

Modelling the Individual Determinants of High Aspiration Firms in the UK

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Objectives

High growth firms continue to attract considerable attention from the academic and policy community in recent years and the recent BERR report summarised the available quantitative and qualitative evidence for the UK (BERR, 2008). A key research question remains unanswered - what are the characteristics of those individuals involved in establishing high aspiration firms in the UK. This paper will address this question.

Prior Work

Whilst there has been a great deal of research on the characteristics of high growth firms using business demography datasets in terms of firm size, industrial sector, business age and location there has been less attention paid to the relative importance of the range of individual characteristics associated with the high growth aspiration of new firms. So, while we are reasonably well informed about the types of businesses who can be classified as high growth, we are perhaps less able to identify the extent to which we can build a profile of those individuals most likely to set up enterprise which might be described as gazelles.

Approach

This paper develops an econometric model to isolate those individual characteristics associated with high aspiration firms in the UK. We use the GEM UK merged datasets for 2002-2008 of ~160,000 respondents to estimate multi-nomial logistic regression models of the determinants of high aspiration entrepreneurship at the level of the individual. We also seek to control for local and regional socio-economic conditions by developing a multi-level structure to the econometric analysis.

Results

The models show that high ambition entrepreneurship is associated with the following characteristics: males, graduates, high income households, being in full-time employment, shutting a business in the previous 12 months and knowing an entrepreneur.

Implications and Value

We have profiled in a robust way the characteristics of those involved in establishing high aspiration firms in the UK and as a result this has a clear connection to business support policy aimed at stimulating such start-ups. For example, the under-representation of women among high aspiration entrepreneurs in our analysis provides an opportunity to discuss the implications of these findings for business support policy.

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Abstract

High growth firms continue to attract considerable attention from the academic and policy community in recent years and the recent BERR report summarised the available quantitative and qualitative evidence for the UK (BERR, 2008). This paper develops an econometric model to isolate those individual characteristics associated with high aspiration firms in the UK. We use the GEM UK merged datasets for 2002-2008 which includes details of ~160,000 respondents to estimate a multi-nomial logistic regression model of the determinants of high aspiration entrepreneurship at the level of the individual. The models show that high ambition entrepreneurship is associated with the following characteristics: males, graduates, high income households, being in full-time employment, shutting a business in the previous 12 months and knowing an entrepreneur.

High Aspiration Firms

Multi-nomial Logit Models

GEM UK Data

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Introduction

High Growth Firms (HGFs) continue to attract considerable attention from the academic and policy community in recent years and the recent BERR report in the UK summarised the available quantitative and qualitative evidence for the UK (BERR, 2008; Anyadike-Danes *et al.*, 2009; Hart *et al.*, 2009). Whilst there has been a great deal of research on the characteristics of high growth firms using business demography datasets in terms of firm size, industrial sector, business age and location there has been less attention paid to the relative importance of the range of individual characteristics associated with high growth aspiration of new firms. We know from the recent work of Anyadike-Danes *et al.*, (2009) that using an OECD employment-based definition of a High Growth Firm¹ there were 11,530 High Growth Firms in 2008 or around 5.8 per cent of all businesses employing more than 10 people in 2005.

The propensity of High Growth Firms (HGFs) varies quite markedly by sector and that the pattern is broadly similar in both periods. Manufacturing has the lowest proportion (around 4%) with Financial and Business Services the highest (around 8-9%). We found High Growth Firms in all sectors of the economy. 25-30 per cent were in Business Services. One in five was in the Wholesale and Retail sector and 12-15 per cent were in Production (primarily manufacturing). The vast majority (70%) of HGFs were at least five years old, making 'Gazelles' (firms younger than five) a relatively small proportion of the population of UK businesses. There were 3,446 Gazelles in the UK in the 2005 and marginally fewer in 2008 (3,230 firms).

So, while we are reasonably well informed about the types of businesses who can be classified as high growth, we are perhaps less able to identify the extent to which we can build a profile of those individuals most likely to set up enterprise which might be described as gazelles. The main objective of the paper is to undertake develop a model the likelihood of an individual reporting that they aspire to high growth as defined by the number of jobs they intend to create after 5 years. We do this through an econometric investigation of the Global Entrepreneurship Monitor (GEM) UK datasets for 2002-08 which include data on around 160,000 individuals aged between 18 and 64 years.

What we know about the Founders of High Growth Start-ups

Previous research on the growth of new firms has predominantly focused on the actual size of the business and recent research by the authors of this paper have updated that evidence for the UK (Hart *et al.*, 2009; Anyadike-Danes *et al.*, 2009). However, we are interested here in another important dimension of the theoretical framework which seeks to explain the growth of firms in their early years, namely the individual characteristics of the founder or founders of the business. In particular, this paper concentrates upon demographic (e.g., age, sex, ethnicity) and attribute (e.g., education, household income) variables and does not include a comprehensive set of more cognitive variables which seek to capture perceived competence and personal goals. The reason for this is solely related to the set of variables contained within the GEM datasets but there are data on some aspects of this area of research which will be included in the analysis: - perception of start-up skills and 'knowledge' of an entrepreneur.

Previous empirical research indicate that the entrepreneurial attributes most likely to influence the growth trajectory of new start-up businesses are a combination of motivation, work skills and information (e.g., Barkham, 1994; Birley and Westhead, 2004; Barkham *et al.*, 1996). However, one of the criticisms of much of this previous research that has been advanced is set out by Delmar and Davidsson (2006) who argue that many of the studies are retrospective once the business has been launched and suffer from the twin weaknesses of 'hindsight biases' (poor recollection of what actually happened) and positive selection biases (data available on only those up and running a business). Their own longitudinal research on

¹ A firm is defined as being High Growth if and achieves an average annualised employment growth greater than **20% over a three year period** and it has a minimum of 10 employees at the beginning of the period.

Sweden focused on the firm size expectations of nascent entrepreneurs and reported that almost two-thirds indicated that they did not expect to employ more than one employee after 5 years. They conclude that the initial size at start-up was a major explanatory factor in their models of expected future size but other factors that did improve the predictive capacity of the model related to aspects of the 'commitment' of the founder(s) to the business – that is, formal legal incorporation of the business, dependency on the business as a main source of income, growth as an explicit goal.

Whilst we do not have a longitudinal sample in the GEM UK dataset we are, however, able to develop the empirical research along the lines proposed by Delmar and Davidsson (2006) by examining the future size expectations of nascent and new business owners. Previous research using the GEM Global dataset (2000-06) has found that high-expectation and high-growth entrepreneurs represent only a small percentage of all entrepreneurial activity (Autio, 2007). Even though 12.3 per cent of the adult-age population in countries that participated in the GEM study are active in emerging and new entrepreneurial businesses, only 6.5 per cent of new entrepreneurs (owner-managers of entrepreneurial firms less than 42 months old) expected to have 20 or more jobs in five years' time. Even though high-expectation entrepreneurship (as defined in this way) is rare, its contribution to expected job creation is important. Nascent and new entrepreneurs expecting to create more than 100 jobs in five years represent only 1.7 per cent of all nascent and new entrepreneurs, yet they expect to create nearly 50 per cent of all expected jobs. Almost 90 per cent of all expected new jobs are foreseen by less than one-quarter of nascent and new entrepreneurs (Autio, 2007). The analysis of the individual characteristics revealed that education and household income, as well as entrepreneurial activities and attitudes, appear important for high-expectation and high-growth entrepreneurship. High-expectation and high-growth entrepreneurs are better educated (i.e., graduates) than other entrepreneurs and the general population. High-expectation and high-growth entrepreneurs are also likely to be wealthier than other entrepreneurs and the general population.

Data and Methodology

We use the GEM question asking about the "number of jobs anticipated after 5 years" as a measure of entrepreneurial ambition. Conceptually, we develop a framework which argues that the degree of risk aversion associated with growing a business is related to a bundle of individual characteristics which mediate the probability of aspiring to growth. For example, we might imagine that the level of education, migrant status or ethnicity of an individual in the process of setting up a new business venture will impact upon the degree of risk-aversion as measured by the anticipated scale of the business and the associated financial returns. More specifically, the degree of risk aversion within a group of nascent and new business entrepreneurs, as measured in very simple terms as the desire to move beyond self-employment, may vary according to a person's ethnic background or their stock of human capital as proxied by their level of education.

An individual in the process of establishing a new business venture (nascent or new business) may aspire to being one of three possible categories with respect to the future growth expectations of the business: just one job (i.e., the respondent only, which we label 'one' when we report the results), two to five jobs (labelled 'two'); and six plus jobs (labelled 'six'). A multinomial logit model was estimated with the "number of jobs anticipated after 5 years" as the dependent variable, with 'one' as the baseline outcome or comparison group. The number of observations in each of these outcome categories is as follows: 1,102 in the baseline outcome of 'one'; 911 in 'two' and 925 in 'six'.

The independent variables used in the multinomial regression models are as follows (Table 1). We are naturally constrained by the range of variables collected as part of the GEM UK survey. The key variables here are the demographic characteristics of the respondent (age, sex and ethnicity), some personal attributes (household income, migrant status, employment status, education), and their attitudes to entrepreneurship (confidence about the possession of start-up skills; fear of failure would prevent the starting a business; perception of the opportunities for start-up in the local area in the next 6 months and whether they knew an entrepreneur in the previous 12 months). In addition, we include two other variables related to recent entrepreneurial behaviour: had they invested in another business and whether they had shut a business in the last 12 months.

Entrepreneurial attitudes, as measured in the GEM survey, are important for our models designed to isolate the individual characteristics associated with high ambition entrepreneurship. For example, the extent to which people think there are good opportunities for starting a business, or the level of risk that individuals might be willing to bear and individuals' perception of their own skills, knowledge and

experience in business creation. In addition, in the GEM survey design, all the entrepreneurs but only half (randomly selected) of non-entrepreneurs in the sample are asked all the attitudinal questions; this would reduce the UK sample size considerably.

Table 1: Independent Variables for the Multinomial Models

Variable	Sub-Groups	Early Stage Entrepreneurship (TEA Rate)	TEA, expects to employ at least 6 jobs in 5 years time	TEA, expects to employ at least 20 jobs in 5 years time	Sample Size (n=)
Gender ^{***}	Male: Female:	8.0 3.9	2.7 0.9	1.2 0.3	61,555 58,531
Age ^{***}	18-24: 25-34 35-44: 45-54 55-64:	5.2 7.2 7.3 5.7 3.6	2.0 2.3 2.2 1.6 0.9	0.8 0.9 0.9 0.7 0.4	13,357 25,785 31,406 27,025 22,511
Ethnic Status ^{***}	White: Mixed: Asian: Black:	5.7 8.9 8.2 10.1	1.7 3.6 3.2 3.7	0.7 1.4 1.3 1.3	109,235 2,172 5,784 2,895
Recent Migrant ^{****} (arrived in region less than 5 years ago)	Recent migrant: other:	8.0 5.7	2.8 1.7	1.3 0.7	14,326 105,759
Education ^{***}	No qualifications: Some qualifications: Graduate qualifications:	3.4 5.5 7.6	0.8 1.6 2.5	0.3 0.6 1.2	11,441 68,870 39,775
Income ^{***}	<£11.5k: £11.5k - £29.999k: £30k - £99.999k: >=£100k:	4.1 5.1 6.8 12.9	1.2 1.2 2.2 5.4	0.5 0.4 0.9 3.2	15,896 47,282 52,026 4,880
Informal Investor in last 3 years ^{***}	Yes: No:	23.4 5.7	10.7 1.7	6.6 0.7	1,771 118,313
Shut down a business in last year ^{***}	Yes: No:	20.4 5.7	7.0 1.7	3.8 0.7	2,414 117,671

All the included individual-level variables reflect current conceptual thinking on the possible range of demographic factors that determine the likelihood of an individual engaging in an entrepreneurial act (see e.g. Levie, 2007). Table 1 also shows the TEA values for different categories of these variables, and also for two measures of High Expectation Entrepreneurial Activity: the estimated percentage of TEA positive individuals in the UK population that expect to employ at least 6 and at least 20 people in 5 years time, respectively. We would expect that some of these variables, such as education, income, and experience would have relatively stronger effects on high expectation, and Table 1 shows that this is indeed the case. Gender is also a stronger differentiator of high expectation entrepreneurial activity than of TEA. It is not possible to gauge from these univariate statistics whether this is because of differences in other variables such as income or experience or due to a distinct gender effect. The following section of the paper present the results of a multinomial logit model to understand more clearly the relative importance of these independent variables.

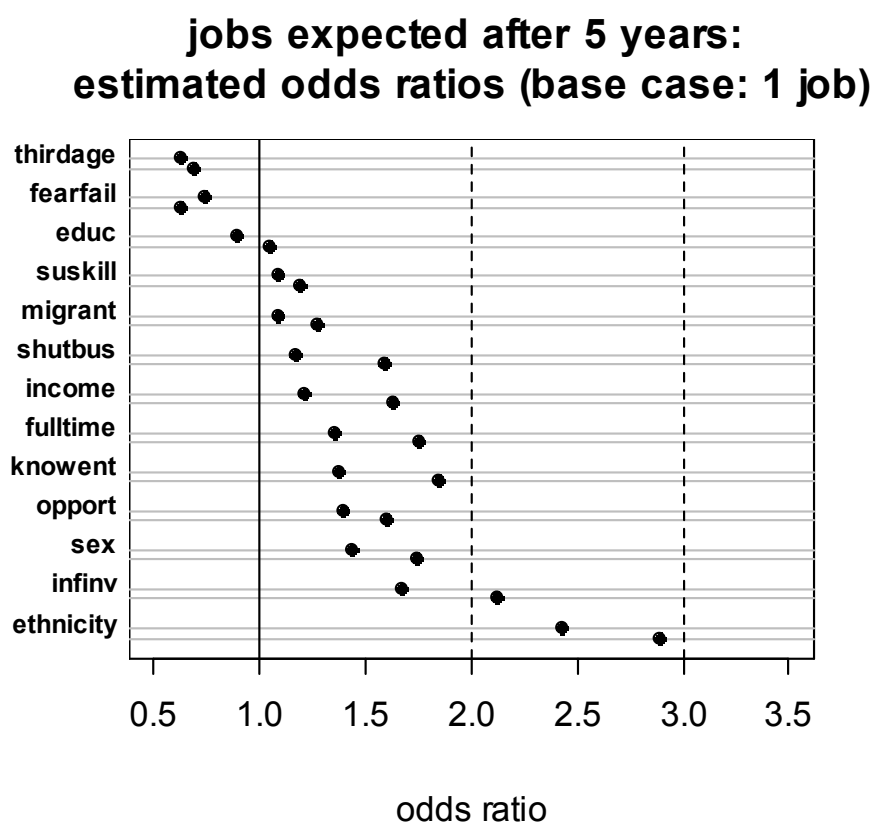
Results

The Base Model

If self-employment (one) is the baseline outcome then for each individual the “log odds ratio” of outcome ‘two’ (2-5 jobs) and ‘six’ (6+ jobs) relative to outcome ‘one’ can be estimated using a multinomial logistic regression model. Since ‘one’ is the baseline outcome, the estimated odds ratios (ORs) on ‘two’ and ‘six’ for each of the independent variables are readily interpretable measures of the factor associated with ambitious entrepreneurship. A positive/negative coefficient on the independent variables implies that the odds ratio (i.e., the ratio of the probability of outcome ‘two’ or ‘six’ to the probability of outcome ‘one’) increases/decreases with an increase in the value of the variable.

Figure 1 provides a graphical overview of the results: for each variable two points have been plotted, the lower is for ‘two’ the upper ‘six’. The variables have been organised by increasing size of the odds ratio for ‘two’ and they range from *thirdage* (the individual was aged 50 years and over) which has the smallest odds ratio (around 0.6) to *ethnicity* (non-white) with the largest (around 3). Notice first of all the set of variables with odds ratios close to 1 – that is, *educ* (graduate); *suskill* (possesses start-up skills) and *migrant* (not a life-long resident in the region) have odds ratios that are not significantly different from 1, so these variables are not associated with ambitious entrepreneurship (Table 2). *Ethnicity* is at the other end of the scale, with non-white respondents being between two or three times more likely to be ambitious entrepreneurs. Men are significantly more likely than women to be seeking to establish new ventures which will employ more than 6 people after five years. The odds ratio for *sex* is significantly different from 1 and is larger in the ‘six’ outcome compared to the ‘two’ outcome category.

Figure 1: Multinomial logit start-up by jobs expected in 5 years: odds ratios



Shutbus (respondent shut a business in the previous 12 months) is in a slightly different category as the odds ratio for ‘six’ is significantly different from 1, but that for ‘two’ it is not (we will look later at a more formal test of differences between the outcomes ‘two’ and ‘six’). Another aspect of business activity is represented by whether the respondent had made an informal investment in another business venture. Table 1 shows that the odds ratio for *infin* is significantly different from 1 and is higher in the ‘six’ outcome category. Being in full-time employment (*fulltime*) is an important characteristic (odds ratio significantly different from 1) of those individuals who indicate that they intend to employ other people in their business, and particularly more than 6 persons. At the very least this highlights the importance of participation in the labour market for business growth and may also reflect the process of new business creation with growth potential ‘spinning out’ from existing businesses.

There are only two variables 'below the line': **thirdage** and **fearfail**. Evidently these make ambitious entrepreneurship less likely – an individual aged 50 years or more, for example, is around two-thirds less likely to be an ambitious entrepreneur. The odds ratios for the remaining two GEM attitudinal variables (know an entrepreneur in the last 12 months – **knowent**; good opportunities for start-up in next 6 months – **opport**) are both significantly different from 1 and are larger in the 'six' outcome category.

Table 2a: Multinomial logit start-up by jobs expected in 5 years: odds ratios

(Base case: one job)

	Odds ratio	Std err	z-value	95%L	95%U
Two to five jobs					
Thirdage (age 50=1; 0=otherwise)	0.62	0.07	-4.24	0.50	0.78
Sex (Male=1; Female=0)	1.43	0.14	3.66	1.18	1.73
Income (High income household=1; 0=otherwise)	1.22	0.12	2.02	1.01	1.47
Educ (graduate=1; 0=otherwise)	0.89	0.09	-1.21	0.73	1.08
Ethnicity (Non-White =1; 0=otherwise)	2.43	0.50	4.34	1.63	3.64
Migrant (Migrant=1; Non-migrant=0)	1.08	0.15	0.54	0.82	1.41
Fulltime (Full-time employment=1; 0=otherwise)	1.35	0.14	2.87	1.10	1.66
Infinv (informal investor=1; 0=not)	1.63	0.37	2.13	1.04	2.55
Shutbus (shut a business in last 12 months=1; 0=not)	1.19	0.24	0.86	0.80	1.75
Suskill (possess the skills for start-up=1; 0=otherwise)	1.10	0.16	0.66	0.83	1.47
Fearfail (fear of failure would prevent start-up=1; no=0)	0.75	0.09	-2.51	0.59	0.94
Opport (good opportunities for start-up=1; no=0)	1.40	0.13	3.55	1.16	1.68
Knowent (know an entrepreneur in previous 12 months=1; no=0)	1.38	0.13	3.37	1.14	1.66

Table 2b: Multinomial logit start-up by jobs expected in 5 years: odds ratios

(Base case: one job)

	Odds ratio	Std err	z-value	95%L	95%U
<i>Six or more jobs</i>					
Thirddage (age 50=1; 0=otherwise)	0.68	0.08	-3.35	0.55	0.85
Sex (Male=1; Female=0)	1.74	0.18	5.41	1.42	2.12
Income (High in come household=1; 0=otherwise)	1.64	0.16	4.92	1.35	1.99
Educ (grad uate=1; 0= otherwise)	1.06	0.11	0.58	0.87	1.29
Ethnicity (Non-White =1; 0=otherwise)	2.91	0.60	5.18	1.94	4.36
Migrant (Migrant=1; Non-migrant=0)	1.26	0.17	1.66	0.96	1.65
Fulltime (Full-t ime employment=1; 0=otherwise)	1.74	0.20	4.92	1.40	2.17
Infinv (informal investor=1; 0=not)	2.06	0.45	3.28	1.34	3.16
Shutbus (sh ut a business in last 12 months=1; 0=not)	1.65	0.31	2.64	1.14	2.39
Suskill (possess th e skills f or st art-up=1; 0=otherwise)	1.21	0.20	1.21	0.89	1.67
Fearfail (fear of failure would prev ent start-up=1; no=0)	0.64	0.08	-3.63	0.50	0.81
Opport (goo d opportunities for start-up=1; no=0)	1.60	0.16	4.83	1.32	1.94
Knowent (kno w an entrepreneur in previo us 12 months=1; no=0)	1.83	0.18	6.20	1.51	2.22

It is worth testing right at the outset whether there is sufficient difference between the three categories of anticipated jobs, given the variables, to justify distinguishing them. The Cramer-Ridder test results reported in Table 3 confirm what we might have inferred from the number of significant odds ratios in Table 2 and b, the hypothesis that any of the categories should be pooled is decisively rejected.

Table 3: Cramer-Ridder test for combining outcome categories

H0: candidates for pooling have the same regressor coefficients

	InL	InLr	LR	p>chi square
two:six	-3038.7	-3107.1	136.8	0.00
two:one	-3038.7	-3202.9	328.3	0.00
six:one	-3038.7	-3069.6	61.7	0.00

Note: degrees of freedom for chi square: 13

Next, Table 4 reports a set of variable by variable tests of the hypothesis that the coefficients on 'two' are *not different* from those on 'six'. The results are mixed. We can decisively reject the hypothesis in seven cases: that is, for thirdage; ethnicity; migrant; infinv; suskill; fearfail and oport there is no significant difference between the coefficients on 'two' and 'six' and we are decisively unable to reject the hypothesis in 3 cases: that is, for income; fulltime and knowent. The remaining three, are not rejected, but are close to the boundary: that is, sex, educ and shutbus. Earlier we saw that shutbus for 'two' was not different from the baseline outcome (odds ratio of 1), but we now know that shutbus does – like sex; educ; income; fulltime and knowent – help to distinguish 'high' ambition ('six') entrepreneurs from those who are slightly less ambitious ('two'). The ratio of the odds ratio of 'six' to the odds ratio of 'two' is a point estimate of the difference between 'high' and not so high ambition. However, it is worth remembering that the precision of these comparisons vary, as indicated by the results in Table 3.

Table 4: Significance test for difference between coefficients: two vs six

	Chi square	p> chi square
Thirddage	0.57	0.45
Sex	3.44	0.06
Income	8.75	0.00
Educ	3.13	0.08
Ethnicity	1.12	0.29
Migrant	1.31	0.25
Fulltime	4.62	0.03
Infinv	1.48	0.22
Shutbus	3.37	0.07
Suskill	0.34	0.56
Fearfail	1.52	0.22
Oport	1.89	0.17
Knowent	8.41	0.00

For most variables, the 'six' outcome is between 10 and 20 per cent higher than the 'two' outcome. **Shutbus** is 40 per cent higher but we know that the difference between the two odds ratios is not very precisely determined. In just one case is the ratio of the two odds ratios less than unity, **fearfail** - evidently fear of failure is not connected to any model of 'high' ambition entrepreneurship. The simple interpretation of the model is that high ambition entrepreneurship in the UK, as measured within the GEM Global project, is strongly associated with the following characteristics: males, high income households, graduates, being in full-time work, having shut a business in the previous 12 months and knowing an entrepreneur.

Extending the model: 'not an entrepreneur' as the baseline outcome

'High' ambition entrepreneurship can be put into a broader context by extending the dependent variable to include those who are not nascent entrepreneurs or new business owners (i.e., 'not tea' in the GEM notation where TEA is the definition of an early stage entrepreneur), and making 'not tea' the baseline outcome. The number of observations in each of these outcome categories is as follows: 55,403 in the baseline outcome of 'non-TEA'; 1,102 in 'one'; 911 in 'two' and 925 in 'six'. We can then estimate odds ratios for all three outcome categories of entrepreneurial ambition: that is, 'one'; 'two' and 'six'.

Figure 2 is constructed along similar lines to Figure 1, except there are now, of course, three lines for each variable and in order to make the contrasts clear the variables have been plotted in the same order as before, with Table 5a to 5c providing the detail for each outcome. The feature of the plot which stands out is **suskill**: probably unsurprisingly, anyone engaged in a start-up is much more likely to believe that they have the knowledge or skill to start up a business, apparently six times more likely. Although individual attitudes to entrepreneurship (adequate skills, fear of failure, opportunity perception, knowledge of another start-up entrepreneur) are used in this model, there is a possible issue over the endogeneity of these questions. It has been argued (Bosma et al., 2008) that entrepreneurs might feel compelled to answer these questions in the affirmative.

Apart from the expected 'deterrent' effect of **thirdage** and **fearfail**, it is interesting to see odds ratios of less than unity for the 'one' category for variables: income; fulltime; and ethnicity. For most of the rest of the variables there is a clear (increasing) ordering across the ambition categories from 'one' to 'six': in particular for **shutbus**; **sex**; **infinv**; **knowent** and **opport**. In brief, and leaving aside the self-reported attitudinal variables, being a male, having shut a business and also having made an informal investment in another business are the key characteristics of individuals who aspire to high ambition entrepreneurship compared to the baseline outcome of not being involved in a new venture creation.

Figure 2: Multinomial logit start-up by jobs expected in 5 years: odds ratios

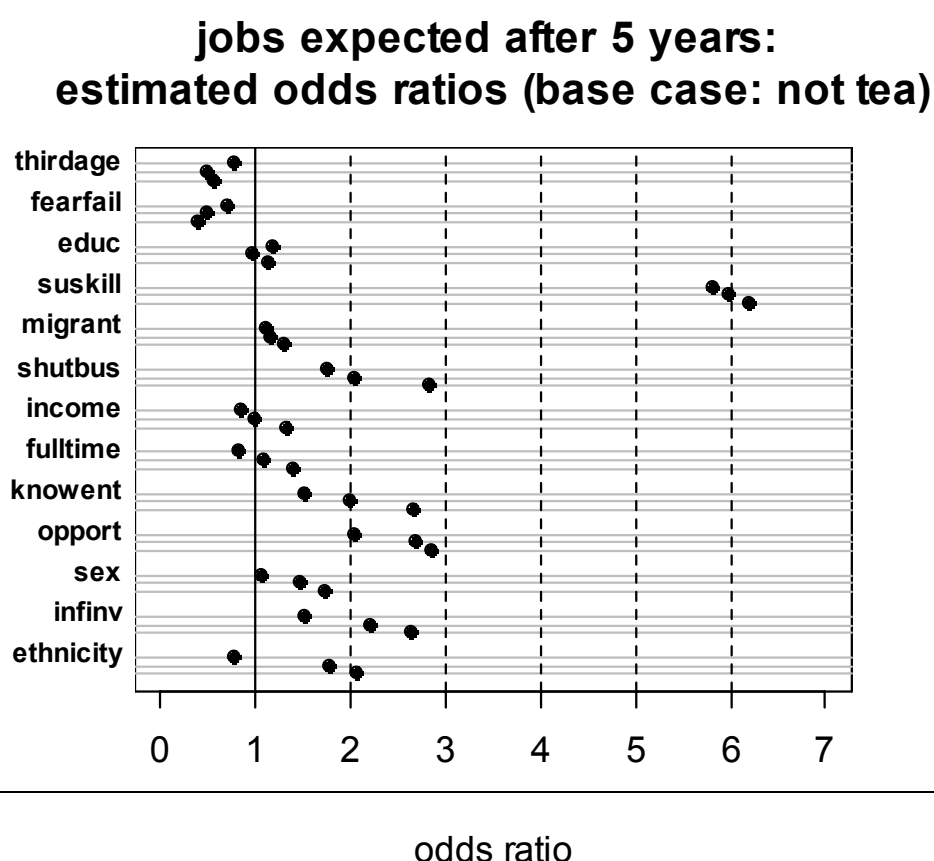


Table 5a: Multinomial logit start-up by jobs expected in 5 years: odds ratios

Base case: not an early-stage entrepreneurs (i.e., nascent and new business owner)

	Odds ratio	Std err	z-value	95%L	95%U
One job					
Thirddage (age 50=1; 0=otherwise)	0.78	0.05	-3.64	0.68	0.89
Sex (Male=1; Female=0)	1.06	0.07	0.90	0.93	1.21
Income (High in come household=1; 0=otherwise)	0.84	0.06	-2.64	0.74	0.96
Educ (graduate=1; 0=otherwise)	1.19	0.08	2.64	1.05	1.36
Ethnicity (Non -White=1; 0=otherwise)	0.79	0.13	-1.46	0.57	1.09
Migrant (Mi grant=1; Non -migrant=0)	1.12	0.11	1.16	0.93	1.35
Fulltime (Ful l-time employment=1; 0=otherwise)	0.83	0.06	-2.76	0.72	0.95
Infinv (informal investor=1; 0=not)	1.53	0.27	2.38	1.08	2.18
Shutbus (shu t a bu siness in la st 12 mo nth=1; 0=not)	1.75	0.25	3.87	1.32	2.32
Suskill (possess the skills for s tart-up=1; 0=otherwise)	5.82	0.53	19.45	4.87	6.95
Fearfail (fear of failure would p revent sta rt-up=1; no=0)	0.71	0.05	-4.84	0.61	0.81
Opport (good opportunities for start-up=1; no=0)	2.04	0.13	11.27	1.80	2.31
Knowent (kn ow an entrepreneur in previo us 12 months=1; no=0)	1.51	0.10	6.25	1.32	1.71

Table 5b: Multinomial logit start-up by jobs expected in 5 years: odds ratios

Base case: not an early-stage entrepreneurs (i.e., nascent and new business owner)

	Odds ratio	Std err	z-value	95%L	95%U
<i>Two to five jobs</i>					
Thirddage (age 50=1; 0=otherwise)	0.48	0.04	-8.26	0.41	0.58
Sex (Male=1; Female=0)	1.47	0.11	5.22	1.27	1.71
Income (High income household=1; 0=otherwise)	0.99	0.07	-0.11	0.86	1.15
Educ (graduate=1; 0=otherwise)	0.97	0.07	-0.44	0.84	1.12
Ethnicity (Non-White =1; 0=otherwise)	1.79	0.23	4.56	1.39	2.29
Migrant (Migrant=1; Non-migrant=0)	1.15	0.12	1.34	0.94	1.40
Fulltime (Full-time employment=1; 0=otherwise)	1.09	0.09	1.08	0.93	1.29
Infinv (informal investor=1; 0=not)	2.20	0.34	5.03	1.62	2.98
Shutbus (shut a business in last 12 months=1; 0=not)	2.05	0.30	4.96	1.54	2.72
Suskill (possess the skills for start-up= 1; 0=otherwise)	5.99	0.67	16.13	4.82	7.45
Fearfail (fear of failure would prevent start-up=1; no=0)	0.48	0.04	-8.28	0.41	0.57
Opport (good opportunities for start-up=1; no=0)	2.69	0.19	13.94	2.34	3.09
Knowent (know an entrepreneur in previous 12 months=1; no=0)	1.99	0.14	9.64	1.73	2.29

Table 5c: Multinomial logit start-up by jobs expected in 5 years: odds ratios

Base case: not an early-stage entrepreneurs (i.e., nascent and new business owner)

	Odds ratio	Std err	z-value	95%L	95%U
Six or more jobs					
Thirddage (age 50=1; 0=otherwise)	0.56	0.05	-6.74	0.47	0.66
Sex (Male=1; Female=0)	1.74	0.13	7.21	1.50	2.03
Income (High income household=1; 0=otherwise)	1.32	0.10	3.61	1.13	1.53
Educ (graduate=1; 0=otherwise)	1.13	0.08	1.67	0.98	1.30
Ethnicity (Non-White =1; 0=otherwise)	2.06	0.25	5.87	1.62	2.62
Migrant (Migrant=1; Non-migrant=0)	1.31	0.13	2.80	1.09	1.59
Fulltime (Full-time employment=1; 0=otherwise)	1.39	0.13	3.65	1.16	1.66
Infinv (informal investor=1; 0=not)	2.63	0.36	7.10	2.01	3.43
Shutbus (shut a business in last 12 months=1; 0=not)	2.83	0.36	8.26	2.21	3.63
Suskill (possess the skills for start-up= 1; 0=otherwise)	6.21	0.76	14.90	4.88	7.90
Fearfail (fear of failure would prevent start-up=1; no=0)	0.39	0.04	-9.87	0.32	0.47
Opport (good opportunities for start-up=1; no=0)	2.86	0.21	14.54	2.48	3.30
Knowent (know an entrepreneur in previous 12 months=1; no=0)	2.66	0.20	13.32	2.30	3.07

Conclusions

It has been established elsewhere that in the UK just under a third of HGFs can be classified as gazelles (Hart et al., 2009; Anyadike-Danes et al., 2009). Whilst we can describe in some detail the characteristics of these gazelles the business demography dataset remains silent about the individuals setting up these businesses. To address this issue we use the GEM UK pooled dataset for 2002-08 to analyse the growth potential (as measured by a prediction of the number of jobs after 5 years) of nascent and new business owners. Overall, we have data on ~3,000 new businesses which we divided into three outcome categories: self-employment, 2-5 employees and 6 employees and over.

Our investigation into the characteristics of high ambition entrepreneurs (i.e., 6+ employees in our analysis) points to what might be termed an 'alpha-male' type profile. The simple interpretation of the model is that high ambition entrepreneurship in the UK, as measured within the GEM Global project, is strongly associated with the following characteristics: males, high income households, graduates, being in full-time work, having shut a business in the previous 12 months and knowing an entrepreneur. This is consistent with the conclusions of Autio (2007) in his study of the GEM Global international datasets. Using the base case as a 'non-entrepreneur' the results show that being a male, being a member of a non-White ethnic group, having shut a business and also having made an informal investment in another business are the key characteristics of individuals who aspire to high ambition entrepreneurship compared to the baseline outcome of not being involved in a new venture creation. The analysis in this paper has provided further evidence of the nature of the profile of individuals who are more likely to be associated with high growth enterprises. The difficulty is what does this mean for the design and implementation of enterprise policy, and start-up policy in particular?

For example, the findings with respect to gender are an important conclusion in the context of recent policy initiatives in the UK designed to increase the number of growth-oriented women-led businesses. For example, the Strategic Framework for Women's Enterprise published in May 2003 advocated a collective long-term approach to the development of women's enterprise. Its ambitious objective was to "significantly increase the numbers of women starting and growing businesses in the UK, to proportionately match or exceed the level achieved in the USA". More recently, the UK Women's Enterprise Task Force report on "Greater Return on Women's Enterprise – GROWE" has again emphasised the importance of creating opportunities to increase the quantity, scalability and success of women's enterprise (WETF, 2009). Our findings point to the scale of the challenge facing this policy objective with respect to business growth and highlight the importance of previous business ownership and informal investment activity in other businesses – currently activities dominated by males.

Further, almost all the academic literature reflects the fact that "women are not a homogenous group". It is, therefore, important to recognize that there is no one group of women, no one group of female entrepreneurs and equally no one group of "growth orientated" female entrepreneurs. Gundry and Welsch (2001) highlighted the range of strategic paths chosen by women entrepreneurs and the extent to which some of them led to the growth of the business. The key conclusion from their study of over 800 women entrepreneurs across a range of sectors was that high growth oriented women entrepreneurs adopted a more structured approach to organising their business with a key emphasis upon market and technological change, a team-based form of organisational design.

More recent research on the growth orientation of women-led businesses in one English region (East of England) reached the following conclusions (Hart and O'Reilly, 2007). First, previous labour market experience is critical in shaping the businesses which women establish. Career history is vital in providing female entrepreneurs with the skills, networks and confidence to start up a business. It also has a crucial part to play in determining the type of businesses established by women and strongly linked to this the "high growth" potential that they might achieve. Second, for many female entrepreneurs the motivations to start up in business are inextricably linked to "the family". The flexibility that business ownership affords is a key driver in this decision. However, these personal factors have a strong influence on the ability of such businesses to be sustainable and grow. Third, it has often been argued that female entrepreneurs tend to locate themselves in sectors where growth potential can be limited. While this is largely the case for the East of England and nationally, our research has demonstrated that there is a stock of large, women-led businesses in the East of England and Hertfordshire, operating across the production and service sectors, making an important contribution to the regional economy and demonstrating significant potential for growth. Fourth, many female entrepreneurs believe that their business has "high growth" potential as opposed to being "high growth". However, few of these entrepreneurs have any formalized plans for growth. Fifth, only a small number of the female entrepreneurs felt that their gender had a detrimental effect on these aspects of the business. Finally, in keeping with much of the academic literature, the research revealed a general aversion by the female entrepreneurs to debt finance. Most of the

entrepreneurs were uncomfortable with debt and few accessed external finance in either starting up in business or for any growth plans which they might have. Potential undercapitalization of these businesses at start-up is believed to have significant implications on the future growth of women-led businesses. Further, some avoided growth because they did not want to take on debt.

Finally, the results provide some implications for the debate around the constant trade-off between numbers and quality. Should governments provide much support for many or a little support for a few growth-oriented businesses? Overall, the importance of high-growth entrepreneurship for job creation would appear to suggest the need for greater selectivity in UK enterprise policy, but such a policy emphasis also raises difficult issues concerning what entrepreneurial ventures to select for support, how to select them, and who should be making those selections. Entrepreneurial growth is famously easy to predict after growth has occurred, but not before. The results presented here would suggest a policy which emphasises the importance of the characteristics of the individual and how they correlate with growth expectations. However, this is only a partial examination of what characterises high growth businesses and as other research has revealed there is a need to examine in more detail the strategic choices adopted by founder(s) in the early years of operation. The GEM UK data has clearly profiled the individual and the task remains to examine the types of businesses they have established and the orientation of the businesses in terms of market orientation, innovation and financing. We have data on these aspects of business growth and that will form the next stage of the research.

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