



Citation for published version:

Henley, A, De Cock, C, Latreille, P, Dawson, CG & Humphreys, I 2008, *Entrepreneurial Aspirations and Activity amongst Students: A Comparative Study for Wales: Final Report to the Welsh Assembly Government*. Welsh Assembly.

Publication date:
2008

Document Version
Early version, also known as pre-print

[Link to publication](#)

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Entrepreneurial Aspirations and Activity amongst Students: A Comparative Study for Wales

Final Report to the Welsh Assembly Government

October 2008

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Acknowledgements

The authors would like to acknowledge the invaluable assistance of a number of individuals whose support has made it possible to have undertaken the survey work in this report:

Dr. Timon Beyes, University of St Gallen, Switzerland
Dr James Fairhead, University College Cork, Ireland
Mr Rudiger Hölz, School of Business and Economics, Swansea University
Dr Nina Kivinen, Åbo Akademi University, Finland
Professor Alf Rehn, KTH – Royal Institute of Technology, Sweden
Professor André Spicer, Warwick Business School, University of Warwick
Mr Dennis Thomas, School of Management and Business, Aberystwyth University

We would also like to acknowledge the enthusiastic support of Corina Edwards, Entrepreneurship Development Officer at Swansea University. Dr Beyes' involvement in the project was assisted by the award of a Leverhulme visiting research fellowship.

Executive Summary

This report documents the findings of 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 primary focus was on gathering survey data from Welsh students, along with students from a range of other university institutions elsewhere in Europe. The principle objectives of the project were to assess the factors which influence the formation of entrepreneurial aspirations and to assess the extent to which students perceive that they are well-prepared to begin new business ventures and to which they perceive entrepreneurship to be a rewarding career choice.

The report is based on a mix of quantitative and qualitative data, provided through the use of an internet-based survey instrument, supplemented by a fifteen in-depth interviews with students in two Welsh universities, and informed by discussions with a three Wales Knowledge Exploitation Fund supported higher education entrepreneurship development officers. The approach adopted in the report takes its lead from an assessment of the academic literature on the formation of entrepreneurial intention, and is therefore multidisciplinary in approach. It draws on perspectives and insights from economics, psychology and organisational studies. The composition of the research team, and of expert individuals consulted as part of the research, reflects this.

The survey data used in the report was collected from students at the following higher education institutions:

- Swansea University
- Aberystwyth University
- Warwick University
- University College, Cork, Ireland
- Royal Institute of Technology (KTH), Stockholm, Sweden
- Åbo Akademi University, Turku, Finland
- University of St Gallen, Switzerland
- University of Cooperative Education (Berufsakademie), Stuttgart, Germany

A lengthy questionnaire instrument was used to address a wide range of attitudes towards entrepreneurship and of potential influences of the formation of entrepreneurial aspirations. A total of 649 completed questionnaires were obtained of which 367 (57%) were from the two Welsh universities. A good spread of responses across the range of arts, social science, science and engineering subject disciplines was obtained. Just over a third of responses were from business management or economics students, reflecting the specialised nature of some of the European institutions surveyed. The gender split was 51% males and 49% females. Because nearly all the institutions surveyed recruit students internationally as well as from their own countries, there was a mix of Welsh, other British, other European and non-European respondents, allowing comparisons to be drawn on the basis of country of domicile.

The key findings in the report are as follows:

Entrepreneurial background

- 39 per cent of respondents reported that one or both parents were running or had at some time in past run their own business. Male students are significantly more likely to report parent entrepreneurship than female students.
- Just over 7 per cent of respondents reported that they have a sibling running their own business. 31 per cent reported having a close personal friend currently running their own business.
- Students at Welsh universities and from homes in Wales appear less likely to have a strong parental or peer group background in entrepreneurship. A lower average level of parental entrepreneurship is one significant factor associated with lower average entrepreneurial intentions amongst students in Wales.
- Around 20 per cent of students report that they have taken part in some form of entrepreneurship training as part of university study, but only 7 per cent report taking part in separate voluntary training outside university study. Men are more likely to have participated in entrepreneurship training than women.

Current entrepreneurial activity

- 6 per cent of students report that they are currently engaged in an entrepreneurial venture. Numbers are too small to draw any reliable conclusions about differences between Welsh and other students.
- Most of these are small scale, “hobby” businesses but a very small number are significant in size and employ other people or are run in partnership with others. Just over a third reported that they had needed start-up finance, usually from a bank or from family. Very few reported receiving government support.
- Over 14 per cent of students report that they are engaged in some form of “informal” entrepreneurial activity, such as internet trading or car boot sales. Welsh-resident students may be slightly more likely to be engaged in such activity

Entrepreneurial intention

- A total of 32 per cent of students report that they are likely to set up a business venture within three years of graduation. Male students are significantly more likely to report entrepreneurial intention. Aspirations to start a new venture are slightly lower amongst Welsh students. Proposed business ventures cover a wide range of activities, such as IT and web-design business activity, as well as restaurant or retailing activity.

- When asked where they might find the money to finance their proposed business, the most popular response is from a bank loan. Welsh students seem to be less aware of opportunities for receiving government start-up help than other students.
- There are significant differences between the genders in terms of attitude towards the desirability of self-employment vis a vis salaried employment. Men appear to have clearer, better formed preferences than women. Few students report a strong sense that their parents have particular career aspirations for them in this regard.
- Involvement in informal entrepreneurial activity is significantly associated with an increased likelihood of holding entrepreneurial intention.

Locus of control and personal opportunity

- Responses to multiple questionnaire items suggest that male students feel that they have greater control over their ability to enter self-employment, but that they would have less control than female students over their chances of success as an entrepreneur.
- Similarly Welsh students are rather less optimistic about their chances of success if they started a business venture.
- Women appear to value more the perceived levels of security and bounded responsibility associated with organisational employment. For male students entrepreneurship is associated with positive notions of status.
- The main differences in attitude towards different types of employment are between British and non-British, especially non-EU students.

Attitude to risk and self-efficacy

- Female students generally report that they are more risk averse, with around 60 per cent characterising themselves as low or very low risk takers, whereas only a third of male students see themselves in these terms. Attitude to risk is found to be one of the main factors associated with lower levels of entrepreneurial intention amongst female students.
- Welsh students are twice as likely to view risk as “danger” compared to students in other universities. Again attitude to risk is a strong contributory factor to the average entrepreneurial intention “gap” between non-Welsh domiciled and Welsh domiciled students. International students studying in Europe may be self-selected in that only those with a more positive attitude to risk would be willing to study abroad in a foreign language.
- There is little or no difference between Welsh and non-Welsh students in terms of perceived self-efficacy (that is the extent to which they feel well-equipped to launch their own business venture).

- A common theme from interviews is that students are not necessarily scared of risk but are worried about locus of control – the extent to which they feel that they can control the circumstances that would make venturing a business risky.

Student perceptions of entrepreneurship as a role

- Males and females hold different views of their future roles. Women are more likely than men to see themselves in “professional”, “caring” or “facilitating” roles. However very few of either gender would pick “entrepreneur” as the role that they see for themselves.
- Male students seem to have a more positive view of entrepreneurship in society. 46 percent see entrepreneurs as making an important contribution to society, compared to only 19 per cent of female students.
- Students in Wales have a generally less positive view of entrepreneurship, although the key difference here is between British and non-British students. However Welsh students are much less likely to see entrepreneurship as causing social harm.

The potential implications for public policy that follow from these findings focus on the need to improve opportunities for students to receiving training for entrepreneurship, and the need to provide students with direct contact with entrepreneurial role models and mentors, particularly where there is no strong parental or peer group background. Policy needs to address the “deficit” of entrepreneurial intention amongst female students in particular. Attention should also be given to the careful design of programmes to ensure that they are tailored to particular subject disciplines, to allow students to deploy particular subject-specific skills into an entrepreneurial context.

Chapter 1: Introduction

This report documents the analysis and findings of a comparative study of entrepreneurial aspirations amongst students, with particular focus on Welsh students, in comparison to those elsewhere in Europe, particularly in other small European states. The principle objectives of the research project were to assess the factors which influence the formation of entrepreneurial aspirations and to assess the extent to which students perceive that they are well-prepared to begin new business ventures and to which they perceive entrepreneurship to be a rewarding occupational choice.

Governments across Europe currently devote considerable effort towards raising the entrepreneurial aspirations of young people, as this is seen as way of improving entrepreneurial dynamism in the economy, as well as more generally improving future innovative and creative capacity. A wide range of different policy interventions have been pursued in support of these aims, ranging from schemes to raise “business awareness” and improve “enterprise skills”, through to more targeted interventions aimed at providing opportunities for internship within small businesses or “experiential” engagement in early stage entrepreneurial activity, and specifically targeted schemes to provided support to new young entrepreneurs in the early stage of a business venture.

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 raise entrepreneurial aspirations amongst young people, including the embedding of entrepreneurship into the school national curriculum in Wales, the encouragement of explicit entrepreneurship strategies in further and higher education, and actions to support careers services to promote entrepreneurship as a valid career choice. 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 within the context of further and higher education in Wales have been funded over the last seven years through the Welsh Assembly Government’s Knowledge Exploitation Fund (KEF), and within the context of wider activities to support student work placements through the GO Wales scheme.

Anecdotally there seems to have existed within Wales a widespread perception that the population, and particularly the younger population, views entrepreneurship and the venturing of new business less positively than counterparts elsewhere in the UK. In part this may spring from historically lower rates of business VAT registration in Wales compared to other regions of the UK, alongside slightly lower than average levels of self-employment in Wales. However VAT deregistration rates are also lower in Wales, suggesting both/either lower rates of “churn” and/or smaller average business size. 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”. The question of whether people, and specifically young people, in Wales are less entrepreneurial is in itself an important question for robust research investigation.

International evidence suggests that levels of entrepreneurial aspiration vary considerably across countries and regions (for example, Blanchflower et al., 2001). The Global Entrepreneurship Monitor has consistently highlighted wide variation in the level of “early stage entrepreneurial activity” across nations. The most recent GEM UK survey, for 2007, highlights variation across UK regions (Harding et al., 2008). Entrepreneurial aspiration (“I expect to start a business in the next three years”) in 2007 in Wales stood at 6.8 per cent of the adult population. Although Wales does not have the lowest rate across UK regions, this is somewhat below the UK average of 7.4 percent, but well below the average of 11.3 per cent for all G7 member countries. One aspect of the GEM research that consistently highlights weakness from the Welsh perspective is in the proportion of the adult population who perceive that “there are good start-up opportunities where I live in the next six months”. Only 33.1 per cent of adults in Wales agree with this statement, compared to a UK average of 39.0 per cent. The proportion for Wales is the lowest of any UK region.

The present study has undertaken quantitative survey work, through the use of an internet-based questionnaire survey, and qualitative work through in-depth semi-structured interviewing to address the importance of a range of potential influences on the formation of entrepreneurial aspirations of students. A multidisciplinary approach is adopted in order to gain insights from economics, psychology and organisational studies. The questionnaire survey instrument developed and used in the study addresses a wide range of background influences and attitudes in a much more detailed manner than most previous research. The report therefore addresses a range of aspects of early stage entrepreneurial activity, covering aspiration to start a new business venture, engagement in informal entrepreneurial activity, such as internet auction site trading, whilst studying, and actually establishment of business venture activity whilst a student. The report also investigates the scale of preparatory training activity, and the role of family and peer-group example. In addition the report addresses a range of issues concerned with perceived self-efficacy, that is the individual’s sense that they are well-equipped or well-positioned to become an entrepreneurial, as well issues concerning locus of control, that is the extent to which an individual perceives that they can influence the economic environment around them in order to make a success of a business venture.

The remainder of the report is structured as follows. Chapter 2 provides further background information on underlying conceptual approaches to entrepreneurial aspiration, and reviews the range of previous studies of entrepreneurial aspirations or intentions amongst young people. Chapter 3 provides detail on the research methodology and the questionnaire survey instrument, and provides basic descriptive information on the demographic characteristics of the sample obtained. Chapters 4 to 7 document in detail the research findings, focusing in turn on the aspects of family and peer-group background, on current entrepreneurial activity and aspirations as well as how the role of entrepreneur is perceived, on locus of control and on self-efficacy, including attitude to risk. Whilst particular insights from the qualitative research will be discussed along the way, Chapter 8 will detail additional insights from this aspect of the study, focusing in particular on how students perceive the wider importance of entrepreneurship. Chapter 9 will provide overall conclusions and draw from these implications for the design of public policy.

Chapter 2: Background and Literature Review

There is a sizeable academic literature on the determinants of entrepreneurial aspirations or intentions. The literature starts from the proposition that entrepreneurs, whether potential or actual, are systematically different from non-entrepreneurs (Gartner 1985). Research on existing entrepreneurs suggests that they may cite multiple motivations for preferring entrepreneurship to working as paid employees within an organisational context (Birley and Westhead 1994). Entrepreneurs may differ from non-entrepreneurs in terms of a range of personal characteristics, family and social background and personal resources (Carroll and Mosakowski, 1987; Bates, 1995; Kolvereid, 1996a and 1996b, Delmar and Davidsson, 2000). Although self-employment as status in the labour market may not map exactly onto entrepreneurship since self-employment in effect describes taxation status, this conclusion is supported by the extensive literature in economics on differences between the self-employed and employed (see Le, 1999 and Parker, 2004 for detailed surveys). This work highlights in particular the constraints and opportunities offered in the external market environment. Cognitive or psychological/behaviour factors may also be important in determining who becomes an entrepreneur (Gatewood *et al.*, 1995; Krueger *et al.*, 2000, Simon *et al.* 2000, Carter *et al.*, 2003) – indeed for some authors behavioural influences are regarded as more significant than background or environmental factors (for example Gartner 1989).

There is a substantial body of research conceptualising and testing the implications of cognitive models of entrepreneurial intention. An important starting point for much work is Ajzen's (1987) theory of planned behaviour. In simple terms this approach 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 a important mediation between background, beliefs and economic environment and the decision (or not) to launch a new business venture. Thus investigation of the scale of and influences on entrepreneurial intention becomes an important avenue of research. Figure 1 summarizes the Ajzen model.

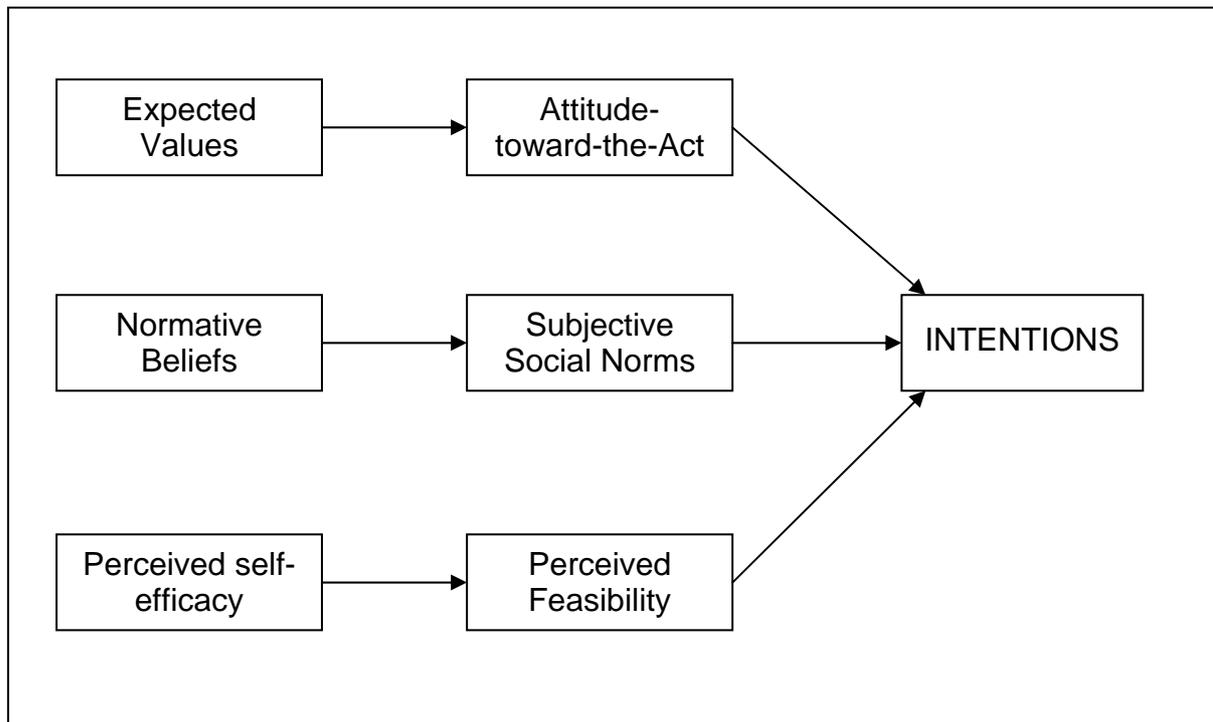


Figure 1: Ajzen's Theory of Planned Behaviour (Krueger et al. 2000)

The theory posits three “antecedents” of entrepreneurial intention. The first is attitude-towards-the-act, that is how the individual perceives entrepreneurship as an occupational choice. This attitude will follow from a set of individual values, and might include, for example, the way in which the individual views innovative or profit-seeking activity, or the way in which they hold wider socio-political views about the market economy. The second “antecedent” concerns how significant “others” in the individual’s life perceive entrepreneurial behaviour. The third concerns the extent to which the individual perceives that they have ability to achieve a particular target, in this case launching a new business venture. This is usually termed self-efficacy (Bandura, 1986), and might be in turn influenced by previous experience, prior learning and ability to handle risk. Demographic characteristics such as gender, ethnicity, or educational attainment, may also influence perceptions of self-efficacy, and thus the individual’s view as to how feasible entrepreneurship might be as a career choice.

Within the entrepreneurship literature an important contrast is made between the theory of planned behaviour and a model of the “entrepreneurial event” (Shapero, 1982). This is an approach in which displacement, for example, caused by life dissatisfaction or loss overcomes inertia to “follow the crowd” into organisational employment. Displacement might be caused by positive factors as well, such as receiving an inheritance. An individual may have entrepreneurial potential (in terms of competencies and resources), but lack entrepreneurial intention, until some displacement event comes along. Figure 2 summarises the model.

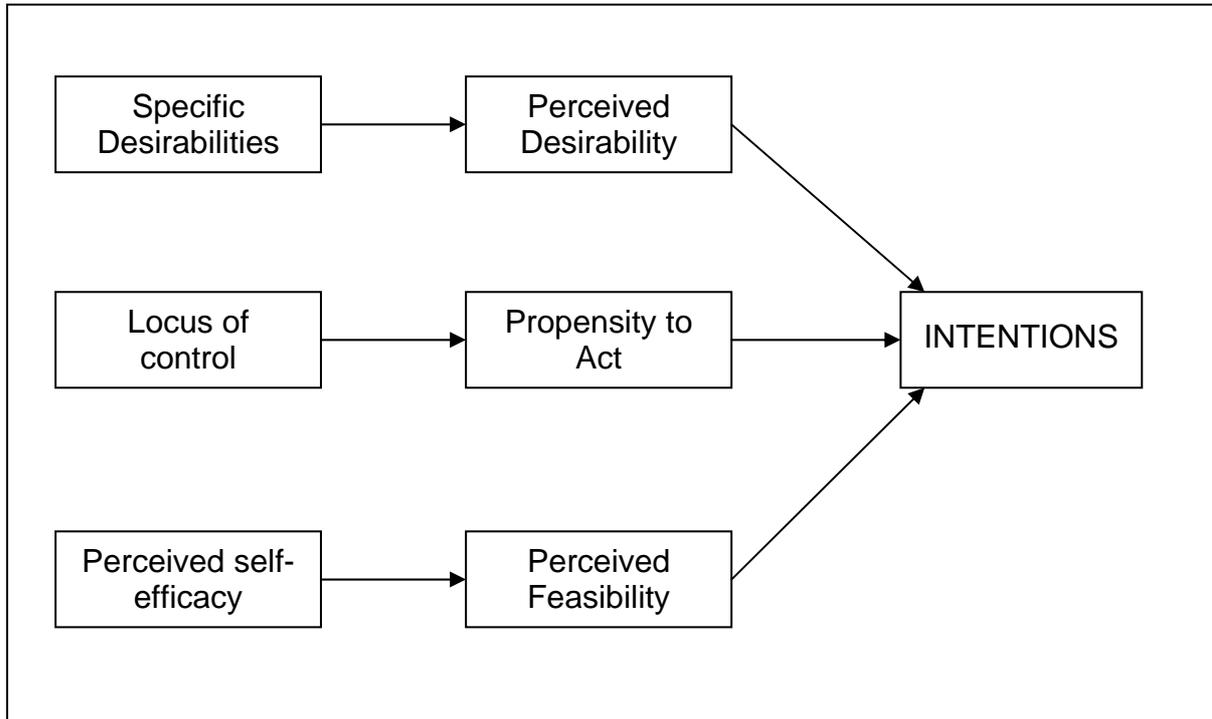


Figure 2: Shapero's Model of the Entrepreneurial Event (adapted from Krueger et al. 2000)

In this approach the perceived desirability and the perceived feasibility of entrepreneurship are important “antecedents” of intention. Prior exposure to entrepreneurship in some form may be important in establishing both feasibility and desirability (Krueger 1993). In addition to these, Shapero proposes the concept of “propensity to act”, reflecting the extent to which an individual has the volition to choose entrepreneurship as a career. In turn this may be influenced by what is commonly termed “locus of control”, that is the extent to which an individual perceives that they can assume personal control over external influences on their life. It can be thought of as “learned optimism” (Krueger et al., 2000). Evidence reported by Krueger et al. (2000), drawn from a sample of university business students, tends to support the entrepreneurial event model.

A growing range of studies have addressed various hypotheses concerning factors which may be associated with entrepreneurial intentions amongst students. For the UK, one of the earliest studies was that of Scott and Twomey (1988). These authors address a range of hypotheses concerning influences on entrepreneurial intentions from a small scale survey of students at the universities of Durham, Galway and West Virginia. The authors make the distinction between “predisposing factors” such as background, personality and perceptions, and “triggering factors” such as the need to obtain work and the nature of career advice. They conclude that students aspiring to self-employment are more likely to have parental role models, more likely to have relevant work and “hobby” experience, and more likely to have positive perceptions of entrepreneurship (particularly so for American students). In another well-cited study, Kolvereid (1996b) reports that 43 percent of a sample a Norwegian first year undergraduates report a career preference for self-employment. Tkachev and Kolvereid (1999) undertake a parallel analysis for Russia, investigate self-

employment intentions amongst 561 students in three universities in St. Petersburg. Well over a third report that they would prefer self-employment to a career working for someone else. Detailed analysis in both of these studies finds some support that, for these students, Ajzen's theory of planned behaviour appears to explain intentions rather than background factors.

Subsequent recent research documents the scale of student entrepreneurial intentions in various international contexts, and investigates a range of hypotheses concerning antecedents of, or influences on intentions. Comparisons between studies on the scale of entrepreneurial intentions are problematic because of different question forms and response structures (yes/no versus Likert scales, for example). Thandi and Sharma (2004) report that 51 percent of 315 Australia MBA students state a better than 50 per cent change that they will start a new business. Wang and Wong (2004) report that 51 percent of 5326 Singaporean students state an "above average" interest in starting a business, although only 4 percent perceive that they have an above average knowledge to do so. Frank and Lüthje (2004) report results from a survey of students at the University of Munich (n=342), the Vienna University of Economics (n=481), and Massachusetts Institute of Technology (n=490). They report that 19, 28 and 31 percent of respondents respectively are "likely" or "very likely" to start a business. Venesaar et al. (2005) find from a survey of 493 Estonian students that 61 percent had thought about starting a new business (and 13 percent had actually started one at some point). Veciana et al. (2005) compare 837 Catalan and 435 Puerto Rican students. 16 percent of Puerto Ricans and 4 percent of Catalans have a "firm intention" to create a business, a further 29 percent and 12 percent respectively have a "serious intention". Lucas et al (2006) report 20 to 25 percent rates of entrepreneurial intention amongst British engineering students, when asking about agreement with a range of different intention statements. Kraaijenbrink et al. (2007) survey international levels of student entrepreneurial intention across the five "innovative" universities of Warwick, Linköping (Sweden), Aalborg (Denmark), Twente (Netherlands) and Swinburne (Australia). Of 2415 respondents 6 percent states an intention to start a business in the next year and 30 percent at some later point in the future. 2.5% had already taken steps to start a business venture.

There are a small number of periodic or ongoing surveys of the level of student entrepreneurial intention. One such recently established study is the International Survey on Collegiate Entrepreneurship (www.isce.ch), coordinated by the European Business School (Germany) and the University of St Gallen (Switzerland). The 2006 survey covered 93 universities in 14 countries, although half of the participating institutions are in Austria or Switzerland (Fueglistaller et al. 2006). From a sample of over 37,000 respondents, 4.8 percent expected to be in a micro-enterprise within five years of graduation and 2.6% expected to be self-employment within five years. The survey identifies a small rate of entrepreneurial activity amongst current students; 3.2 per cent had already founded a business start-up. Founders tend to be older students (average age 29 years). In response to a more general question of entrepreneurial aspiration the survey reports that between 70 and 85 percent of respondents thought that they might start a business eventually. The survey incorporates more detailed question about preparation for and obstacles to entrepreneurship. A common theme emerging is that students perceive risk and

lack of capital, as well as a lack of business idea or understanding about potential markets as the main obstacles to fulfilling entrepreneurial intention.

Within the UK, a consortium of northern English universities collaborates on regular annual surveys of student intentions, in support of a collaborative programme to promote graduate entrepreneurship in the West Yorkshire region funded by Yorkshire Forward. The 2007/8 Survey (Ward et al. 2008) surveyed over 8000 students across HEIs in the Yorkshire and the Humber region. It reports that around 32 percent of students report that they are “probably” or “definitely” likely to start a business after graduation. Those answering “definitely” are around 5 percent of survey, corresponding roughly to the actual proportions of graduates in the region who enter self-employment on graduation. Intending entrepreneurs are more likely to be older and male. Of some concern is the observation that the proportion of intending entrepreneurs among the student population has fallen slightly since the beginning of the survey in 2004. Across the survey, background factors such as parental experience of entrepreneurship, the presence of role models and previous work experience appear to correlate with entrepreneurial intention.

Certainly one can conclude from this range of findings that levels of interest in entrepreneurship are high amongst students in many countries including in the UK. However comparisons are not straightforward. Open-ended statements which do not place a tight timeframe on potential interest in venturing a business tend to lead to generate high levels of agreement. Actual business start-up rates by current or recent graduates, or rates of self-employment are much lower. One might conclude from this that many graduates pursue careers in organisational employment as frustrated would-be entrepreneurs. But this may be an over-simplification: students may find that positive perceptions of entrepreneurship (independence, financial opportunity etc.) are tempered by negative perceptions of risk, or simply by the lack of any clear business idea.

Studies of student entrepreneurial intentions adopt a range of conceptual approaches to understanding which factors may influence the formation of those intentions. Broadly there are three themes to emerge from the literature.

The first concerns the role of background influences and factors. Demographics, while they may not influence the formation of intentions directly, are typically associated with the level of intentions. A particularly strong conclusion is that levels of interest in entrepreneurship are significantly higher for male students than for females. Some studies, particularly where the age range of students surveyed in wider, also note that levels of intention are higher amongst older students. The most commonly discussed background influence in the literature is the effect of entrepreneurial parents or other role models. For example, 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 percent of actual and aspiring British entrepreneurs had a self-employed parent. Such findings have been interpreted in terms of “social learning” (Krueger 1993). A number of studies have identified significant correlations between parental background in business venturing and student interest in entrepreneurship (Scott and Twomey, 1988; Wang and Wong, 2004; Hytti et al, 2005; Veciana, 2005; Lucas et al. 2007; Kirkwood, 2007, Ward et al., 2008). Kirkwood (2007) suggests that the importance of father role

models for male graduate entrepreneurs may be more important than parental role models for women.

The second theme concerns attitude to risk. Ward et al. (2008) comment that student preparedness to tolerate risk improves as they progress through university. The International Survey of Collegiate Entrepreneurship (Fueglistaller et al. 2006) asks students about agreement with a set of perceived obstacles to starting a business venture. The highest level of agreement (4.51 on a 5 point Likert scale) is "own financial risk". A number of previous studies have attempted to correlate student entrepreneurial aspirations with some indicator or set of indicators of individual attitude towards risk, and find varying degrees of robustness in the relationship (Segal et al, 2005; Venesaar et al., 2005; Frank and Lüthje, 2004). There seems to be considerable international variation in students' attitudes to risk. Frank and Lüthje note that students at MIT display rather less risk aversion and have higher rates of entrepreneurial intention than European students. Wang and Wong (2004) find no relationship between attitude to risk and entrepreneurial intention in the case of Singaporean students. As for parental background the relationship between attitude to risk and entrepreneurial intention may be gendered, and may in part explain the commonly observed differences in rates of intention between men and women.

The third theme concerns the perceived feasibility of entrepreneurship. Studies which address this issue place greater emphasis on the cognitive aspects of the formation of entrepreneurial intentions, by asking respondents to address statements or questions focusing on the issue of how easy the individual thinks it will be to start a new business. Studies typically combine multiple questionnaire items to produce self-efficacy constructs, and correlate these with responses to statements about entrepreneurial intention. Those studies which find a positive relationship between intention and perceived feasibility include Segal et al. (2005), Linan et al. (2005) and Scott and Twomey (1988). The important conclusion here is that this relationship offers the possibility that educational programmes to raise student entrepreneurial awareness and skills may improve rates of start-up intention, through acting on the way in which students perceive entrepreneurship to be a feasible career option. Lucas et al. (2007) sound a note of caution here. In a survey of engineering students these authors find that higher entrepreneurial self-efficacy does not correlate with increased "alertness" to technology-based business opportunities. They conclude that the design of entrepreneurship education programmes needs to be sufficiently sophisticated to differentiate the needs of potential entrepreneurs from different subject discipline backgrounds.

A number of studies have investigated the impact of particular university and government-sponsored entrepreneurship education programmes on the likelihood that students will form entrepreneurial intentions (Hatten and Ruhland, 1995; Peterman and Kennedy, 2003; Cooper and Lucas, 2006; Souitaris et al. 2007). These studies are all generally positive about the impact of entrepreneurship education programmes in various guises, reporting that individual participation appears raise intentions. In general the evidence is that the mechanism here is that programme participation improves students perceptions of the feasibility of a career in entrepreneurship, that is it raises individual confidence that they could make a success of a business venture.

Within the literature those intending and preparing a new business are termed, by convention, *nascent entrepreneurs*. However there is often variation in the way in which nascent entrepreneurship is defined. Consequently care needs to be taken in interpreting variation of reported rates of entrepreneurial intention or nascent entrepreneurship. Preparation for entrepreneurship can include business plan development, market research activity and the identification of market opportunity, the use of private or public sector business support services, and engagement in preparatory training. Shook *et al.* (2003) point out that activity at each stage of new venture creation may be influenced by a range of individual characteristics. These may include various psychological and cognitive influences, as already described, as well as personal characteristics (demographic status, ability and past experience). While rates of preference for entrepreneurship may be high, levels of nascent entrepreneurship, combining aspiration and preparation, are typically much lower. Delmar and Davidsson (2000) report a rate of nascent entrepreneurship of between 2 and 3 percent in the general population in Norway and Sweden and compare these to rates of almost 4 percent obtained from comparable survey work for the US (Reynolds, 1997). Rates of nascent entrepreneurship are estimated at 6.2 percent of all adults in the US Panel Study of Entrepreneurial Dynamics (PSED) data set (Reynolds *et al.*, 2004, see Gartner *et al.*, 2004 for detailed analysis of the PSED). Henley (2007) reports a rate of 4.4 percent for an indicator of nascent entrepreneurship for the UK adult population constructed from the British Household Panel Survey for 1998-2002.

The Global Entrepreneurship Monitor (GEM) is a major and highly influential international comparative study on nascent entrepreneurship which has been ongoing since 1998. The number of participating countries has increased steadily to a total of 42 in 2007. A particularly important feature of GEM is the use of a standardized indicator of early stage entrepreneurship across all participating countries. The GEM measure is termed “total entrepreneurial activity” (TEA) and 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). For the UK rates of TEA of around 6 per cent of the adult population are observed (Harding *et al.* 2008). This total divides roughly equally between nascent entrepreneurs and new business owners. TEA in the UK is close to the average for the G7 countries. The USA stands out as having a significantly higher rate of TEA at almost 10 per cent. However in developing and emerging economies observed rates can be much higher – for example the rate for China in 2007 was over 16 per cent.

Recent research has turned its attention to the question of transition from aspiration towards entrepreneurship to becoming a nascent or early-stage entrepreneur. Typically the latter might be measured as self-employment. Research on entrepreneurial transitions is sparse because a thorough investigation requires the use of longitudinal data. Early research has been criticised for working backwards from existing entrepreneurs to examine recollected information about the new venture start-up process (Reynolds and Miller, 1992). For example the US PSED defines and identifies nascent entrepreneurs in the general population and tracks these as they achieve success in establishing a new venture (Gartner *et al.*, 2004). Secondary analysis using this and similar surveys has enriched researchers’ understanding of the process of new venture formation and the characteristics of

successful nascent entrepreneurs. However, because it identifies nascent entrepreneurs and then only tracks these, it provides limited insight into the extent to which transitions may be more spontaneous and/or achieved by individuals who were not at a particular point in time identified as nascent entrepreneurs.

Various studies have examined the sequence of events leading to entrepreneurial start-up (Carroll and Mosakowski, 1987; Katz, 1990; Reynolds and Miller, 1992; Carter et al., 1996; Carter et al., 2003; Rotefoss and Kolvereid, 2005; Parker and Belghtar, 2006). With the exception of some personal, perhaps financial, commitment from the nascent entrepreneur, the absence of any common sequence of events is a frequent conclusion to emerge from this research (Reynolds, 1997). Some gestations are very quick; others take years. The reasons given for choosing entrepreneurship are not particularly different from those given by choosers of other occupations. Carter et al. (2003) provide a detailed review of recent research, including their own. A recent integrative approach to understanding transitions into entrepreneurship is provided by Rotefoss and Kolvereid (2005). This study examines transition behaviour amongst nascent Norwegian entrepreneurs. This research highlights the importance of entrepreneurial experience in predicting business start-ups, as well the role of human resources (education). It also concludes that regional influences, such as local unemployment conditions and industrial specialisation, may also predict transition behaviour.

However, this research offers limited insights as to what factors are associated with nascent entrepreneurship or with the transition from aspiration to actual entrepreneurship. Cross-sectional analysis of existing entrepreneurs is likely to be contaminated by 'recall' bias (retrospection), and may fail to address causality between new venture creation and associated traits and factors. Furthermore, tracking studies of nascent entrepreneurs tend not to provide control group comparison (for example Gatewood et al., 1995). So while such studies may be informative about differences between successful and unsuccessful nascent entrepreneurs, such comparisons do not control for the 'selection bias' that arises because nascent entrepreneurs may not be a random sample of the population at large. Other studies have attempted to track transitions into entrepreneurship, or more precisely self-employment, using nationally representative general longitudinal surveys. In the economics literature little consideration has been given as to whether transitions into self-employment follow or not from any previous aspiration and involve any preparatory action (*references...?*) They have been largely concerned with understanding the issue from the perspective of labour market transition.

Two studies do consider transition from aspiration to nascent entrepreneurship. In a now rather dated study Katz (1990) uses the US Panel Study on Income Dynamics (PSID). He identifies aspirations towards self-employment in the general employed population using data from the first wave of the US PSID. Of 2251 wage and salary earners in the 1968 sample, only 1.5% (33) aspired to self-employment. Of these, 27 individuals made some attempt between 1968 and 1972 to prepare for self-employment but only 6 of these actually became self-employed. However a further 57 (2.5%) did not state an aspiration but actually transitioned into self-employment. A small number stated an intention to change to another waged or salaried job but transitioned to self-employment instead. Katz's research reveals that a significant

proportion of entrepreneurial start-ups can and do occur in the absence of prior stated intention. This is an important finding which appears to have been largely ignored in subsequent work.

Henley (2007) performs a similar exercise using the British Household Panel Survey. This paper employs a statistical approach which allows for unexplained heterogeneity in the formation of aspirations to be correlated with that in the self-employment transition choice. Aspirations are found to be associated with displacement factors such as low job satisfaction, but this finding is not translated into an association with transitions. Aspirations are not found to be associated with intentional activity such as active saving, or with correlates of personal efficacy such as financial wealth and educational background. The paper finds some significant regional variation, other things equal, in the level of aspirations. Some regions, Wales included, have higher levels of aspiration but these do not translate subsequently into a higher start-up (or self-employment) rate. Henley argues that these findings support the conclusion that policy should address the level of preparedness for new business start-up amongst aspiring entrepreneurs.

Although such a sophisticated longitudinal analysis is beyond the scope of the present study, such work points to the high degree of individual heterogeneity in the way in which individual entrepreneurial intentions are formed, and in particular on whether those intentions will result in action to launch a new business venture. Nevertheless the literature surveyed in this chapter has pointed to a potentially broad range of factors which should be considered, and which together may explain why some groups of individuals, for example in a particular locality, may be better disposed towards entrepreneurship as a career option than others.

Chapter 3: Research Methodology and Survey Instrument

As the previous discussion has highlighted, any sophisticated study of entrepreneurial intentions and transition towards the formation of a new business venture will ideally rely on a longitudinal analysis, tracking individuals in real time through the process of the formation of intentions, and the preparation and execution of business plans. However, as has been seen, for some individuals this process may be rapid, for others it may take several years. Indeed, in the case of young people, experiences acquired as part of schooling and higher education as well as values formed through family, peer-group and societal background may take many years before they translate into actual entrepreneurial activity. A detailed study of the formation of entrepreneurial intentions amongst young people could potentially therefore be long term and expensive. The aims of the present study must therefore be rather more modest. In particular the present study focuses predominantly on the formation of current entrepreneurial aspirations amongst students, although we will examine levels of nascent entrepreneurship amongst a cross-sectional sample of the student population.

The present study however has set itself the aim of developing a broad questionnaire instrument designed to elicit a wide range of potential information on the antecedents of entrepreneurial intention. The full questionnaire is reproduced in the Appendix. At the outset provisional support was obtained to distribute access to the questionnaire to student populations in nine different higher education institutions (three in Wales, and one each in England, Ireland, Sweden, Finland, Denmark and Switzerland. In the event seven of these were able to circulate access details. These are:

- Swansea University
- Aberystwyth University
- Warwick University
- University College, Cork
- Royal Institute of Technology (KTH), Stockholm
- Åbo Akademi University, Turku
- University of St Gallen

Subsequently an offer was received to circulate access to the questionnaire to one further university:

- University of Cooperative Education (Berufsakademie), Stuttgart

The British, Irish and Finnish institutions are all “full service” universities in the sense that they provide programmes across the spectrum of science, social science, arts and humanities subjects. Swansea, Warwick and Cork also provide programmes in medicine, health subjects and in engineering. KTH Stockholm is a specialist institution providing programmes in architecture, applied science and engineering subjects. The University of St Gallen, Switzerland, is a specialist social science institution providing programmes in business management, economics, law and political science. The University of Cooperative Education, Stuttgart is a vocational institution under the German “dual” system specialising in engineering, information

technology and management programmes. Table 3.1 provides further details of the size of each institution.

The questionnaire instrument contains schedules of questions on the following topics:

- Demographics (age, gender, ethnicity, disability, cohabitation status, nationality)
- Family and peer-group background in entrepreneurship
- Attitudes towards and understanding of entrepreneurship
- Education and training in entrepreneurship/small business management
- Entrepreneurial aspirations/intentions
- Current involvement in entrepreneurial activity, including sources of finance and other set-up support
- Perceived locus of control
- Preferences and attitudes working for oneself
- Attitudes towards financial risk and self-efficacy
- Views about public support for young entrepreneurs

The design of the questionnaire was informed by a prior review of the literature to identify the range of issues and hypotheses addressed, and subject to preliminary review by a small number of recent graduate entrepreneurs. A preliminary version of the questionnaire was piloted in November 2007 on taught masters' students in business management (MBA and MSc) at Swansea University. 46 responses were obtained of which 38 fully completed the questionnaire. The process of piloting identified a small number of areas where supporting and linking text needed to be clarified, as well as some minor question routing issues. The final questionnaire used was substantially the same as the pilot. Pilot respondents, because they were postgraduate students and have a much higher preponderance to be from overseas, have been omitted from the analysis.

The questionnaire was distributed as an internet survey, managed through the Survey Monkey research resource (www.surveymonkey.com). The use of an internet-based survey provided substantial economies in the cost of producing and delivering the survey, as well as removing the need for manual data entry from hard copy. However this method does lead to some issues and disadvantages. The first consideration is that the software provides an option to prevent more than one response from each IP address. However, since not all students use their own computers and may make use of "public-access" university workstations, it was decided not to select this option. A related concern was that some students may look at the questionnaire, perhaps completing early sections of it, but return to provide a full response at a later time or date. Restricting to one response per IP address would prevent this. But this does mean that any partially completed questionnaires must be treated with caution. Such responses could either be genuine partial responses – on the other hand they could be aborted first attempts at completion. In consequence of this uncertainty it has been decided to eliminate any partially completed or duplicate responses from the secondary analysis.

The study team were advised that levels of English ability in the non-UK and Ireland institutions was very good and that it was therefore not necessary to arrange for questionnaire translation. All respondents answered the questionnaire in English. This has avoided any issues of differences of interpretation and meaning in different languages.

Questionnaires were emailed to particular populations of students over the period December 2007 to April 2008. In the case of 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 a 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 to 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 teaching 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.

To encourage response, students were invited to provide an email address for entry into a prize draw to win Amazon gift vouchers. Students were also additionally asked to provide an email address if they were prepared to allow the research team to re-contact them for a further interview. A significant majority of respondents indicated that they were willing for re-contact.

Table 3.2 provides information about the number of responses from each university. 56.6 per cent of complete responses were from the two Welsh institutions.

Table 3.3 details the sample according to broad subject categories. Students were asked to categorise their subject area according to the grouping listed in the Table, or to tick an "other" option and provide a text description. In a number of cases students ticked "other" because they were studying joint or combined honours subjects; in other cases this was because they did not immediately see where they subject fit into the categorisation (e.g. Geography). All the "other" responses have subsequently been categorised. The table shows that there is a spread of responses across the full range of subject areas. However over half of the completed responses are from business management/economics or science and engineering subject areas. In part this reflects higher response rates from business school students, but also reflects the greater specialisation of some institutions (notably KTH Stockholm and the University of St Gallen) in these subject areas.

Table 3.4 details the gender, age and ethnicity breakdown of the sample. There is a good breakdown between male and female respondents, with close to half of the completed responses coming from each gender. The majority of respondents are young people pursuing university study soon after completing school education and this is seen in the respondent age distribution. 62 per cent of respondents are 21

years of age or less, over 90 per cent are 25 years of age or less. Over 86 per cent of the sample report that they are white ethnicity. There are however sizeable South Asian (Indian sub-continent) and Chinese groups within the sample, reflecting the important presence of overseas students from these regions in a number of the universities. This is particularly so in the UK and at KTH Stockholm, where significant programmes are taught through the medium of English.

Finally in this section, Table 3.5 reports information on the country of residence of the sample respondents. Just over 51 per cent of the sample is UK-domiciled. The remainder are spread across a range of other EU states, particularly represented by the participating institutions. The significant proportion of Germans in the sample reflects that the University of St Gallen is located in the German-speaking area of Switzerland and recruits students extensively from within Germany. 12.3 per cent of the sample are individuals from countries beyond the European Union (and Switzerland), reflecting the presence of international students studying away from their country of residence in the sample.

We conducted 15 in-depth interviews, typically 45 minutes in length, with undergraduate students at Swansea University and Aberystwyth University. These students were either running their own business or were involved in an entrepreneurship programme at the University. For the purposes of this report the interviews have been used to contextualise the survey results and quotes from our interviewees can thus be found throughout the analysis chapters.

Table 3.1: 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: UK Higher Education Statistics Agency; Higher Education Authority, Ireland; individual universities.

Notes: ¹ Bachelors and masters students

Table 3.2: 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
<i>Total</i>	<i>877</i>	<i>649</i>	<i>100.0</i>

Table 3.3: 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
<i>Total</i>	<i>649</i>	<i>100.0</i>

Table 3.4: Sample Breakdown by Gender, Age and Ethnicity

	Total complete responses	Per cent of total
<i>a) Gender</i>		
Male	333	51.3
Female	316	48.7
<i>b) Age</i>		
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
<i>c) Ethnicity</i>		
White	561	86.4
Black Afro-Caribbean	10	1.5
South Asian	33	5.1
Chinese	45	6.9

Table 3.5: 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
<i>Total</i>	<i>649</i>	<i>100.0</i>

Chapter 4: Entrepreneurial Background

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. In this chapter we examine the extent to which a family background in entrepreneurship is an important phenomenon, and the degree to which sample respondents are exposed to peer-group entrepreneurial influence.

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 4.1 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 reports 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 4.1 and 4.2 illustrate parental involvement in running a business according to whether the respondent is studying at a Welsh university or not. It is particularly striking that Welsh university students are more likely to report that neither parent was or is engaged in entrepreneurial activity. 73 per cent of students at one of the two Welsh universities report that neither parent is currently engaged in a business venture, whereas the figure for students from other universities is only 57 per cent. For parental business involvement while at the school the difference is still

pronounced although not quite as large. In both cases Pearson Chi-squared statistics report that the different pattern between the two student groups is statistically significant.

Similar, but less pronounced, effects are reported by country of domicile in Figures 4.3 and 4.4. Students who come from Wales are less likely to have parents who are or have been involved in running a business. Again 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.

Figures 4.5 and 4.6 show the relationship between peer group involvement in entrepreneurial activity and country of study and domicile. Levels of sibling involvement in entrepreneurial activity, as seen in Table 4.1, are very low, and no clear relationships between country of study and domicile emerge. However for close friend involvement in entrepreneurship peer group effects are stronger and differences between student groups pronounced. Students at Welsh universities are less likely to report the existence of friends who are involved in running a business. Welsh domiciled students are a little more likely to report such friends than students from other parts of the UK (England), but both Welsh and English students are less likely to know a friend involved in a business venture than students from beyond the UK.

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. Figures 4.7 and 4.8 illustrate the relationship between whether or a parent is employing others and country of study and of domicile. Again there appear to be significant differences. Students at Welsh universities are less likely to report that a parent is running a business which employs other people. A very similar pattern is present in terms of whether a close, personal friend has a business which employs others in Figures 4.9 and 4.10. 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.

The importance of key background figures in exciting student interest in a potential career in entrepreneurship was readily apparent from semi-structured interviews with aspiring student entrepreneurs:

“ My dad was in the army when I was born. He left when I was six, he left the army, and then he actually set up his own business....going round tuning people’s cars.”

“I take a lot after my auntie, who runs her own business, and she has done quite a lot in her life... At the moment she’s got a hotel in Scotland. I love going up there are working for her.”

“So my dad has his own business, he imports limes from.... He imports spices and pet food. So he kind of runs his own business. My mum is manager in a travel agency, so she runs the whole business...”

“My grandfather used to run businesses when he was younger and he said that starting a business is like trying to ride a bike with square wheels upstairs.”

“My dad is very, I would say, is a very forward thinking person and he’s got lots of ideas and he’s managed to do a lot of things on the farm...”

“My old tutor who taught me to become a swimming teacher said he ran these courses and would I like to put one on and he said, in actual fact you can actually make money from it as you’re doing it...”

“Father’s actually in wholesaling, and my mother’s a teacher. So I guess there’s the entrepreneurship and of course the learning side from my mum. ...(Dad’s) packed that business in and he’s looking for something else at the moment. Probably his own business.”

“My dad runs his own business. He’s done that for like six years, he’s kind of self-employed really but it’s set up such that ... he doesn’t employ anyone else as such. I’m registered as a director.”

“Well, my parents built their first house when they were, my Dad was 17 and my mum was 16 and they’ve been building ever since, so trial and error for them.”

It is clear that many respondents found these significant individuals inspiring, but nevertheless did not have any illusions about what might have been involved for them.

One further important aspect of entrepreneurial background is exposure to education or training on entrepreneurship or small business management. 33 percent of respondents reported that they had at some point taken part in formal entrepreneurship or small business management course. Table 4.2 provides a further breakdown of the type of training. The most common training experience was as an element of a university course. 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 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 was 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. However as Figure 4.11 shows the level of participation in entrepreneurship training amongst students attending the Welsh universities is significantly lower. Figure 4.12 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.

Respondents were also asked about work placements in a small business as part of their education. 43 percent of respondents reported that they had attended a work placement in a small business, with almost identical rates of response from men and women. 47 per cent of students at Welsh universities report participation in a work placement, compared to only 37 per cent of other students. This positive difference is also apparent by country of domicile, as shown in Figure 4.13.

In summary 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 at Welsh universities or 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 well-formed 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. However there is some evidence that Welsh students are more likely to report work placement experience in a small business, particularly in comparison to other non-UK European students. This perhaps indicates the value and success of schemes such as Go Wales.

Table 4.1: Entrepreneurial Background by Gender

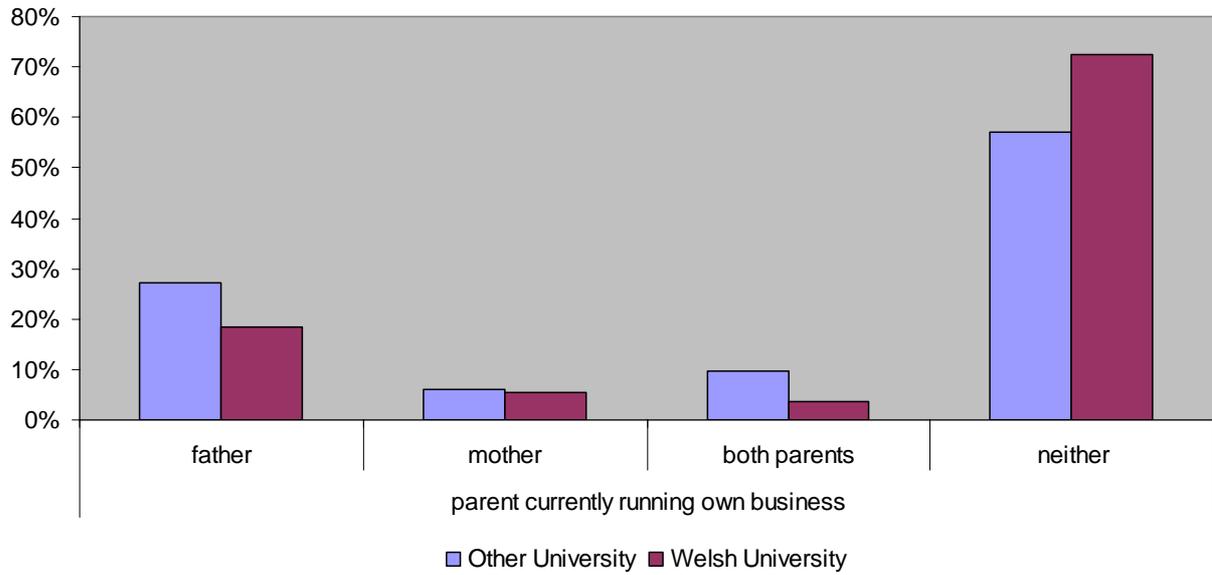
Percentage	Male	Female	All	Pearson Chi-sq (p-value)
<i>a) Parent currently running own business</i>				
Father	25.8	18.7	22.3	
Mother	4.8	6.6	5.7	
Both parents	8.1	4.1	6.2	
Neither	61.3	70.6	66.8	0.012
<i>b) Parent ran business when at school</i>				
Father	27.9	21.8	25.0	
Mother	6.0	7.6	6.8	
Both parents	11.1	9.5	10.3	
Neither	55.0	61.1	57.9	0.215
<i>c) Sibling currently running own business</i>				
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
<i>d) Close personal friend currently running own business</i>				
Yes	36.3	25.3	31.0	
No	63.7	74.7	69.0	0.002

Table 4.2: Training for Entrepreneurship

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

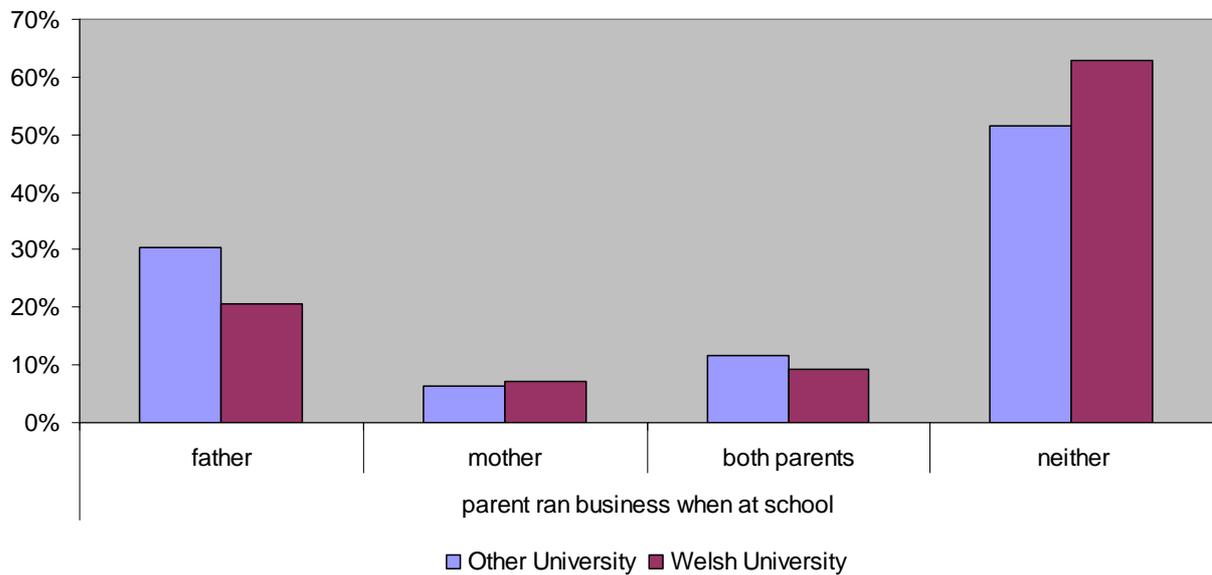
Note: Some respondents may have engaged in more than one type.

Figure 4.1: Parental current business involvement by university



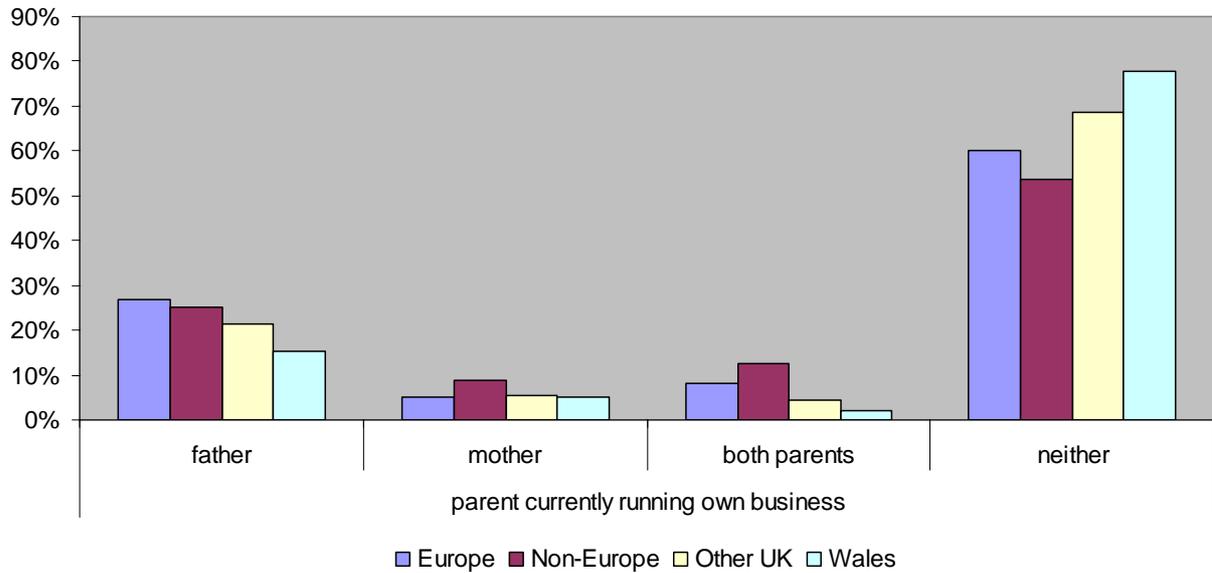
Note: Pearson Chi-squared p-value = 0.000

Figure 4.2: Parental business involvement when at school by university



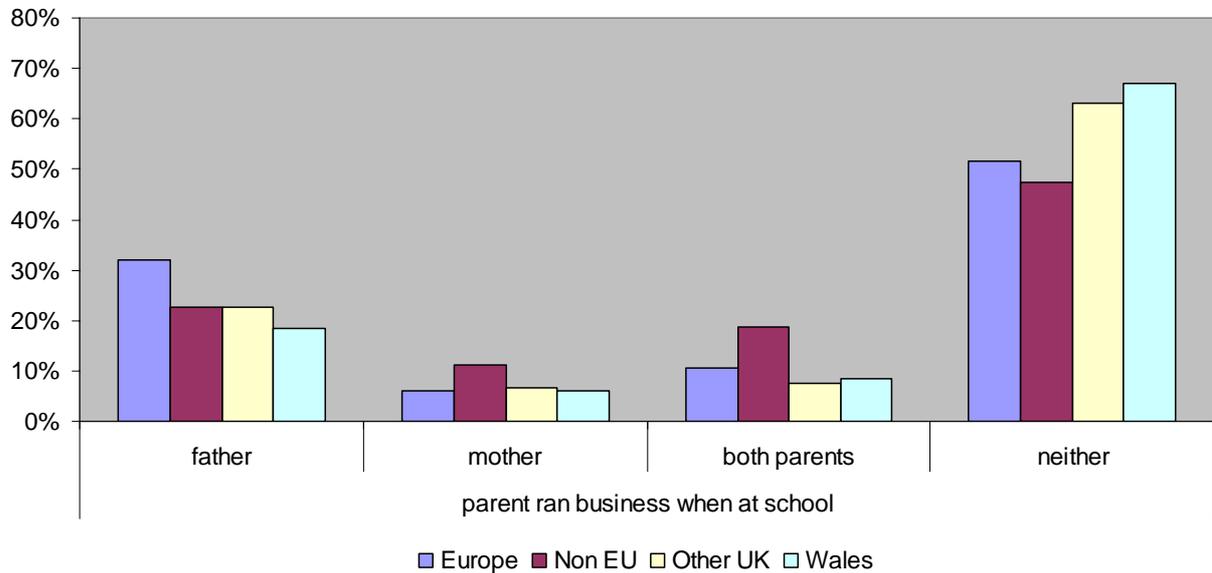
Note: Pearson Chi-squared p-value = 0.002

Figure 4.3: Parental current business involvement by country of domicile



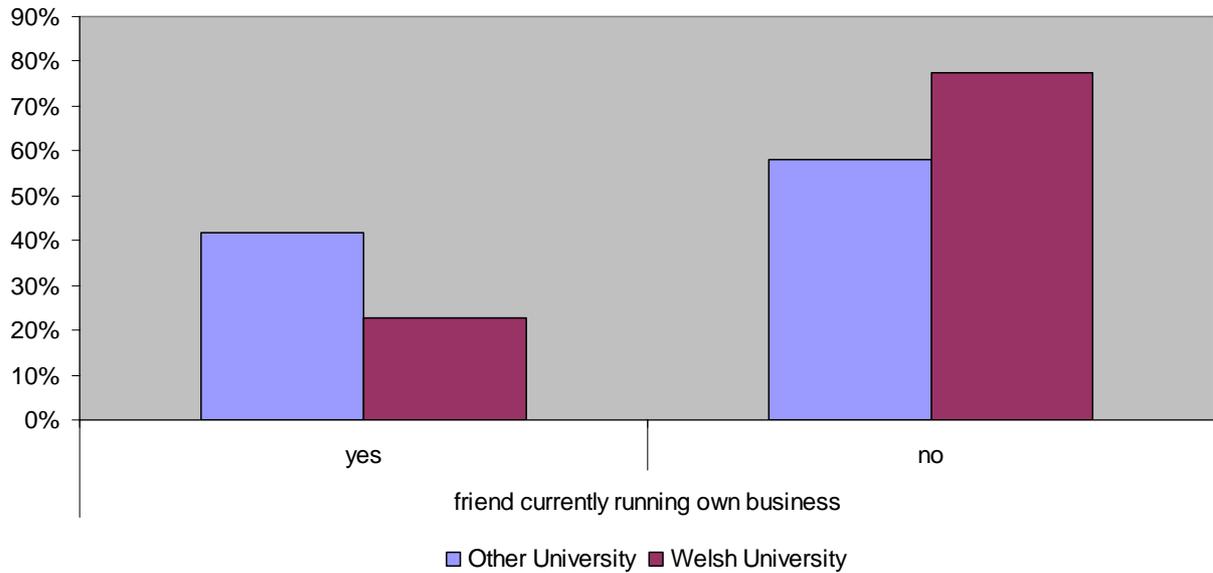
Note: Pearson Chi-squared p-value = 0.013

Figure 4.4: Parental business involvement when at school by country of domicile



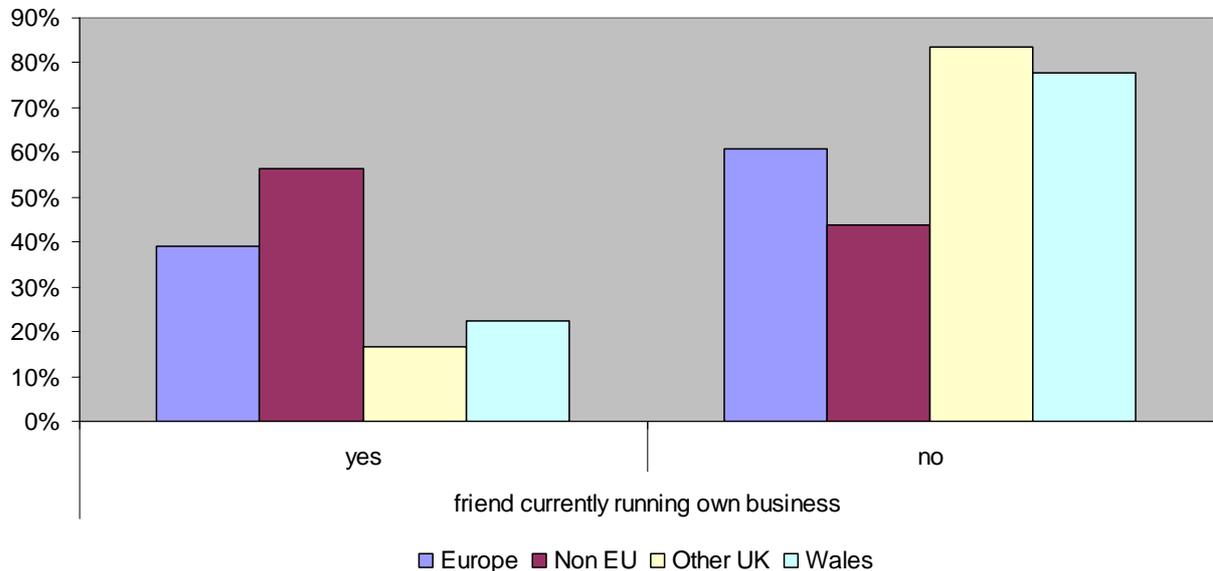
Note: Pearson Chi-squared p-value = 0.004

Figure 4.5: Close friend current business involvement by university



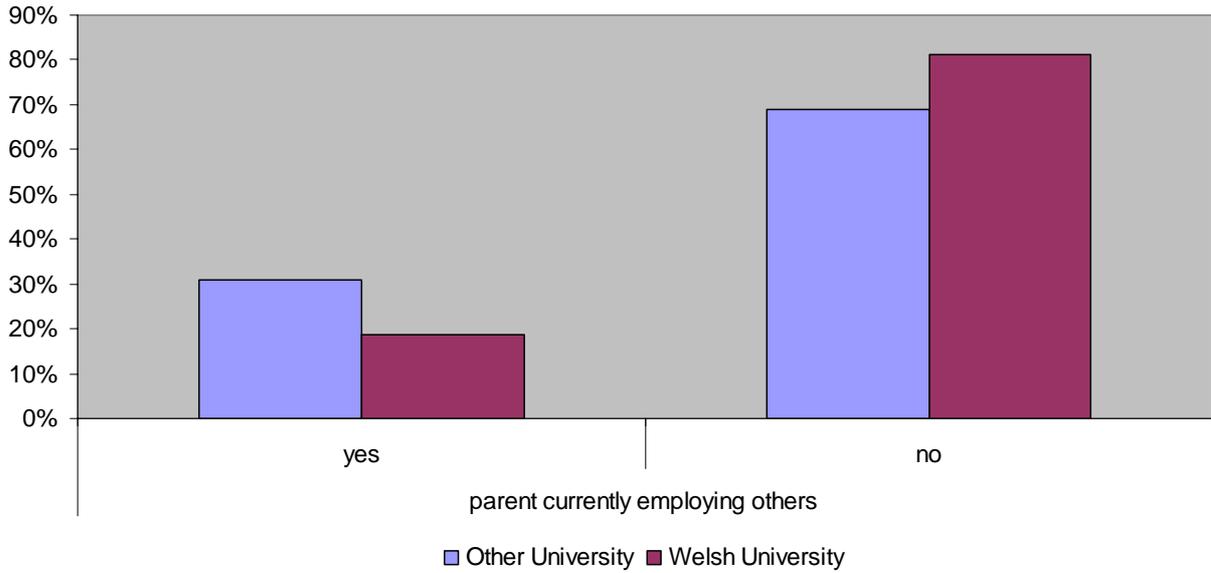
Note: Pearson Chi-squared p-value = 0.000

Figure 4.6: Close friend current business involvement by country of domicile



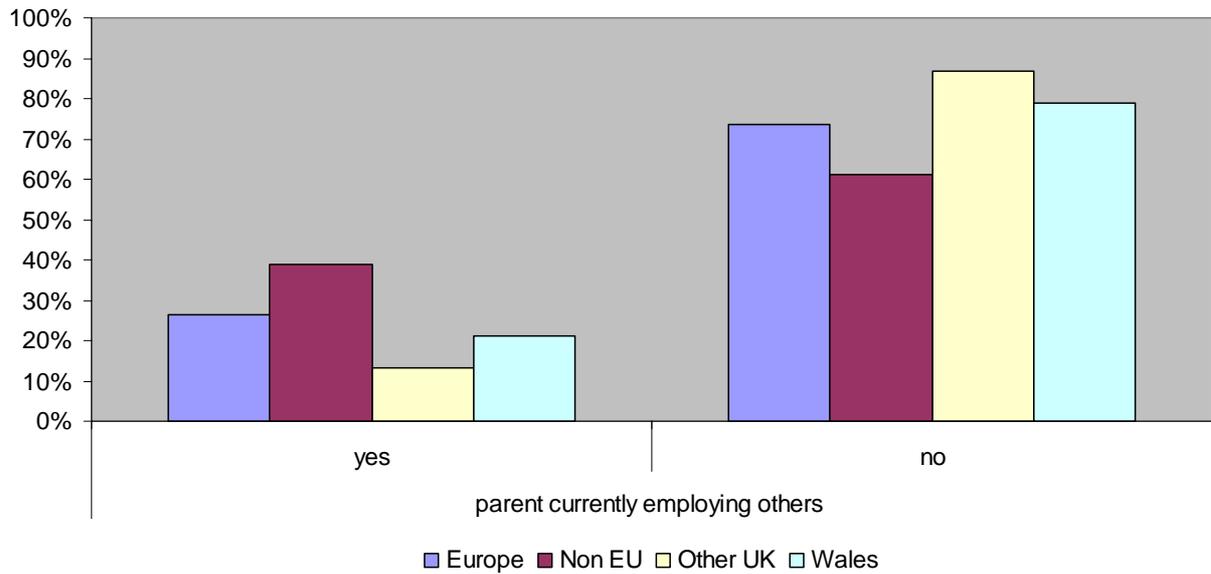
Note: Pearson Chi-squared p-value = 0.000

Figure 4.7: Parent currently employs other by university



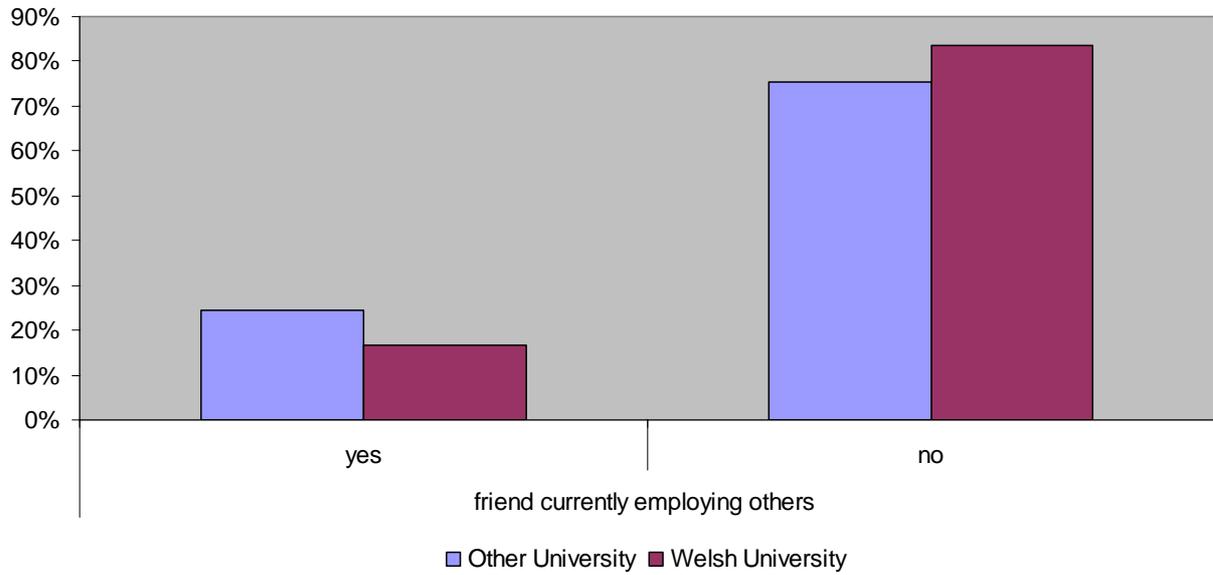
Note: Pearson Chi-squared p-value = 0.000

Figure 4.8: Parent currently employs other by country of domicile



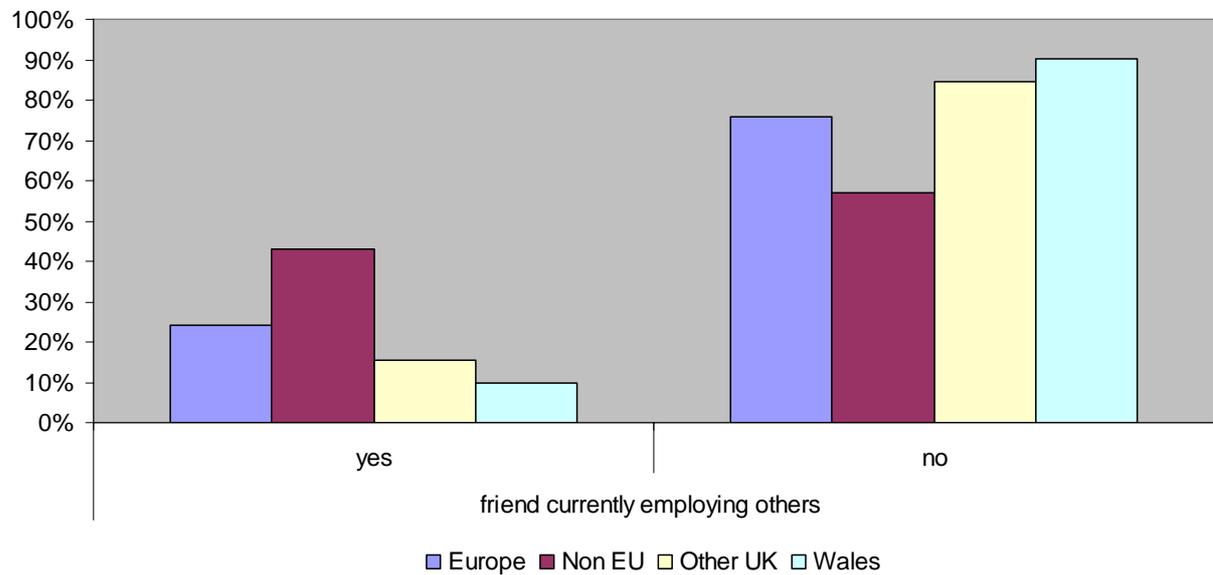
Note: Pearson Chi-squared p-value = 0.000

Figure 4.9: Close friend currently employs other by university



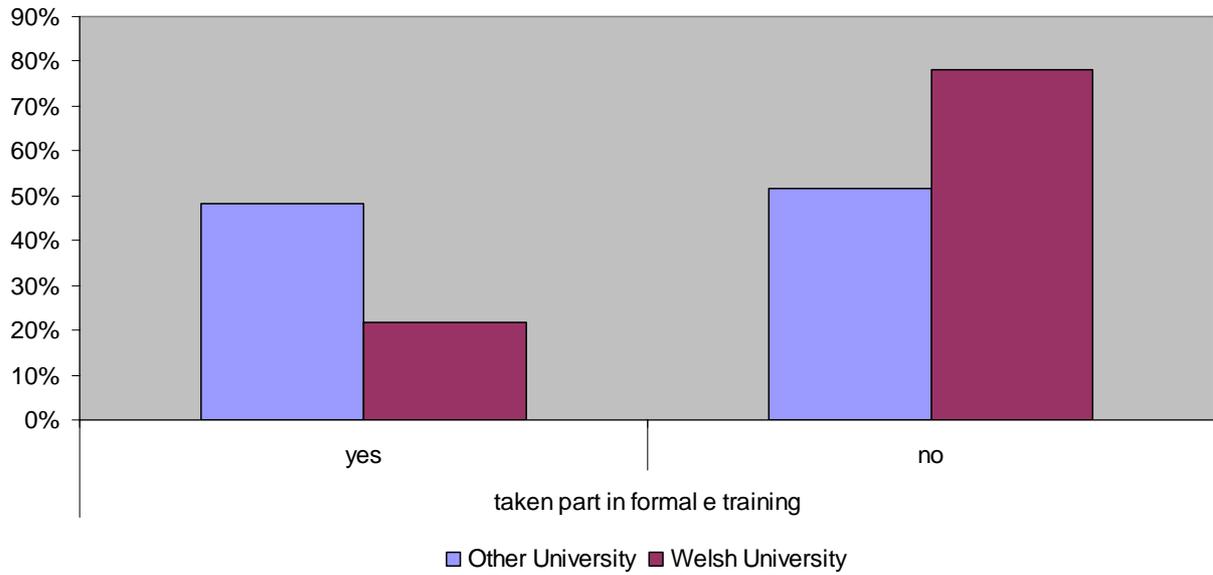
Note: Pearson Chi-squared p-value = 0.018

Figure 4.10: Close friend currently employs other by country of domicile



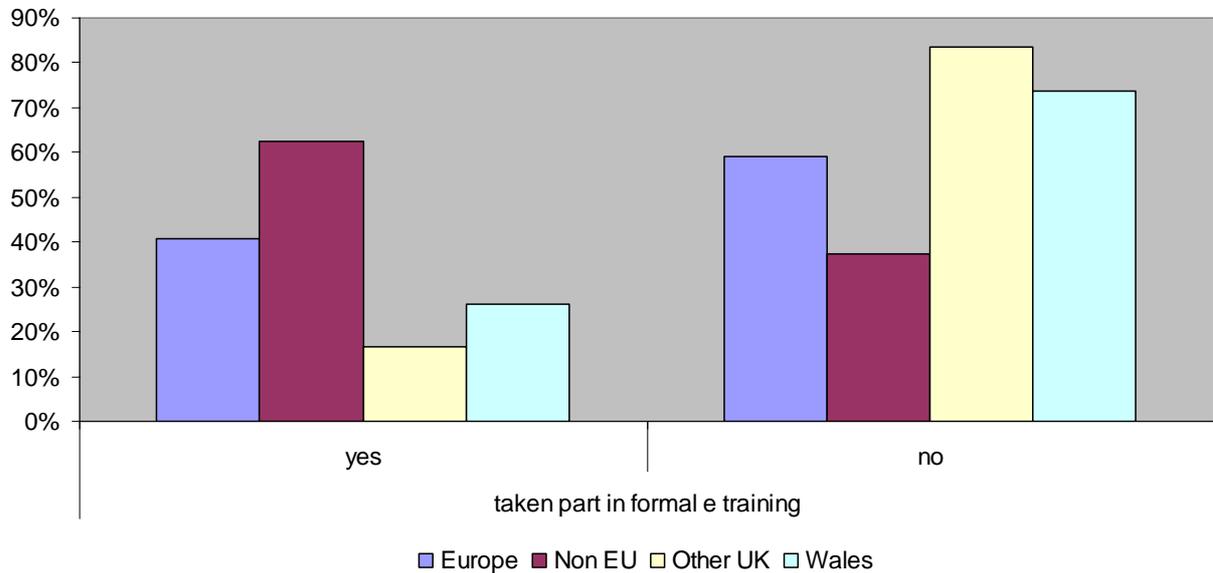
Note: Pearson Chi-squared p-value = 0.000

Figure 4.11: Participation in entrepreneurship training by university



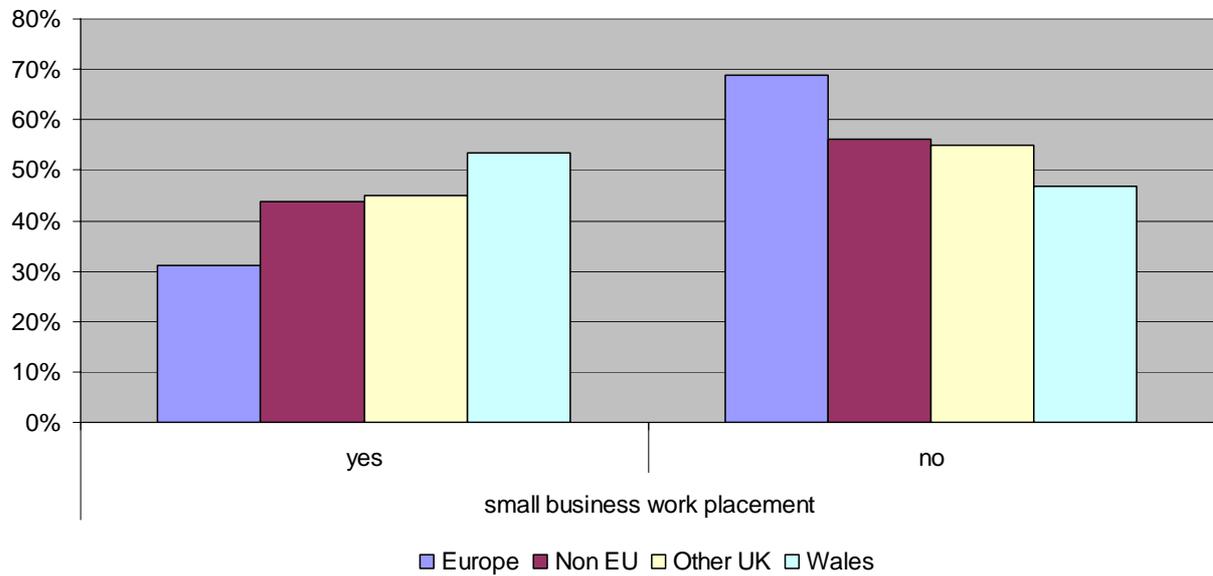
Note: Pearson Chi-squared p-value = 0.000

Figure 4.12: Participation in entrepreneurship training by country of domicile



Note: Pearson Chi-squared p-value = 0.000

Figure 4.13: Participation in small business work placement by country of domicile



Note: Pearson Chi-squared p-value = 0.000

Chapter 5: Current Entrepreneurial Activity and Aspirations

In this chapter we describe and document information obtained from our survey on early stage entrepreneurial activity amongst students and their stated aspirations towards setting up their own business in the future. The questionnaire asks for information on two forms of entrepreneurial activity. Firstly respondents were asked if they are currently running their own business or involved in a shared business venture, and to provide a summary description of that business venture. Across the sample a total of 41 respondents (6.3 per cent) reported that they are currently running a business venture. In common with the vast body of research on entrepreneurship, the rate of entrepreneurship is much higher amongst men (9.0 per cent) than women (3.2 per cent). In our survey this difference is highly statistically significant.

Table 5.1 shows the breakdown by university and country of domicile. Because absolute numbers are very low these estimated rates of student entrepreneurship should be treated with caution. Section a) of the table does suggest a rather lower rate of student entrepreneurship in Welsh universities, although this is not statistically significant. In section b) of the table the breakdown by country of domicile reveals few differences, and suggests that Welsh students are equally as likely as others to be running their own businesses.

As Table 5.2 shows, some of these business ventures are very recent, others have been in existence for some time. There is no significant difference in the distribution of durations between those studying in Welsh universities and others. 24 out of the 41 business ventures involve other partners, almost all between one and three in number. Table 5.3 reports information on the scale of these business ventures. Over 60 per cent have current levels of turnover of £5000 (€7500) or less, indicating that most student-run business ventures are largely part-time or “hobby” activities. The vast majority of student-run business ventures do not employ others. There is a slight suggestion in the data that businesses established by Welsh university students are larger in terms of employment, but given the very small number of cases no statistically reliable conclusion can be drawn on this.

37 per cent of those with a business venture reported that they needed start-up finance to help set up the activity in addition to their own money. A rather lower proportion of Welsh university students reported that they needed start-up finance (26 per cent), but given the small sample numbers this difference cannot be regarded as significant. The vast majority of student businesses appear to be financed from personal savings. A small number relied on funds from other family members (7 ventures) or from bank loans.(5 ventures). Only two students reported that they had received a government start-up grant. 32 per cent (13 cases) reported that they have received formal support in setting up the business. A lower proportion (26 per cent) of Welsh university students reported they had received support. The most common form of support was legal and tax advice (9 cases) and support with business plan preparation (8 cases) and the most common source of the support was from their university (7 cases). A small number of respondents reported receiving support from a public small business support service, from their bank or from family connections.

A higher proportion of students reported that they are engaged in informal entrepreneurial activity. The questionnaire asked respondents about such activity and gave examples as internet auctions, car boot sales, and franchised selling activity. Such activities typically require little or not start-up finance and 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 be indicative a higher predisposition towards a career running one's own business venture in the future. The total proportion of respondents who indicated engagement in informal entrepreneurial activity was 14.4 per cent or approximately one in every seven students. There exist little 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 in the wake the growth in popularity and ease of access to internet trading sites such as eBay. Over 15 per cent of students at Welsh universities are engaged in informal activity; 13 per cent of other students, indicating that students studying in Wales may have a slightly higher propensity for informal entrepreneurial activity. This difference is more pronounced when considering those students who are Welsh residents. Nearly 18% are engaged in informal entrepreneurship. In general British students are a little more likely to engage in this activity than students from other countries.

The majority of students across the universities and country groups who report that they are engaged in informal entrepreneurial activity state that the activity takes the form of internet auction trading (eBay) or other forms of internet trading (such as via Amazon). Some students report that they are engaged in managing small personal investment portfolios, and a small number report social entrepreneurship activities run for the purposes of raising money for charitable causes.

Typically such activities are very small scale, almost leisure activities, designed to provide additional spending money, or achievement satisfaction. In some cases there is an element of the informal or underground economy involved:

“So we've been working that way since (2000) doing websites and powerpoint presentations and that sort of thing. The sort of very bottom end of the technical scale. Even selling pcs and things. Not that there's much money in that, but we were able to start like that. And that was really how we got into it because it was so easy to do...”

“Yeah, I set up a little business when I was 14 which, obviously wasn't a registered business or anything. I used to ... I love technology and I worked for creating software in businesses.”

“I started a swimming school back in the summer before I started Uni, so I was only 18 at the time. And we used to do private lessons... and we used to get £10 per half an hour, cash in hand.”

“I was a member of the Young Enterprise Team, I was human resources on that. That was quite cool. We got Ryan Jones from the Welsh Rugby Team to come in a do a celebrity endorsed book for us. We got Tani Grey

as well... We actually constructed the book and then sold it on, so that was good.”

“Prior to coming to Uni, when I was in the Sixth Form, I made rabbit hutches and sold them. I basically bought them and put them together and sold them. Advertised them on Ebay.”

“Well, there’s all sorts of things, when I was at school, you know, I’d buy like, I mean, I know you’re not allowed to, but I’d get DVDs and sell them on for more expensive prices...”

“When I was in year 7 I started a sweet shop ...from my rucksack... and you know, you’d come out with about £20 a day. It’s not bad, it’s not bad at all.”

Most informal business activity is very small scale in nature. 84 per cent of students engaged in this activity in Welsh universities turnover less than £1000 per annum. For other students the proportional is lower at 68 per cent, but once again given the small sample size, these differences are not statistically significant. Hardly any students make more than £5,000 (€7,500) per annum from informal entrepreneurial activity.

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 aspiration. 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 students studying in Wales indicate such positive entrepreneurial aspiration. Aspirations are even slightly lower amongst Welsh compared to other UK students, but UK students generally have lower rates of aspiration than those from beyond. Respondents are then asked to indicate the broad nature of that business. A very wide range of types of potential business activity are described by respondents. Unsurprisingly the vast majority are service sector activities, with popular activities described being in IT-related activity (computer support, web design etc.) and in restaurant and retailing activity. Some students report interest in business activity in financial and consulting services.

Respondents are asked to indicate where they think that they will obtain the funds from to set up their business, from a range of alternative responses. The most popular response is from a bank loan, both for Welsh university students and those studying elsewhere. Outside Welsh universities, the second most popular response was from a government start-up grant. However for students in Welsh universities fewer respondents thought that they might obtain funds from government or new graduate start-up schemes, and were more likely, after bank loans, to report personal savings or family as the potential source of funds. A small number of respondents indicated, in response to an “other” category, that they thought that funds might be available from business angels or private venture capitalists.

Table 5.7 details responses to a set of statements about career choice concerning the desirability or otherwise of self-employment, included in the questionnaire. Respondents were asked to indicate agreement or otherwise on a 5-point centered

Likert scale. The table highlights some of the differences between men and women. Men are significantly more likely to agree with the statements about the desirability of self-employment (statements Intent 1 and Intent 3). They are also more likely to agree with one of the statements about the desirability of working for someone else (Intent 2), with no significant difference between men and women in responses to the other statement (Intent 4). This is perhaps a puzzle, but it indicates that while men may generally be more positively disposed towards thinking about working for oneself, they may in general have better formed career aspirations than women, or clearer ideas about career expectations being placed on them by others. What the results here may show is not that women may necessarily view entrepreneurship less favourably but that at this stage they have less well-formed views about their careers in general.

Figures 5.1 to 5.8 provide details of the breakdown in responses by university and country of domicile. Students studying in Wales are significantly less likely to agree with the statement that they will become self-employed compared to others. Students who are from Wales are also less likely to agree that they will become self-employed, but the key difference here seems to be one of British versus other students, particularly international students from outside the EU. There is however no significant difference in the level of perceived parental support for self-employment as a career choice between students in Wales or from a Welsh home compared to others. As Figures 5.5 and 5.6 show Welsh students are also less likely to agree with the statement about taking on paid (organizational) employment after graduation, although as above the key difference here may be between British domiciled and other students. This suggests that Welsh students are more likely to see themselves as engaged in some other activity (perhaps further study) in the future, or more simply have less well-formed career aspirations in general. Most students regardless of nationality or country of study seem to perceive that their parents do not have strong preferences about them taking on paid employment after graduation. This may again be interpreted as indecision; on the other hand it could in a positive sense indicate that students generally do not perceive themselves as under parental pressure to take on more secure or less risky forms of economic activity in order to pay off student debt or establish financial independence.

Table 5.1: Students currently running their own business

	Number (Percentage)	Pearson Chi-sq (p-value)
a) University		
Welsh	19 (4.9%)	0.128
Non-Welsh	22 (7.8%)	
b) Country of domicile		
Wales	11 (6.6%)	0.976
Other UK	10 (5.5%)	
EU/Switzerland	15 (6.4%)	
Non-EU	5 (6.3%)	

Table 5.2: Life of current business venture to date by university

Duration	Welsh University	Non-Welsh University
Less than 6 months	4 (21.1%)	6 (27.3%)
6 to 12 months	5 (26.3%)	5 (22.7%)
1 to 3 years	6 (31.6%)	6 (27.3%)
More than 3 years	4 (21.1%)	5 (22.7%)

Note: Pearson Chi-squared p-value = 9.961

Table 5.3: Size of current business venture by university

	Welsh University	Non-Welsh University	Pearson Chi-sq (p-value)
a) Annual turnover			
£0-£1k (€0-€1.5k)	5 (26.3%)	11 (50.0%)	
£1k-£5k (€1.5k-€7.5k)	7 (36.8%)	3 (13.6%)	
£5k-£20k (€7.5k-€30k)	2 (10.5%)	2 (9.1%)	
£20k-£60k (€30k-€90k)	3 (15.6%)	1 (4.6%)	
Over £60k (€90k)	2 (10.5%)	5 (22.7%)	0.203
b) Number of employees			
Zero	13 (68.4%)	18 (81.8%)	
1-5	3 (15.8%)	1 (4.5%)	
More than 5	3 (15.8%)	3 (13.6%)	0.319

Table 5.4: Students currently engaged in informal entrepreneurial activity

	Number (Percentage)	Pearson Chi-sq (p-value)
a) University		
Welsh	57 (15.3%)	
Non-Welsh	37 (13.1%)	0.441
b) Country of domicile		
Wales	30 (17.8%)	
Other UK	27 (15.9%)	
EU/Switzerland	21 (15.0%)	
Non-EU	12 (10.6%)	0.214

Table 5.5: Size of informal entrepreneurial activity by university

	Welsh University	Non-Welsh University	Pearson Chi- sq (p-value)
a) Annual turnover			
£0-£1k (€0-€1.5k)	48 (84.2%)	25 (67.6%)	
£1k-£5k (€1.5k-€7.5k)	6 (10.5%)	7 (18.9%)	
£5k-£20k (€7.5k-€30k)	2 (3.5%)	1 (2.7%)	
£20k-£60k (€30k-€90k)	0 (0.0%)	2 (5.4%)	
Over £60k (€90k)	1 (1.8%)	2 (5.4%)	0.199

Table 5.6: Students indicating that they will set up a business within three years of graduation

	Number (Percentage)	Pearson Chi-sq (p-value)
a) University		
Welsh	96 (26.0%)	0.000
Non-Welsh	116 (40.9%)	
b) Country of domicile		
Wales	44 (23.9%)	0.000
Other UK	39 (25.5%)	
EU/Switzerland	73 (38.6%)	
Non-EU	42 (51.2%)	

Table 5.7: Students' views of career choice

Statement	(1) Strongly disagree %	(2) Disagree %	(3) Neither %	(4) Agree %	(5) Strongly Agree %	Mean score
<i>Men:</i>						
Intent 1	10.5	33.0	27.0	21.9	7.5	2.83
Intent 2	2.7	9.6	15.6	50.5	21.6	3.79
Intent 3	6.6	23.1	49.5	16.5	4.2	2.89
Intent 4	4.8	14.4	54.7	22.8	3.3	3.05
<i>Women:</i>						
Intent 1	18.7	45.6	20.6	13.6	1.6	2.34
Intent 2	0.6	3.5	11.1	54.4	30.7	4.11
Intent 3	11.7	31.0	43.4	12.7	1.3	2.61
Intent 4	4.7	15.8	50.3	26.6	2.5	3.06

Notes:

Intent 1: "it is likely that I will choose a career as self-employed within 3 years of finishing my university course"

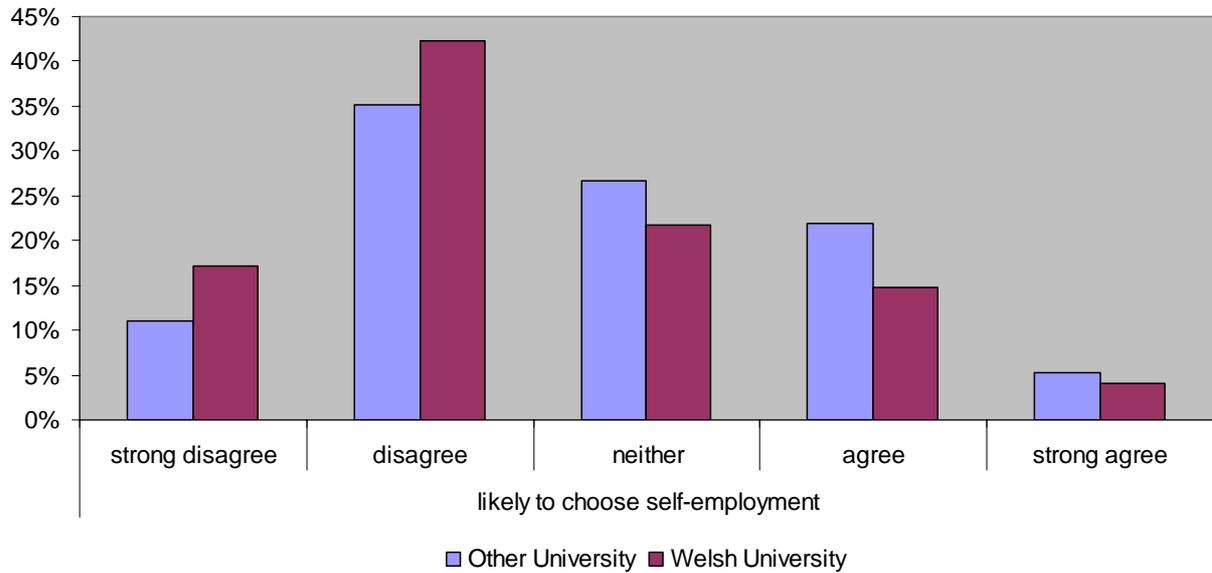
Intent 2: "I believe that my close family think that I should pursue a career as self-employed"

Intent 3: "it is likely that I will choose a career working for someone else after finishing my university course"

Intent 4: "I believe that my close family think that I should pursue a career working for someone else"

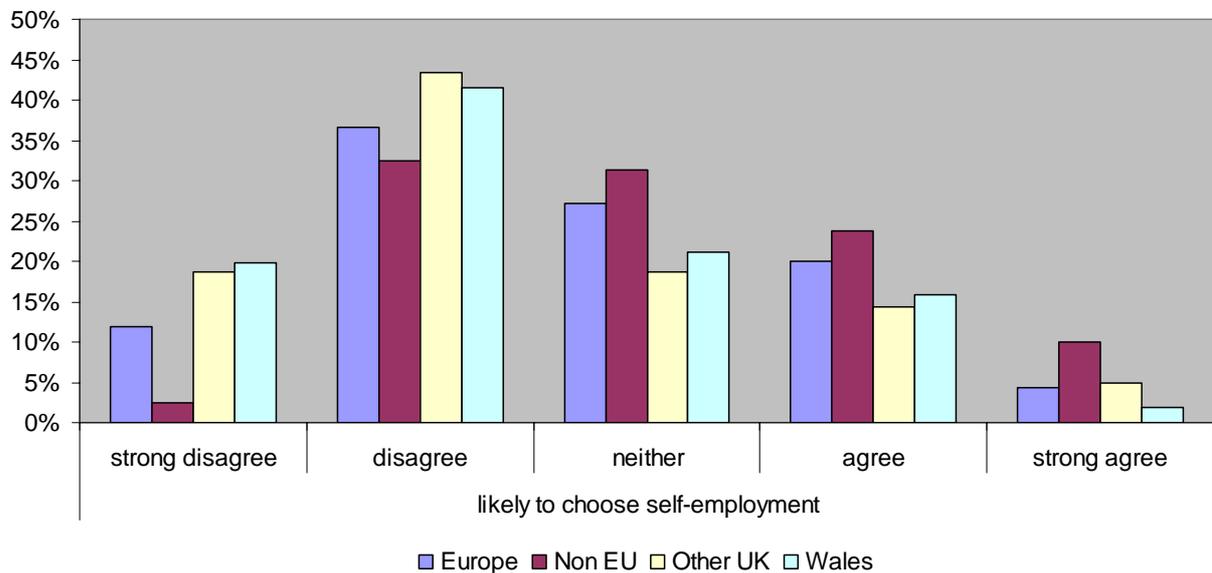
Pearson Chi-sq statistics, p-values: Intent 1 (0.000), Intent 2 (0.000), Intent 3 (0.003), Intent 4 (0.726).

Figure 5.1: Likelihood of choosing self-employment by university



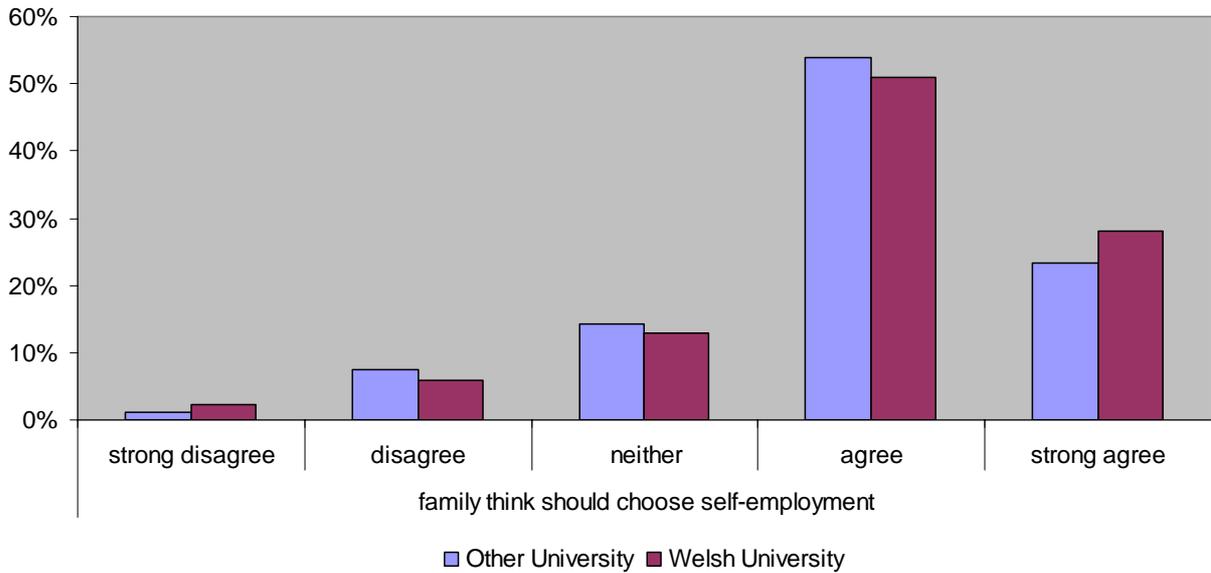
Notes: Mean score: Other University: 2.76; Welsh University: 2.46.
 Pearson Chi-squared p-value = 0.011

Figure 5.2: Likelihood of choosing self-employment by country of domicile



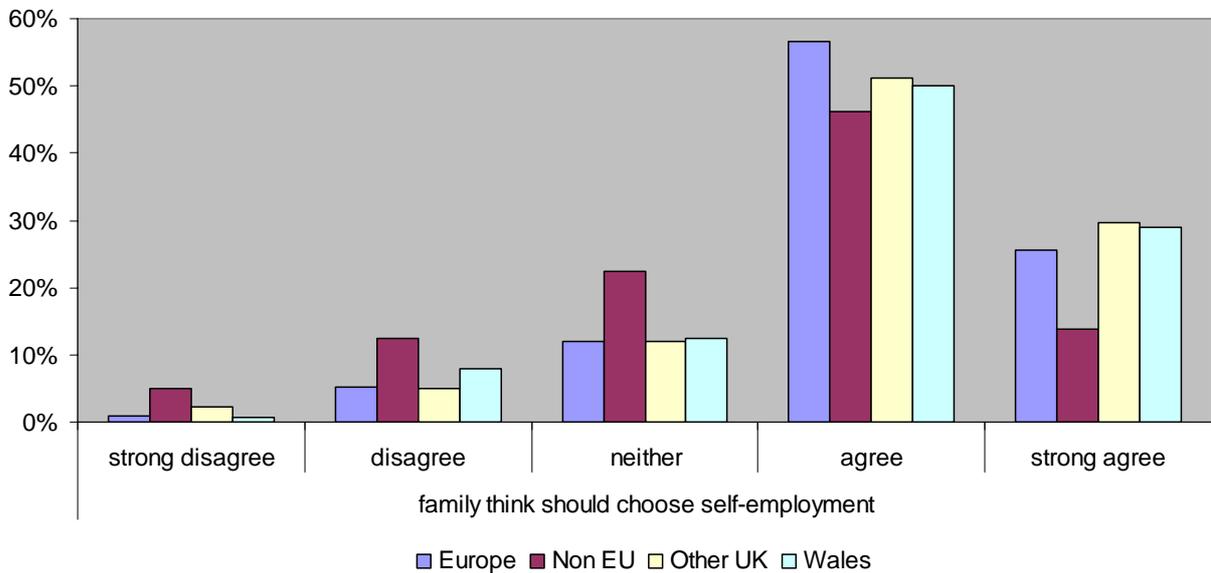
Notes: Mean score: Europe: 2.68; Non EU: 3.06; Other UK: 2.43; Wales: 2.39.
 Pearson Chi-squared p-value = 0.001

Figure 5.3: Family think should choose self-employment by university



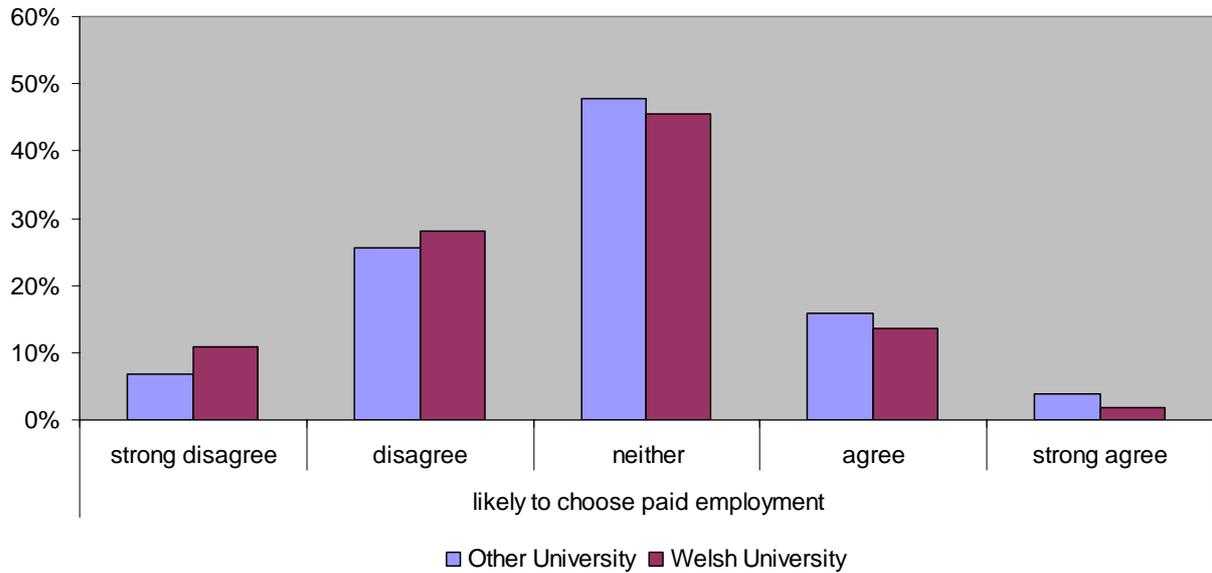
Notes: Mean score: Other University: 3.91; Welsh University: 3.97.
 Pearson Chi-squared p-value = 0.478

Figure 5.4: Family think should choose self-employment by country of domicile



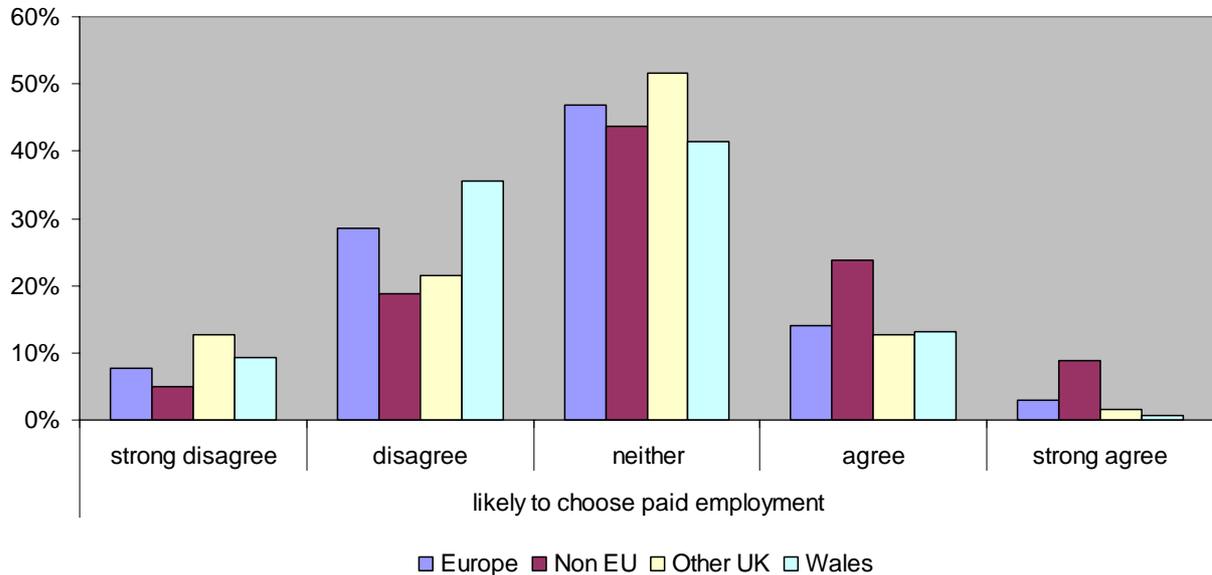
Notes: Mean score: Europe: 4.01; Non EU: 3.51; Other UK: 4.01; Wales: 3.99.
 Pearson Chi-squared p-value = 0.008

Figure 5.5: Likelihood of choosing paid employment by university



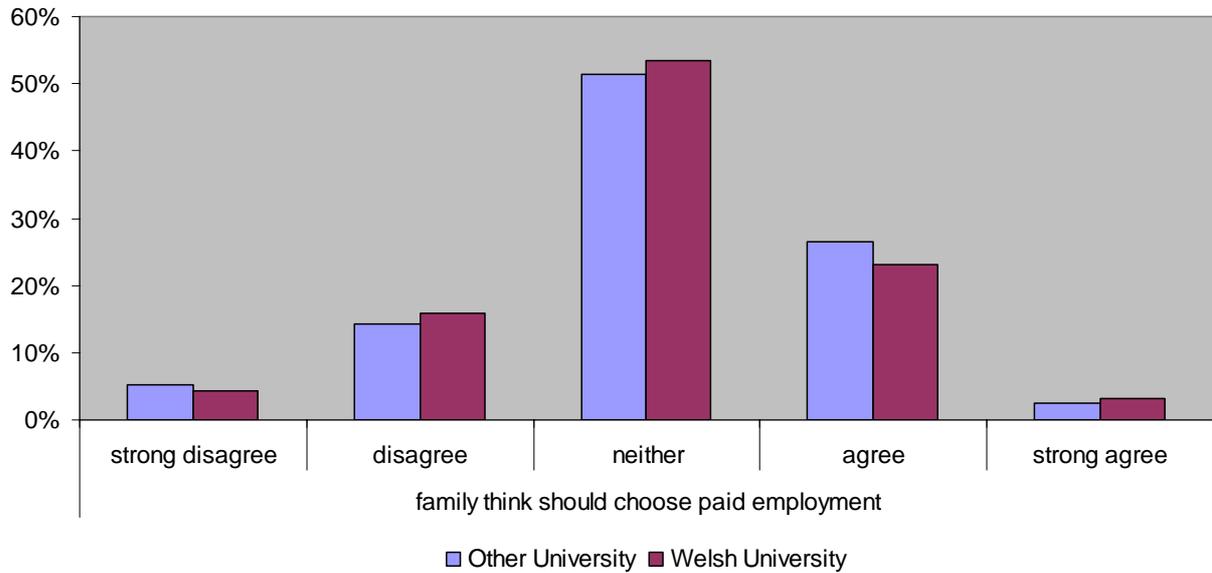
Notes: Mean score: Other University: 2.85; Welsh University: 2.68.
 Pearson Chi-squared p-value = 0.166

Figure 5.6: Likelihood of choosing paid employment by country of domicile



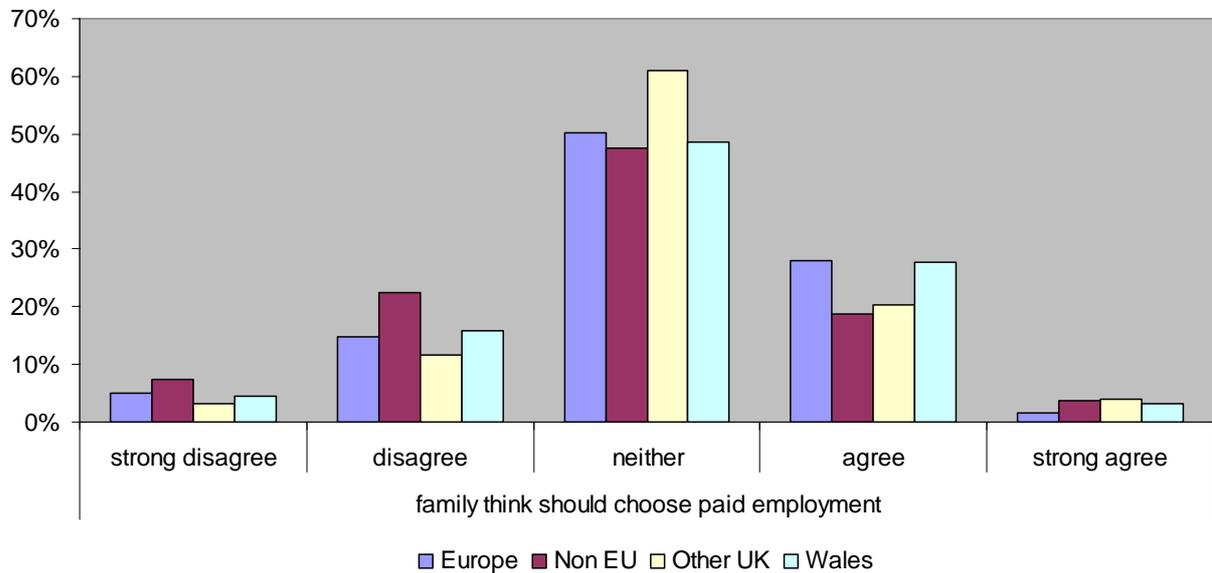
Notes: Mean score: Europe: 2.76; Non EU: 3.13; Other UK: 2.69; Wales: 2.61.
 Pearson Chi-squared p-value = 0.001

Figure 5.7: Family think should choose paid employment by university



Notes: Mean score: Other University: 3.07; Welsh University: 3.05.
 Pearson Chi-squared p-value = 0.772

Figure 5.8: Family think should choose paid employment by country of domicile



Notes: Mean score: Europe: 3.06; Non EU: 2.89; Other UK: 3.10; Wales: 3.09.
 Pearson Chi-squared p-value = 0.177

Chapter 6: Locus of Control and Personal Opportunity

As seen in Chapter 2, the cognitive literature on entrepreneurship has emphasized locus of control issues as an antecedent for entrepreneurial intention. The locus of control concept attempts to capture the extent to which the individual subject perceives that they enjoy the ability and capacity to influence events impacting of their life. In the context of entrepreneurship this may encapsulate perceptions about the extent to which the individual is able to shape and influence the business environment in which any proposed new venture might operate. Attitude to risk may form an important element of this – however this will be specifically addressed in the following chapter in the context of self-efficacy issues.

In this study respondents were asked to respond to a set of statements (six items) directly concerned with perceived locus of control, as well as further sets of statements concerning perceived independence and responsibility aspects of career choice (five items) and concerning perceived opportunities that might follow from entrepreneurship (six items). All responses were on a centred 5-point Likert scale.

Table 6.1 summarises the average Likert scale score for each locus of control item for the sample, and for male and female sub-samples. Although there are in each case significant differences in the pattern of responses between men and women, there is no consistency in the differences. Men are in significantly greater agreement with the first two negative statements and significantly lower agreement with the third and fifth positive statements about locus of control. But for statements concerning the ease with which a career in self-employment could be entered, men have higher average scores than women. So men feel in greater control over their ability to enter self-employment but feel they would have less control than women over their chances of success in self-employment having entered it.

A roughly similar pattern emerges in Table 6.2, between students in Welsh universities and elsewhere. Students in Wales are less likely to agree with (negative) statements 1 and 2, and more likely to agree with (positive) statements 3, 4 and 6. Students in Wales are rather less optimistic than other students about their chances of success if they choose self-employment. So with the exception of perceptions of success, students in Wales appear to have a higher sense of locus of control than other students.

Table 6.3 reports mean scores by country of domicile. Differences between the groups are only statistically significant at 10 per cent or better for three statements. The scores suggest that Welsh-domiciled students have higher perceived locus of control, particularly when compared to students from outside the UK. As for students in Welsh universities, Welsh-domiciled students are, however, less optimistic about the chances of success, were they to become self-employed (statement 5).

Statements about the degree of independence and responsibility which career choice might entail were framed as a set of statements concerning working for “someone else”; whereas statements about opportunity were framed as statements concerning “setting up my own business...”. Table 6.4 provides details of these and reports mean scores by gender. In general women are more likely than men to agree with each statement, suggesting that they are less well-disposed towards self-

employment or entrepreneurship as a career choice, and value more highly than men perceived levels of security and lower responsibility that organizational employment might entail. In all six cases men score the perceived opportunities associated with entrepreneurship more highly than women, and in five cases the difference between men and women is statistically significant. It is well established in the literature that women are significantly less likely to be in self-employment than men (see Parker 2004) – these results suggest that this may, in part, be the outcome of different perceptions of individual locus of control and opportunity formed at an early stage. However levels of statistical significance are not high in some cases, and only for five of the eleven statements are the Pearson statistics significant at 10 per cent or better.

Table 6.5 gives mean scores for these statements by university. There is little difference between Welsh university students and others in the level of agreement with statements about working for someone else. They are significantly less likely to agree with the statement that working for someone else will provide greater leisure, but more likely to agree with the statement that working for someone else will provide better career prospects. On the other hand Welsh university students are generally less likely to agree with the statements about the opportunities afforded by setting up one's own business, and in four out of six cases these differences are significant. Table 6.6 provides the same information grouped by country of domicile. In eight out of eleven cases there are significant differences in the responses between the groups. In general Welsh students are more likely to agree with the (positive) statements about working for someone else and less likely to agree with the (positive) statements about setting up their own business. However, as has been seen before, the principal differences here are between non-UK, and particularly non-EU, students and UK-domiciled students in general. Attitudes to paid employment and to self-employment are not particularly dissimilar between Welsh-domiciled and other UK-domiciled students. Welsh-domiciled students do seem more optimistic than other British students that setting up a business will give greater authority and independence, and to some extent higher earnings prospects.

A range of perspectives on why individuals might choose entrepreneurship as an occupation emerged from the interviews. For some traditional notions of independence or being one's own boss were attractive:

“The best bit is being you own boss, deciding what jobs you want to do and what jobs you don't want to.”

“I kind of associate it with like an independence to a certain extent and being able to do your own thing and act upon ideas.. if you put yourself in a job you're almost definitely not in a position to act upon any ideas you have even if you are kind of minded in that way.”

“Earning money. Money makes the world go round as if were. But no, just the idea of having my own business and not having to work in a bar in (...) until stupid o'clock in the morning, basic pay and be abused by drunken people, you know what I mean.”

“I think it would be nice to work...this (business) would be working alongside people but it would be my thing. That would be really good... I think if you're working for someone else you have to take on board their ideas and I think my ideas may be a bit better.”

In some cases this might be tempered by other wider motivations, including a consideration of both the positive and negative aspects of an entrepreneurial “lifestyle”:

“Yeah, independence. But I like the idea of also being...helping out in the community and also being known in the community... I like the fact that people associate the good business and the excellent reputation that we've got.”

“I was thinking about that idea a few years ago – should I start my own business or should I simply work for someone else. The only reason I decided not to (start own business) is because I think I know myself I'd spend so much time doing that, that I would miss everything else in life...”

“I don't want that typical lifestyle where you grow up, and you reach 25, well so, it's time to get married, the kids are there. I don't think that's the lifestyle for me.”

“I think there's like something just built into me. I want to do things. I don't just want to work for someone. I want to do something, feel like I've achieved something, have something that's my own.”

In a number of cases entrepreneurship was clearly identified with positive notions of status:

“Don't laugh. I like the notion of wearing a suit... I love sitting down and having dinner with like, important people because of the way it makes me feel.”

“I like to lead the kind of double life at the moment where I'm the student... and then go back home, in a business suit, go out to business lunches, go and meet with management and people who are sort of twice my age to go and discuss what we'll do next and where we're gonna go next.”

“Last night I was having dinner with a 31 year old and that is more fun for me than going out on a Wednesday night. I enjoyed myself more and you get a sense of achievement then... (*Interviewer: So it was a business dinner?*)... Yes, yeah, it was.”

In summary, the findings reported in this section again confirm the significant differences between the genders in their perceptions of entrepreneurship. Male students report responses that suggest they perceive a stronger locus of control, being more positive about their chances of pursuing a career in self-employment. From in-depth interviewing it is clear that some students (typically male ones) like the

idea of being their own boss and the status associated with this. There would also appear to be some differences between Welsh students and others, in that Welsh students are somewhat less optimistic about their likely success as an entrepreneur, and are less positive in general about self-employment as a career choice.

Table 6.1: Locus of Control Statements – mean scores by gender

	All	Men	Women	Pearson Chi-sq (p-value)
1. If I became self-employed, the chances of failure would be very high	2.50	2.75	2.24	0.000
2. There are many events outside my control which could prevent me from being self-employed	2.96	3.22	2.68	0.000
3. If I was self-employed, I would have complete control over my career	3.09	3.18	3.00	0.004
4. For me, becoming self-employed would be very easy	3.28	3.18	3.39	0.018
5. If I became self-employed, the chances of success would be very high	3.01	3.14	2.87	0.000
6. If I wanted to I could easily pursue a career as self-employed	3.06	2.91	3.22	0.000

Note: Responses to each statement use a centred 5-point Likert scale: strongly disagree = 1, ... , strongly agree = 5. A higher mean equates to greater group agreement.

Table 6.2: Locus of Control Statements – mean scores by university

	Welsh University	Other University	Pearson Chi-sq (p-value)
1. If I became self-employed, the chances of failure would be very high	2.43	2.60	0.036
2. There are many events outside my control which could prevent me from being self-employed	2.86	3.07	0.012
3. If I was self-employed, I would have complete control over my career	3.16	3.00	0.023
4. For me, becoming self-employed would be very easy	3.31	3.24	0.113
5. If I became self-employed, the chances of success would be very high	2.89	3.17	0.004
6. If I wanted to I could easily pursue a career as self-employed	3.17	2.92	0.040

Note: see Table 6.1

Table 6.3: Locus of Control Statements – mean scores by county of domicile

	Wales	Other UK	EU/ Switz	Non-EU	Pearson Chi-sq (p-value)
1. If I became self-employed, the chances of failure would be very high	2.38	2.43	2.59	2.65	0.479
2. There are many events outside my control which could prevent me from being self-employed	2.78	2.91	3.05	3.14	0.079
3. If I was self-employed, I would have complete control over my career	3.21	3.01	3.00	3.31	0.339
4. For me, becoming self-employed would be very easy	3.35	3.25	3.20	3.44	0.206
5. If I became self-employed, the chances of success would be very high	2.81	2.83	3.14	3.41	0.000
6. If I wanted to I could easily pursue a career as self-employed	3.24	3.19	2.96	2.73	0.006

Note: see Table 6.1

Table 6.4: Independence and Responsibility Statements – mean scores by gender

	All	Men	Women	Pearson Chi-sq (p-value)
1. Working for someone else would provide me with better job security	3.71	3.68	3.72	0.376
2. Working for someone else means that I would have more leisure time and longer holidays	3.15	3.11	3.21	0.098
3. Working for someone else will give me better prospects for building a career	3.24	3.17	3.31	0.235
4. Working for someone else means that I would have better opportunities to meet people and make friends	3.36	3.30	3.42	0.087
5. Working for someone else means that I would have less responsibility, than if I set up my own business	3.44	3.36	3.52	0.256
6. Setting up my own business would lead to greater personal fulfillment	3.38	3.50	3.25	0.020
7. Setting up my own business would give me the authority to make decisions	3.74	3.86	3.63	0.355
8. Setting up my own business would given me freedom and independence	3.69	3.80	3.56	0.002
9. Setting up my own business would give me a more challenging career	4.04	4.13	3.97	0.000
10. Setting up my own business would give me more opportunity to become a higher earner	3.70	3.84	3.56	0.000
11. Setting up my own business would mean that I would be better able to follow a project through from start to finish	3.64	3.71	3.57	0.002

Note: see Table 6.1

Table 6.5: Independence and Responsibility Statements – mean scores by university

	Welsh University	Other University	Pearson Chi-sq (p-value)
1. Working for someone else would provide me with better job security	3.63	3.78	0.239
2. Working for someone else means that I would have more leisure time and longer holidays	3.05	3.29	0.011
3. Working for someone else will give me better prospects for building a career	3.33	3.12	0.006
4. Working for someone else means that I would have better opportunities to meet people and make friends	3.40	3.30	0.652
5. Working for someone else means that I would have less responsibility, than if I set up my own business	3.39	3.51	0.842
6. Setting up my own business would lead to greater personal fulfillment	3.30	3.48	0.122
7. Setting up my own business would give me the authority to make decisions	3.63	3.89	0.011
8. Setting up my own business would given me freedom and independence	3.63	3.76	0.355
9. Setting up my own business would give me a more challenging career	4.00	4.11	0.018
10. Setting up my own business would give me more opportunity to become a higher earner	3.62	3.81	0.004
11. Setting up my own business would mean that I would be better able to follow a project through from start to finish	3.53	3.79	0.011

Note: see Table 6.1

Table 6.6: Independence and Responsibility Statements – mean scores by county of domicile

	Wales	Other UK	EU/ Switz	Non-EU	Pearson Chi-sq (p-value)
1. Working for someone else would provide me with better job security	3.59	3.85	3.81	3.29	0.001
2. Working for someone else means that I would have more leisure time and longer holidays	3.09	3.13	3.28	2.98	0.073
3. Working for someone else will give me better prospects for building a career	3.34	3.42	3.05	3.19	0.002
4. Working for someone else means that I would have better opportunities to meet people and make friends	3.50	3.36	3.36	3.10	0.121
5. Working for someone else means that I would have less responsibility, than if I set up my own business	3.42	3.43	3.45	3.46	0.842
6. Setting up my own business would lead to greater personal fulfillment	3.30	3.28	3.34	3.88	0.000
7. Setting up my own business would give me the authority to make decisions	3.72	3.54	3.77	4.15	0.001
8. Setting up my own business would given me freedom and independence	3.73	3.54	3.64	4.04	0.005
9. Setting up my own business would give me a more challenging career	4.00	3.99	4.13	4.04	0.070
10. Setting up my own business would give me more opportunity to become a higher earner	3.68	3.55	3.70	4.11	0.001
11. Setting up my own business would mean that I would be better able to follow a project through from start to finish	3.51	3.58	3.72	3.80	0.440

Note: see Table 6.1

Chapter 7: Attitudes to Risk and Self-Efficacy

a) Risk and self-efficacy

In this section we examine responses to a series of questions which attempt to elicit information about the extent to which students feel that they are well equipped to establish and succeed in a new business venture. Respondents were 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 7.1 tabulates the response rates in each case, 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 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 eight 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, less 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. Only eight per cent of women state that they would do this.

These differences in attitude 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.

Figures 7.1 and 7.2 show the responses to question 1 concerning perceived ease of adapting to financial difficulty, by university and by country of domicile. No significant differences between the groups are observed. Figures 7.3 and 7.4 group responses to question 2 concerning understanding of risk. Here the pattern of responses is significantly different between the groups. Although relatively small proportions of respondents report that they perceive risk as "danger", the proportion in Welsh universities is twice as high, with correspondingly lower numbers viewing risk in a positive light. However as Figure 7.4 shows, once again the issue is more a difference between British and other nationalities rather than Welsh students being inherently more risk averse. In Figures 7.5 and 7.6 very much the same pattern is

shown for preference over job security and pay; that is a significant difference between Welsh and other university students, but little or no difference between Welsh and Other UK domiciled students. The same applies in Figures 7.7 and 7.8 (preference between pay and commission) and in Figures 7.13 and 7.14 (preference between “risk and return” when asked to consider a particular financial investment). However in Figure 7.8 it is of note that, of all groups, Welsh domiciled students all most likely to report that they would prefer an occupation which was remunerated entirely by salary.

Figures 7.9 and 7.10 report the patterns of response to the question on perceived financial self-efficacy. Here there is little or no difference between Welsh students and others. In Figure 7.9 there is some suggestion that Welsh university students are more likely on average to report lower self-efficacy. Figures 7.11 and 7.12 show responses to the question about willingness to take financial risks. Students in Welsh universities are less likely to report a positive willingness, but there is no significant difference between the country of domicile groups. Overall we may conclude that evidence of lower risk aversion in Wales is at best limited. Welsh students are probably no different from other British students, with both groups displaying lower 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.

Following immediately on from specific questions about risk, and so with a self-evaluation of their risk attitudes planted, respondents were asked about their agreement with a series of five statements about self-efficacy and general attitude to uncertainty. Responses were invited on a centred 5-point Likert scale. Table 7.2 provides the text of each statement and gives details of mean scores for all respondents and for male and female sub-samples. Statement 1 repeats a key question asked in the Global Entrepreneurship Survey concerning perception of local business opportunity. Men are more likely than women to agree with statements 1 and 2, which concern perception of good business opportunities and self-assessment of the skills needed to start a new business. Women, on the other hand, are more likely to agree with the statements concerning investing money where it is safe, and concerning fear of failure, whereas men are more likely to agree with the statement concerning enjoyment in taking risk in pursuit of reward. For all five statements the differences between men and women are highly statistically significant.

Table 7.3 shows that for four of the statements there are significant differences in the patterns of response between students at Welsh universities compared to those elsewhere. Welsh university students are less likely to perceive good local business opportunities, but are generally less concerned about risk and failure. They are also more likely to agree with the statement that they have necessary skills for venturing a new business, although here the difference is not statistically significant. However, as we have seen on previous occasions, these differences seem to be largely ones between British-domiciled and other students. Table 7.4 shows that the differences between Wales-domiciled and other UK-domiciled students are less pronounced and

that the greatest differences are between these two groups and other non-UK students. In fact Welsh-domiciled students are slightly more likely to agree that there are good local opportunities for a new business than other British students, and are similarly more positive about taking risks and less concerned about failure. But as a whole British students find it more difficult than students from other countries to perceive favourable business opportunities.

Interviews with aspiring student entrepreneurs revealed a range of attitudes towards risk. A common theme appears to be that whether or not individual perceives themselves as risk-averse, locus of control is important and will neutralize concerns about risk:

“The worst thing would be it all be going wrong and it being a complete shambles and I’d have to move on and do something else.”

“I’m the kind of person who will rarely take risks...But obviously if I had the funds then I won’t mind taking a risk, in a sense, because it will not be a risk, it will...I’m pretty sure this will work, so I’m confident in it.”

“And if you don’t have enough money coming in, you’re gonna get stressed about it. So that’s why I’m happy for this opportunity that I have with SIFE (Students in Free Enterprise) to control the balances of all the projects and basically the finance.”

“Actually, I wouldn’t mind a bit of risk...I think actually it would be worth the risk to do something like that (specialist food retailing) and actually I’ve also thought maybe I wouldn’t do the work, I might be quite good at organizing something like that.”

“I’ll take risk but I always do it with full planning. I won’t just go, oh I see an option I’ll go for it. I’ll just think, ah, is it gonna be feasible, is there like a stupid amount of risk, is this gonna fail?... So I do plan before I take risks.”

“I like the idea of risk. And... sometimes I will discuss things with my mum and she’ll, you know, not rip it apart but she’ll point out all the potential negatives. And like a lot of the time when she points out kind of risky things to me she’s oblivious to the fact that she’s spurring me on because I’m thinking, well that sounds quite good, it sounds exciting.”

“When I was setting up my risk assessments, I went on a risk assessment course and it was a bit of a joke really.”

b) Multivariate analysis of factors associated with entrepreneurial aspiration

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 categorization, as shown in Table 3.3, 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 (as described in Chapter 5). 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 categorization of question 6 in Table 7.1; that is an indicator of different self-reported levels of willingness to accept financial risk.

Table 7.5 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 to marginal 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 than their male counterparts to show entrepreneurial intent¹.

The results reported in earlier in this report (see Table 5.6) 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 study. No significant country of domicile or subject of

¹ This result is only significant to the 90% 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.

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. Where as 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 here is larger for male students. There is also a positive association between the likelihood of entrepreneurial intent and participation in entrepreneurship training. But 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 reduce the propensity of entrepreneurial intent. The results in Table 7.5 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 modeled 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:

$$(7.1) \quad \bar{Y}^M - \bar{Y}^F = \left[(\bar{X}^M - \bar{X}^F) \hat{\beta}^M \right] + \left[\bar{X}^F (\hat{\beta}^M - \hat{\beta}^F) \right]$$

where $\bar{Y}^M - \bar{Y}^F$ is the difference between the average outcome of the male sample and the average outcome of the female sample. Let \bar{X}^j be a row vector of average values 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 7.1, while the second term derives the differences in coefficients capturing the contribution of the characteristics.

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:

$$\bar{Y}^M - \bar{Y}^F = \left[\sum_{i=1}^{N^M} \frac{F(X_i^M \hat{\beta}^M)}{N^M} - \sum_{i=1}^{N^F} \frac{F(X_i^F \hat{\beta}^M)}{N^F} \right] + \left[\sum_{i=1}^{N^F} \frac{F(X_i^F \hat{\beta}^M)}{N^F} - \sum_{i=1}^{N^F} \frac{F(X_i^F \hat{\beta}^F)}{N^F} \right] \quad (7.2)$$

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 (7.2) 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 (7.2) 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.

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:

$$\frac{1}{N^F} \sum_{i=1}^{N^F} F(\hat{\alpha}^* + X_{1i}^M \hat{\beta}_1^* + X_{2i}^M \hat{\beta}_2^*) - F(\hat{\alpha}^* + X_{1i}^F \hat{\beta}_1^* + X_{2i}^M \hat{\beta}_2^*) \quad (7.3)$$

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 depends 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.

Table 7.6 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 percent. Of this gap, 66.8% (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). 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 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 7.7 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 for Welsh students no significant association 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 to include The association seems to be somewhat higher for non-Welsh students.

Table 7.8 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. The gap to be explained is smaller than for the gender decomposition, amounting to 8.7 percent. 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%), father's background as an entrepreneur (10%) and joint parental background as entrepreneurs (12%), and experience of training in entrepreneurship (9%). So Welsh students have on average lower levels of entrepreneurial aspiration because (in the sample) more are female, fewer have a entrepreneurial parental background

and fewer have had training in entrepreneurship. However, by far most important component of the gap is attitude to risk (32%). Welsh students are much less likely on average to report a positive attitude to taking on financial risk. On statistically significant contribution militates against these associations – 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. Differences in risk attitude appears 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.

Table 7.1: 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 b) somewhat uneasily c) somewhat easily d) very easily	6.9 30.1 51.1 11.9	6.9 27.0 49.5 16.5	7.0 33.5 52.8 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 b) uncertainty c) opportunity d) thrill	16.2 64.2 17.0 2.6	13.5 56.5 25.5 4.5	19.0 72.2 8.2 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 b) probably more job security c) not sure d) probably less job security e) definitely less job security	8.0 28.1 17.7 32.9 13.3	4.5 15.6 17.1 41.4 21.3	11.7 41.4 18.7 23.7 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 b) mainly salary c) equal mix d) mainly commission e) all commission	12.4 41.7 35.5 9.3 1.1	7.8 36.9 37.5 15.9 1.8	17.4 47.2 32.6 2.5 0.3	0.000
5. How much confidence do you have in you ability to make good financial decisions? a) none b) a little c) a reasonable amount d) a great deal e) complete	2.5 10.7 49.2 31.4 6.3	3.0 5.1 42.6 40.5 8.7	1.9 16.8 56.0 21.8 3.5	0.000

Table 7.1: 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

Table 7.2: Self-efficacy Statements – mean scores by gender

	All	Men	Women	Pearson Chi-sq (p-value)
1. There are good opportunities for starting a new business in the area where I live	3.22	3.40	3.02	0.000
2. I have the skills needed to start a new business	3.07	2.80	3.35	0.000
3. I prefer to invest my money in safe savings rather than where there is a risk I could lose my money	3.38	3.65	3.09	0.000
4. I enjoy taking risks if there is the prospect of significant financial return as a result	3.24	2.91	3.58	0.000
5 Fear of failure would prevent me from starting a new business	3.02	3.20	2.84	0.000

Note: Responses to each statement use a centred 5-point Likert scale: strongly disagree = 1, ... , strongly agree = 5. A higher mean equates to greater group agreement.

Table 7.3: Self-efficacy Statements – mean scores by university

	Welsh University	Other University	Pearson Chi-sq (p-value)
1. There are good opportunities for starting a new business in the area where I live	3.08	3.39	0.004
2. I have the skills needed to start a new business	3.15	2.97	0.234
3. I prefer to invest my money in safe savings rather than where there is a risk I could lose my money	3.24	3.56	0.001
4. I enjoy taking risks if there is the prospect of significant financial return as a result	3.44	2.97	0.001
5 Fear of failure would prevent me from starting a new business	2.79	3.32	0.000

Note: see Table 7.2

Table 7.4: Self-efficacy Statements – mean scores by county of domicile

	Wales	Other UK	EU/ Switz	Non-EU	Pearson Chi-sq (p-value)
1. There are good opportunities for starting a new business in the area where I live	3.16	3.10	3.27	3.40	0.027
2. I have the skills needed to start a new business	3.13	3.13	3.02	2.96	0.247
3. I prefer to invest my money in safe savings rather than where there is a risk I could lose my money	3.21	3.31	3.43	3.69	0.055
4. I enjoy taking risks if there is the prospect of significant financial return as a result	3.53	3.41	3.06	2.80	0.000
5 Fear of failure would prevent me from starting a new business	2.64	2.85	3.22	3.54	0.000

Note: see Table 7.2

Table 7.5: Logit Regressions for Entrepreneurial Intent by Gender

	<i>Full sample</i>		<i>Males</i>		<i>Females</i>	
	Marginal effect	P> z	Marginal effect	P> z	Marginal effect	P> z
<i>Demographics</i> (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
<i>Country of family residence</i> (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
<i>University</i> (reference category: outside Wales)						
Welsh University	0.025	0.707	-0.077	0.523	0.108	0.086
<i>Degree subject</i> (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
<i>Cohabitation status</i> (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
<i>Parental background</i> (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
<i>Peer group background</i>						
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
<i>Own background</i>						
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
<i>Willingness to take financial risk</i> (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

Table 7.6: 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%
<i>Demographics</i> (reference category: male, over 25, able-bodied)			
Age 18-25	0.0021	0.550	1.30%
Disabled	-0.0009	0.581	-0.56%
<i>Country of family residence</i> (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%
<i>University</i> (reference category: outside Wales)			
Welsh University	0.0090	0.551	5.56%
<i>Degree subject</i> (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%
<i>Cohabitation status</i> (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%
<i>Parental background</i> (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%
<i>Peer group background</i>			
Sibling running a business	-0.0054	0.125	-3.34%
Close friend in business	0.0076	0.146	4.69%
<i>Own background</i>			
Entrepreneurial training	0.0044	0.129	2.72%
Informal entrepreneurship	0.0009	0.568	0.56%
<i>Willingness to take financial risk</i> (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

Table 7.7: Logit Regressions for Entrepreneurial Intent by Country of Residence

	Non-Wales		Wales	
	Marginal effect	P> z	Marginal effect	P> z
<i>Demographics</i> (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
<i>University</i> (reference category: outside Wales)				
Welsh University	-0.0279	0.599	0.0358	0.870
<i>Degree subject</i> (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
<i>Cohabitation status</i> (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
<i>Parental background</i> (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
<i>Peer group background</i>				
Sibling running a business	0.2650	0.008	-0.1216	0.162
Close friend in business	0.0854	0.093	0.2427	0.035
<i>Own background</i>				
Entrepreneurial training	0.1009	0.050	0.0417	0.600
Informal entrepreneurship	0.1883	0.011	0.2371	0.063
<i>Willingness to take financial risk</i> (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	

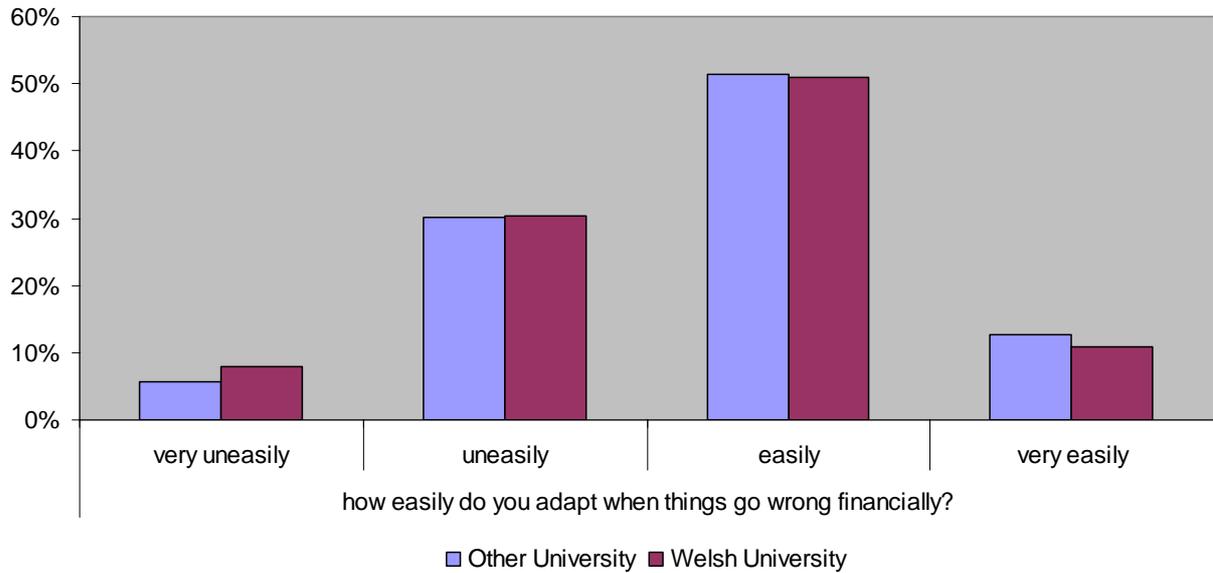
Note: *Italic* indicates significance level (p-value) below 0.10, **bold italic** below 0.05

Table 7.8: 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%
<i>Demographics</i> (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%
<i>University</i> (reference category: outside Wales)			
Welsh University	0.0132	0.601	15.11%
<i>Degree subject</i> (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%
<i>Cohabitation status</i> (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%
<i>Parental background</i> (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%
<i>Peer group background</i>			
Sibling running a business	0.0017	0.384	1.99%
Close friend in business	0.0086	0.110	9.88%
<i>Own background</i>			
Entrepreneurial training			
Informal entrepreneurship	-0.0076	0.015	-8.69%
<i>Willingness to take financial risk</i> (reference category: low)			
Moderate or high	0.0277	0.000	31.75%

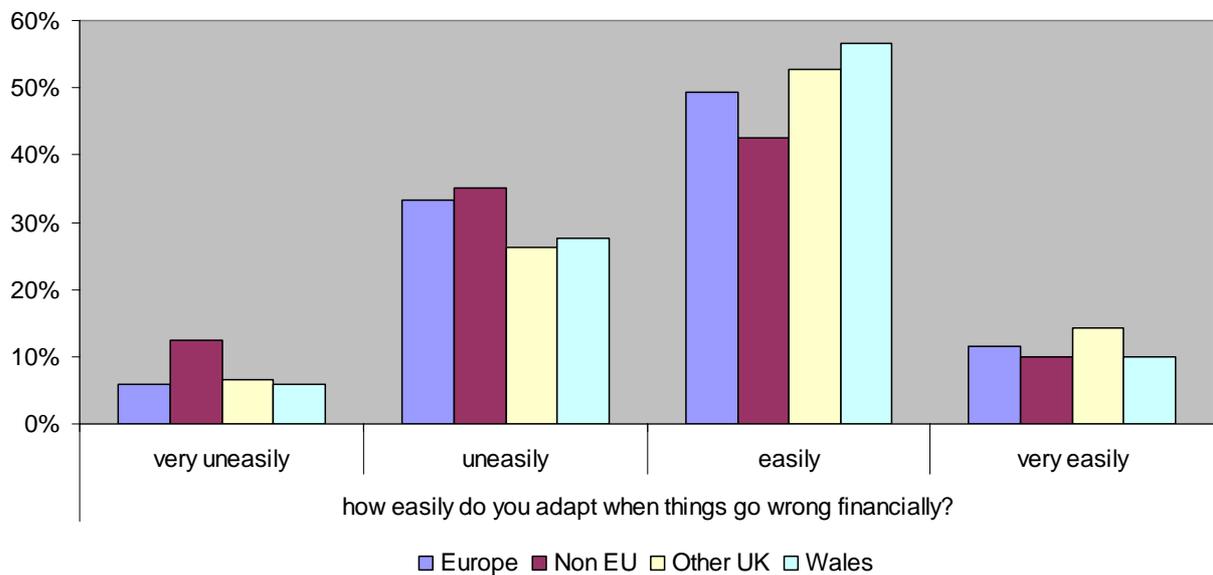
Note: *Italic* indicates significance level (p-value) below 0.10, **bold italic** below 0.05.

Figure 7.1: Ease of adapting to financial difficulty by university



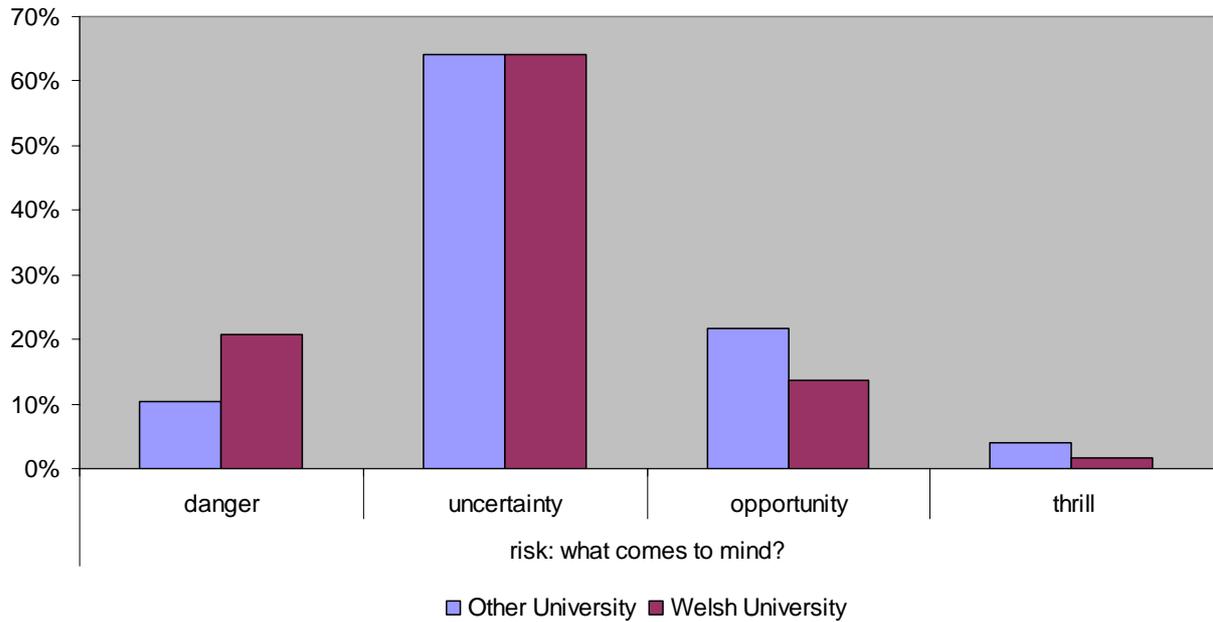
Note: Pearson Chi-squared p-value = 0.654

Figure 7.2: Ease of adapting to financial difficulty by country of domicile



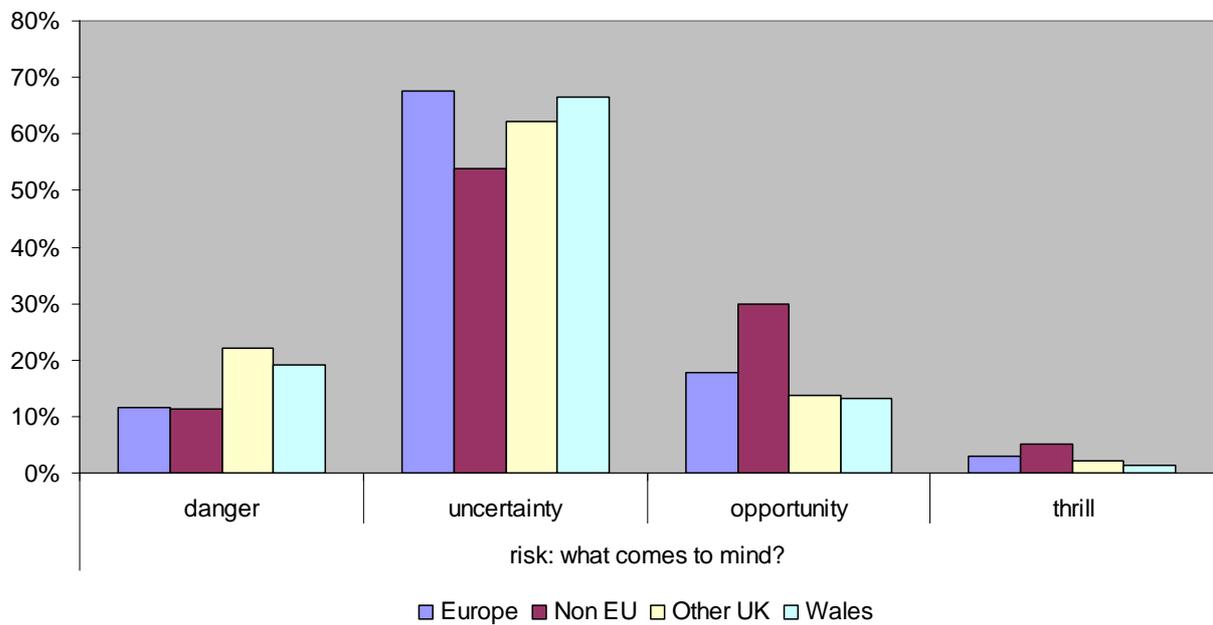
Note: Pearson Chi-squared p-value = 0.301

Figure 7.3: Understanding of risk by university



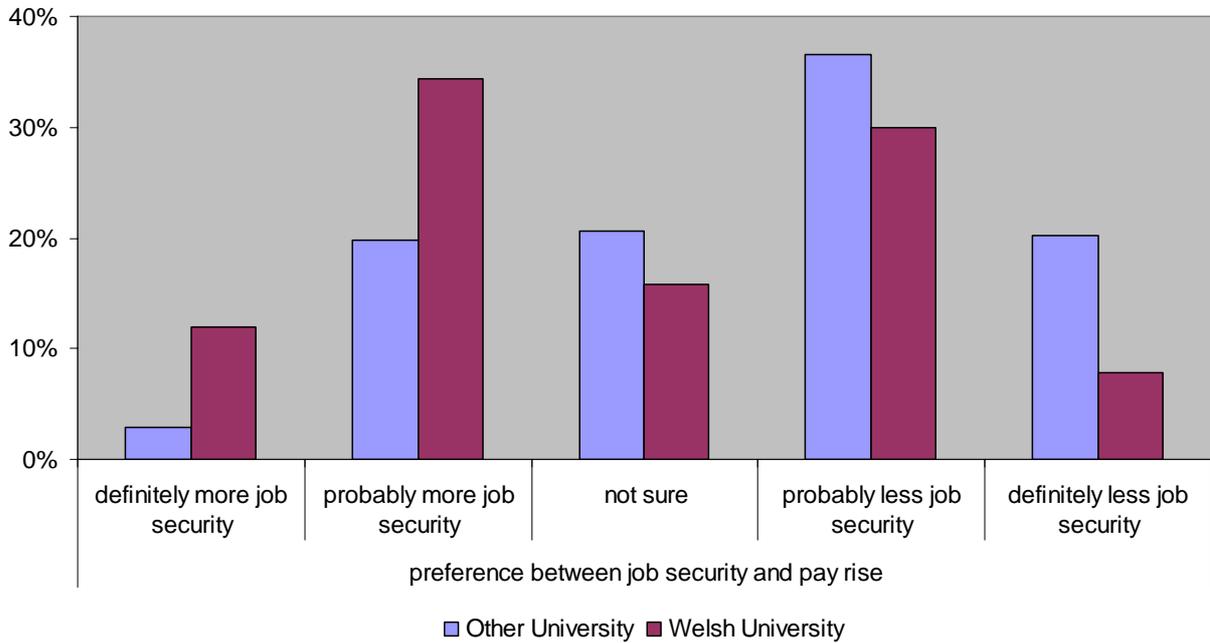
Note: Pearson Chi-squared p-value = 0.000

Figure 7.4: Understanding of risk by country of domicile



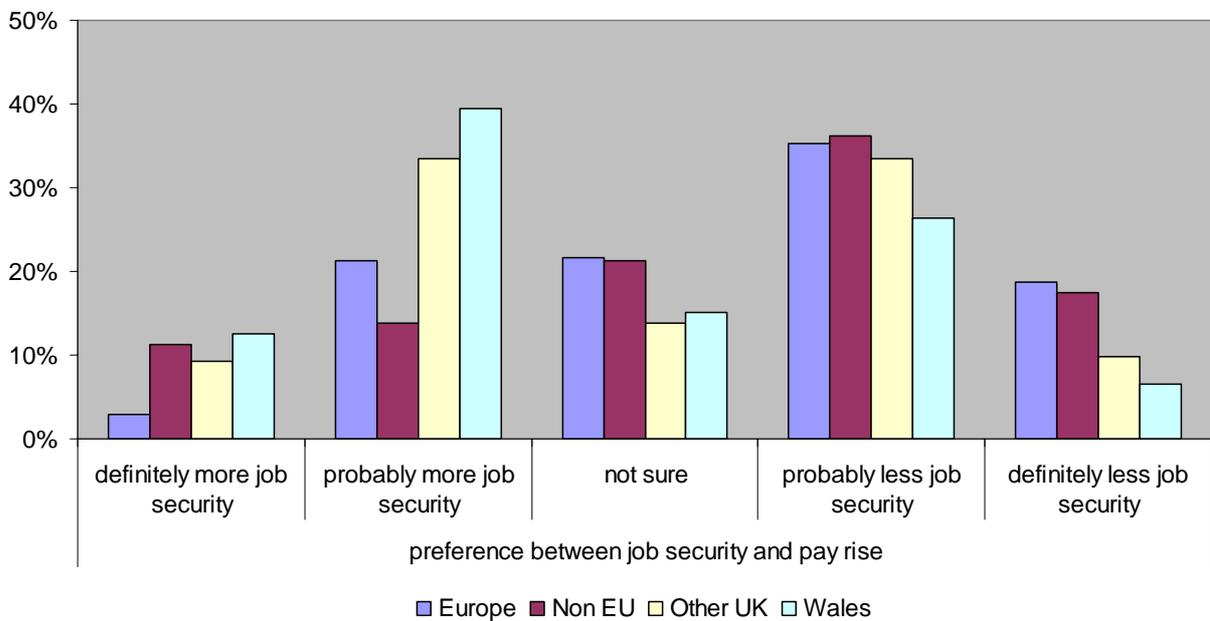
Note: Pearson Chi-squared p-value = 0.004

Figure 7.5: Preference between job security and pay by university



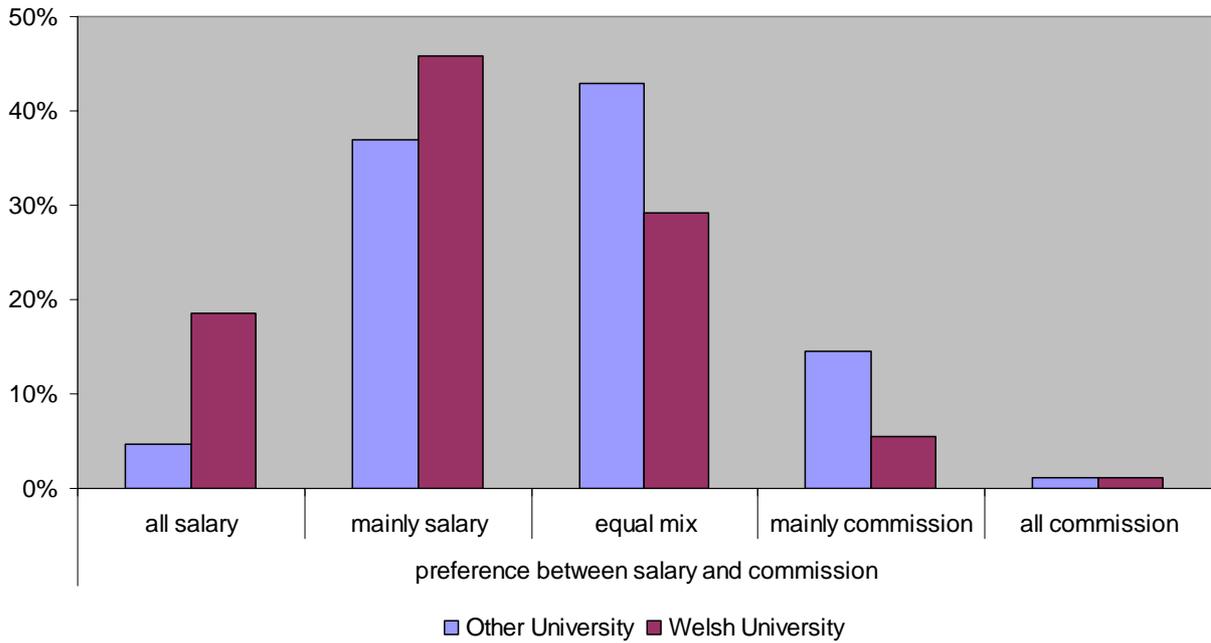
Note: Pearson Chi-squared p-value = 0.000

Figure 7.6: Preference between job security and pay by country of domicile



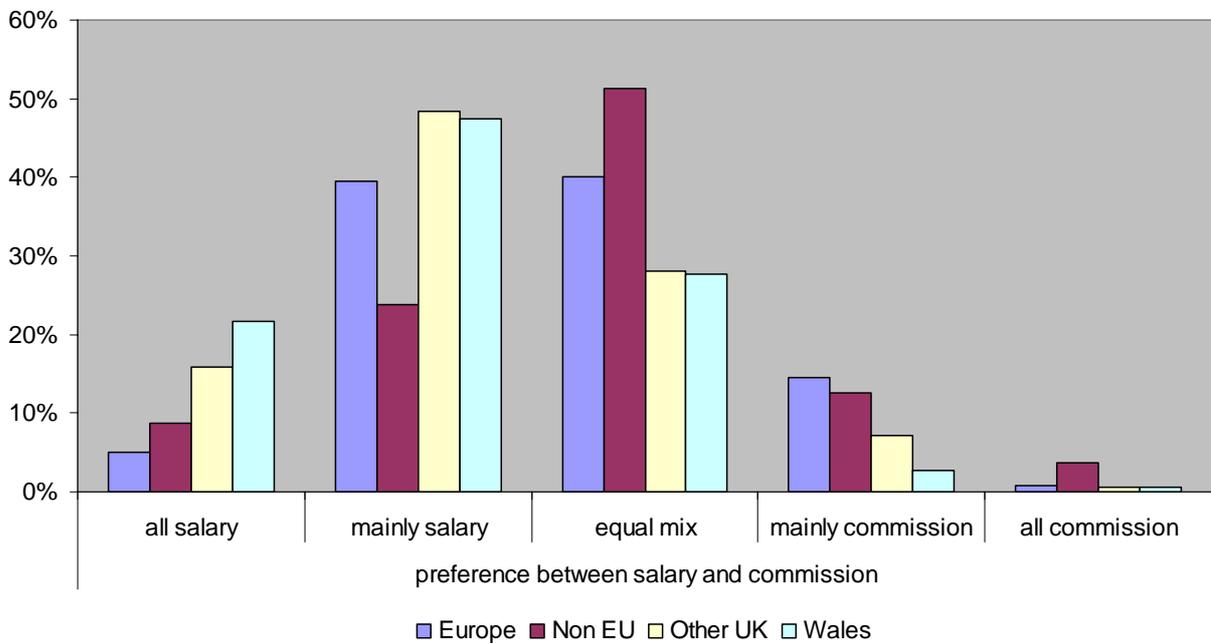
Note: Pearson Chi-squared p-value = 0.000

Figure 7.7: Preference between salary and commission by university



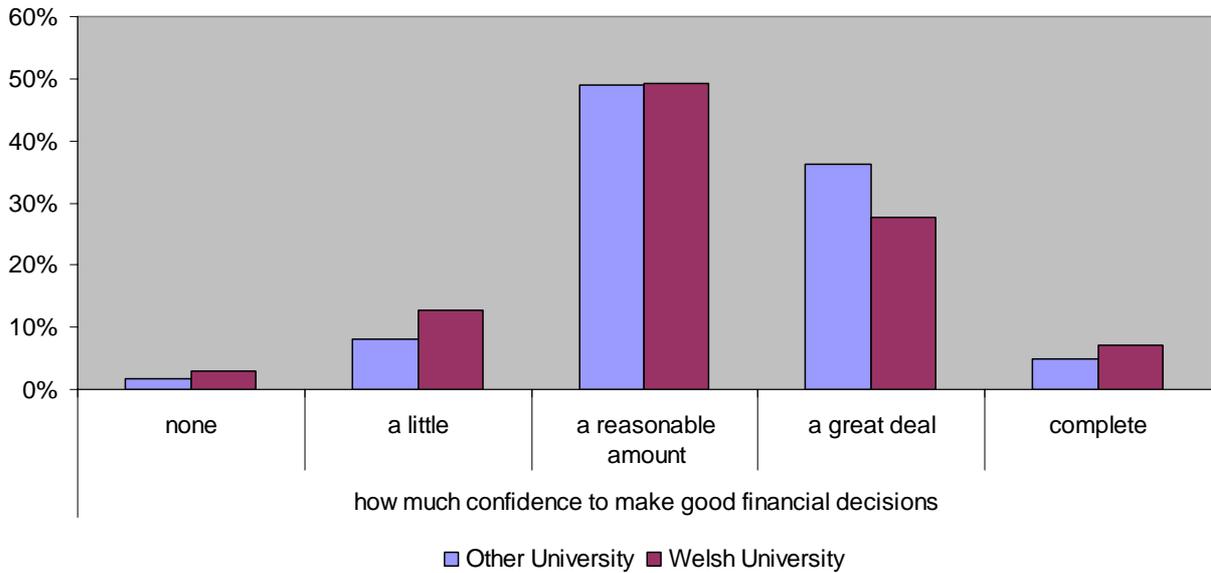
Note: Pearson Chi-squared p-value = 0.000

Figure 7.8: Preference between salary and commission by country of domicile



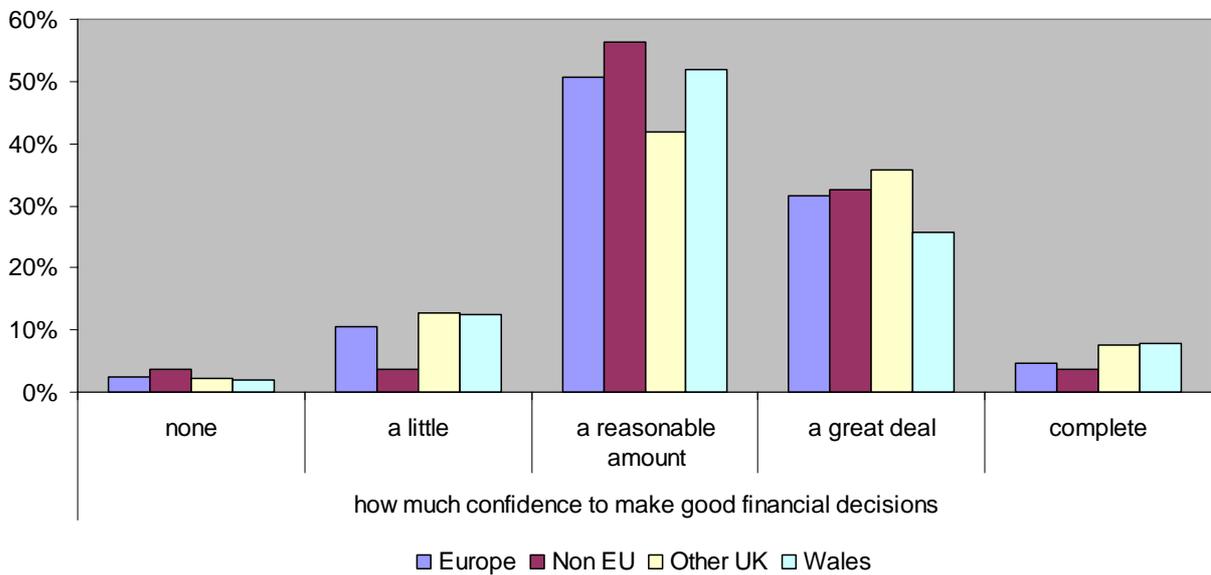
Note: Pearson Chi-squared p-value = 0.000

Figure 7.9: Confidence to make good financial decisions by university



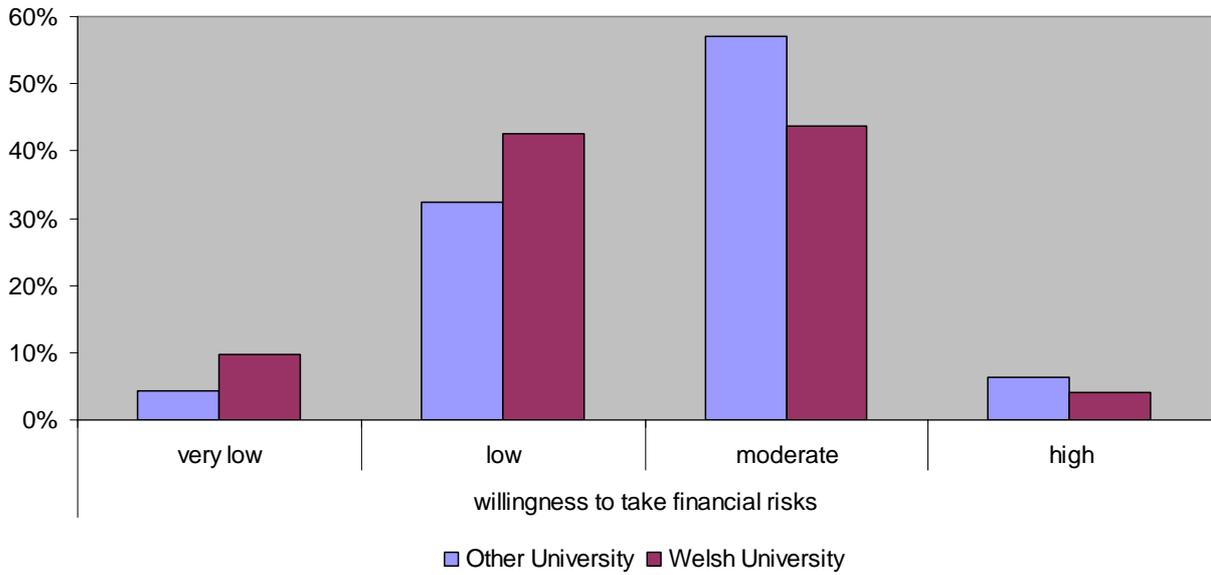
Note: Pearson Chi-squared p-value = 0.064

Figure 7.10: Confidence to make good financial decisions by country of domicile



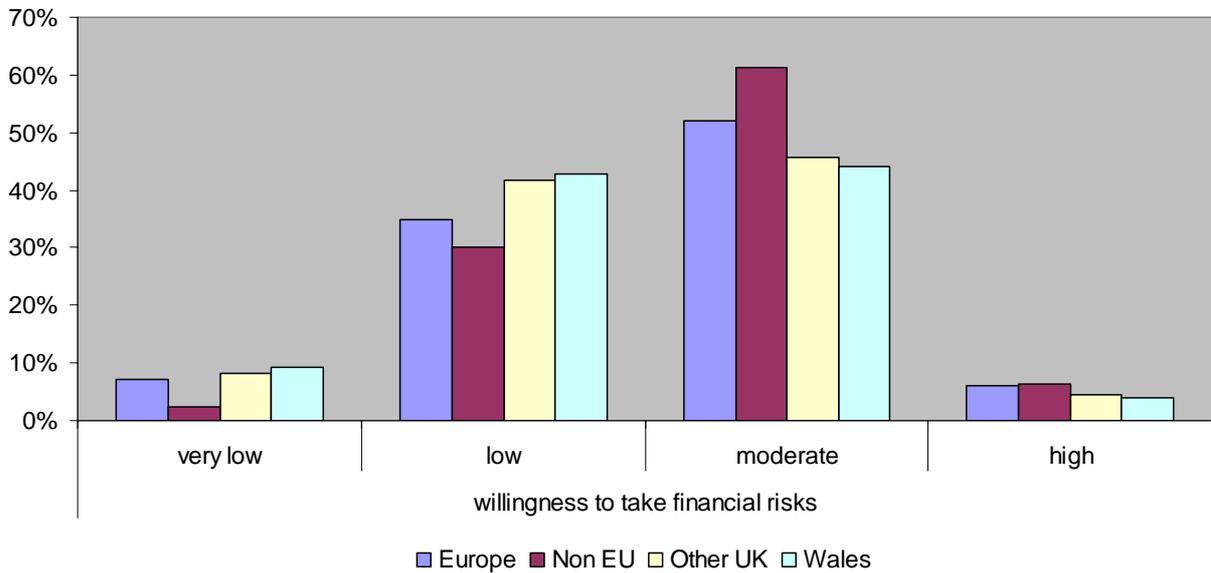
Note: Pearson Chi-squared p-value = 0.280

Figure 7.11: Willingness to take financial risks by university



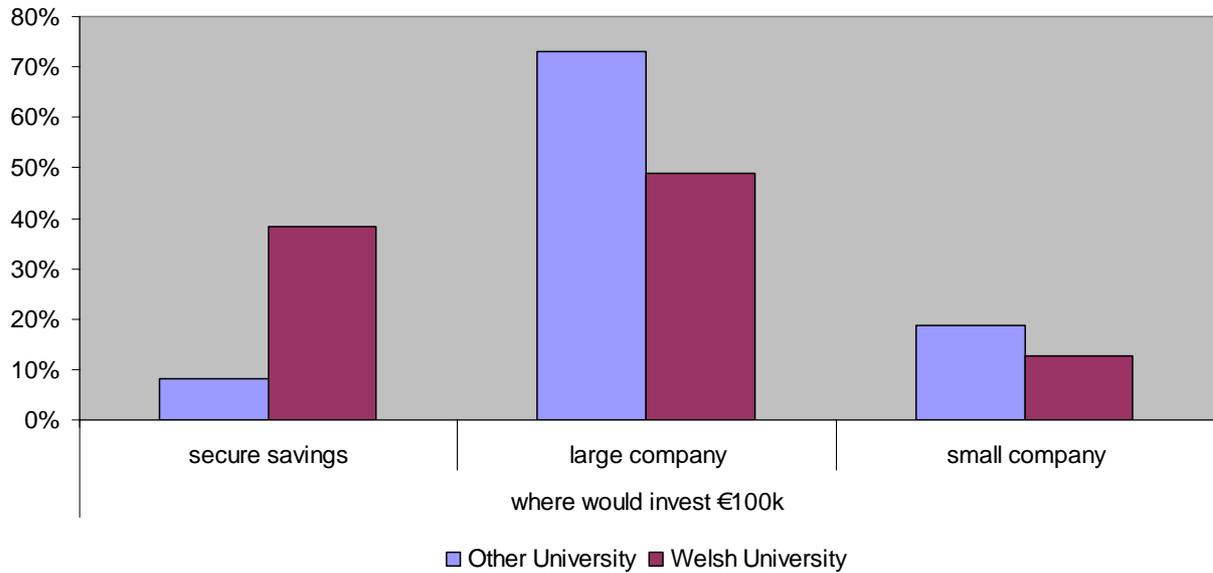
Note: Pearson Chi-squared p-value = 0.000

Figure 7.12: Willingness to take financial risks by country of domicile



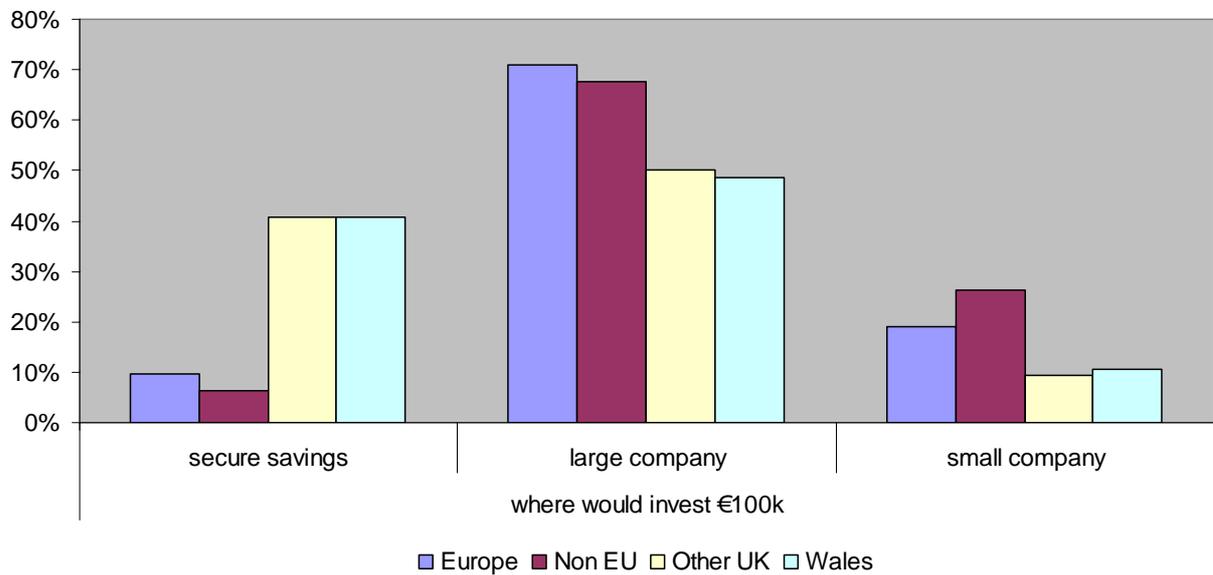
Note: Pearson Chi-squared p-value = 0.209

Figure 7.13: “Risk versus return” by university



Note: Pearson Chi-squared p-value = 0.000

Figure 7.14: “Risk versus return” by country of domicile



Note: Pearson Chi-squared p-value = 0.000

Chapter 8: Further Insights on Student Perceptions of Entrepreneurship

This section begins by focusing on the findings from the questionnaire survey concerning how students “frame” the notion of entrepreneurship or the role of an entrepreneur.

At an early stage in the questionnaire, respondents were invited to choose one from a range of possible “occupational” roles with which they would most identify themselves. The list included ten roles and respondents were asked to make one choice. Figure 8.1 shows the distribution of responses across the sample, and for males and females separately. The most common response, at a round a quarter of the total, is for students to perceive themselves as a “professional” – in effect being educated or trained to undertake a particular function (covering, for example, engineer, doctor, lawyer, health care professional, accountant, teacher... and perhaps even extending into more “academic” roles, for example, historian, biologist, economist...). The second set of common responses is for students to perceive themselves as an “executive”, “change agent” or “manager”– presumably that they are likely to move into some sort of management function after graduation, even though that function might not directly relate to their choice of university subject. A further group of respondents identify themselves with the more people-centred role of “coach” (and a much smaller group as “facilitator”). Perhaps surprisingly very few students pick the role of “leader” or “entrepreneur”. In fact the numbers identifying with the role of entrepreneur are very low indeed, and much lower than those who report involvement in early stage entrepreneurial activity or indicate aspirations towards self-employment.

This conclusion holds for both men and women, despite some differences in the overall pattern of responses (statistically significant on a Pearson’s Chi-squared test). Women are more likely to identify as a “professional” or in a caring role such as “coach” or as “facilitator” and much less likely to see themselves as an “executive” or “change agent”.

Figures 8.2 shows differences in responses by country of domicile. As we have seen before, the significantly different pattern of responses seems to be mainly a difference between British -domiciled students and other nationalities. Specifically British students seems to be much less likely to cast themselves in a strategic role (“change agent”) and more likely to associate a the people-centred or “caring” role (“facilitator”). This is particularly so for Welsh-domiciled students. Levels of identification with “entrepreneur” are very low for all the different groups, although Welsh and other British students do seem more likely to identify with the role of “leader”.

As a further exercise in exploring individual perceptions of entrepreneurship, respondents were asked to rank a set of seven characteristics identified with entrepreneurship in order of importance. Table 8.1 summarises the average rankings. “Ambition” is an average the highest ranked characteristic, followed by “independence” and “money”, with “social good” and “environmental good” on average ranked lowest. Although there are some differences between men and women in term of the intensity of the ranking, the ordering of the characteristics is the same. Perhaps surprisingly women have a higher average ranking for “ambition”

than men, and lower average rankings for the social entrepreneurship characteristics of “social good” and “environmental good”. What is clear is that all students tend to associate entrepreneurs as ambitious, individualistic people, and do not associate entrepreneurs with wider social benefits.

Table 8.2 reports mean rankings for each characteristic by country of domicile. Although the Chi-squared statistics show significant differences in the patterns of response, there is little or no difference between the four groups in terms of ordering. It is noticeable that Other UK students show the highest likelihood of ranking “ambition” as the highest characteristic, and are most likely to give the lowest ranking to “environmental good”. In effect these students are least likely to perceive the social dimensions of entrepreneurship. Welsh-domiciled are a little less likely to take as extreme a view, but nevertheless see entrepreneurship primarily as driven by ambition or the need for independence.

Respondents were also asked to complete in free text the statement “an entrepreneur is someone who ...” A very wide range of responses were received, and the research team intend to undertake further analysis of these. The following is intended to give a flavour of the responses by identifying the number of occurrences of particular words:

- Idea (153)
- Ambition/ambitious (99)
- Success/successful/succeed (97)
- Risk/risky (73)
- Money (58)
- Create (38)
- Innovate/innovative/innovation (27)
- Independent (22)
- Manage/managing (18)
- Initiative (17)
- Motivate/motivated (17)
- Vision/visionary (15)
- Passion/passionate (13)
- Responsibility (13)
- Realise/realisation (13)
- Change (11)
- Lead (10)
- Confidence (10)
- Courage/courageous (8)

Finally the questionnaire asked respondents about their level of agreement with a set of nine statements concerning their perceptions about entrepreneurship in general. These are listed in Table 8.3, along with mean scores by gender. In all but one case there are significant differences in the pattern of response between men and women. Men are generally more likely to agree with the seven positive statements about entrepreneurship, and less likely to agree with the two negative ones (statements 5 and 9). For example, 46% of men strongly agree with the statement that entrepreneurs make an important contribution to society, whereas only 19% of

women strongly agreed with this. Similarly, 15% of men strongly agree that an entrepreneurial mindset is important whereas only 9% of women strongly agree with this statement.

In two cases (statements 2 and 4) there is little difference in the means but the pattern of response between men and women is very different. Men are more likely than women to both strongly agree and strongly disagree with the statement that anyone can be an entrepreneur – see Figure 8.3. Women's responses are concentrated around neutrality of mild agreement/disagreement. Similarly men are more likely to both strongly agree, and, in particular, strongly disagree with the statement that entrepreneurship can cause social harm – see Figure 8.4. 11% of men strongly disagree with the statement, compared to only 4% of women.

Table 8.4 reports mean scores by university group. For all statements the pattern of responses is different between students in Welsh universities and those studying elsewhere. Students in other universities appear to have a broader, more societal view of entrepreneurship than those studying in Wales. Students in Wales are more likely to agree that entrepreneurship is meaningless and less likely to see its relevance across a range of activities. On the other hand students in Wales are more likely to agree that entrepreneurship is primarily focused on financial reward. Welsh university students are also more likely to agree that schools place too much emphasis on the subject and less likely to agree that politicians place too little emphasis on it. Table 8.5 reports mean scores grouped by country of domicile. Although, to some extent, the key differences are between British and other students, rather than between Welsh and other British students, there are some interesting findings in here. Welsh-domiciled students are least likely to agree that entrepreneurs make an important contribution to society. They are also least likely to agree that politicians place too little emphasis on entrepreneurship, and least likely to agree that an entrepreneurial mindset important for success in all forms of employment. They are also slightly more likely than any other the other groups to agree that entrepreneurship is a meaningless concept. On the other hand they are most likely to agree with the statement that anyone can be an entrepreneur. In many cases the level of agreement in each case revealed by Welsh-domiciled students is close to that for other UK students. But it is noticeable that Welsh-domiciled students are much less likely than other UK students to agree that entrepreneurship can cause social harm.

An overall assessment of these findings might be that Welsh-domiciled students are less likely to see the broader relevance of entrepreneurship than others, such that they are less likely to perceive the need for wider debate on the subject, and that entrepreneurial skills might have relevance more widely across society beyond the venturing of new businesses.

Table 8.1: Characteristics identified with entrepreneurship

	Mean ranking 1 to 7			Pearson Chi-sq (p-value)
	All	Men	Women	
Ambition	2.59	2.89	2.36	0.006
Independence	3.18	3.21	3.11	0.553
Money	3.65	3.52	3.81	0.303
Respect/status	4.08	4.19	3.96	0.186
Power	4.20	4.18	4.32	0.442
Social good	4.80	4.68	4.93	0.009
Environmental good	5.50	5.32	5.71	0.092

Note: 1 = highest, 7 = lowest

Table 8.2: Characteristics identified with entrepreneurship by country of domicile

	Mean ranking 1 to 7				Pearson Chi-sq (p-value)
	Wales	Other UK	EU/ Switz	Non-EU	
Ambition	2.38	2.15	3.00	2.76	0.014
Independence	3.38	3.12	2.98	3.41	0.001
Money	3.39	3.42	4.01	3.66	0.078
Respect/status	3.87	4.12	4.26	3.85	0.008
Power	4.26	4.07	4.17	4.44	0.074
Social good	4.97	5.27	4.46	4.43	0.000
Environmental good	5.76	5.85	5.11	5.45	0.003

Note: 1 = highest, 7 = lowest

Table 8.3: Understandings of entrepreneurship – mean scores by gender

	All	Men	Women	Pearson Chi-sq (p-value)
1. Entrepreneurs make an important contribution to society	4.05	4.26	3.83	0.000
2. Anyone can be an entrepreneur	3.08	3.10	3.06	0.000
3. Entrepreneurship is primarily about making money	3.04	3.08	3.01	0.806
4. Entrepreneurship can cause social harm	2.95	2.95	2.96	0.006
5. Schools place too much emphasis on entrepreneurship	2.24	2.15	2.34	0.012
6. Politicians place too little emphasis on entrepreneurship	3.24	3.37	3.10	0.000
7. My parents would like me to become an entrepreneur	2.88	3.12	2.63	0.000
8. An entrepreneurial mindset is important to be successful in all forms of employment	3.42	3.49	3.34	0.067
9. Entrepreneurship is a meaningless concept	1.85	1.77	1.94	0.000

Note: Responses use a centred 5-point Likert scale: strongly disagree = 1, ... , strongly agree = 5. A higher mean equates to greater group agreement.

Table 8.4: Understandings of entrepreneurship – mean scores by university

	Welsh University	Other University	Pearson Chi-sq (p-value)
1. Entrepreneurs make an important contribution to society	3.85	4.30	0.000
2. Anyone can be an entrepreneur	3.27	2.83	0.000
3. Entrepreneurship is primarily about making money	3.23	2.80	0.000
4. Entrepreneurship can cause social harm	2.96	2.94	0.021
5. Schools place too much emphasis on entrepreneurship	2.39	2.06	0.000
6. Politicians place too little emphasis on entrepreneurship	3.11	3.41	0.000
7. My parents would like me to become an entrepreneur	2.72	3.09	0.000
8. An entrepreneurial mindset is important to be successful in all forms of employment	3.25	3.63	0.000
9. Entrepreneurship is a meaningless concept	2.03	1.62	0.000

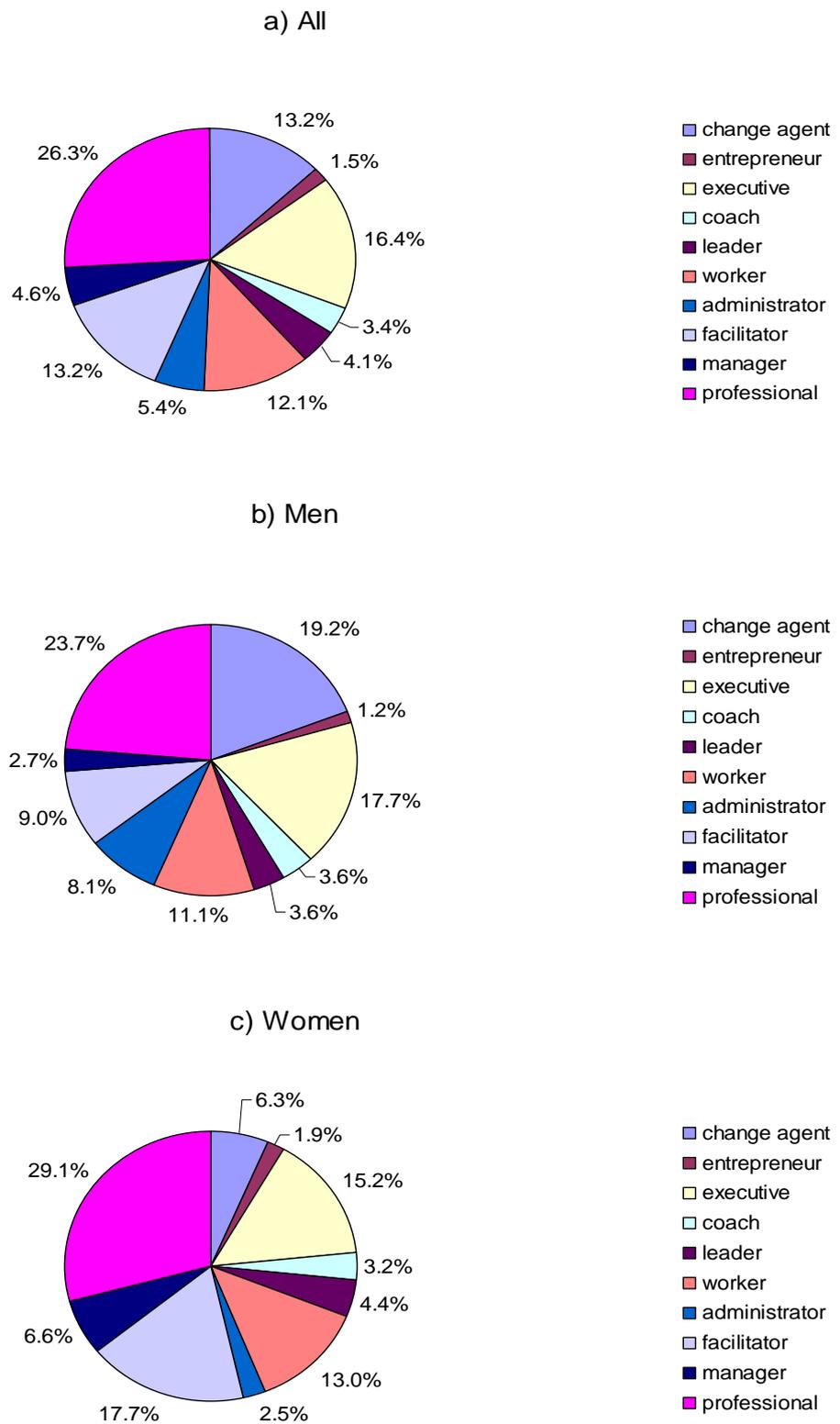
Note: see Table 8.3

Table 8.5: Understandings of entrepreneurship – mean scores by country of domicile

	Wales	Other UK	EU/ Switz	Non-EU	Pearson Chi-sq (p-value)
1. Entrepreneurs make an important contribution to society	3.81	3.87	4.30	4.16	0.000
2. Anyone can be an entrepreneur	3.32	3.24	2.85	2.94	0.000
3. Entrepreneurship is primarily about making money	3.20	3.25	2.77	3.10	0.000
4. Entrepreneurship can cause social harm	2.85	3.10	3.00	2.69	0.000
5. Schools place too much emphasis on entrepreneurship	2.32	2.38	2.04	2.39	0.003
6. Politicians place too little emphasis on entrepreneurship	3.07	3.13	3.43	3.24	0.001
7. My parents would like me to become an entrepreneur	2.65	2.76	2.92	3.44	0.000
8. An entrepreneurial mindset is important to be successful in all forms of employment	3.20	3.27	3.56	3.73	0.004
9. Entrepreneurship is a meaningless concept	2.01	1.97	1.62	2.00	0.000

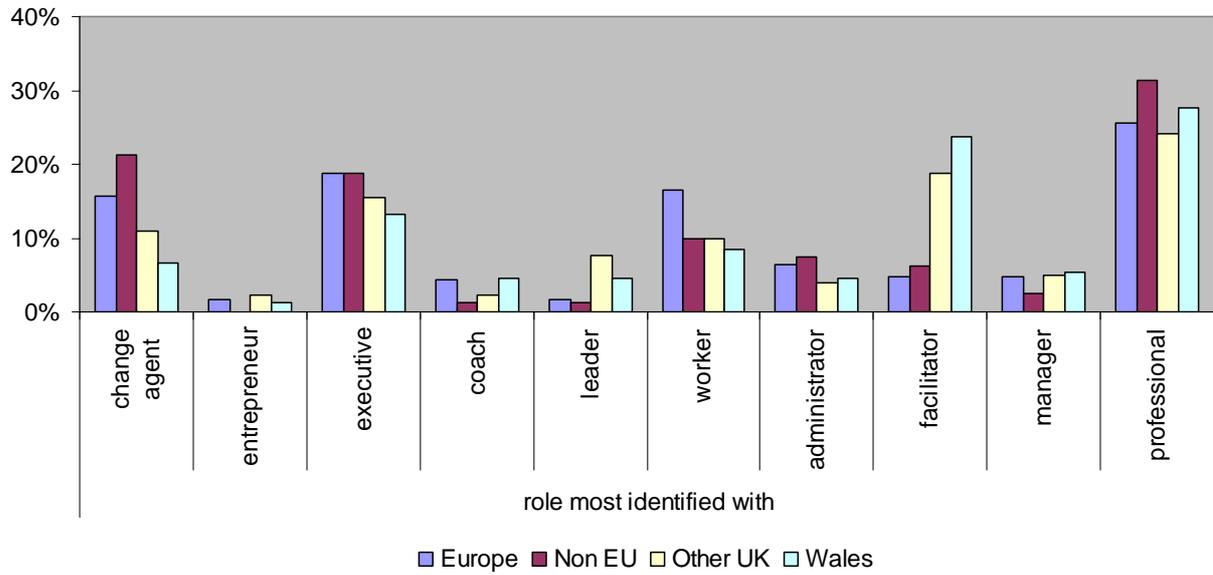
Note: see Table 8.3

Figure 8.1: Roles identified with



Note: Pearson Chi-squared p-value = 0.000

Figure 8.2: Role most identified with by country of domicile



Note: Pearson Chi-squared p-value = 0.000

Figure 8.3: “Anyone can be an entrepreneur” by gender

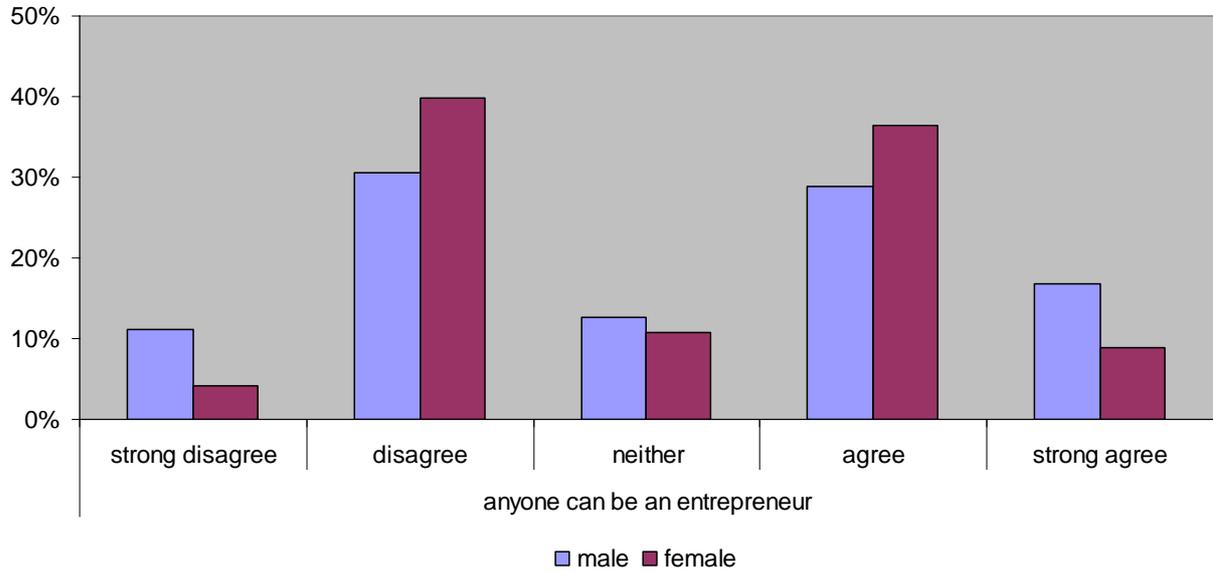
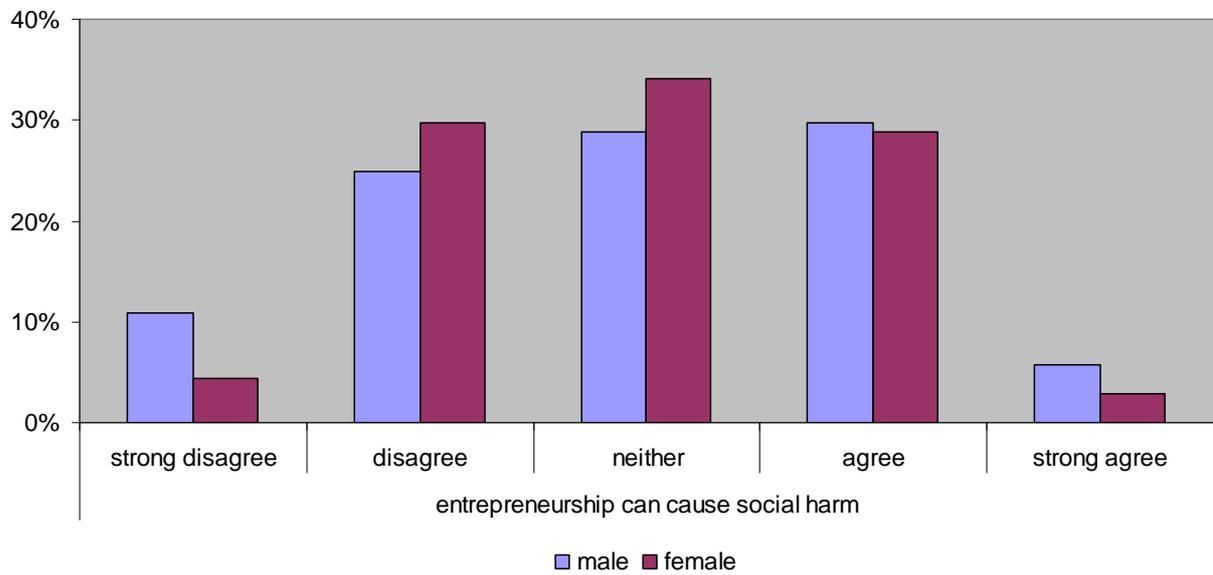


Figure 8.4 “Entrepreneurship can cause social harm” by gender



Chapter 9: Conclusions and Implications for Public Policy

Entrepreneurship is now widely recognized as a driver of business creation, innovation and growth in market economies. Public policy, in a whole variety of guises, recognizes 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.

The present report has documented findings from a survey of intermediate and final year undergraduate students in two Welsh universities, in comparison to students from a range of different institutions elsewhere in Europe, with particular attention to smaller European states. The questionnaire instrument designed and employed has allowed us to address a range of issues highlighted in the literature as potential factors associated with the formation of entrepreneurial intention. These include demographic influences and family background, the potentially beneficial impact of exposure to educational and training programmes which introduce young people to entrepreneurship as a career choice, the potential influence of prior “informal” experience whether gained through placement in a small business or own venturing of an informal entrepreneurial activity, the importance of perceived self-efficacy and the importance of attitude towards risk. Previous research has helpfully characterized these influences into the perceived feasibility of entrepreneurship (am I appropriately prepared and equipped to venture my own business?) and the perceived desirability of entrepreneurship (is this a career choice that I would wish to follow?). In order to gain detailed information on the latter, our approach has asked respondents a range of questions about how they perceive entrepreneurship, as well as conducting in-depth interviews with a small number of potential and actual student entrepreneurs, in order to gain insight into how they perceive their role and status.

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 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.

An important question to ponder is whether a strong parental background in entrepreneurship impacts on attitude (perceived desirability) or on self-efficacy (perceived feasibility). If the latter, parental example may provide an opportunity for young people to acquire skills through observation. This may be particularly noticeable if a parent employed others in their own business. In Wales students are a little less likely to have an employer parent. Further detailed secondary analysis

using the data collected for this report may be able to shed light on this question. Peer group example may also be important, and here Welsh students may also be disadvantaged, in that fewer Welsh students report that they have friends or siblings who are running a business.

Public policy which aims to promote entrepreneurial role models may have some benefit in overcoming a lack of positive background influence on young people. However, rather than the positive presentation of celebrity role models in the media and elsewhere, greater importance should be attached to the creation of opportunities for potential student entrepreneurs to meet, engage with and be mentored by others who have enjoyed success in business.

Analysis described in the report suggests that prior exposure to entrepreneurship training of some kind correlates positively with the formation of entrepreneurial intentions. In Wales, lower levels of reported involvement in entrepreneurship education and training may contribute to lower aspiration levels, and therefore be a cause for concern. When considering appropriate policy responses it is pertinent to ask the question: what sort of training? The present research has not unpacked this issue in any detail – but other literature, reviewed in Chapter 2, indicates that specific, contextual training is more effective than general awareness-raising programmes. However we would not wish to denigrate the importance and value of programmes designed to excite general interest in entrepreneurship. The point is that what is appropriate for an engineering student may be different from what is appropriate for a student following an arts discipline, for example. Education and training should seek to equip the potential entrepreneur, by raising the perceived feasibility of entrepreneurship for a particular young person with a particular education background and knowledge base. It should address specific skills such as financial and risk management, the preparation of business and marketing plans, management of employees, and well as specific skills to enable, for example technology-educated, or creative arts educated students, to translate those skills into the realization of relevant business opportunities. In some respects, although they may be most likely to be interested in entrepreneurship, business management students may be more difficult to prepare for entrepreneurship because they do not necessarily have subject-specific experience to bring to bear on a potential business opportunity.

Programmes, such as Go Wales, which allow students to gain experience in a small business venture are also important. They may simultaneously allow young people to acquire skills “on-the-job”, as well as exposure to (hopefully) positive role models. The report has also established that, while only around 6 per cent of students are running a business venture while studying, a significantly higher proportion of around 14 per cent of students report that they are engaged in some degree of informal entrepreneurship. Engagement in informal entrepreneurship is found to be significantly associated with the likelihood of wanting to start a new business after graduation. While such activity may be small scale, it needs to be encouraged and not seen as necessarily a distraction from academic study.

Previous research, which adopts a cognitive approach to understanding the formation of entrepreneurial intentions, highlights the importance of self-efficacy. The most important issue here concerns the way in which demographic characteristics

may moderate the relationship between an individual's perception of self-efficacy and the likelihood that they will form entrepreneurial intention. So, for example, older students may have a richer set of life experience on which to draw and therefore feel more comfortable about the idea of setting up their own business. However, the most important demographic influence, noted extensively in previous literature and confirmed by the findings in this report, is that of gender. In general women have substantially lower levels of self-efficacy and this is likely to explain why women report significantly lower levels of interest in entrepreneurship. Women also have generally higher levels of risk aversion. 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 be matched with improved education about how to manage financial risk. The qualitative research undertaken for this report suggests that locus of control is an important issue – do aspiring entrepreneurs perceive that they have the skills to manage risk effectively, or are they afraid of the risk associated with new venture creation because it is something that is out of their control? International students from outside the European Union appear to be more optimistic about the independence and status that setting up a business might entail. Given that British universities have made considerable efforts to increase overseas recruitment in recent years, they might consider ways of trying to “infect” their home students with this greater optimism.

Students in Wales appear less likely than other students, particularly those from outside the UK, to associate themselves with the role of “entrepreneur”. They are less likely to perceive that entrepreneurs have a useful role to play in society and are less likely to think that there is a broader relevance for entrepreneurship. Whilst further analysis is needed on the students own definitions of entrepreneurship, it seems that European students hold a view of entrepreneurship that is more encompassing and multi-dimensional. These broader, societal issues give cause for concern. They would suggest that, although it is now nine years since the launch of the (former) Welsh Development Agency's Entrepreneurship Action Plan, that there is still a need to make up ground.

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Appendix: Questionnaire Text

Entrepreneurial Aspirations and Activity amongst Students and Recent Graduates

1. STUDENT LIFE AND ENTREPRENEURSHIP

SCHOOL OF BUSINESS AND ECONOMICS
SWANSEA UNIVERSITY

This questionnaire has been designed to find out more about your involvement in entrepreneurial activity and any aspirations that you might have to set up your own business venture in the future. The questionnaire is being managed by the School of Business and Economics at Swansea University, in association with a network of other British and European universities, and with the financial support of the Welsh Assembly Government. Completing the questionnaire should take you around 15 to 20 minutes. Please note that there are no 'right' or 'wrong' answers - we highly value your honest opinions.

All fully completed questionnaires will be entered into a prizewinners draw to win a £20/€30 voucher for books, with one prize per university taking part. In order to enter the prize draw you will need to give your e-mail address at the end of the questionnaire. If you wish to remain anonymous and not be entered then do not provide an e-mail address.

We would like to thank you for your help in advance. The information you give in this survey is for research purposes only and individual responses will be treated as strictly confidential.

If you have questions regarding the survey, please contact Ioan Humphreys, School of Business and Economics, Swansea University, i.humphreys@swansea.ac.uk

Click the "NEXT" button to take part in this important survey.

THANK YOU FOR YOUR COOPERATION AND PARTICIPATION. IT IS VERY MUCH APPRECIATED.

2. Your current studies

1. At which University are you currently studying?

- Swansea
- Glamorgan
- Aberystwyth
- Warwick
- KTH Stockholm
- Abo Akademi
- Copenhagen Business School
- St Gallen
- Cork

Entrepreneurial Aspirations and Activity amongst Students and Recent Graduates

2. What is the country of your family residence?

- England
- Wales
- Scotland
- Ireland
- Sweden
- Finland
- Germany
- Switzerland
- Denmark
- Other EU country
- Other non-EU country

3. What is the main subject area of your degree course?

- Business Management and/or Economics
- Law
- Other Social Science
- Arts/Humanities
- Science and Engineering
- Medicine or Health
- Other (please specify)

4. How far are you through your course of study?

- Undergraduate first year
- Undergraduate intermediate year/years
- Undergraduate final year
- Postgraduate

5. Are you studying...

- Full time
- Part time

3. Family background

1. Is your father or mother currently running their own business?

- Father
- Mother
- Both
- Neither

Entrepreneurial Aspirations and Activity amongst Students and Recent Graduates

2. Does either your father or mother currently employ other people in that business?

- Yes
 No

4. Family background (continued)

1. Was your father or mother involved in running their own business at any time while you were at school?

- Father
 Mother
 Both
 Neither

2. Did either your father or mother employ other people in that business at the time?

- Yes
 No

5. Family background (continued)

1. Do you have a brother or sister who is currently running their own business?

- Brother
 Sister
 Both
 Neither

2. Does either he or she employ other people in that business?

- Yes
 No

6. Friends in entrepreneurship

1. Do you have a close personal friend who has started their own business in the last two years?

- Yes
 No

Entrepreneurial Aspirations and Activity amongst Students and Recent Graduates

2. Does that friend employ other people in that business?

- Yes
- No

7. What does entrepreneurship mean to you?

1. With which of the following roles do you most identify yourself?

- Change agent
- Entrepreneur
- Executive
- Coach
- Leader
- Worker
- Administrator
- Facilitator
- Manager
- Professional

2. Which characteristics do you identify with entrepreneurship? (Please rank in order of a scale of 1-7, using 1 to indicate the highest, and using the ranking once per characteristic e.g. Ambition 1, Independence 7, Money 3, etc)

	1	2	3	4	5	6	7
Money	<input type="radio"/>						
Social Good	<input type="radio"/>						
Independence	<input type="radio"/>						
Power	<input type="radio"/>						
Ambition	<input type="radio"/>						
Environmental good	<input type="radio"/>						
Respect/status	<input type="radio"/>						

Entrepreneurial Aspirations and Activity amongst Students and Recent Graduates

3. To what extent do you agree with the following statements?

	Strongly disagree	Disagree	Neither	Agree	Strongly agree
Entrepreneurs make an important contribution to society	<input type="radio"/>				
Anyone can be an entrepreneur	<input type="radio"/>				
Entrepreneurship is primarily about making money	<input type="radio"/>				
Entrepreneurship can cause social harm	<input type="radio"/>				
Schools place too much emphasis on entrepreneurship	<input type="radio"/>				
Politicians place too little emphasis on entrepreneurship	<input type="radio"/>				
My parents would like me to become an entrepreneur	<input type="radio"/>				
An entrepreneurial mindset is important to be successful in all forms of employment	<input type="radio"/>				
Entrepreneurship is a meaningless concept	<input type="radio"/>				

4. Please complete the following sentence (in no more than 3 lines): "An entrepreneur is someone who..."

8. Your experience of education and training in entrepreneurship

1. Have you taken part in any formal training or courses in entrepreneurship or small business management?

- Yes
 No

Entrepreneurial Aspirations and Activity amongst Students and Recent Graduates

2. If yes, was this training:

- a part of your school study before coming to university
- a part of your university course
- a part of a separate training course which you chose to attend
- Other (please specify)

3. Have you ever completed a work placement in a small business as part of your education or training ?

- Yes
- No

4. 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?

- I'm not intending to set up in business
- Type of business

5. If you were to set up a business, where do you think you will get the funds to help you do this?

- Family
- Personal savings
- Bank loan
- Government start-up grant
- Start up scheme for new university graduates
- Don't know
- Other (please specify)

6. Are you currently running your own business or involved in running a business venture?

- No
- Yes, what type of business is this? (please specify details in box below)

9. Your involvement in entrepreneurial activity

Entrepreneurial Aspirations and Activity amongst Students and Recent Graduates

1. How long have you been involved in running the business?

- Less than 6 months
- 6 - 12 months
- 1 - 3 years
- More than 3 years

2. Do you have other business partners who share the running of the business?

- No
- Yes, please give number

3. Does the business employ anyone?

- No
- Yes, please give number

4. Approximately how much revenue has this generated in the last year?

- £0 - £1,000 (€0 - €1,500)
- £1,000 - £5,000 (€1,500 - €7,500)
- £5,000 - £20,000 (€7,500 - €30,000)
- £20,000 - £60,000 (€30,000 - €90,000)
- £60,000+ (€90,000+)

5. Did you need start-up finance to set up the business?

- Yes
- No, - I used all my own money

6. If yes, where did this finance come from?

- Family
- Personal savings
- Bank loan
- Credit card borrowing
- Government start-up grant
- Start-up scheme for new university graduates
- Other (please specify)

Entrepreneurial Aspirations and Activity amongst Students and Recent Graduates

7. Did you receive any formal support in setting up the business?

- Yes
 No

8. If yes, what type of support?

- Business plan preparation
 Marketing plan preparation
 Technical support with the development of the product or service
 Legal or tax advice
 Other (please specify)

9. Where did this support come from?

- Public small business advice service (e.g. Business Connect)
 Your bank
 Your university
 Other (please specify)

10. Your involvement in entrepreneurial activity

1. Are you involved in any informal entrepreneurial or profit making activity e.g. internet auctions, car boot sales, franchised selling to friends or family, etc

- No
 Yes, please specify the type of activity

2. Approximately how much revenue has this generated in the last year?

- £0 - £1,000 (€0 - €1,500)
 £1,000 - £5,000 (€1,500 - €7,500)
 £5,000 - £20,000 (€7,500 - €30,000)
 £20,000 - £60,000 (€30,000 - €90,000)
 £60,000+ (€90,000+)

11. Your future career choice

Entrepreneurial Aspirations and Activity amongst Students and Recent Graduates

1. To what extent do you agree with the following statements?

	Strongly disagree	Disagree	Neither	Agree	Strongly agree
It is likely that I will choose a career as self-employed within 3 years of finishing my university course	<input type="radio"/>				
I believe that my close family think that I should pursue a career as self-employed	<input type="radio"/>				
It is likely that I will choose a career working for someone else after finishing my university course	<input type="radio"/>				
I believe that my close family think that I should pursue a career working for someone else	<input type="radio"/>				

2. To what extent do you agree with the following statements?

	Strongly disagree	Disagree	Neither	Agree	Strongly agree
If I became self-employed, the chances of failure would be very high	<input type="radio"/>				
There are many events outside my control which could prevent me from being self-employed	<input type="radio"/>				
If I was self-employed, I would have complete control over my career	<input type="radio"/>				
For me, becoming self-employed would be very easy	<input type="radio"/>				
If I became self-employed, the chances of success would be very high	<input type="radio"/>				
If I wanted to I could easily pursue a career as self-employed	<input type="radio"/>				

12. Your future career choice (continued)

Entrepreneurial Aspirations and Activity amongst Students and Recent Graduates

1. To what extent do you agree with the following statements?

	Strongly disagree	Disagree	Neither	Agree	Strongly agree
Working for someone else would provide me with better job security	<input type="radio"/>				
Working for someone else means that I would have more leisure time and longer holidays	<input type="radio"/>				
Working for someone else will give me better prospects for building a career.	<input type="radio"/>				
Working for someone else means that I would have better opportunities to meet people and make friends	<input type="radio"/>				
Working for someone else means that I would have less responsibility, than if I set up my own business	<input type="radio"/>				

2. To what extent do you agree with the following statements?

	Strongly disagree	Disagree	Neither	Agree	Strongly agree
Setting up my own business would lead to greater personal fulfilment	<input type="radio"/>				
Setting up my own business would give me the authority to make decisions	<input type="radio"/>				
Setting up my own business would give me freedom and independence	<input type="radio"/>				
Setting up my own business would give me a more challenging career	<input type="radio"/>				
Setting up my own business would give me more opportunity to become a higher earner	<input type="radio"/>				
Setting up my own business would mean that I would be better able to follow a project through from start to	<input type="radio"/>				

Entrepreneurial Aspirations and Activity amongst Students and Recent Graduates

finish

13. Your views about risk

1. How easily do you adapt when things go wrong financially?

- Very uneasily
- Somewhat uneasily
- Somewhat easily
- Very easily

2. When you think of the word 'risk' in a financial context, which of the following words come to mind first?

- Danger
- Uncertainty
- Opportunity
- Thrill

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?

- Definitely more job security with a small pay rise
- Probably more job security with a small pay rise
- Not sure
- Probably less job security with a big pay rise
- Definitely less job security with a big pay rise

4. Imagine you were in a job where you could choose whether to be paid salary, commission or a mix of both. Which would you pick?

- All salary
- Mainly salary
- Equal mix of salary and commission
- Mainly commission
- All commission

5. How much confidence do you have in your ability to make good financial decisions?

- None
- A little
- A reasonable amount
- A great deal
- Complete

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6. How would you assess your willingness to take financial risks?

- Very low risk taker
- Low risk taker
- Moderate risk taker
- High risk taker

7. If you received 100,000 Euros that could only be used in three years' time, how would you invest the money?

- I would invest it in a savings account in the bank with a guaranteed yield of +3% per year
- I would invest it in a portfolio of shares in large companies with a maximum expected yield of +10% per year and a minimum possible yield of minus 2% per year
- I would invest it in the shares of a new company with a maximum expected yield of +30% per year and a minimum possible yield of minus 20% per year

14. Your views about risk (continued)

1. To what extent do you agree with the following statements?

	Strongly disagree	Disagree	Neither	Agree	Strongly agree
There are good opportunities for starting a new business in the area where I live	<input type="radio"/>				
I have the skills needed to start a business	<input type="radio"/>				
I prefer to invest my money in safe savings rather than where there is a risk I could lose my money	<input type="radio"/>				
I enjoy taking risks if there is the prospect of significant financial return as a result	<input type="radio"/>				
Fear of failure would prevent me from starting a new business	<input type="radio"/>				

15. Support for entrepreneurs

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1. What sort of support do you think you would value if you were setting up in business after graduating. (Please rank in order of a scale of 1-6, using 1 to indicate the highest, and using the ranking only once per choice)

	1	2	3	4	5	6
Membership of a dedicated club and resource centre for new entrepreneurs in your city	<input type="radio"/>					
Small scale low interest loan scheme for entrepreneurs for one year	<input type="radio"/>					
Access to business and management advice from your university	<input type="radio"/>					
Access to a social network of other new entrepreneurs in your city	<input type="radio"/>					
Small level of financial support to cover living costs in the first three months	<input type="radio"/>					
Access to specialised technical advice from your university	<input type="radio"/>					

16. About you

1. Gender

- Male
- Female

2. Age

- 18 - 21
- 22 - 25
- 26 - 30
- 31 - 39
- 40 or over

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3. Ethnicity

- White
- Black African
- Black Caribbean
- Indian/Pakistani/Bangladeshi
- Chinese
- Other (please specify)

4. Marital Status

- Single
- Married
- Cohabiting in a long term relationship
- Separated or Divorced

5. If married or cohabiting, is your partner:

- Employed
- Self employed
- Student
- Not working
- In full time education
- N/A - I'm neither married or co-habiting

6. Do you have a disability or a long-standing illness which has lasted more than one year?

- Yes
- No

7. If yes, does this disability or illness limit the type of work or amount of work that you are able to do?

- Yes
- No
- N/A - I'm not disabled

17. Thank you for taking part

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1. Your details

If you would like to be entered into the prize draw, please leave your e-mail address in the box provided.

If you would like to contribute to further research on this topic over the next 12 months, please leave your e-mail address in the box provided.

YOUR PARTICIPATION IN THIS STUDY IS VERY MUCH APPRECIATED

If you have any comments regarding this survey, e.g. accessibility, user friendliness, etc, please email your comments to Ioan Humphreys at i.humphreys@swansea.ac.uk

THANKS AGAIN