or other (mean)≠1	-0.0070	*0.000*	-0.0226	*0.000*
Demographics (reference category: Male)				
Age*100	-0.0088	0.568	-0.0285	0.568
Age Squared*1000	0.0040	*0.004*	0.0131	*0.004*
Female	0.0038	*0.000*	0.0120	*0.000*
Marital status (reference category: single)				
Married	-0.0013	0.330	-0.0043	0.340
Couple	-0.0060	*0.031*	-0.0154	*0.008*
Widowed/divorced/separated	-0.0052	*0.017*	-0.0140	*0.005*
Educational Attainment: (reference category: no qualifications)				
University	0.0049	*0.000*	0.0238	*0.000*
HND/HNC	0.0012	0.453	0.0042	0.489
A-Level	0.0021	*0.060*	0.0076	*0.092*
O-Level/GCSE's	-0.0010	0.392	-0.0030	0.381
Housing Tenure (reference category: own with mortgage)				
Outright Owner	-0.0026	*0.023*	-0.0079	*0.015*
Renter - social landlord	-0.0009	0.518	-0.0027	0.503
Renter - private landlord	-0.0082	*0.003*	-0.0195	*0.000*
County Specific Factors				
County level Δ real house prices*100,000	-0.0011	0.830	-0.0035	0.830
County level unemployment*100	-0.0248	0.280	-0.0803	0.279
Year Dummies (reference category: 2002)				
1992	0.0035	*0.022*	0.0144	*0.086*
1993	0.0021	0.247	0.0077	0.315
1994	0.0008	0.707	0.0025	0.719
1995	0.0038	*0.001*	0.0161	*0.023*
1996	0.0043	*0.000*	0.0193	*0.002*
1997	0.0014	0.353	0.0048	0.394
1998	0.0018	0.207	0.0063	0.261
1999	0.0007	0.648	0.0022	0.660
2000	0.0029	*0.008*	0.0115	*0.036*
2001	0.0025	*0.020*	0.0096	*0.053*

281

Variable	Marginal Effect (Outcome = -2)	P>z
LFS status: (reference category is self-employed (mean)=1 or employee(mean)=1 or other (mean)=1)		
Transition, x < 1	-0.0050	*0.000*
Transition, $1 \leq x < 2$	-0.0073	*0.000*
Transition, $2 \leq x < 3$	-0.0011	0.773
Transition, $x \geq 3$	-0.0014	0.440
Self-employed(mean)≠1 or employee(mean)≠1 or *other (mean)≠1*	-0.0028	*0.000*
Demographics (reference category: Male)		
Age*100	-0.0036	0.568
Age Squared*1000	0.1630	*0.004*
Female	0.0015	*0.000*
Marital status (reference category: single)		
Married	-0.0005	0.342
Couple	-0.0019	*0.007*
Widowed/divorced/separated	-0.0017	*0.005*
Educational Attainment: (reference category: no qualifications)		
University	0.0031	*0.000*
HND/HNC	0.0005	0.491
A-Level	0.0010	*0.096*
O-Level/GCSE's	-0.0004	0.380
Housing Tenure (reference category: own with mortgage)		
Outright Owner	-0.0010	*0.015*
Renter - social landlord	-0.0003	0.502
Renter - private landlord	-0.0024	*0.000*
County Specific Factors		
County level Δ real house prices*100,000	-0.0004	0.830
County level unemployment*100	-0.0101	0.279
Year Dummies (reference category: 2002)		
1992	0.0018	*0.092*
1993	0.0010	0.319
1994	0.0003	0.720
1995	0.0021	*0.026*
1996	0.0025	*0.003*
1997	0.0006	0.396
1998	0.0008	0.264
1999	0.0003	0.661
2000	0.0015	*0.039*
2001	0.0012	*0.056*

	Coefficient	p-value
Log Likelihood	-72394.4	
chi² (25) (p-value)	431.19	*0.000*
R²	0.004	
N	62415	

Note: *Italic* indicates significance level (p-value) below 0.10, ***bold italic*** below 0.05.

Table A6.4: Time Means of Time-Varying Coefficients

	(1) 1991-2005 Pooled Probit		(2) Initial conditions Probit		(3) Random effects Probit		(4) Random effects Probit		(5) Random effects Probit	
	coef.	p-value	coef.	p-value	coef.	p-value	coef.	p-value	coef.	p-value
Time-means of time-varying covariates										
Demographics (reference category: single)										
Age			-0.0146	*0.051*	-0.0212	***0.000***	-0.0214	***0.000***	-0.0242	***0.000***
Married			-0.0287	*0.559*	-0.0079	0.908	-0.0069	0.920	0.0166	0.804
Couple			0.0175	*0.759*	0.0947	0.234	0.0930	0.242	0.1164	0.141
Widowed/divorced/separated			0.1655	***0.009***	0.0696	0.424	0.0698	0.423	0.1152	0.183
Housing Tenure (reference category: own with mortgage)										
Outright Owner			-0.1062	***0.004***	-0.1688	***0.001***	-0.1685	***0.001***		
Renter - social landlord			0.0055	*0.915*	0.1264	*0.081*	0.1286	*0.075*		
Renter - private landlord			0.0204	*0.701*	0.0367	0.624	0.0351	0.639		
County Specific Factors										
County level Δ real house prices*1000			-0.0057	*0.091*	0.0023	0.659	0.0063	0.612	0.0052	0.666
County level unemployment			-0.0063	*0.540*	-0.0401	***0.000***	-0.0398	***0.000***	-0.0392	***0.000***

Source: authors' computations from BHPS.

Notes: *Italic* indicates p-value < 0.10, ***bold italic*** indicates p-value < 0.05.

284

Table A6.5: Dynamic Random Effects Probit Model for Unrealistic Optimism

Variable	(1) Random effects Probit		(2) Random effects Probit	
	Coefficient	p-value	Coefficient	p-value
Over-optimism *t-1*	0.3871	*0.000*	0.3916	*0.000*
Over-optimism *t-2*	0.1490	*0.000*	0.1533	*0.000*
Over-optimism *t-3*	0.1030	*0.000*	0.1070	*0.000*
Over-optimism *t-4*	0.1151	*0.000*	0.1186	*0.000*
Over-optimism *t-5*	0.1071	*0.000*	0.1107	*0.000*
Interaction:				
Self-employed*Financial over-optimism (t-1)	0.1033	0.203	0.0911	0.258
Self-employed*Financial over-optimism (t-2)	0.0075	0.931	-0.0049	0.954
Self-employed*Financial over-optimism (t-3)	0.0729	0.387	0.0707	0.398
Self-employed*Financial over-optimism (t-4)	-0.0750	0.368	-0.0721	0.384
Self-employed*Financial over-optimism (t-5)	0.0492	0.534	0.0375	0.634
Demographics (reference category: male and single)				
Age	0.0125	*0.076*	0.0115	*0.099*
Female	-0.0439	*0.040*	-0.0441	*0.039*
Married	0.0710	0.403	0.0860	0.306
Couple	0.0083	0.916	0.0115	0.883
Widowed/divorced/separated	0.0925	0.352	0.0893	0.367
Educational Attainment: (reference category: no qualifications				
University	-0.0809	*0.038*	-0.0863	*0.024*
HND/HNC	-0.0472	0.283	-0.0584	0.177
A-Level	0.0029	0.935	-0.0030	0.932
O-Level/GCSE's	0.0003	0.994	-0.0041	0.897
Housing Tenure (reference category: own with mortgage)				
Outright Owner	-0.0691	0.172		
Renter - social landlord	-0.0240	0.773		
Renter - private landlord	-0.0447	0.536		
County Specific Factors				
County level Δ real house prices*1000	0.0008	0.897	0.0001	0.876
County level unemployment	0.0066	0.620	0.0058	0.664
Generalised residual from initial conditions probit	0.0443	*0.001*	0.0418	*0.002*
Log-Likelihood	-10094.3		-10125.3	
LR ($\rho = 0$) chi^2	*16.5*		*17.7*	
LR chi^2				
Wald chi^2	*667.0*		*643.9*	
N	2963		2963	
NT	18388		18423	

Note: Columns (1) and (2)) include time-means of time-varying covariates to allow for correlation between time-varying covariates and unobserved heterogeneity. The coefficient and p-values of these time-varying coefficients are presented in the Appendix (Table A6.6). *Italic* indicates significance level (p-value) below 0.10, ***bold italic*** below 0.05.

Table A6.6: Time Means of Time-Varying Coefficients

Time-means of time-varying covariates	(1) Random effects Probit		(2) Random effects Probit	
	coef.	p-value	coef.	p-value
Demographics (reference category: single)				
Age	-0.0246	**0.024**	-0.0191	*0.077*
Married	-0.0343	0.716	-0.0204	0.826
Couple	0.0971	0.340	0.1216	0.228
Widowed/divorced/separated	0.0570	0.624	0.0837	0.469
Housing Tenure (reference category: own with mortgage)				
Outright Owner	-0.1111	0.115		
Renter - social landlord	0.0561	0.547		
Renter - private landlord	0.0320	0.735		
County Specific Factors				
County level Δ real house prices	0.0000	0.845	0.0000	0.835
County level unemployment	-0.0143	0.300	-0.0132	0.338

Note: Italic indicates significance level (p-value) below 0.10, **bold italic** below 0.05.

Table A6.7 : Dynamic Random Effects Probit Model for Unrealistic Optimism

Variable	(1) Random effects Probit		(2) Random effects Probit		(3) Random effects Probit	
	Coefficient	p-value	Coefficient	p-value	Coefficient	p-value
Over optimism t-1	0.2592	**0.000**				
Over optimism t-2			0.0723	**0.000**		
Over optimism t-3					0.0370	*0.088*
Over optimism t-4						
Over optimism t-5						
Demographics (reference category: male and single)						
Age	0.0170	**0.002**	0.0160	**0.006**	0.0152	**0.017**
Female	-0.0523	**0.006**	-0.0627	**0.004**	-0.0589	**0.013**
Married	0.0837	0.144	0.1007	0.120	0.0990	0.173
Couple	0.0551	0.311	0.0551	0.364	0.0075	0.911
Widowed/divorced/separated	0.0905	0.198	0.1226	0.118	0.1089	0.210
Educational Attainment: (reference category: no qualifications						
University	-0.0944	**0.005**	-0.1225	**0.002**	-0.1354	**0.001**
HND/HNC	-0.0312	0.426	-0.0657	0.138	-0.0538	0.264
A-Level	-0.0260	0.402	-0.0462	0.190	-0.0348	0.367
O-Level/GCSE's	0.0089	0.742	-0.0070	0.821	-0.0077	0.821
Housing Tenure (reference category: own with mortgage)						
Outright Owner	-0.0286	0.446	-0.0851	**0.039**	-0.0846	*0.061*
Renter - social landlord	-0.0287	0.632	-0.0437	0.517	-0.0733	0.326
Renter - private landlord	0.0076	0.881	0.0321	0.575	0.0454	0.474
County Specific Factors						
County level Δ real house prices*1000	0.0009	0.370	0.0007	0.948	0.0002	0.896
County level unemployment	0.0378	**0.000**	0.0374	**0.000**	0.0297	**0.004**
Generalised residual from initial conditions probit	0.0672	**0.000**	0.0810	**0.000**	0.0759	**0.000**
Log-Likelihood	-18715.8		-16217.4		-13951.9	
LR ($\rho = 0$) chi^2	*217.6*		*329.9*		*334.9*	
LR chi^2						
Wald chi^2	*442.6*		*217.9*		*161.6*	
N	3924		3634		3378	
NT	33032		28633		24840	

Table A6.7 (continued)

Variable	(4) Random effects Probit		(5) Random effects Probit	
	Coefficient	p-value	Coefficient	p-value
Over optimism *t-1*				
Over optimism *t-2*				
Over optimism *t-3*				
Over optimism *t-4*	0.0253	0.278		
Over optimism *t-5*			0.0525	*0.035*
Demographics (reference category: male and single)				
Age	0.0149	*0.030*	0.0150	*0.043*
Female	-0.0564	*0.028*	-0.0633	*0.024*
Married	0.1628	*0.048*	0.0841	0.361
Couple	0.0249	0.743	-0.0085	0.920
Widowed/divorced/separated	0.1825	*0.059*	0.1518	0.157
Educational Attainment: (reference category: no qualifications				
University	-0.1296	*0.005*	-0.1187	*0.019*
HND/HNC	-0.0700	0.182	-0.0673	0.240
A-Level	-0.0192	0.648	-0.0058	0.900
O-Level/GCSE's	-0.0091	0.809	-0.0060	0.884
Housing Tenure (reference category: own with mortgage)				
Outright Owner	-0.0820	0.100	-0.1005	*0.064*
Renter - social landlord	-0.0453	0.578	-0.0208	0.815
Renter - private landlord	0.0287	0.683	-0.0186	0.812
County Specific Factors				
County level Δ real house prices*1000	-0.0002	0.832	-0.0003	0.806
County level unemployment	0.0170	0.148	0.0133	0.352
Generalised residual from initial conditions probit	0.0731	*0.000*	0.0745	*0.000*
Log-Likelihood	-11933.8		-10203.3	
LR ($\rho = 0$) chi²	*326.7*		*306.4*	
LR chi²				
Wald chi²	*130.4*		*116.9*	
N	3174		2963	
NT	21464		18388	

Note: Columns (2), (3), (4) and (5) include time-means of time-varying covariates to allow for correlation between time-varying covariates and unobserved heterogeneity. The coefficient and p-values of these time-varying coefficients are presented in the Appendix (Table A6.8). *Italic* indicates significance level (p-value) below 0.10, ***bold italic*** below 0.05.

Table A6.8: Time Means of Time-Varying Coefficients

	(1) Random effects Probit		(2) Random effects Probit		(3) Random effects Probit		(4) Random effects Probit		(5) Random effects Probit	
Time-means of time-varying covariates	coef.	p-value	coef.	p-value	coef.	p-value	coef.	p-value	coef.	p-value
Demographics (reference category: single)										
Age	-0.0212	**_0.000_**	-0.0211	**_0.000_**	-0.0207	**_0.001_**	-0.0197	**_0.005_**	-0.0196	**_0.010_**
Married	-0.0079	0.908	0.0150	0.847	-0.0015	0.986	-0.0948	0.320	-0.0351	0.739
Couple	0.0947	0.234	0.1676	0.062	0.2006	**_0.042_**	0.1528	0.160	0.1679	0.162
Widowed/divorced/separated	0.0696	0.424	0.0844	0.391	0.1023	0.345	0.0323	0.787	0.0548	0.677
Housing Tenure (reference category: own with mortgage)										
Outright Owner	-0.1688	**_0.001_**	-0.1118	_0.060_	-0.1170	_0.075_	-0.1145	0.117	-0.1180	0.143
Renter - social landlord	0.1264	_0.081_	0.1498	_0.067_	0.1616	_0.072_	0.1269	0.193	0.0826	0.436
Renter - private landlord	0.0367	0.624	-0.0098	0.908	0.0132	0.888	0.0498	0.626	0.0387	0.729
County Specific Factors										
County level Δ real house prices*1000	0.0023	0.659	0.0076	0.237	0.0051	0.494	0.0092	0.267	0.0025	0.825
County level unemployment	-0.0401	**_0.000_**	-0.0383	**_0.001_**	-0.0349	**_0.008_**	-0.0182	0.205	-0.0211	0.188

Source: authors' computations from BHPS.
Notes: _Italic_ indicates p-value < 0.10, **_bold italic_** indicates p-value < 0.05.

290

Table A6.9: Dynamic Random Effects Probit Model for Unrealistic Optimism

Variable	(1) Random effects Probit		(2) Random effects Probit	
	Coefficient	p-value	Coefficient	p-value
Over-optimism t-1	0.2464	*0.000*		
Over-optimism t-2			0.0668	*0.001*
Over-optimism t-3				
Over-optimism t-4				
Over-optimism t-5				
Interaction:				
Self-employed*Financial over-optimism (t-1)	0.1447	*0.006*		
Self-employed*Financial over-optimism (t-2)			0.0661	0.265
Self-employed*Financial over-optimism (t-3)				
Self-employed*Financial over-optimism (t-4)				
Self-employed*Financial over-optimism (t-5)				
Demographics (reference category: male and single)				
Age	0.0171	*0.002*	0.0160	*0.006*
Female	-0.0485	*0.011*	-0.0611	*0.005*
Married	0.0833	0.145	0.1003	0.121
Couple	0.0553	0.309	0.0553	0.362
Widowed/divorced/separated	0.0912	0.195	0.1229	0.118
Educational Attainment: (reference category: no qualifications				
University	-0.0952	*0.005*	-0.1229	*0.001*
HND/HNC	-0.0319	0.416	-0.0660	0.137
A-Level	-0.0261	0.400	-0.0464	0.189
O-Level/GCSE's	0.0080	0.768	-0.0075	0.809
Housing Tenure (reference category: own with mortgage)				
Outright Owner	-0.0298	0.428	-0.0850	*0.039*
Renter - social landlord	-0.0287	0.631	-0.0435	0.519
Renter - private landlord	0.0075	0.883	0.0324	0.572
County Specific Factors				
County level Δ real house prices*1000	0.0009	0.363	0.0001	0.953
County level unemployment	0.0378	*0.000*	0.0373	*0.000*
Generalised residual from initial conditions probit	0.0661	*0.000*	0.0804	*0.000*
Log-Likelihood	-18711.9		-16216.8	
LR ($\rho = 0$) chi^2	*216.1*		*328.7*	
LR chi^2				
Wald chi^2	*450.9*		*219.3*	
N	3924		3634	
NT	33032		28633	

291

Variable	(3) Random effects Probit		(4) Random effects Probit	
	Coefficient	p-value	Coefficient	p-value
Over-optimism t-1				
Over-optimism t-2				
Over-optimism t-3	0.0291	0.194		
Over-optimism t-4			0.0231	0.335
Over-optimism t-5				
Interaction:				
Self-employed*Financial over-optimism (t-1)				
Self-employed*Financial over-optimism (t-2)				
Self-employed*Financial over-optimism (t-3)	0.0963	0.138		
Self-employed*Financial over-optimism (t-4)			0.0278	0.698
Self-employed*Financial over-optimism (t-5)				
Demographics (reference category: male and single)				
Age	0.0152	*0.017*	0.0149	*0.029*
Female	-0.0565	*0.017*	-0.0557	*0.031*
Married	0.0979	0.178	0.1625	*0.048*
Couple	0.0079	0.907	0.0248	0.744
Widowed/divorced/separated	0.1092	0.209	0.1825	0.059
Educational Attainment: (reference category: no qualifications				
University	-0.1358	*0.001*	-0.1296	*0.005*
HND/HNC	-0.0540	0.262	-0.0699	0.182
A-Level	-0.0349	0.366	-0.0192	0.649
O-Level/GCSE's	-0.0082	0.810	-0.0091	0.808
Housing Tenure (reference category: own with mortgage)				
Outright Owner	-0.0850	*0.060*	-0.0821	*0.099*
Renter - social landlord	-0.0729	0.329	-0.0454	0.576
Renter - private landlord	0.0459	0.469	0.0289	0.681
County Specific Factors				
County level Δ real house prices*1000	0.0001	0.896	-0.0002	0.834
County level unemployment	0.0297	*0.004*	0.0170	0.147
Generalised residual from initial conditions probit	0.0751	*0.000*	0.0728	*0.000*
Log-Likelihood	-13950.9		-11933.7	
LR (ρ = 0) chi²	*334.3*		*326.2*	
LR chi²				
Wald chi²	*163.9*		*130.6*	
N	3378		3174	
NT	24840		21464	

292

Table A6.9 (continued)

Variable	(5) Random effects Probit Coefficient	p-value
Over-optimism *t-1*		
Over-optimism *t-2*		
Over-optimism *t-3*		
Over-optimism *t-4*		
Over-optimism *t-5*	0.0466	*0.069*
Interaction:		
Self-employed*Financial over-optimism (t-1)		
Self-employed*Financial over-optimism (t-2)		
Self-employed*Financial over-optimism (t-3)		
Self-employed*Financial over-optimism (t-4)		
Self-employed*Financial over-optimism (t-5)	0.0760	0.328
Demographics (reference category: male and single)		
Age	0.0151	*0.043*
Female	-0.0613	*0.029*
Married	0.0848	0.357
Couple	-0.0075	0.930
Widowed/divorced/separated	0.1524	0.155
Educational Attainment: (reference category: no qualifications		
University	-0.1186	*0.019*
HND/HNC	-0.0672	0.240
A-Level	-0.0056	0.903
O-Level/GCSE's	-0.0062	0.881
Housing Tenure (reference category: own with mortgage)		
Outright Owner	-0.1005	*0.064*
Renter - social landlord	-0.0203	0.819
Renter - private landlord	-0.0187	0.810
County Specific Factors		
County level Δ real house prices*1000	-0.0003	0.804
County level unemployment	0.0132	0.352
Generalised residual from initial conditions probit	0.0738	*0.000*
Log-Likelihood	-10202.8	
LR ($\rho = 0$) chi²	*305.6*	
LR chi²		
Wald chi²	*117.9*	
N	2963	
NT	18388	

Note: Columns (2), (3), (4) and (5) include time-means of time-varying covariates to allow for correlation between time-varying covariates and unobserved heterogeneity. The coefficient and p-values of these time-varying coefficients are presented in the Appendix (Table A6.10). *Italic* indicates significance level (p-value) below 0.10, ***bold italic*** below 0.05

Table A6.10: Time Means of Time-Varying Coefficients

Time-means of time-varying covariates	(1) 1991-2005 Pooled Probit		(2) Initial conditions Probit		(3) Random effects Probit		(4) Random effects Probit		(5) Random effects Probit	
	coef.	p-value	coef.	p-value	coef.	p-value	coef.	p-value	coef.	p-value
Demographics (reference category: single)										
Age	-0.0214	*0.000*	-0.0212	*0.000*	-0.0208	*0.001*	-0.0197	*0.005*	-0.0197	*0.009*
Married	-0.0069	0.920	0.0158	0.838	0.0003	0.998	-0.0944	0.322	-0.0354	0.737
Couple	0.0930	0.242	0.1669	0.063	0.2001	*0.043*	0.1526	0.161	0.1660	0.166
Widowed/divorced/separated	0.0698	0.423	0.0847	0.389	0.1029	0.342	0.0323	0.786	0.0548	0.676
Housing Tenure (reference category: own with mortgage)										
Outright Owner	-0.1685	*0.001*	-0.1124	0.058	-0.1176	0.074	-0.1147	0.116	-0.1191	0.139
Renter - social landlord	0.1286	0.075	0.1504	0.066	0.1622	0.071	0.1273	0.192	0.0831	0.433
Renter - private landlord	0.0351	0.639	-0.0113	0.895	0.0107	0.909	0.0491	0.631	0.0381	0.733
County Specific Factors										
County level Δ real house prices*1000	0.0025	0.612	0.0074	0.229	0.0051	0.484	0.0095	0.265	0.0022	0.821
County level unemployment	-0.0398	*0.000*	-0.0382	*0.001*	-0.0347	*0.008*	-0.0181	0.205	-0.0209	0.192

Source: authors' computations from BHPS.
Notes: *Italic* indicates p-value < 0.10, ***bold italic*** indicates p-value < 0.05.

295

ENTREPRENEURIAL ASPIRATIONS AND TRANSITIONS INTO SELF-EMPLOYMENT

CHRISTOPHER GEORGE DAWSON

Submitted to Swansea University in fulfilment of the requirements for the Degree of Doctor of Philosophy.

Swansea University
2010