GEM

# Global Entrepreneurship Monitor

## Scotland **2005**

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GEM 2005

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# Foreword

The GEM Scotland report provides policy makers and educators with an invaluable and independent insight into entrepreneurship and its many challenges.

The 2005 findings tell us that enterprise education is making a difference, our High Expectation Entrepreneurship rates are ahead of Western Europe's and our Social Entrepreneurial Activity levels are on a par with the UK.

This report however sets out many challenges, challenges that if we are bold enough we can face and overcome. To do so we require strong leadership from our economic development agencies, the Scottish Executive and our tertiary education system.

We are a small nation and we can react to these challenges in a dynamic manner: providing we have the will, we entrepreneurs will find a way.

Determined to Succeed and its precursor, Schools Enterprise Scotland are giving us global leadership in enterprise education. Sadly the continuum is then not offered in our tertiary education system, something I will aid in resolving personally, but as the tertiary system benefits from £ billions of taxpayer funds and many of our best brains reside there surely they will have their own ideas...

Our TEA base rates remain low by comparison to in-migrants and immigrants and confidence levels remain a challenge with our young people - we must address these issues by redoubling our efforts in providing seamless provision of enterprise education through to and including tertiary education. Notably in addition our Business Schools must address the paucity of professional sales training delivered by their institutions - if an entrepreneur cannot sell he cannot succeed, period.

Once more the report cites a lack of informal investment in Scotland and I will again make my plea for a substantial increase in funding to the PSYBT in order that they may substantially scale up arguably Europe's most successful new start-up approach. The funding gap, if our economic agencies are listening, exists in the family and friends arena: we have the solution it is the PSYBT so let's use it.

Dr Jonathan Levie is again to be congratulated for his commitment to delivering this report - he has as always done Scotland a favour.

I am personally committed to using this data for the common good, I trust and hope policy makers, educators, economists and politicians are too: we should all be in a hurry.

**Yours aye**

**Tom**

**Sir Tom Hunter**

# 1 Introduction

**What's new in GEM Scotland 2005?**

1. GEM Scotland 2005 has six years of data to draw on, and has used 2003 population estimates provided by the Government Actuary's Department to standardise the Scottish and UK sample data. Thus estimates may differ very slightly from former years.

2. This year, we introduce several new measures, including an Established Business Owner/manager rate, a Social Entrepreneurship Activity measure, SEA, which is the social economy analogue of TEA, the combined measure of new business activity in GEM, and a High Expectation Entrepreneurship rate.

3. A new benchmark is introduced with which the Scottish TEA rate can be compared. This is the amalgamated TEA rate for all high income nations in the GEM survey.

The Global Entrepreneurship Monitor (GEM) is a unique international research programme that seeks to measure and explain differences in entrepreneurial activity across a wide variety of both developing and developed countries.

GEM was conceived and developed in 1998 as a joint research initiative by London Business School and Babson College, with the intention of gathering together pre-eminent entrepreneurship academics to study entrepreneurial processes and the relationship between entrepreneurship and economic growth. GEM2005 is the seventh annual GEM global assessment of entrepreneurship and this Scottish GEM report is the sixth in the series. Having expanded from an initial 10 countries in 1999 to 34 nations in 2004, the programme has grown further to 35 countries in 2005, and entered a second phase of development.

Table A: Participating countries in GEM2005

Source: 2005 Global GEM Executive Report

| |
|---|
| **Asia and Oceania:** |
| Australia, China, Japan, New Zealand, Singapore and Thailand |
| **Africa and the Middle East:** |
| South Africa |
| **Europe:** |
| Austria, Belgium, Croatia, Denmark, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Netherlands, Norway, Slovenia, Spain, Sweden, Switzerland and the United Kingdom |
| **North America:** |
| Canada, Jamaica, Mexico and the United States |
| **South America:** |
| Argentina, Brazil, Chile, and Venezuela |

The three key objectives of the GEM project are to:

- Measure differences in the level of entrepreneurial activity between countries.
- Uncover factors leading to appropriate levels of entrepreneurship.
- Identify policies that may enhance the national level of entrepreneurial activity.

Entrepreneurial activity is measured in a variety of ways, but the principal, "catch-all" measure used by GEM is Total Early Stage Entrepreneurial Activity, or TEA. This combines the proportion of individuals in the working age (18-64) population who are actively trying to start their own business, including self-employment or starting a business for their employer in which they will have an ownership stake, and the proportion who own and manage a business that is less than three and a half years old. The former group are nascent entrepreneurs and the latter group are new business owner/managers.

Thanks to the knowledge and experiences accumulated in the past seven years, as well as the inputs provided by many scholars, the GEM project has undergone a significant amount of changes and improvements, and many more are planned for the coming year. Extensive changes are being implemented with respect to the collection, harmonization and documentation of the data. One of the comparative strengths of the GEM project is its unique ability to provide comparable data across countries. The quality of the data is, as a result, paramount. The statistical characteristics and properties of the entire data set are being assessed and significant attention

is being paid to the data collection procedures with the aim of increasing response rates and the overall quality of the samples.

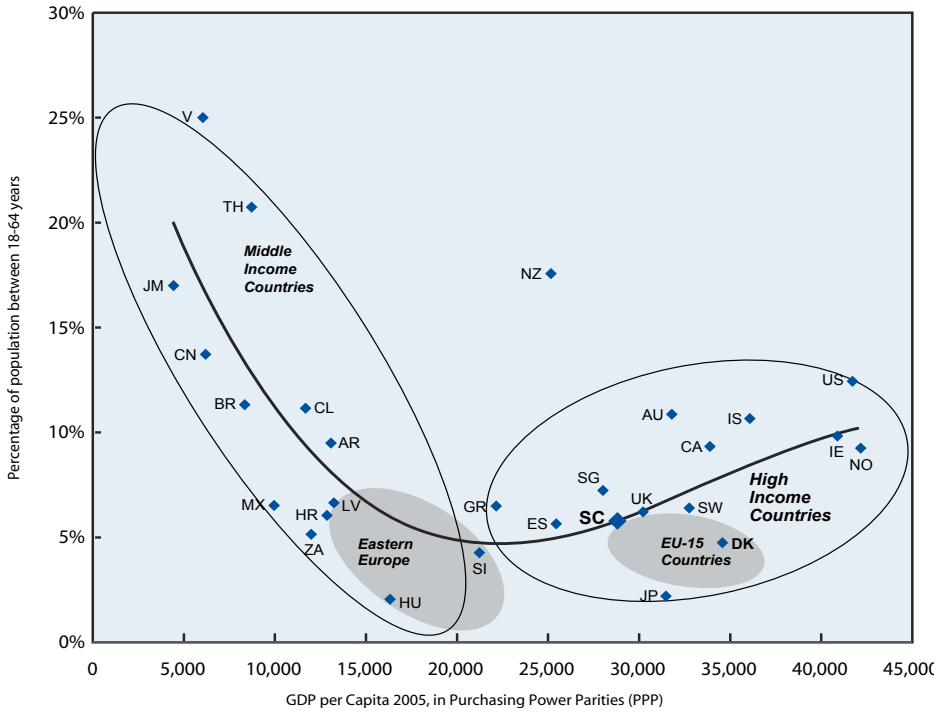
Extensive changes are also being implemented with respect to the use and interpretation of the data. In the past, GEM has focused on the study of early-stage entrepreneurial activity. Entrepreneurship, however, is a complex and multifaceted phenomenon. Although GEM will continue collecting data and documenting the behavior of potential entrepreneurs, its data provide a broad range of information on many of the various phases of the entrepreneurial process. This year's GEM2005 Report, available at www.gemconsortium.org , analyzes the existence and characteristics of established business owners; the degree of innovativeness, competitiveness, and growth expectations of early-stage and established business owners; and the existence and characteristics of social environments conducive to entrepreneurship. It also compares GEM data to other international sources of data on entrepreneurial activity.

## Key Findings of GEM2005 Global Report

In the 2005 Report, the 35 countries were divided into two clusters (middle income and high income) based on their per capita GDP and their GDP growth rate. Among middle income nations, new business activity appears to decline as per capita GDP increases. This can be explained by the gradual replacement of employment through necessity-based entrepreneurship by employment in large enterprises and the public sector as poorer countries develop. However, beyond a certain level of wealth, which the data suggests is around US$20,000 to US$25,000 (purchasing power parity equivalent), new business activity increases as well-educated workers perceive new opportunities and take the chance to career independence. As Figure A shows, Scotland fits exactly on the trend line, suggesting that its rate of new business activity is about what one might expect given its relative wealth.

Figure A: TEA 2005 and Economic Development (third order polynomial U-Curve)

Source: GEM 2005 Global Executive Report, GEM Scotland survey data, Scottish Economic Report June 2006




## Total Early-Stage Entrepreneurial Activity

- **There is strong variation across countries both in the frequency and the quality of entrepreneurial activity.** Middle income countries tend to exhibit higher percentages of individuals starting a business than high income countries. With respect to total early-stage entrepreneurial activity, countries such as Venezuela (25%), Thailand (20.7%), and New Zealand (17.6%) exhibit very high rates of individual involvement compared to other countries such as Hungary (1.9%), Japan (2.2%) and Belgium (3.9%).

## Established business owner prevalence rates

- **Established business owners prevalence rates also vary strongly among countries.** At the lower end of the scale are countries like South Africa (1.3%), Mexico (1.9%) and Hungary (2.0%) whereas the highest rates are found in Thailand (14.1%), China (13.5%), and New Zealand (10.8%).

## Opportunity versus necessity entrepreneurship

- **The ratio of opportunity to necessity-driven business owners is higher in high income countries than in middle income countries.** Opportunity-driven early-stage entrepreneurs in high-income countries are most likely to be driven by a need for independence, whereas increasing income is a more important factor in middle income countries. Evidence suggests a systematic relationship between the prevailing start-up motive in a country and the chance of new business survival: Countries that primarily exhibit opportunity-driven entrepreneurship seem to show a lower share of early-stage business failures than countries with higher shares of necessity-driven entrepreneurship.

## Innovative entrepreneurial activity

- Higher growth rates of GDP per capita in middle income countries are mirrored in the higher levels of reported innovativeness and growth potential of entrepreneurial activity in these countries.

## Characteristics of Active Entrepreneurs

- **Entrepreneurship rates vary by age and gender.** The age distribution of people involved in entrepreneurial activity follows an inverted U-shape curve. Early-stage entrepreneurial activity is most prevalent in the age group of individuals 25-34 years old. Established business ownership peaks among those 45-54 years old. Men are more likely to start a business than women. In no country are women more active in starting and owning businesses than men. The gender gap exists for both early-stage entrepreneurial participation and established business ownership, and in both country clusters.

- **Entrepreneurship rates vary by education.** In both clusters, people with post secondary education or graduate school experience are more involved in early-stage entrepreneurial activity or as established business owners than those without. In high income countries individuals in the lowest educational attainment category are just as likely to be established business owners as people with post-secondary schooling. This suggests that the educational profile of entrepreneurs has changed over time.

- **Entrepreneurship rates vary by income.** In both clusters, individuals with a higher income are more likely to be involved in early-stage entrepreneurial activity. However, higher income levels are much more common among established business owners in high income countries than in the middle income group. This suggests that high income may be the result of successful entrepreneurship.

- **Attitudes matter.** In general, individuals who are involved in entrepreneurial activity at any stage tend to be more confident in their own skills, are more likely to know other entrepreneurs, are more alert to the existence of unexploited opportunities and are less likely to let fear of failure prevent them from starting a new venture. Women across the globe are less optimistic and less confident in their entrepreneurial skills and are more concerned about failure.

## Implications for Policy

The creation of appropriate institutions conducive to the development of markets is the fundamental responsibility of governments interested in promoting entrepreneurship in their countries. The principal role of government in this regard lies in providing political and macroeconomic stability. Peace and stability are necessary conditions for the development of an entrepreneurial society. In all countries, governments need to remove barriers to competition, review the provision of services with respect to efficiency and effectiveness, promote fiscal responsibility, and ensure transparency of the law and a clear legal framework for property rights and regulatory oversight. In the global economy, a policy agenda focusing on promoting entrepreneurship must focus on the progressive liberalization of global markets. Since entrepreneurship is typically at the cutting edge of new market development and technological innovation, trade restrictions tend to penalize entrepreneurs more than other groups. Finally, since "one size does not fit all," in order to be effective, entrepreneurship programs must be adapted and tailored to prevailing national circumstances.

# Summary Highlights for GEM Scotland 2005

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- Scotland's Total Early Stage Entrepreneurial Activity (TEA) rate in 2005 was 5.8%, the same as the UK rate (6.0%) but placing Scotland in the third quartile of participating GEM nations by activity. Scotland's TEA rate in 2005 was exactly what one would expect it to be given its relative wealth per capita, population growth and stock of business owner/managers. These three factors explain 70% of the variability in new business activity among GEM countries. Scotland's Established Business Owner/manager rate in 2005 was 4.1% (UK 5.0%), which placed it in the lowest quartile of participating GEM nations by activity.

- Females in Scotland appear to be much less likely to be owner/managers than females in high income countries generally, and are less likely to have new entrepreneurs in their social networks. In Scotland, both TEA rates and the ratio of females to males starting businesses rise with educational attainment. Scots who leave school without qualifications have lower TEA rates than their counterparts in other high income countries, but TEA rates for those with educational qualifications are similar. Based on the combined 2002 to 2005 GEM samples, Scots born and resident in Scotland had significantly lower TEA rates, at 4.1%, than either in-migrants from the rest of the UK (10.8%) or immigrants (9.3%).

- Perceptions of entrepreneurial capacity and entrepreneurial opportunity were lower in Scotland than in the UK for the first time since 2002. This may herald a divergence in TEA rates in the near future.

- Informal investment in new businesses continues to be lower in Scotland and the UK than in other GEM countries. This may be due in part to the UK's more developed institutional finance industry.

- Entrepreneurship experts rated Scotland's environment for entrepreneurship as neutral rather than positive or negative, and very close to the average for high income nations. Scotland rated significantly worse than the UK on two dimensions: Government regulations and institutions and Physical infrastructure.

- Social Entrepreneurial Activity (SEA), a measure of participation in new social venture activity that is analogous to TEA, is the same in Scotland (three percent) as in the UK. Unlike TEA, SEA rates do not differ much by gender, age group, occupation, income or place of birth. However, graduates have higher SEA rates than those with no educational qualifications. Many social enterprises in Scotland find it hard to maintain viability. The introduction of professional supply chain management techniques to the public sector supply chain could provide solutions for those social enterprises that have the public sector as their principal direct or indirect customer.

- The averaged six year High Expectation Entrepreneurship (HEE) rate, that is, nascent and new entrepreneurs expecting to employ at least 20 people in five years time, was 0.63% for Scotland for the years 2000 to 2005 (UK 0.75%; Western Europe 0.59%; North America and Australasia 1.6%). The ratio of HEE to TEA for Scotland is 12.8% (UK 12.5%; Western Europe 10.5%; North America and Australasia 13.5%). Scottish HEE entrepreneurs come from all backgrounds but are more likely than the average entrepreneur to be young, male, wealthy graduates and in business services. They appear to be as ambitious and innovative as their UK counterparts.

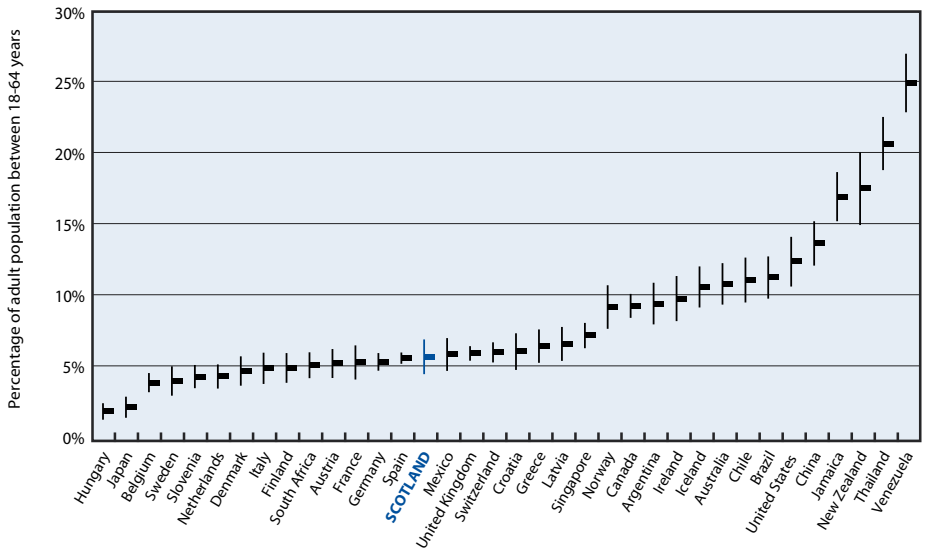
- According to the experts interviewed for GEM, Scotland is recognised as a world leader in enterprise education in its schools but is ranked near the bottom of GEM countries for post-school provision. The Scottish further education sector stood out as in need of a substantial boost in enterprise education and training, while the shortage of sales expertise for growing Scottish businesses highlighted the historic lack of education and training in sales in Scotland, particularly in higher education.

- In 2005, several public sector-led government entrepreneurship programmes were given a sharper focus on growth. *Determined to Succeed*, the flagship enterprise in education programme for schools, was showing progress, but research released in 2005 suggested that a substantial minority of Scottish schoolchildren lacked confidence, and called for more partnerships between schools and business.

# Entrepreneurial Business Activity in Scotland: 2005 Update

Figure B: National 2005 TEA rates for 35 sovereign nations and Scotland

Source: 2005 GEM Global Survey




## Total Early Stage Entrepreneurial Activity

Figure B shows each of the 35 countries participating in GEM2005, plus Scotland, ranked in order of Total Early Stage Entrepreneurial Activity (TEA) rate, which measures the proportion of nascent and new business owner/managers in the population of adults aged 18 to 64. Scotland continued to be near the base of a group of nations forming the middle of 3 TEA bands (from 5 to 10). Only 2 nations (Hungary and Japan) had TEA rates significantly below that of Scotland statistically[1].

Table B benchmarks the TEA rate for Scotland for 2005 against the UK, small high income nations (Denmark, Finland, Ireland, New Zealand, and Norway)[2], and all 20 high income nations participating in both GEM 2004 and 2005[3]. The Scottish TEA rate rose slightly but not significantly from 5.1% to 5.8% between 2004 and 2005, the highest rate recorded since monitoring began in 2000, when the point estimate was 3.9[4]. In 2005, the Scottish TEA rate reached 97% of the UK sample estimate (88% in 2004), continuing an apparent 5 year trend towards parity with UK TEA rates. A note of caution is necessary, however. Statistically, there is no detectable change in the Scottish TEA rate since 2000. Because of the small annual sample sizes of 2000 adults in Scotland, we can at best be 95% confident that the actual TEA rate for Scotland in 2005 lies between 4.6% and 6.9%. It is perfectly possible that next year's sample estimate could be two percent lower and yet, statistically, be the same as this year's estimate. Larger sample sizes would produce tighter estimates of Scottish TEA rates.

In 2004 and 2005, Scotland's TEA rate was around three-quarters the aggregate TEA rate[5] for all 20 high income nations that participated in GEM 2004 and GEM 2005. However it was only two-thirds the aggregate TEA rate of small high income nations. The Scottish 2005 TEA rate ranked in front of, but was not significantly greater than, Denmark (4.8%) and Finland (5.0%), but was significantly behind that of Norway (9.2%), Ireland (9.8%) and New Zealand (17.6%).

## Established business owner/managers

This year, GEM has begun reporting estimates of the proportion of established business owner/managers in the population, that is, the percentage of working age adults who fully or partly own and also manage a business that is at least 3½ years old. (Owner/managers of busnesses less than 3½ years old are defined as new business owner/managers, and included in the TEA rate.) These individuals are not necessarily firm founders, but their prevalence in the population provides an estimate of the size of the pool of experienced business owner/managers in a country. There is a reasonably strong and significant correlation between the proportion of established business owner/managers in a

**Table B: Scottish and benchmark TEA rates, 2005**

Source: 2005 GEM Scotland and Global Survey

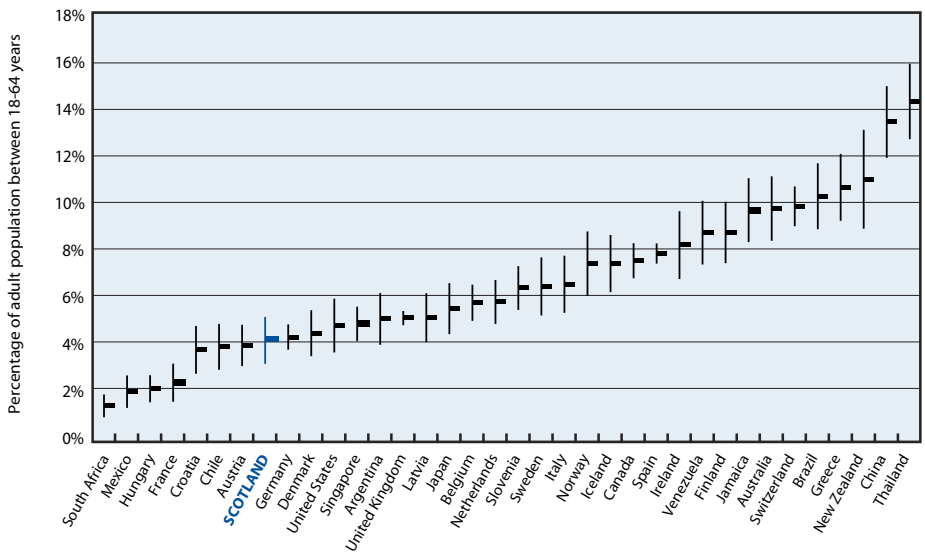
| | TEA | | % change | Scottish TEA as a % of other TEA rates | |
|---|---|---|---|---|---|
| | 2004 | 2005 | | 2004 | 2005 |
| Scotland | 5.1 | 5.8 | 14% | n/a | n/a |
| UK | 5.8 | 6.0 | 3% | 88% | 97% |
| High income nations | 7.1 | 7.9 | 11% | 72% | 73% |
| Small high income nations | 7.4 | 8.8 | 19% | 69% | 66% |

country and the TEA rate[6]. Figure C shows the established business owner/manager rate for the 2005 GEM countries and Scotland. Scotland is near the top of the bottom quartile, while the UK is in the third quartile. The Scottish rate is four-fifths of the UK rate, although there is only a 1% difference between them, well within the bounds of sampling error. Nevertheless, this difference accords with government self-employment data, which shows self-employment rates in Scotland running at 77% of the UK rate in 2005[7].

GEM data can be compared with official self-employment data collected by the Government Annual Population Survey (APS) by combining the new and established business owner/manager measures. The official self-employment rate might be slightly larger than the number of people who describe themselves in GEM surveys as business owner/managers, since some people, such as artists for example, might not perceive themselves as business people but would describe themselves as self-employed. The combined new and established business owner/manager measure for Scotland in 2005 was 6.8%, compared with an equivalent self-employment rate based on official statistics (as a proportion of all 18-64 year olds) of 7.1%[8]. The similarity of these two estimates is reassuring, since the 2005 Scottish APS was larger, at 23,000, than the 2005 GEM Scotland survey of 2000 individuals. The equivalent figures for the UK were 8.0% (GEM measure) and 9.3% (APS measure). Estimates of equivalent statistics for 2004 were very similar: for Scotland 7.1% (GEM) versus 7.2% (APS) and for the UK 7.6% (GEM) versus 9.2% (APS).

Figure C: Established business owner/manager rate in Scotland and GEM countries, 2005

Source: 2005 GEM Scotland and Global Survey




Females in the UK and in Scotland are likely to have fewer female owner/manager role models or female entrepreneurs in their networks than females in high income countries generally. While male established business owner/manager rates in Scotland and the UK are close to the average for high income countries (6.7. 7.8 and 8.9 respectively), the equivalent female rates are proportionately much lower (1.5, 2.2 and 4.7). This is in contrast to TEA rates, which are very similar for males and for females in Scotland, the UK and all high income countries (7.7, 8.2 and 8.4 for males and 3.8, 3.8 and 4.5 for females). In the 2005 GEM survey, 22% of UK (and Scottish) females said they knew someone who had started a business in the last 2 years, compared with 32% of females in all high income countries. For males, the equivalent percentages were 33% of UK males (30% in Scotland) and 41% of all high income country males. In other words, the proportion of females to males with a new entrepreneur in their social network is less in the UK (67%) and Scotland (73%) than in all high income countries (78%).

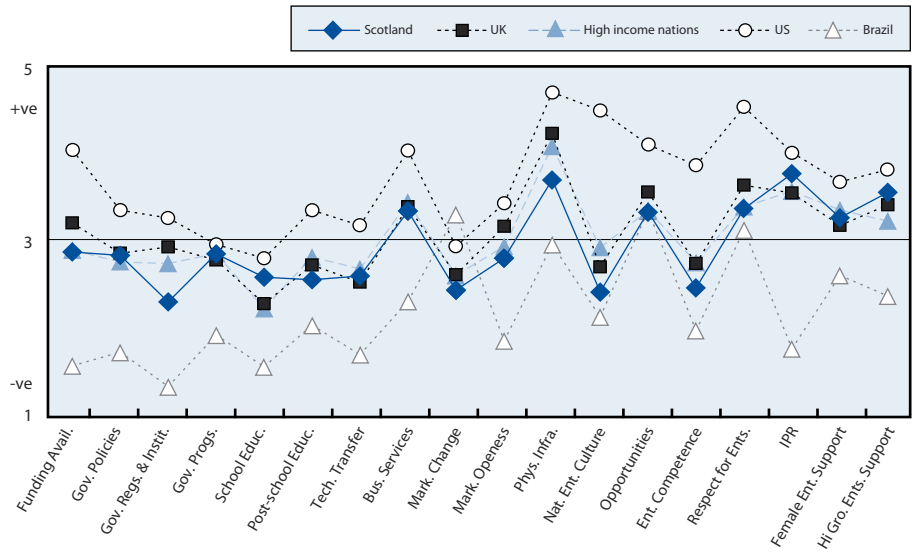
## The Environment for Entrepreneurship in Scotland

Every year, between 40 and 50 entrepreneurship experts complete a questionnaire that records subjective assessments of different dimensions, known as framework conditions, of the environment for entrepreneurship in Scotland. In 2005, 1323 identical questionnaires were completed across 33 GEM countries, ranging from 17 to 137 questionnaires per country. Eighteen different factors were isolated (each with high reliability[9]) from the questionnaire responses on a 5 point scale of agreement or disagreement to each of 82 separate statements. An example of a statement is: "In my country, there is sufficient equity funding available for new and growing firms".

Figure D shows how the Scottish experts rated Scotland's environment for entrepreneurship, alongside the country with the highest rating (the US) and the lowest rating (Brazil), the UK, and the average of 19 high income countries[10]. Overall,

**Figure D. The Environment for Entrepreneurship in Scotland, UK, high income nations, US and Brazil, as rated by entrepreneurship experts in each country.**

Source: 2005 GEM expert questionnaire returns




Scotland's environment for entrepreneurship is rated as neutral rather than positive or negative, and very close to the average for high income nations. It is close to the top of the rankings range in Government Programmes, Schools Education, Intellectual Property Rights and Support of High Growth Entrepreneurs; however it should be noted that the first two areas are still given an overall negative rating. Since these ratings were last reported in the 2001 GEM Scotland report, most indices for Scotland have risen marginally, although Access to Finance has dropped from around 3.5[11] to 2.9.

Scotland's ratings differ significantly from those of the UK in only two factors: government regulations and institutions and physical infrastructure. Half of the Scottish experts were entrepreneurs compared with only one third of the UK experts, and Scottish entrepreneurs tended to rate more negatively than UK entrepreneurs on these factors. These differences account for the differences in ratings.

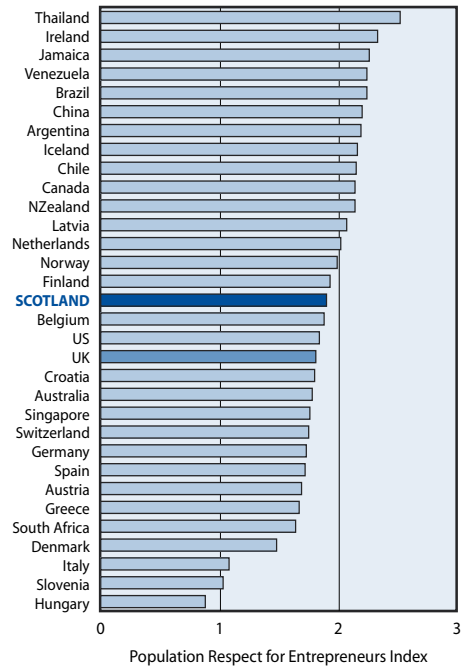
All of the four items that constitute the first of these factors were rated lower by the Scottish experts than by the UK experts, although none were significantly lower. Two of the items, however, had bimodal ratings, and the bimodality was stronger in Scotland than in the UK. On the item "In my country, new firms can get most of the required permits and licenses in about a week", five UK entrepreneurs rated this statement false and three rated it true, while in Scotland 14 entrepreneurs rated it false and three rated it true. Similarly, with the item: "In my country, the amount of taxes is NOT a burden for new and growing firms", three UK entrepreneurs rated it false and six rated it true, while in Scotland 17 rated it false and three rated it true. Business and service support providers in the UK and Scotland tended to rate in a similar pattern to Scottish entrepreneurs, while investors and policy makers tended to take less extreme positions.

The mean scores for Physical Infrastructure were significantly lower in Scotland for two out of five items. These items were "In my country, new and growing firms can afford the cost of basic utilities (gas, water, electricity, sewer)" and "In my country, new or growing firms can get good access to utilities (gas, water, electricity, sewer) in about a month". In both cases, no UK experts thought these statements were false, but in Scotland, a minority of entrepreneurs and business and service providers (7% for the first statement and 17% for the second) thought they were false. Generally, however, the scores for Physical Infrastructure were positive.

For the past three years, three of the five items included in the "Respect for Entrepreneurs" Index have also been included in the adult population surveys, albeit in a simplified yes/no form rather than a five point scale[12]. This gives an indication as to how close the views of experts are to those of the general population on this issue, although the scores are not exactly equivalent. Figures E and F rank the national average scores for

**Figure E. Respect for Entrepreneurs Index for 30 GEM countries and Scotland, 2005, as rated by the population samples in each country.**

Figure E Source: 2005 GEM adult population surveys

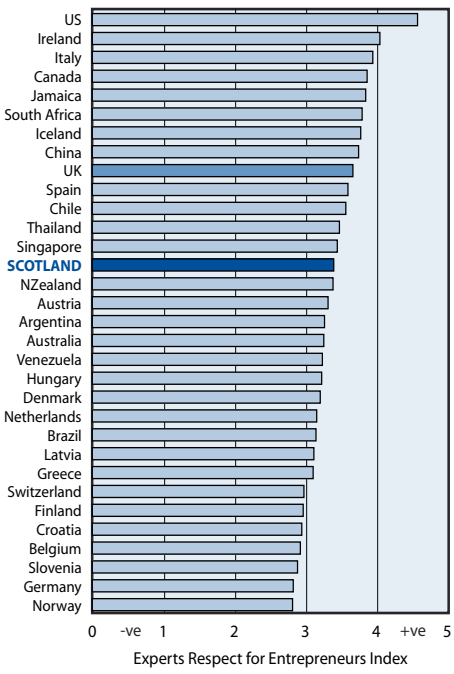


the two indices, expert-based and population sample-based, for all 30 countries for which both scores are available for 2005, plus the scores for Scotland. These scores are not significantly correlated[13], and might contain some surprises for experts in some countries.

For example, the views of US experts propelled their country to the top of the rankings, but the US population sample ranked in the middle of the GEM nations (and below Scotland). Latin American experts tended to rate their country low, whereas their country population samples tended to rank them high. UK experts ranked in the top half, but the UK population ranked in the bottom half. On the other hand, some countries were consistent in their rankings, such as Ireland (second highest in both rankings) and Scotland, which ranked in the middle.

**Figure F. Respect for Entrepreneurs Index for 30 GEM countries and Scotland, 2005 as rated by entrepreneurship experts in each country.**

Figure F Source: 2005 GEM expert questionnaire returns




The population-based Respect for Entrepreneurs Index was highly and significantly correlated with national TEA rates, while the expert-based Respect for Entrepreneurs Index had no relationship with TEA[14]. However, the population-based Respect for Entrepreneurs Index correlates significantly with population growth[15], suggesting that there may be simpler socio-economic and demographic explanations for variation in new business activity across nations. This is the subject of the next section.

## Explaining Scotland's rate of new business activity

One might expect to find an association between a country's TEA rate and its environment for entrepreneurship. In fact, there is virtually no relationship between how positive a country's environment for entrepreneurship is, as measured by entrepreneurship experts chosen in each participating GEM country, and its TEA rate. This may be because some experts are out of touch with national attitudes towards entrepreneurship, or because overall new business activity in a country is driven as much or more by basic socioeconomic and demographic factors than by the cultural and institutional factors the entrepreneurial framework conditions attempt to capture. The environmental framework conditions appear to have a stronger relationship with the proportion of high expectation entrepreneurship in overall entrepreneurial activity within a country than with TEA rates themselves. Perhaps experts were thinking of this sector more than low expectation new business activity as they answered the GEM questionnaire[16]. This is explored further in Chapter 5.

In Chapter 1, the complex but clear relationship between relative wealth per capita and overall new business activity was shown in Figure A. Figure G shows the linear relationship between population growth and TEA rates[17], and Figure H shows the linear relationship between the proportion of established business owner/managers in a country and its new business activity rate[18]. Population growth and the established business owner/manager rate do not correlate significantly with each other or with relative wealth per capita; in other words they explain different parts of the variability in TEA. Together, these three variables explain over 70% of the variability in TEA in the 2005 sample of 35 nations[19].

As figures A, G and H show, when Scotland's position is plotted, it sits exactly on the existing trend line of each of these three relationships. This suggests that Scotland's TEA rate in 2005 was exactly what one would expect it to be given its relative wealth per capita, population growth and stock of business owner/managers. Unfortunately, Scotland's relative wealth, population growth and business owner/manager rate are all low compared with its peers in high income nations, although its population growth rate has improved recently.

## Distribution of entrepreneurial activity by age and gender

Figure I shows the trend in Scottish TEA rates between male and females for 2000 to 2005. Male TEA rates remain double those of female rates, and the 6 year trend suggests a faster growth path for male rates. However, the 95%

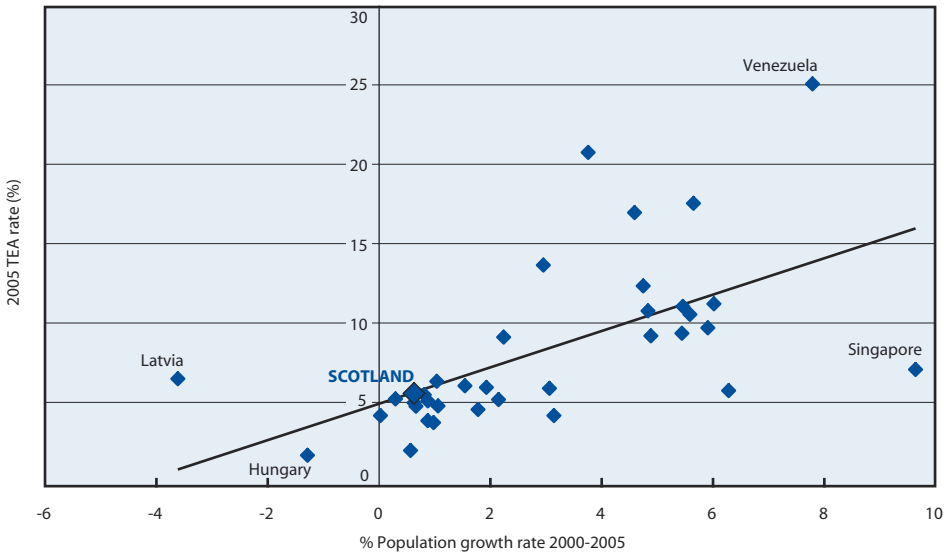



Figure G: National six year population growth 2000-2005 and 2005 TEA rates in 35 countries and Scotland

Source: 2000 -2005 GEM Adult Population Surveys; U.S. Bureau of Census

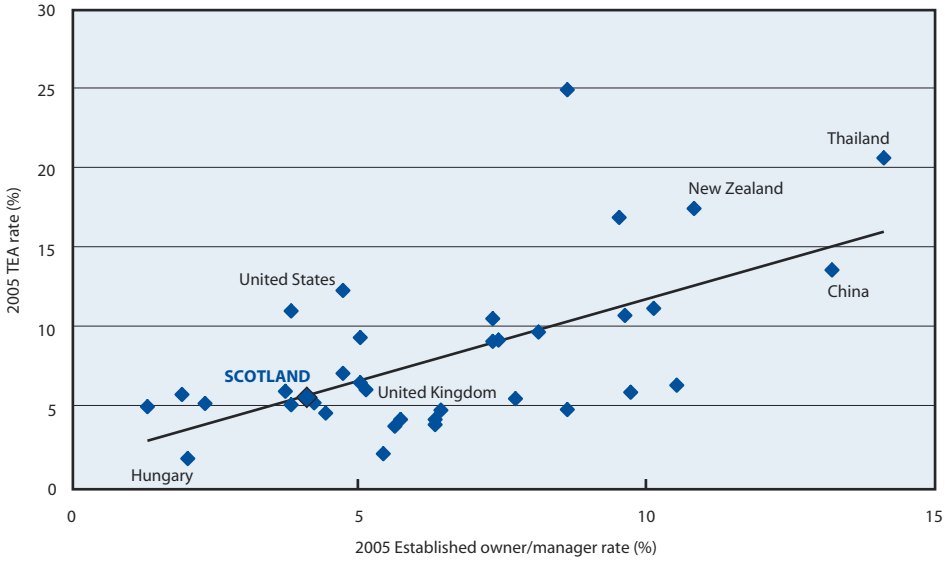



Figure H: Established business owner/manager rates and TEA rates for 2005 in 35 countries and Scotland

Source: 2005 GEM Adult Population Surveys

confidence intervals for male TEA rates are plus or minus 2%[20], and there has been no statistically significant increase in TEA rates for either males or females in this period. The male TEA rate point estimate in 2005 went up from 6.6% to 7.8%, significantly higher than the female TEA rate (unchanged at 3.8%). In contrast to 2004, this year older males had a significantly higher TEA rate than older females (8.3 versus 4.2), but the TEA rates of males and females aged 18-34 were not significantly different (6.7 versus 3.3).

## Attitudes towards entrepreneurship

From 2000 to 2005, GEM respondents were asked the following questions: "Do you know someone personally who started a business in the past 2 years?"; "In the next six months will there be good opportunities for starting a business in the area where you live?"; and "Would fear of failure prevent you from starting a business?". In 2001, the following question was added: "Do you have the knowledge, skill and experience required to start a new business?". Table C compares the proportion of the annual Scottish and UK samples who both expressed an opinion on and agreed with these statements. Where there are significant differences in any year between the Scottish and UK samples, these are marked in bold.

Overall, Table C shows that attitudes in Scotland tended to be less positive than those in the UK in 2000, 2001 and 2002, but in 2003 and 2004 they were essentially the same. In 2005, however, perceptions of opportunity and capacity (skills and knowledge) widened significantly. The GEM

model[21] suggests that perception of opportunity and capacity are leading indicators of action. If that is true, new business activity in Scotland and the UK could diverge in 2006.

## Immigration, in-migration, ethnicity and entrepreneurship

The combined 2002, 2003, 2004 and 2005 Scottish samples comprise in-migrants from the rest of the UK (27.5% of the sample), immigrants from outside the UK (8.5% of the sample) and Scots born and resident in Scotland (64%). The latter had significantly lower TEA rates, at 4.1%, than either in-migrants (10.8%) or immigrants (9.3%). Only 2.5% of the sample were from ethnic minorities (defined as not white), and ethnic minorities had significantly higher TEA rates (9.8%) than white individuals (5.1%). However, this apparent ethnic effect disappeared when Scots born and non Scots born were split by ethnicity. Only 50 people in the sample of over 6,500 were Scots-born ethnic minorities, and only one individual in this group was TEA positive. White Scots-born respondents had a significantly lower TEA rate (4.1%) than white non-Scots (10.1%) and non-white non-Scots (13.6%). The latter two rates were not significantly different.

## Informal Investment

1.4% of Scottish respondents in 2005 said they had invested in someone else's business in the past three years, the same rate as in 2004 and for all UK respondents in 2005 (1.3%). Figure J shows the informal investment prevalence rate, TEA rate and ratio of informal investment to TEA for all high income countries participating in GEM2005 and Scotland. It can be seen that the UK and Scotland have very low informal investment prevalence rates, and the lowest ratios of informal investment to TEA. This ratio is also low in Australia, Ireland and New Zealand. Canada and the US also have below average ratios. Across the GEM nations, there is a significant negative correlation between expert perceptions of the availability of finance for new and growing firms and informal investment rates (see Table F in Chapter 5). This suggests that as institutional finance for new business grows, entrepreneurs turn to this as a source of funding instead of family and friends. Scotland's low informal investment rates may be a consequence of its relatively mature formal finance sector.

## Conclusion

In 2005, the Scottish TEA rate reached virtually the same point estimate as the UK TEA rate, but after two years of similar levels of entrepreneurial attitudes, opportunity perception and entrepreneurial capacity perception was again greater in the UK than in Scotland. Since a change in attitudes may portend a change in activity, it is possible that in 2006 the Scottish TEA rate will again lag behind the UK. While the overall trend over the past six years in Scottish entrepreneurial activity appears to be upwards, this increase has been greater for men than for women, increasing the entrepreneurship gender gap still further. The Scottish TEA rate is closely tied to socioeconomic and demographic factors such as relative wealth, population growth and business owner/management rates.

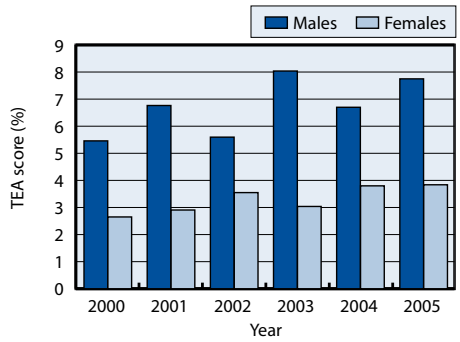



Figure I: Scottish Male and Female TEA rates 2000 – 2005

Source: 2000-2005 GEM Scotland Survey

Table C: Entrepreneurial attitudes in the Scottish & UK adult population samples, 2000 to 2005

Note: Numbers in bold denote significant differences between Scottish and UK samples in the same year

Source: 2000 – 2005 GEM Scotland and UK Surveys

| Item | Know someone who started a business in past 2 years | | Good opportunities for starting a business in the next 6 months | | Fear of failure would prevent me starting a business | | Have knowledge, skills to start a business | |
|---|---|---|---|---|---|---|---|---|
| **Sample** | Scotland | UK | Scotland | UK | Scotland | UK | Scotland | UK |
| **2000** | 29.4 | 32.2 | **28.8** | **34.0** | **40.7** | **29.5** | n.a. | n.a. |
| **2001** | **24.7** | **30.1** | 24.1 | 23.3 | **39.9** | **34.8** | **41.5** | **46.5** |
| **2002** | 21.5 | 24.0 | **25.4** | **29.0** | 36.3 | 34.2 | **42.0** | **45.9** |
| **2003** | 25.4 | 24.7 | 36.5 | 35.3 | 31.3 | 33.7 | 46.3 | 48.4 |
| **2004** | 28.5 | 26.7 | 36.5 | 35.3 | 36.8 | 34.0 | 49.2 | 50.4 |
| **2005** | 26.3 | 27.7 | **31.5** | **38.5** | 33.8 | 34.2 | **45.9** | **50.7** |

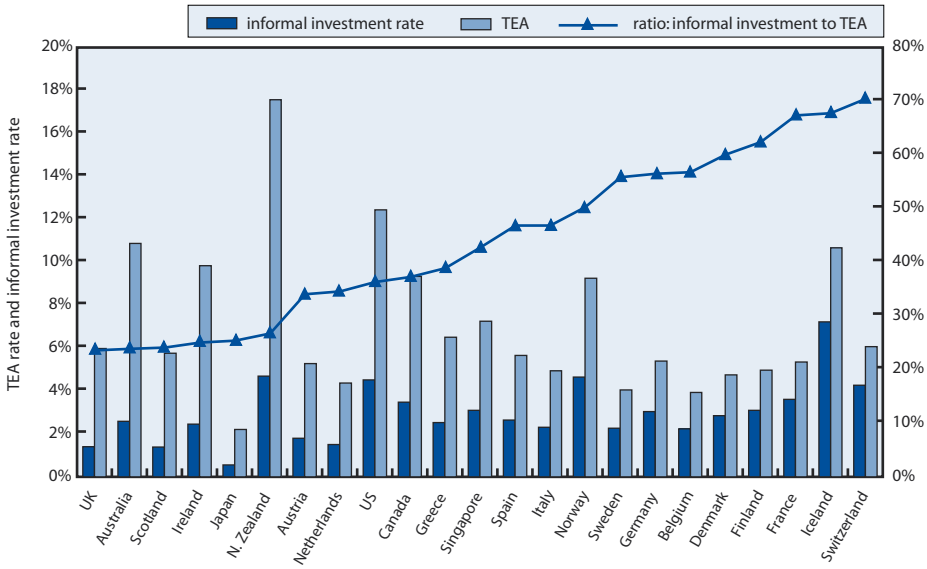



**Figure J: Informal Investment and TEA rates and ratio of informal investment to TEA rates in high income countries and Scotland, 2005**

Source: 2005 GEM Adult Population Survey

1 "Statistical significance" refers to a calculation of where the range within which the average value of 95 out of 100 replications of the survey would be expected to lie. This range is shown in Figure B by vertical bars on either side of each data point. If the 'confidence intervals' (denoted by the vertical bars) of two national TEA rates do not overlap, the difference between the TEA rates is statistically significant at the 0.05 level. Reference in this report to significant differences implies statistically significant difference at the 0.05 level.

2 The reason for comparing Scotland to these independent nations is that they are all around the same population size and are classified as high income OECD countries. There is a modest and highly significant correlation between population size and necessity entrepreneurship (R=0.50, p<0.01, 37 nations, GEM2002 data) but not with opportunity entrepreneurship. High income nations have different entrepreneurial activity to middle or low income nations (see the 2004 GEM Global Report). Thus by comparing Scotland with these nations, we avoid the population and income effect, and we can learn from policy measures implemented on a similar scale to Scotland. Israel did not participate in GEM in 2005 and so is excluded.

3 Australia, Belgium, Canada, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Japan, Netherlands, New Zealand, Norway, Singapore, Spain, Sweden, United Kingdom, United States. Given the complex relationship between entrepreneurship and economic development outlined in Chapter 1, it is inappropriate to compare rates of entrepreneurial activity in Scotland, a high income nation, with rates in middle income nations. That is why the global average TEA rate benchmark has been replaced this year by TEA in high income nations.

4 Based on constant 2003 population estimates supplied by the Government Actuary's Department.

5 This measure controls for country population size, in contrast to average country TEA rates. Average country TEA rate for the 20 high income nations in 2005 was 7.3, with 9.3 for small high income nations.

6 The Pearson correlation coefficient of these two rates for the 35 GEM 2005 nations was 0.644 (p<.000). The Spearman correlation coefficient, based on ranks rather than numbers, was 0.566 (p<.000).

7 Estimated at 7.05% of Scottish and 9.12% of UK 18-64 year olds, using mid-2005 population estimates of those aged 18-64 for Scotland and the UK and self-employment estimates from the Labour Force Survey for 2005 for the same age group. Because the Office of National Statistics supplies only age group estimates for self-employed, half of the self-employed in the "16-19 year old" and "females of 60 and over" age groups were assumed to be within the 18-64 age group.

8 Using mid-2003 population estimates. Using mid-2003 estimates instead of mid-2005 estimates inflate the self-employment estimates by less than 0.1% for Scotland and 0.2% for the UK.

9 Between 2 and 6 items loaded onto each factor. The minimum reliability was 0.672. All other factors had a reliability of at least 0.75. Detailed descriptions of the methodology are given in: Reynolds, P., Bosma, N., Autio, E.; Hunt, S.; De Bono, N., Servais, I., Lopez-Garcia, P., and N. Chin, 2005, 'Global Entrepreneurship Monitor: Data Collection Design and Implementation 1998–2003', *Small Business Economics* **24**(3), 205-231.

10 Average ratings for five small high income nations were also calculated. These were almost identical to the average for all high income nations, and are therefore not shown in Figure D.

11 There were two access to finance indices in 2001, rated 3.4 and 3.6. For many indices, direct comparisons are not possible because of changes in item and index construction.

12 The five items are: "In my country, the creation of new ventures is considered an appropriate way to become rich"; "In my country, most people consider becoming an entrepreneur as a desirable career choice"; "In my country, successful entrepreneurs have a high level of status and respect"; "In my country, you will often see stories in the public media about successful entrepreneurs"; "In my country, most people think of entrepreneurs as competent, resourceful individuals". The second, third and fourth items were asked in the adult population surveys and responses were summed to form a simple index.

13 Correlation of 0.163, p = 0.400, n=29 (correlation excludes Scotland)

14 Population-based index linear correlation with TEA of 0.666, p<0.000, n=30; expert-based index correlation with TEA of 0.348, p=0.0641, n=29

15 Population-based index linear correlation with percent population growth 2000 to 2005 of 0.538, p=0.002, n=30

16 Most items on the expert questionnaire referred to "new and growing firms" rather than just "new firms".

17 Correlation of 0.600, p<.000, n = 35 (correlation excludes Scotland)

18 Correlation of 0.608, p<.000, n = 35 (correlation excludes Scotland)

19 Analysis averaging TEA rates across the entire six year database and 47 nations produced similar results.

20 Confidence intervals are higher for males than for females because more females than males were sampled. This increases the likelihood of volatility of measures, as can be seen in Figure I.

21 See Appendix 1.

GEM 2005

4

# Social Entrepreneurship in Scotland

This year, for the first time, the UK GEM measured social entrepreneurship activity (SEA) in the UK in a way that is analogous to Total Early-Stage Entrepreneurial activity (TEA). In this chapter, Scottish and UK TEA and SEA data for 2004 and 2005 are pooled so that more accurate estimates can be made. A principal difference between the results reported here and in the 2003 report's chapter on social entrepreneurship is that social entrepreneurship rates appear to be lower, not higher, than business entrepreneurship rates. This is because of a high attrition rate in the filtering system used in the 2004 and 2005 surveys to remove individuals who were not actively engaged in trying to start a social enterprise, or who would not manage it once it was up and running. This makes sense: starting a social venture can be fraught with obstacles. While many people may be willing to help out in their spare time, few will commit to actively manage a social venture.

## Methodology[1]

In 2004 and 2005, each survey respondent was asked two questions:

- Are you, alone or with others, currently trying to start any kind of social, community or voluntary *venture, activity or initiative?* This might include providing subsidised or free training, advice or support to individuals or organisations; profit-making activity, but where profits are used for socially oriented purpose; or self-help groups for community action.
- Are you, alone or with others, currently managing such social, voluntary or community *venture, activity or initiative?*

These were designed to match as much as possible these questions on business activity:

- Are you, alone or with others, currently trying to start a new business, including any type of self-employment or selling any goods or services?
- Are you, alone or with others, currently the owner of the company you help manage, self-employed, or selling any goods or services?

The TEA index is compiled from the latter two questions plus a series of other questions designed to identify people who are business owners and who are actively trying to start a business. In 2004 and 2005, UK respondents were also asked a series of filter questions designed to identify the social entrepreneurs who are actively managing nascent or new social ventures, to separate out nascent social entrepreneurs, managers of new social entrepreneurial activity, and managers of established social economy organisations, and finally to produce a measure of social entrepreneurial activity, SEA, that is the social entrepreneurial equivalent of TEA.

To separate new businesses from established businesses, the year of founding is identified by asking when the enterprise first paid wages, profits or payments in kind to the owners. Social enterprises do not have "owners" in the same way; neither do they (typically) redistribute profits to their founders. Many of them do not pay wages, but rely on volunteers to deliver products and services to clients. A more suitable start date question for social entrepreneurs, and equivalent in spirit to the GEM business start date question, is the year in which they first provided goods or a service to others, or received external funding. Nascent social entrepreneurs were defined as those who had been providing goods or services to others, or received external funding, for less than four months, while new and established social enterprise managers were defined as those who had been doing so for between four and 42 months or over 42 months respectively.

The SEA measure still contains several weaknesses, detailed elsewhere[2], which could be remedied with additional filter questions. However, when the 2005 GEM UK database was used to estimate the number of social enterprises in the UK, following the official UK Government definition, the result was 58,000, very close to the official UK government estimate of 55,000[3].

## TEA and SEA compared

One difference between SEA and TEA is that eight percent of SEA entrepreneurs were over the age of 64, compared with only three percent of TEA entrepreneurs. By convention, TEA measures new business activity among 18 to 64 year olds only. Table D reports TEA and SEA for the pooled 2004 and 2005 datasets for Scotland and the UK for both 18-64 year olds and 18-80 year olds by gender. The only significant difference between measures in this table is between male TEA rates and all other measures. Male TEA rates are significantly higher than female TEA rates, and than male or female SEA rates. There are no significant differences between UK and Scottish SEA rates by gender.

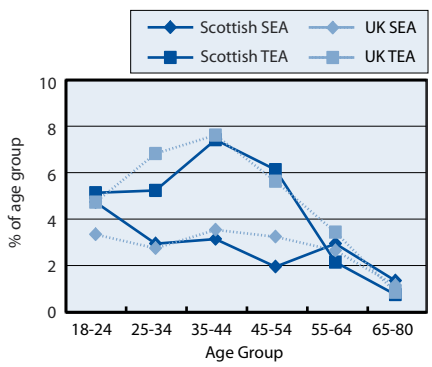
### Table D SEA and TEA rates for pooled 2004/05 data for Scotland and UK by gender and 18-64 and 18-80 age groups

Source: 2004 and 2005 Scotland and UK GEM adult population surveys

| | TEA18-64 | TEA18-80 |
|---|---|---|
| **Scotland** | **5.4** | **4.6** |
| male | 7.2 | 6.3 |
| female | 3.8 | 3.2 |
| **UK** | **6.0** | **5.1** |
| male | 8.1 | 7.1 |
| female | 3.8 | 3.2 |
| | **SEA18-64** | **SEA18-80** |
| **Scotland** | **3.1** | **2.8** |
| male | 3.9 | 3.5 |
| female | 2.3 | 2.1 |
| **UK** | **3.2** | **2.9** |
| male | 3.4 | 3.1 |
| female | 3.0 | 2.7 |

### Figure K SEA18-80 and TEA18-80 rates for pooled 2004/05 data for Scotland and UK by age group

Source: 2004 and 2005 Scotland GEM and UK GEM surveys




In the rest of this section, SEA and TEA will be compared for the 18 to 80 age group. Thus TEA rates will not be compatible with rates quoted elsewhere in this report, which are for the 18-64 age group. Figure K compares pooled 2004 and 2005 TEA and SEA rates by age group in Scotland and the UK. It can be seen that there is little difference in new social or business activity rates between Scotland and the UK. Social entrepreneurship appears to decline slightly with age, whereas business entrepreneurship rises, peaks among those aged 35-44, and declines again. Scottish TEA rates are significantly higher than SEA rates among 35-44 and 45-54 age groups. TEA and SEA rates are similar for both younger and older adults.

Only 1.7% of adults aged 18-80 in the Scottish pooled 2004 and 2005 sample were managers of social enterprises that were more than 3.5 years old, the same as the UK-wide figure of 1.6%. The equivalent established business owner manager rate was 3.6% for Scotland and 4.5% for the UK.

Figure L shows that in Scotland and the UK, people who are educated to graduate level are much more likely to try to start social enterprises or business enterprises than those who did not complete secondary education. Those who completed secondary education, or who have vocational or other non-degree third-level education, have intermediate levels of nascent and new social enterprise and business activity. The differences in rates between these groups are statistically significant, except in the case of the top three levels of education and SEA rates in Scotland, probably because of the smaller sample size. We return to education in chapter six.

Figure M shows that nascent social entrepreneurs and new social enterprise managers are much more evenly distributed across all occupations than business start-up attempts. TEA rates are significantly higher than SEA rates for those in paid employment but not in other occupations. Although the figure suggests that the TEA rate for students in Scotland is higher than that of UK students in general, this is based on a small sample and the difference is not significant.

Figure N shows the association between income levels and SEA and TEA rates in Scotland and the UK. In the UK sample, those on low incomes (defined as in the lowest third when the UK sample was ranked by income and divided into thirds) were significantly less likely to engage in social entrepreneurial activity. The Scottish sample followed a similar pattern, but the difference was not significant, probably because of the smaller sample size. Those on high incomes had higher TEA rates but not higher SEA rates than those on middle incomes. In both cases, the income effect may be a consequence of education.

The relationship between place of birth and SEA and TEA rates is shown in Figure O. SEA rates differ little by place of birth, whether in Scotland or for the UK as a whole. Immigrants resident in Scotland and in the UK as a whole have similar and high TEA rates, and in-migrants into Scotland from the rest of the UK have very high TEA rates. Scots have low rates of TEA whether they are resident in Scotland or in the rest of the UK.

Across the UK, ethnic minority (non-white) respondents to the 2004 and 2005 GEM surveys had 1.7 times higher SEA rates and 1.8 times higher TEA rates than white respondents. Only 2% of the Scottish sample contained non-whites, reflecting the Scottish population, and for that reason the Scottish results are not significantly different by ethnicity and are not reported here. However, there is a clear pattern across the UK as a whole, as figure P shows. Non-white life-long residents and regional in-migrants have significantly higher TEA and SEA rates than their white peers, while rates do not differ much between white and non-white immigrants. Much of the difference in entrepreneurship rates by ethnicity may not be due to ethnicity *per se* but to other demographic differences between these groups, such as age[4].

## Characteristics of new social enterprises in Scotland[5]

Around one third of the new social enterprise managers provided social services of various kinds, including to the sick, elderly, youth, mothers and toddlers, and refugees, while the next most frequent type of service was sports, including football, running and horse riding clubs. A wide range of other services made up the balance, including community development groups, a millennium garden, a computer training service, and an environmental service. Approximately 10% were involved in the Scout, Guide or similar youth organisations.

Ninety percent of these new social ventures were described as either not-for-profit ventures (52%, compared with 41% in UK) or charities (28%, compared with 41% in UK) by the respondents. Half (51%) of the new social ventures had no one working for pay (43% in UK); in other words half of new Scottish social ventures' staff were completely voluntary. A further 25% employed between 1 and 5 people (34% in UK). Only around 10% of new social enterprise managers spent 35 hours a week or more engaged in their social venture (11% in UK), while over 50% spent four hours or less a week (46% in UK). In contrast to new business ventures, most new social ventures have multiple partners; only 11% were managed by only one individual (10% in UK) compared with 67% of new businesses. The largest had 110 partners.

Forty-two percent of the new social ventures were funded mainly by public money, such as government (41% in UK), and 48% raised revenue by charging for their services or selling products (45% in UK). Only 37% of the latter, however, raised more than 50% of their funding from these 'commercial' activities (44% in UK). Clearly, most new social ventures are dependent on either public sources of funding or on voluntary donations of time, money and other resources. By comparison, 43% of established social ventures were mainly funded by public money (33% in UK), 53% of them raised revenue by charging for their services or selling products (49% in UK), and only 27% of these raised more than 50% of their funding from these commercial activities (46% in UK). The GEM Scotland survey thus provides no evidence that Scottish social ventures, as a group, become more commercial as they become more established. Many of them remain dependent on the goodwill of

**Figure L SEA18-80 and TEA18-80 scores for pooled 2004/05 data for Scotland by education level**

Source: 2004 and 2005 Scotland and UK GEM surveys

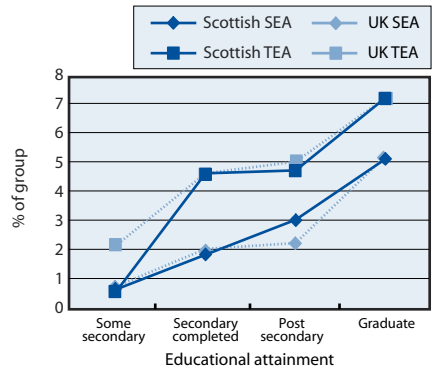



**Figure M SEA18-80 and TEA18-80 scores for pooled 2004/05 data for Scotland and UK by occupation**

Source: 2004 and 2005 Scotland and UK GEM surveys

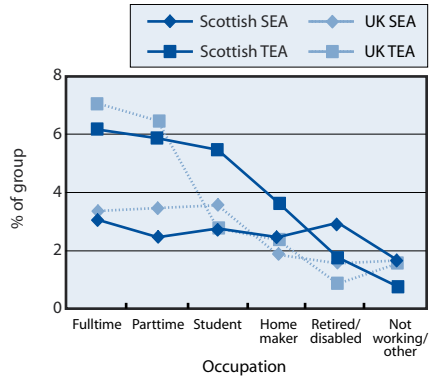



**Figure N SEA18-80 and TEA18-80 scores for pooled 2004/05 data for Scotland and UK by UK-wide income, split into thirds**

Source: 2004 and 2005 Scotland and UK GEM surveys

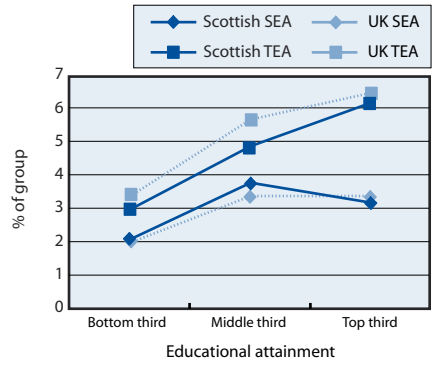
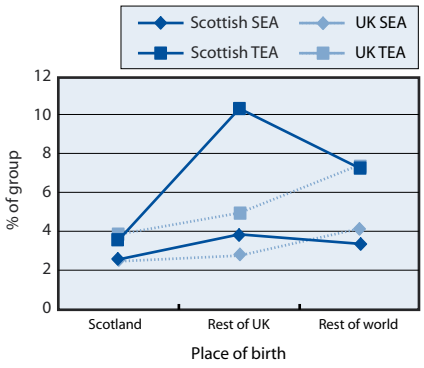


Figure O SEA18-80 and TEA18-80 scores for pooled 2004/05 data for Scotland and UK by place of birth

Source: 2004 and 2005 Scotland and UK GEM surveys



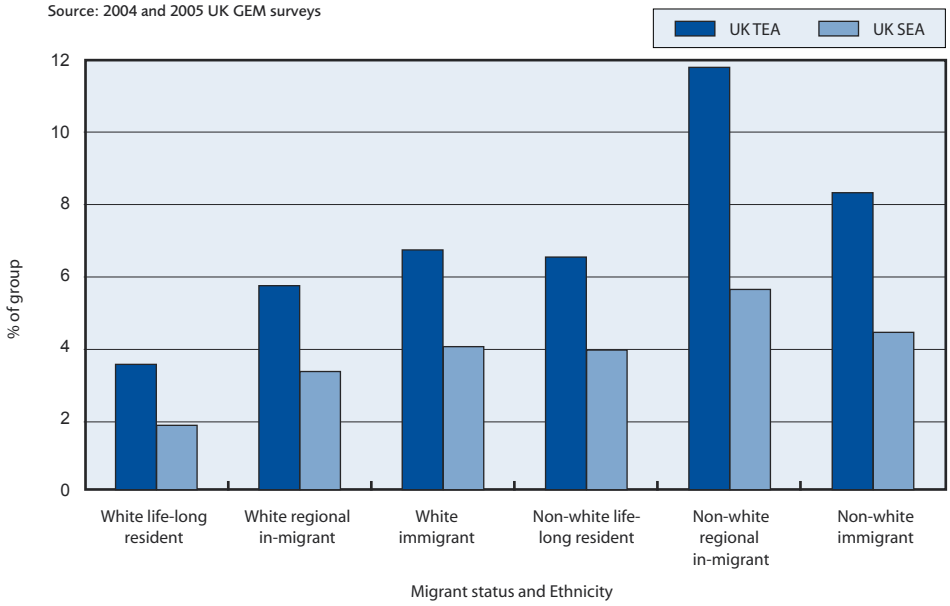

their volunteer staff and the continuance of public sector support. If anything, they are more dependent on discretionary state funds than social ventures in the UK as a whole.

## Experts views on social entrepreneurship in Scotland

Several key experts noted that the considerable entrepreneurial energy in the social economy and in deprived communities was often overlooked, but they also recognised that it is often suppressed by financial strictures such as the short term grants system in the case of social enterprises and the benefits system in the case of deprived communities. They noted the importance of role models for this sector and of awards that recognised successful social entrepreneurs. Several experts dwelt on the unsatisfactory system of funding of social enterprises, described by one as "occur[ing] out of sight, slow and untransparent" and without a single logic for deciding which proposals would get accepted or not. Much funding was short term and geographically based, and that cut across more ambitious social enterprises with national goals. They saw a solution in long term procurement contracts, based on measurement of the social value of what they were doing coupled with better professional management of the supply chain by local authorities. Currently, the shift to contracts too often brought with it rigid constraints that stifled innovation, due to the in-built conservatism of many local authorities and the focus on accountability rather than responsibility. Experts were also seeking new ways of bringing the private and voluntary sector together to learn and exchange people and ideas.

Figure P SEA18-80 and TEA18-80 scores for pooled 2004/05 data for UK by migrant and ethnic minority status

Source: 2004 and 2005 UK GEM surveys




1 A detailed paper outlining the evolution of the SEA measure and assessing its stability, validity and reliability was presented at the 2006 Babson Entrepreneurship Research Conference, and is available from the author on request.

2 Ibid.

3 Full details of the calculations involved are in the above paper.

4 See Levie, J. (in press) Immigration, In-migration, Ethnicity and Entrepreneurship in the UK, *Small Business Economics*.

5 Because of an error in the UK questionnaire, no nascent social entrepreneurs were asked follow-up questions, including the nature of their service, funding, employment and other activities.

GEM 2005

# High Potential Entrepreneurship in Scotland

Once again, Scottish Enterprise is delighted to support the Global Entrepreneurship Monitor Report for Scotland, which continues to make a valuable contribution to our understanding of this issue that is of such vital importance to the future of our economy.

An area that's been particularly useful from the GEM survey in recent years is the evidence on "High Expectation" Entrepreneurship – those entrepreneurs capable of generating growth and economic impact. As this year's results show, High Expectation Entrepreneurship is a rare phenomenon – but also an important differentiating factor in terms of the growth performance of different economies throughout the world.

As we can see in the chapter that follows, it is encouraging that the overall trend in Scotland in terms of High Expectation Entrepreneurs is positive. Although the number of High Expectation Entrepreneurs is very small – as it is in most places – the growth rate has been running ahead of the increases in overall levels of entrepreneurship seen in other GEM surveys in Scotland in recent years. This is very encouraging.

Much of the effort Scottish Enterprise makes in terms of Growing Business is targeted at increasing the supply of these High Expectation Entrepreneurs – adding value to the businesses that they create. We have sought to improve the access these fast-growing companies get to investment finance, through programmes like the Co-Investment Fund and the Investment-Readiness Scheme. A range of programmes target the creation of technology-based businesses, such as through the Proof of Concept scheme, which helps the commercialisation of science coming out of Scotland's Universities. Other support targets growth opportunities in priority industries.

A programme that's of particular importance to supporting High Expectation Entrepreneurship is the SE High Growth Start-up Unit, which has an unrivalled track record in providing intensive, hands-on support to turn embryonic ideas into high growth businesses. Since 2002 the team has helped to create 30 new high-growth technology businesses, each with the potential to achieve a valuation of £5m in their first three years of trading.

As is clear from this chapter, stimulating this sort of Entrepreneurship requires the right kind of support environment, to nurture the entrepreneurs and support the fast-growing businesses they create. It is for this reason the stimulation of this sort of businesses is a top priority in Smart Successful Scotland, and a key goal for Scottish Enterprise.

**Terry Currie**
Director,
Growing Business

Scottish Enterprise

# High Expectation Entrepreneurship in Scotland

Every year, developing countries such as Uganda (2003), Peru (2004) and Venezuela (2005) find their way to the top of the TEA rankings. This does not fit with the prevailing view that the US is the most entrepreneurial country in the world. In this chapter, we explain this paradox with the concept of High-Expectation Entrepreneurship (HEE)[1]. HEE entrepreneurs are nascent or new (TEA) entrepreneurs who expect to create at least 20 jobs within the next five years[2].

On average over each of the five years from 2000 to 2005, across all GEM countries, only 12% or one in eight TEA entrepreneurs had high expectations for their business. In other words, only 1.3% of the working age population of GEM countries are HEE entrepreneurs. As figure Q shows, the distribution of these HEE entrepreneurs across regions of the world roughly follows the distribution of TEA entrepreneurs. When the regions are ordered by relative wealth[3], the distribution of both TEA and HEE is roughly U-shaped. However, the left side of the U is higher for TEA. Figure R illustrates this by plotting HEE rates as a percentage of TEA rates. The developing country regions on the left have lower ratios of HEE to TEA than the developed countries on the right. Eastern Europe is a special case of transition in the centre.

Overall, TEA and HEE are relatively high in the poorest region and the richest region, and lowest in Europe and the developed Asian countries. The United Kingdom has TEA and HEE rates that are quite typical of Western Europe. This distribution of HEE entrepreneurs fits well with the general view of distribution of entrepreneurial activity across the globe. In a sense, 80 to 90% of the TEA rate in almost all countries represents *low-expectation* entrepreneurship. To get the full picture of new business activity in a country, it is necessary to look at the distribution of both high and low expectation entrepreneurship.

Around three-quarters of jobs that all nascent and new entrepreneurs expect to create in the next five years comes from high-expectation entrepreneurs; more in North America and fewer in Africa and Latin America[5]. Thus not only are high-expectation entrepreneurs rare; they are also economically very important. It is also worth noting that 49% of the HEE entrepreneurs detected over the 2000 to 2005 period, corrected for country population size, were in China.

## Creating the best climate for HEE entrepreneurs

The relative prevalence of high expectation entrepreneurial activity in the population of entrepreneurs, that is, HEE/TEA, correlates positively with the measures of the environment for entrepreneurship discussed in Chapter 3. Table E, condensed from work by Autio (2005), shows these correlations. In interpreting this table, the overall pattern of significant correlations is more important than individual correlations. The table shows twice as many significant (at the .05 level or greater) correlations in the columns for HEE/TEA as in the columns for HEE rates. This pattern is even stronger for new HEE entrepreneurs. Table E also shows that most of the significant correlations of environmental factors with TEA rates were negative, not positive, and that informal investment activity is

Figure Q. TEA and HEE (High Expectation Entrepreneurship) rates by Global regions ordered by regional wealth per capita, based on six year country averages

Source: GEM databases 2000-2005 and U.S. Census IDB database

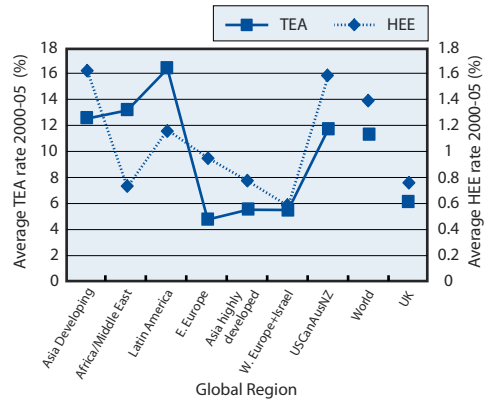



Figure R. High-Expectation new business activity (HEE) as a proportion of all new business activity (TEA) by Global Regions, 2000 to 2005 average

Source: See Figure Q

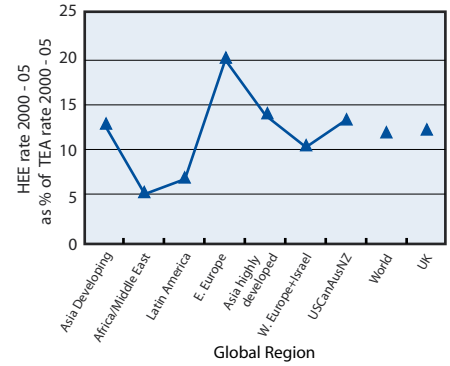


Table E: Country-level correlations between entrepreneurship rates and measures of the environment for entrepreneurship

Source: Autio, 2005, pp 43-44

Correlation in **Bold**, ***Italics***: significant at the 0.001 level (2 tailed)
Correlation in **Bold**: significant at the 0.01 level (2-tailed)
Correlation in *Italics*: significant at the 0.05 level (2-tailed)

| | TEA rate | Nascent entrepre-neurs 20+ | New business owner/ managers 20+ | Nascent entrepreneurs 20+ as % of all nascent entrepreneurs | New business owner/ managers 20+ as % of all new business owner/ managers | Informal Investor activity rate |
|---|---|---|---|---|---|---|
| Nascent entrepreneur 20+ | ***0.674*** | | | | | |
| New business owner/ managers 20+ | ***0.509*** | ***0.701*** | | | | |
| Nascent entrepreneurs 20+ as % of all nascent entrepreneurs | -0.151 | n.a. | n.a. | | | |
| New business owner/ managers 20+ as % of all new business owner/ managers | -0.141 | n.a. | n.a. | ***0.651*** | | |
| Informal Investor activity rate | ***0.535*** | ***0.345*** | **0.260** | -0.022 | -0.095 | |
| Familiarity with entrepreneurs | *0.209* | *0.185* | 0.127 | 0.013 | -0.064 | ***0.777*** |
| Availability of funding | ***-0.366*** | *-0.188* | 0.015 | *0.211* | ***0.332*** | ***-0.297*** |
| Government policies | ***-0.346*** | **-0.224** | 0.021 | 0.082 | **0.242** | -0.161 |
| Government regulations and institutions | -0.128 | 0.051 | ***0.226*** | ***0.323*** | ***0.318*** | 0.103 |
| Government programmes | ***-0.407*** | **-0.230** | 0.013 | ***0.238*** | ***0.320*** | -0.138 |
| Education systems | -0.088 | 0.154 | *0.205* | ***0.341*** | ***0.488*** | 0.030 |
| Technology transfer | ***-0.375*** | -0.155 | 0.086 | *0.187* | ***0.298*** | -0.082 |
| Business services | *-0.174* | 0.024 | 0.047 | **0.241** | ***0.326*** | 0.023 |
| Market change | 0.046 | 0.027 | 0.081 | 0.072 | -0.110 | -0.013 |
| Market openness | -0.157 | 0.044 | *0.215* | *0.210* | ***0.318*** | 0.010 |
| Physical infrastructure | -0.157 | 0.143 | 0.161 | ***0.368*** | ***0.375*** | 0.059 |
| National entrepreneurial culture | 0.146 | *0.186* | ***0.320*** | *0.211* | ***0.280*** | 0.030 |
| Availability of opportunities | 0.053 | -0.027 | *0.198* | 0.043 | *0.185* | 0.128 |
| Population entrepreneurial competence | 0.119 | *0.167* | **0.239** | 0.135 | *0.186* | 0.089 |
| Respect for entrepreneurs | 0.134 | 0.087 | ***0.359*** | 0.126 | ***0.302*** | 0.130 |
| Intellectual property protection | ***-0.436*** | -0.122 | 0.011 | ***0.313*** | ***0.427*** | -0.141 |
| Support for female entrepreneurship | -0.049 | 0.113 | 0.180 | ***0.333*** | **0.243** | 0.132 |

significantly higher in countries which do not have good institutional sources of funding for new and growing ventures.

These patterns suggest that countries that have conducive environments for entrepreneurship will have higher proportions of HEE entrepreneurs in their pool of nascent and new entrepreneurs, but that the overall rate of nascent and new business activity may be affected by other factors[6]. More sophisticated multivariate analysis might show how the entrepreneurial environment can interact with other factors to produce optimum conditions for high expectation entrepreneurship.

## High Expectation Entrepreneurship rates in Scotland

The averaged six year HEE rate for Scotland for the years 2000 to 2005 was 0.63%, which is exactly the same as the 2005 UK HEE rate and little different from the averaged UK six year rate of 0.75%[7]. As figure Q shows, this is typical of European rates of HEE (0.59%), but two and a half times lower than North American and Australasian rates (1.6%). It appears to be lower (but not significantly so, given these very small numbers) than the average rate for small high income nations (0.98%). The ratio of HEE to TEA for Scotland, averaged across the entire six year period, is 12.8%. As figure R shows, this compares favourably with the Western European ratio of 10.5%, but is slightly lower than that of North America and Australasia (13.5%). It is the same as the 6 year average rate for the UK, which is 12.5%.

While the numbers of high-expectation entrepreneurs in each annual Scottish sample are very small, and while there is no statistical difference between the HEE rates in any of the past six years, the absolute trend looks positive. With similar sized samples of around 1,600 adults aged 18-64 in each year, the number of high-expectation entrepreneurs identified from 2000 to 2005 was 5, 5, 11, 9, 14, and 17[8]. This growth is in the same direction as the apparent growth in numbers of all TEA positive entrepreneurs in each annual sample: 60, 75, 73, 91, 84, 95. However, the increase in the number of HEE entrepreneurs picked up by each annual sample is over 300%, much greater than the increase in TEA entrepreneurs over the same period (around 50%).

## How do HEE entrepreneurs differ from TEA entrepreneurs?

HEE entrepreneurs are more likely to be young, male and graduates than TEA entrepreneurs. Across the 2000 to 2005 Scottish samples, 76% of HEE entrepreneurs were men, compared with 66% of TEA entrepreneurs, while 21% of HEE entrepreneurs were aged 18 to 24, compared with 11% of TEA entrepreneurs, and only 23% of HEE entrepreneurs were aged between 45 and 64, compared with 32% of TEA entrepreneurs. Forty-seven per cent of HEE entrepreneurs were graduates, compared with 37% of TEA entrepreneurs. HEE entrepreneurs were also more likely to be in business services (44%) than in consumer-oriented businesses (33%) compared with TEA entrepreneurs (30% and 39%). No HEE entrepreneurs were in extractive industries (e.g. mining, farming or fishing) compared with 5% of TEA entrepreneurs, and similar proportions of HEE and TEA entrepreneurs were engaged in transforming (manufacturing, construction) industries (23% and 26%). In the years in which data on income was available (2002 to 2005), 51% of HEE entrepreneurs were in the top third of respondents by household income, compared with 43% of TEA entrepreneurs. These differences are very typical of HEE and TEA entrepreneurs in Europe generally.

## Other measures of High Expectation Entrepreneurship

In addition to asking nascent and new entrepreneurs about their future employment expectations, questions were asked that related to internationalization expectations, that is, the proportion of customers that would be outside the country, customer catchment area expectations, competition levels, and novelty of the product or service offering. Internationalization propensities of Scottish and UK entrepreneurs were identical: on average over the 2002 to 2005 samples, 45% of Scottish and 43% of UK entrepreneurs stated that at least some of their customers came from or would come from outside the country, while 19% of Scots entrepreneurs and 17% of UK entrepreneurs obtained at least 25% of sales from outside the country. Customer catchment area expectations were also identical; 47% of Scots entrepreneurs and 48% of UK entrepreneurs stated they had at least some customers who were at least one hour's travel time away from their premises, while 18% of Scots entrepreneurs and 16% of UK entrepreneurs stated that at least 75% of their customers were at least one hour's travel time away. Finally, on average over the 2002 to 2005 period, 0.7% of Scottish respondents and 0.8% of UK respondents were entrepreneurs who stated they would create at least 20 jobs in five years or be developing new products or new markets and have at least some exports. On each of these measures, the proportion of ambitious entrepreneurs in Scotland is the same as that in the UK.

## Encouraging High Expectation Entrepreneurship

If there was a simple way of identifying the sort of people who develop high growth ventures, policymakers could target in on these people and be more efficient in the delivery of policy. Unfortunately there is no such simple way, as the following research findings demonstrate.

Autio (2005) compared European HEE and TEA entrepreneurs and found that while HEE entrepreneurs are more likely to be male, better educated and wealthier, to have more 'entrepreneurial' attitudes, to create business services businesses rather than other sorts of business, and are less likely to be middle-aged, these differences are not substantial. He was able to identify one high-activity cell in the European adult population: 18-44 year old, high-income, well-educated males represent 7.7% of the European GEM countries' adult population, but 22% of new business owner/managers. While this looks impressive, it still leaves nearly 80% of the high expectation activity unexplained, as Autio himself pointed out. In other words, HEE entrepreneurs come from virtually all backgrounds.

In the 2005 Scottish sample, one of the 17 HEE entrepreneurs was a 21 year old, low income female, while another was a 52 year old high income female. Both were graduates, but six of the 17 HEE entrepreneurs were not graduates. While most male HEE entrepreneurs were in business services and most female HEE entrepreneurs were in consumer services, not all of them were. Just targeting entrepreneurs with one demographic profile would probably *reduce* overall HEE rates by excluding a substantial proportion of potential HEE entrepreneurs who did not fit the ideal profile, if the targeted support was beneficial or was perceived as such by the entrepreneurs or other resource providers, since these entrepreneurs would then be disadvantaged, or believe themselves to be disadvantaged, which would have the same negative effect.

This suggests that a policy of encouraging quality *at the expense of* quantity through programmes targeted at high-yielding segments of the population might be misguided. Scotland has, in the last few years, reached what might be termed its natural rate of new business activity as a region within the UK. While specialist state-funded support for high expectation entrepreneurs who seek support may be justified by their job potential, restricting such a programme to individuals with certain profiles would be discriminatory and counter-productive. What is needed is a range of well publicised programmes so that individuals of any background can benefit, but where the programmes differ in size and scope, based on the yield and needs of people of different backgrounds, the ambitions the entrepreneurs have for their business, and the extent to which they are prepared to hire the best people to run their businesses. This approach would support quality and quantity.

## Experts views on High Expectation Entrepreneurship

Three entrepreneurship experts interviewed for this report mentioned that the lack of individuals in Scotland with international sales expertise was hindering the development of high potential startups. They suggested that sales was not recognised in Scotland as a valued profession. The issue of finance for growth businesses was raised by several experts, with one expert suggesting there was a funding gap over £5 million and another suggesting it lay around £1million. In general the programmes of supplementary growth capital put in place by Scottish Enterprise, such as the Business Growth Fund, were praised. Two experts stated that ambitious, high potential entrepreneurs would rather less supporting programmes and more stable policies. However, others argued equally strongly that several programmes aimed at this sector were successful and beneficial.

1 Autio, E. (2005). Global Entrepreneurship Monitor 2005 Report on High-Expectation Entrepreneurship. Available from www.gemconsortium.org

2 Referred to in the GEM Scotland 2002 report as High Potential Entrepreneurs.

3 Based on combined average country GDP per capita in purchasing power parity over the six years 2000 to 2005, corrected for population differences between countries in each region.

4 **Asian Developing Countries** include China, India and Thailand

**Africa/Middle East** is represented by Uganda, South Africa and Jordan

**Latin America** includes Argentina, Brazil, Chile, Ecuador, Mexico, Peru and Venezuela

**Eastern Europe** includes Russia, Poland, Hungary, Croatia, Slovenia and Latvia

**Asian Highly Developed Countries** comprise Hong Kong, Japan, Singapore, South Korea and Chinese Taipei

**Europe plus Israel** comprises Belgium, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Israel, Italy, Netherlands, Norway, Portugal, Spain, Sweden, United Kingdom

**USCanAusNZ** comprises United States, Canada, Australia and New Zealand

**World** includes all the above countries

5 Autio (2005)

6 See Chapter 3 for examples of such factors.

7 These are based on a slightly different weighting system to that used to create Figure Q, and thus the UK average HEE figure quoted here varies very slightly from that given in Figure Q, which does not take regional sample size differences into account. To compare Scottish and full UK samples, all annual cohorts were weighted against the 2003 mid-year population estimates provided by the Government Actuary's department.

8 Weighted samples.

# Education and New Business Activity in Scotland



Figure S Average 2005 TEA rates for High income countries, the UK and Scotland by educational attainment

Source: GEM2005 Population Survey

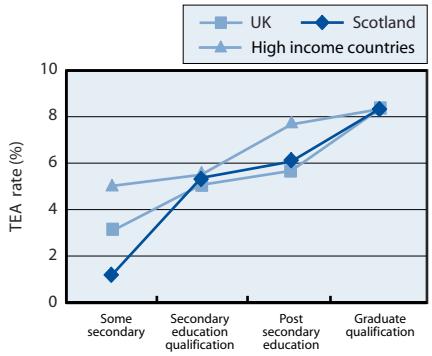



Figure T Average 2005 Established Business Owner/manager rates for High income countries, the UK and Scotland by educational attainment

Source: GEM2005 Population Survey

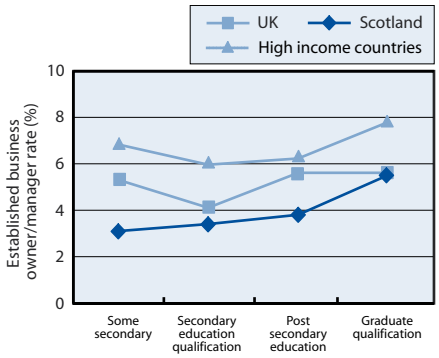
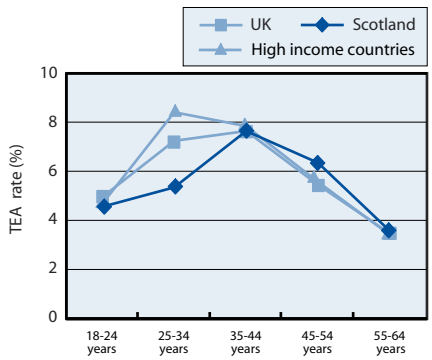



Figure U Average 2005 TEA rates for High income countries, the UK and Scotland by age group

Source: GEM2005 Population Survey




In this chapter, GEM data is used to examine a) the relationship between educational attainment and new business activity in Scotland, and b) entrepreneurship education in Scotland.

Entrepreneurial activity increases linearly with educational attainment (see figure S), and this is particularly true for Scotland. Multivariate studies on the UK database suggest that more highly educated individuals have more positive beliefs and attitudes towards entrepreneurship, and that these more positive beliefs and attitudes are associated with an increased propensity to start a business, even after some level of controlling for previous experience and contact with new business activity[1].

The relationship between the proportion of established business owner/managers in high income countries (including the UK) and educational attainment is U-shaped, as Figure T shows. Those with lowest and highest educational attainment have slightly higher rates than those with secondary school qualifications. In Scotland, however, the established business owner/manager rate has a linear relationship similar to but not as strong as the TEA rate. This may reflect a more younger stock of owner/managers than in other countries, due to the recent dominance of large heavy industry and public service employment in Scotland.

Consistent with this, the age profile of TEA entrepreneurs and established business owners in Scotland is different to that in other high income countries and the UK. As Figures U and V show, Scotland has a similar proportion of older age groups starting businesses, and younger age groups running established businesses, as in other high income countries or the UK, but has fewer older established business owner/managers.

Figures W and X compare the pattern of new business activity by education and gender for the pooled Scottish 2000, 2001 and 2002 samples, and the pooled 2003, 2004 and 2005 samples. (The samples were pooled to increase the overall sample size so that meaningful patterns could be detected.) It shows a strong relationship between educational attainment and new business activity right through to postgraduate level in both cohorts. The only exception to this is a very slight dip in new business activity among females with earned Masters degrees or doctorates in the second cohort.

While the ratio of female to male new business activity tends to be higher with increasing educational attainment, at each education level it has declined between these two periods, reflecting a faster increase in the rate of new business activity by males than females between 2000 and 2005. This may be a catch-up effect. Scottish males have tended to have low levels of new business activity relative to their peers in benchmark nations than Scottish females.

Although not statistically significant, in most education levels TEA rates were lower in the second cohort than the first cohort for females but higher for males. The proportion of graduates and postgraduates in the second cohort was double that in the earlier cohort, which explains

why, overall, female TEA rates were higher in the later cohort despite rates by education level being in most cases slightly lower.

**Entrepreneurial aspirations of students**

In 2002, the statement "You are, alone or with others, expecting to start a new business, including any form of self-employment, within the next three years" was introduced to the GEM adult population surveys. This provides a measure of new business aspiration to compare with TEA, which is a measure of new business activity. Table F compares levels of new business activity and aspiration in Scotland, UK and high income countries for students and all individuals between the ages of 18 and 64[2]. While students have relatively low levels of new business activity in high income countries including the UK, their new business aspiration rates seem slightly higher than the average. Scottish male students may be an exception to this rule, although the Scottish sample of around 100 male (and 100 female) students is too small to draw definitive conclusions.

## Expectations of job creation and educational attainment

By pooling the 2002 to 2005 GEM Scotland data, it was possible to observe differences in ambition of nascent entrepreneurs by education level. There was one outstanding difference, as shown in Table G. Over a third of graduate nascent entrepreneurs (34.5%) in the sample projected a 5 year job creation estimate of 20 or more jobs, three times the proportion of non-graduates. Although graduates made up only 31% of all nascent entrepreneurs, they contributed 56% of the high expectation nascent entrepreneurs and the same proportion of total expected job creation over a five year period. By contrast, those who did not finish secondary school comprised 8% of all nascent entrepreneurs and expected to contribute about 2% of total expected job creation over the same period. While the projections of graduate new business owners are more cautious, they still project providing a third of the jobs with a quarter of all new business owner/managers, although they only contributed one fifth of all high expectation

Table F: New business activity (TEA) and aspiration (expect to start a business in 3 years) rates in Scotland, UK and High income countries[2]

Source: GEM 2002 to 2005 surveys

| | | Scotland (2002-2005) | | UK (2004-2005) | | High income countries (2004) | |
|---|---|---|---|---|---|---|---|
| | | TEA rate (%) | Expect startup within 3 years (%) | TEA rate (%) | Expect startup within 3 years (%) | TEA rate (%) | Expect startup within 3 years (%) |
| Male | Students | 3 | 5 | 3 | 13 | 3 | 18 |
| | All respondents | 7 | 8 | 8 | 11 | 9 | 16 |
| Female | Students | 3 | 7 | 2 | 10 | 1 | 12 |
| | All respondents | 4 | 4 | 4 | 6 | 5 | 10 |

Figure V Average Established Business Owner/ manager rates for High income countries, the UK and Scotland by age group

Source: GEM2005 Population Survey

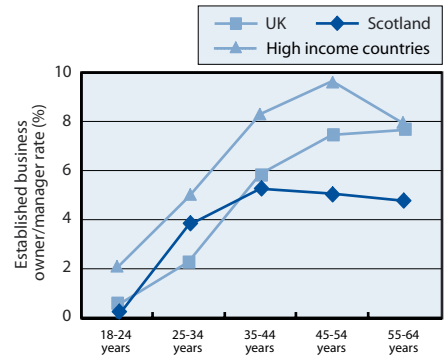



Figure W TEA rates for Scotland by educational attainment and gender, based on pooled 2000, 2001 and 2002 GEM surveys

Source: GEM2000, 2001 and 2002 Population Surveys

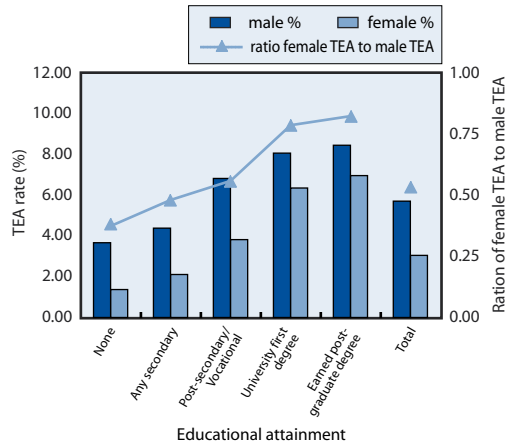
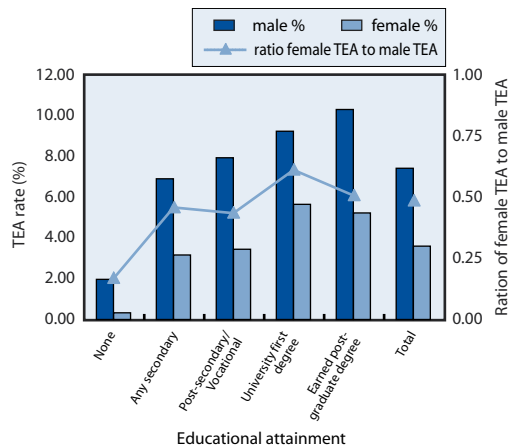



Figure X TEA rates for Scotland by educational attainment and gender, based on pooled 2003, 2004 and 2005 GEM surveys

Source: GEM 2003, 2004 and 2005 Population Surveys



new businesses. Graduate nascent entrepreneurs projected, on average, providing 27 jobs over the next five years compared with nine for non-graduates. Graduate new business owner-managers projected, on average, providing nine jobs compared with six for non-graduates[3].

## Education attainment and business types by gender

In Scotland over the 2002 to 2005 period, the proportion of male entrepreneurs going into business services and consumer services businesses was greater for those with higher educational attainment. Forty percent of all nascent and new businesses run by male graduates were in business services and 38% in consumer services, leaving just 19% of graduate businesses in transforming (that is, manufacturing or construction) businesses and 4% in extractive businesses such as fishing, farming and mining. The effect of education on type of business was less marked for females. A lower proportion of female graduate entrepreneurs entered business services (27%), preferring instead consumer services (55%), where over 50% of non-graduate female businesses were also concentrated.

Table G. Proportion of sample, nascent entrepreneurs and expected job creation over next 5 years by educational attainment, pooled 2002 to 2005 GEM Scotland surveys

Source: GEM Scotland 2002 to 2005 adult population surveys

| | Some secondary education | Secondary education completed | Post-secondary education | Graduate | Total |
|---|---|---|---|---|---|
| % of sample | 17 | 43 | 21 | 20 | 100 |
| % of nascent entrepreneurs | 8 | 38 | 23 | 31 | 100 |
| % of projected 5 year job creation by nascent entrepreneurs | 2 | 24 | 28 | 56 | 100 |
| % of new business owner/managers | 6 | 38 | 30 | 26 | 100 |
| % of projected 5 year job creation by new business owner managers | 2 | 43 | 22 | 33 | 100 |

## Business and enterprise training, work experience, and new business activity

We turn now from education in general to entrepreneurship education. In 2004 and 2005, respondents to the GEM UK questionnaire were asked if they had ever had business or enterprise training at school (11% in Scotland and 12% in UK said yes), if they had had such training at college or university (17% in Scotland and 18% in UK), if they had had some work experience in a small or medium-sized business while at school or college (30% in Scotland and 35% in UK), or whether they had ever taken part in a Government or public sector training course in business or enterprise skills (14% in Scotland and 14% in UK).

Participating in any of these activities significantly raised the likelihood that a respondent to the survey would engage in new business activity, although the first activity listed above, business or enterprise training in school, had the least overall effect. Splitting the sample by gender, it appears that Scottish males who had enterprise or business training at school were significantly more likely to be involved in new business activity[4], but Scottish females were not (4.2% versus 3.7%). Both genders were equally likely to have had such training. This gender effect was also found among those with post-school education who had had business or enterprise training while at college or university; Scottish males were significantly more likely to be engaged in new business activity[5], while Scottish females were not (7.2% versus 5.4%).

Work experience in a small or medium-sized business while at school or college also had a differential gender effect but in the opposite direction: it made no significant difference to Scottish male TEA rates (9.2% versus 6.3%), but it did appear to make a significant difference to Scottish female TEA rates[6]. Finally, both Scottish males and females were more than twice as likely to be involved in new business activity if they had ever participated in a Government or public sector training course in business or enterprise skills[7].

Across the UK, a different pattern is apparent in the combined 2004 and 2005 UK sample of 47,000 cases. Participating in business or enterprise education in school had no significant effect on male new business activity rates (8.7% versus 8.0%), whereas it had a significant effect on females (6.1% versus 3.6%). Participation in such activity at college or university was associated with significantly higher new business activity rates for both males and females across the UK. Work experience was associated with significantly higher new business activity rates among females without post-school education and males with post-school education. Finally, males and females with and without post-school education who participated in government or public sector training courses in business or enterprise skills had significantly higher levels of new business activity.

It is not surprising that those who participated in a public sector training course in business or enterprise skills in both Scotland and the UK show higher rates of new business activity; most of these probably self-selected into the courses and would have started up anyway[8]. The different patterns by gender of work experience, school, college/university and public sector business or enterprise training in Scotland and in the UK require further research using multivariate methods to remove possible confounding variables.

## Entrepreneurship education: Expert opinions

Table H shows the average scores given by 47 entrepreneurship experts in Scotland, 30 in the UK, 1176 in 29 countries and 837 in 19 high income countries to a set of 6 entrepreneurship education-related statements. Each expert was asked to state their opinion on each statement on a scale of one to five, where one means "completely false" and five means "completely true". The first three items and the last three items were transformed into two indices that indicate the perceived quality of entrepreneurship education in schools and post-school. While no country scored highly on any item or index, Scotland ranked highly in the first (school) index and poorly on the second (post-school). This probably reflects the awareness of Scottish entrepreneurship experts of the innovative '*Determined to Succeed*' Programme of enterprise education in Scotland, which is being implemented in all Scottish primary and secondary schools. However Scotland appears to be lagging behind other countries at post-school level, particularly vocational, professional and continuing education.

## Expert assessments of education for entrepreneurship in Scotland

Eighteen personal interviews with experts were conducted in 2005, six of whom were chosen because of their particular expertise in entrepreneurship education. Most experts acknowledged the heavy investment by the Government in enterprise education in schools, while at the same time recognising that Scotland's culture was still anti-enterprise in many ways.

Overall, most experts saw '*Determined to Succeed*' as having made a successful start, with momentum picking up in primary schools in particular, and some experts recognised that many teachers were won over once they saw the positive effects of the programme activities on children. But this was qualified by a perceived need for a long term change in the education system, and the need to recognise and encourage entrepreneurial attributes through, for example, getting children to lead in activities, engage with entrepreneurs and to reflect on what their part time jobs might contribute to their overall education.

Several experts stressed the need for more direct links between schools and business, and thought the benefits of interaction could be made clearer to both sides. One expert raised the question of whether an overall strategy for enterprise education was in place, one that encompassed all levels and institutions and that managed the transition from one level to another. Finally, two experts made a plea for wider recognition of the social economy in enterprise in education material.

Table H. 2005 Entrepreneurship Expert Scores for Education-related Items and Indices for Scotland, UK, 29 GEM countries and 19 GEM high income countries

Source: GEM 2005 Expert Surveys

| Item | Scotland score | UK score | Average country score (excluding Scotland) | Average high income country score | Rank among 30 countries including Scotland | |
|---|---|---|---|---|---|---|
| | | | | | Scotland | UK |
| 1 | 2.9 | 2.6 | 2.4 | 2.6 | 5 | 11 |
| 2 | 2.6 | 2.3 | 2.2 | 2.2 | 5 | 11 |
| 3 | 2.4 | 2.0 | 1.9 | 2.0 | 4 | 14 |
| 4 | 2.6 | 2.3 | 2.6 | 2.6 | 15 | 26 |
| 5 | 2.6 | 2.8 | 3.0 | 3.0 | 27 | 22 |
| 6 | 2.5 | 3.0 | 2.9 | 2.9 | 23 | 12 |
| Index 1 | 2.6 | 2.3 | 2.2 | 2.2 | 5 | 14 |
| Index 2 | 2.6 | 2.7 | 2.8 | 2.8 | 24 | 20 |

**Code:**

**Item 1**: In my country, teaching in primary and secondary education encourages creativity, self-sufficiency, and personal initiative (scale of 1 through 5, where 1 is completely false and 5 is completely true)

**Item 2**: In my country, teaching in primary and secondary education provides adequate instruction in market economic principles

**Item 3**: In my country, teaching in primary and secondary education provides adequate attention to entrepreneurship and new firm creation

**Item 4**: In my country, colleges and universities provide good and adequate preparation for starting up and growing new firms

**Item 5**: In my country, the level of business and management education provide good and adequate preparation for starting up and growing new firms

**Item 6**: In my country, the vocational, professional, and continuing education systems provide good and adequate preparation for starting up and growing new firms

**Index 1**: Entrepreneurship Education in Schools Index: combining Items 1, 2 and 3[9]

**Index 2**: Post-school Entrepreneurship Education Index: combining Items 4, 5 and 6[10]

In summary, a great start has been made at primary and secondary school level to change what many experts described as a culture that was still quite negative to entrepreneurship, if perhaps less overtly so than in the past. There is much work still to be done in further, higher and continuing education if post-school education in Scotland is to match the nation's new reputation for innovation in enterprise education in schools.

1 Levie (in press) Immigration, In-migration, Ethnicity and Entrepreneurship in the United Kingdom. *Small Business Economics*.

2 To gain as large a sample as possible in Scotland, the 2002 to 2005 samples were pooled. Similarly, the UK 2004 and 2005 samples were pooled. The latest available individual level dataset for all GEM countries was 2004.

3 One new business owner/manager who had completed secondary school projected 2000 jobs in 5 years. This was removed from the analysis as it skewed the results, being twice the size of all other jobs projected by new business owner/managers.

4 TEA rate of 11.1% versus 6.5%; Chi-square (continuity corrected) = 4.431, p = 0.035; N = 1603

5 TEA rate of 13.3% versus 6.9%; Chi-square (continuity corrected) = 6.861, p = 0.009; N = 729

6 TEA rate of 5.5% versus 3.1%; Chi-square (continuity corrected) = 4.968, p = 0.026; N = 1671

7 Males: TEA rate of 13.7% versus 6.1%; Chi-square (continuity corrected) = 15.661, p = 0.000; N = 1606; Females: TEA rate of 8.1% versus 3.2%; Chi-square (continuity corrected) = 11.380, p = 0.001; N = 1669

8 In the 2006 GEM cycle, respondents will be asked if they self-selected into these activities or if they were compulsory.

9 According to the equation (KI05D01*0.787 + KI05D02*0.854 + KI05D03*0.846) / (0.787+0.854+0.846) alpha 0.807

10 According to the equation (KI05D04*0.764 + KI05D05*0.857 + KI05D06*0.815) / (0.764+0.857+0.815) alpha 0.783

# Scottish Entrepreneurship Policy and Programmes Review 2005

Following several years of major policy introductions, including the refreshed *Smart Successful Scotland* and *Determined to Succeed*, 2005 was marked by the renewal of programmes designed to implement policy, and also by the release of policy-oriented research on enterprise in education, women in enterprise, and the results of the 2003 Household Survey of Entrepreneurship in Scotland[1]. Several reviews were underway, including one on Business Growth by the Scottish Parliament Enterprise & Culture Committee and Scottish Enterprise's review of the Business Gateway.

In March, a new research-based strategy *Sharpening the Focus on Women's Enterprise in Scotland* was launched with a target of ten per cent more businesses started by women over the next five years. The strategy included expanded mentoring and funding programmes and sustained marketing campaigns targeting potential women entrepreneurs.

In April, two research studies[2] into the attitudes of young Scottish people and teachers to enterprise and success were published. On balance, they were positive. Most of the pupils questioned believed they could succeed but had to work hard to do so. The enterprise teachers interviewed sought further input from local businesses.

In September, the £4 million Futurebuilders Scotland Seedcorn Fund, managed by Communities Scotland and launched in 2004, was increased by £1.6 million. This fund was designed to help small social enterprises improve the delivery of local services through becoming self-sufficient businesses.

In November, during Enterprise Week in which 25,000 Scottish children participated, Deputy First Minister Nicol Stephen announced that the Scottish Executive's target of 2,000 business-school partnerships by June 2006 had already been reached, but called for "even more businesses to join us in partnerships with local schools".

During 2005, Scottish Enterprise, Scotland's economic development agency, published a new Strategy for Growing Business. This continued the attempt to boost the volume of start-ups because of their feedstock role but to target under-represented groups more, and to increase the number of starts that go on to achieve growth. The Strategy also confirmed Growth Companies as a key priority with a new account management system to focus on smaller, younger and more innovative businesses capable of raising their sales by around £1m over three years. The Growing Business Strategy placed renewed emphasis on improving the wider business environment in areas such as access to finance; developing key skills; commercialising technology; improving access to markets, developing the physical infrastructure that supports business, and stimulating effective networks between businesses in Scotland and internationally.

During 2005, Scottish Enterprise reviewed its work on industries and clusters and designated the following National Priority Industries, in approximate order of contribution to wealth (GVA): Energy, Electronic Markets, Financial Services, Tourism, Food and Drink, and Life Sciences. Regional Priority Industries were Construction, Chemicals, Aerospace, Forest Industries, Shipbuilding and Marine and Textiles.

The Business Gateway delivered assistance to around 9,000 business start-ups in 2005, compared with a reported 9,700 in 2004. Of these, 3,500 were to businesses owned by people aged between 18 and 30, reflecting the introduction in 2004 of the 18-30 Start-up Grant of £1,000. The share of start-up assists for women-owned businesses rose slightly from 37% to over 40% of the total.

In 2005, the Scottish Co-investment Fund invested £4million in 40 deals leveraging in more than £10million from the private sector. The Business Growth Fund supported more than 60 high-growth firms with £5million leveraging in three times as much private sector investment, and in 2005 four invested companies floated on the Alternative Investment Market (AIM). The High-Growth Start-up Unit, set up in 2002 to help generate more high-potential, technology- and knowledge-driven start-ups with the help of specialists in IP, market support, leadership development and accessing development finance, was on target to help 60 of these businesses to grow to an average valuation of £5m after three years over the project's first five years. During 2005, 16 of these businesses started trading. During 2004-5, 32 Proof of Concept Fund projects were completed, leading to three spin-outs and three license deals, resulting in £7m of private investment.

1 Scottish Household Survey of Entrepreneurship 2003, released June 2005, available at www.scotland.gov.uk/Publications/2005/06/09113446/34484

2 Langford, L. and Aitken, C. (2005)Benchmarking Research of Young People's Perceptions of Enterprise. Available at www.scotland.gov.uk/Publications/2005/04/13141331/13326 and Henderson, A.C. (2005) Determined to Succeed: Investigating Young People's Perceptions of Success and Influencing Factors. Available at www.scotland.gov.uk/Publications/2005/04/13131928/19291

# 8 GEM and Entrepreneurship Policy in Scotland

The gap in entrepreneurial activity between Scotland and the UK seems to have narrowed over the past six years. The relative proportion of high expectation entrepreneurs in Scotland appears to have improved since it was examined in the 2002 Gem Scotland report, and experts were reporting shortages of key staff and of growth finance for ambitious, growing firms. However, new business activity is lower in Scotland than in most small high income nations or Anglo-Saxon nations like the United States, Canada, Australia and New Zealand.

Scotland's new business activity rate is held down by its medium level of wealth, small pool of existing owner-managers and lack of population growth. The £86million *Determined to Succeed* programme of enterprise in education is an attempt to break out of this demographic and socioeconomic straitjacket, but it will take more than a decade to show up in the business startup and growth statistics.

Several experts mentioned they knew children who showed increased confidence and a sense of achievement after participating in enterprise education programmes. However, research shows that a substantial minority of Scottish schoolchildren continue to lack confidence and a sense of purpose, and that more partnerships are needed between schools and entrepreneurial organisations – not just businesses - if the promise of Determined to Succeed is to be fulfilled.

With momentum building in enterprise education in schools, more attention should now be given to post-school enterprise education and training. Business and management training for new and growing businesses in Scotland was poorly rated by experts and is showing through in skills shortages in areas like international sales. Several experts traced a lack of sales expertise in Scotland to its low prestige in the country. Indeed, while sales management is taught in top universities in the United States – for example, Wharton School offers executive programmes in effective sales force management, led by a senior professor from its Department of Marketing who specialises in this subject - no equivalent exists in Scotland. The appointment of a leading academic in international sales management in a Scottish university would send a powerful signal that sales is an essential subject of study in a modern globalised economy, and the right appointment could greatly strengthen management training in Scotland.

While the Scottish Institute for Enterprise has done great work in nurturing entrepreneurial students at university, further education in Scotland has a long way to go. By contrast, in Wales, an entrepreneurship champion funded by the Welsh Assembly government through the EU-financed Knowledge Exploitation Fund was in post in every further education institution in the nation, with networking and training programmes in place for these champions and biannual auditing of activities. As Determined to Succeed does its work in primary and secondary schools, the further education sector needs to prepare to fulfill the expectations of self-starting, ambitious and confident young people, and to match the lively entrepreneurial environment for students in Scottish universities.

The picture painted by social economy experts interviewed for this year's report is of willing volunteers struggling to create viable organisations on short term grants from the public sector. The public sector is the Scottish social economy's largest customer. Across the UK, supply chain management in the public sector has a patchy record, particularly at local authority level where social enterprises typically operate[1]. More successful social enterprises could be grown, the government's aims for the social economy could be achieved, and public sector costs could be cut if public sector institutions moved to more professional supply chain management of the social economy that includes working with first tier suppliers to manage their own supply chains in ways that create opportunities for social enterprises. Much could be learned from the considerable academic and practical expertise in private sector supply chain management in Scotland.

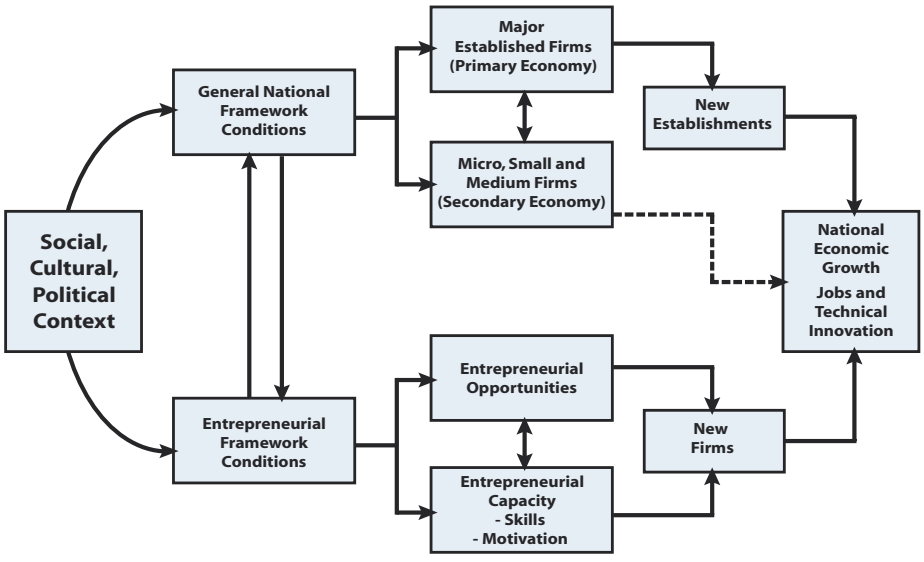
1 Office of Government Commerce (2005) Supply Chain Management in Public Sector Procurement: A Guide, pp.7,8. Available at: www.ogc.gov.uk/documents/scm_final_june05.pdf

# Appendix 1

Traditional analyses of economic growth tend to focus on large corporations and neglect the role played by newer and smaller firms. GEM takes a more comprehensive approach and considers the economic contribution of all businesses within a country. Specifically, GEM views the national economic growth and the aggregate level of economic activity in a country as being associated with newer and smaller firms as well as established firms. Small and new firms generate innovations, fill market niches, and increase competition, thereby promoting economic efficiency. By considering the complementary nature of economic activity among different groups of firms, GEM links a nation's economic activity to the interplay of established, new, and small firms. This perspective gives a clearer understanding of why entrepreneurship is vital to the whole economy. Figure 1 is a synthetic representation of GEM's conceptual model with respect to economic growth.

The relationship between entrepreneurship, large firms and macroeconomic activity is complex. Over time, the availability of longitudinal GEM data will allow researchers to analyze the causal link between entrepreneurship and economic growth and the exact role played by smaller and newer firms with respect to the competitiveness and productivity of a country. In the meantime, much can be learned about the entrepreneurial process and related policy issues by using cross-country data to make sense of the ways different levels of development influence the type, quality and quantity of entrepreneurship.

Since its inception in 1999, one of GEM's major activities has been the creation of a large dataset and the construction of harmonised measures of entrepreneurial activity. Individual level data on all participating countries is publicly released on www.gemconsortium.org two years after collection and one year after release to national teams, which get individual level data for their own country in the year of collection. In addition to individual level data, obtained through representative samples of randomly selected adults, each GEM national team conducts interviews with experts in their respective countries chosen to represent nine entrepreneurial framework conditions. These national experts also complete a standardized questionnaire so that quantitative measures can be constructed of their opinions concerning the environment for entrepreneurship in their country. In 2005, 2000 Scottish adults were interviewed, 47 Scottish entrepreneurship experts completed the GEM questionnaire, and 18 experts were personally interviewed for this report.




1 Part of this text is taken from Minniti, M, Bygrave, W and Autio, E. (2006). Global Entrepreneurship Monitor 2005 Executive Report, London Business School and Babson College. London, UK and Babson Park, MA, p.14.

# Acknowledgements

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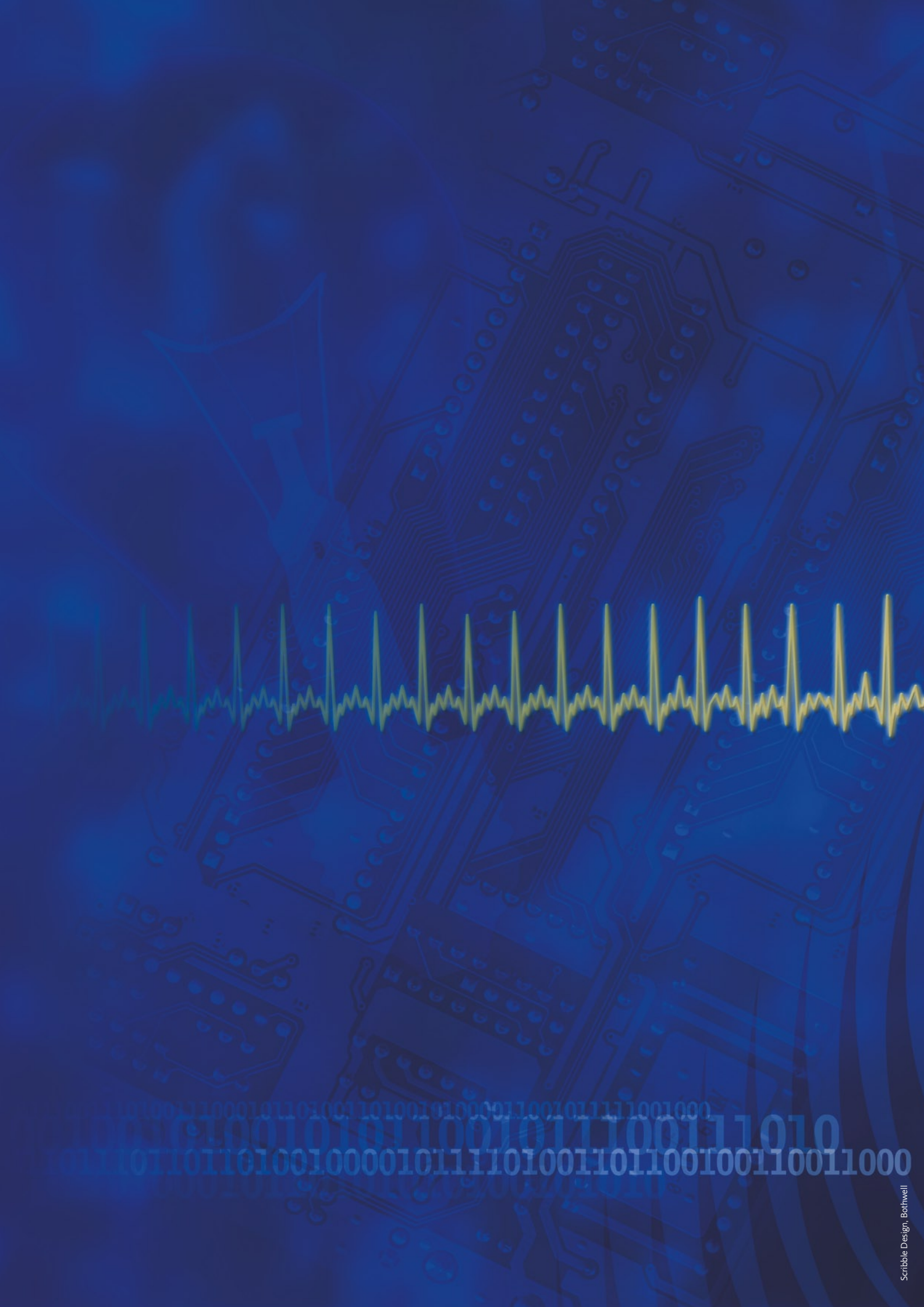

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