



Global Entrepreneurship Monitor

Scotland **2001**



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The importance of Scotland participating as a Nation state in the global GEM Report has only been underlined by the findings of this the 2001 Report, it provides a necessary benchmark by which we can gauge the impact of both public and private sector initiatives upon entrepreneurial activity in our Nation state.

Of course the good news is that much has been achieved this year in instituting long-term policy remedies to the development of an entrepreneurial Scotland. Schools Enterprise Scotland alongside many other important programmes such as Women into the Network, the extension of Business Mentoring, Scottish Institute for Enterprise and the Proof of Concept and SMART Awards all act to create the conditions necessary for bringing Scotland up the league table of entrepreneurship in the medium to long-term.

The GEM 2001 Report finds that we are fairing as well as our European counterparts, but we remain a Division Three player and our rates of opportunity entrepreneurship are at half the levels of other small modern countries.

At the core of our problem is our culture which the Report confirms as the single most important issue alongside a fear of failure, again a cultural point, preventing a greater uptake in entrepreneurial activity.

Alongside this central issue the Report also finds a lack of informal support networks - in funding,

support and entrepreneurial linkage – as a major hurdle that we need to overcome. Surprisingly our performance in informal funding is around a quarter of comparable nations, we seem to lack the – ‘family and friends’ support for start-ups, but conversely do well in formal sources of funding.

Again the Report underlines the gender gap in entrepreneurial activity with only a third of women believing they have the skills to set up in business compared to over half of men. Education plays a significant role in encouraging entrepreneurial activity and the Report finds as education increases so too does entrepreneurship, albeit the effects vary by gender, thus the importance of the aforementioned policy initiatives instituted in 2001.

This 2001 GEM Report provides us with clear benchmarks as to where we are in entrepreneurship on a global scale. In the short term this Report recommends the Scottish Executive and its economic development bodies widen and deepen further entrepreneurial programmes for enterprise education, information provision, networking, graduates and female entrepreneurship.

We as a Nation cannot change overnight. We must work hard together, build a vibrant future for all of our people where dependency is cast out and opportunity prevails as the dominant motivational force. A tough challenge but one we should all grasp for the benefit of our small Nation’s future.

Tom Hunter



Introduction

The Global Entrepreneurship Monitor (GEM) is a unique, global project that explores relationships between entrepreneurship and economic growth. Entrepreneurship is defined as:

"any activity that aims at creating or running a new business, including self-employment".

GEM was established in September 1997 as a joint research initiative led by London Business School and Babson College. The central aim was to bring together the world's best scholars in entrepreneurship to study the complex relationship between entrepreneurship and economic growth. In 1999, the project's feasibility was demonstrated in a pilot study of 10 nation states. GEM2000 added 11 countries, and a further 9 countries joined the project in 2001, making 29 in all: Argentina, Australia, Belgium, Brazil, Canada, Denmark, Finland, France, Germany, Hungary, India, Ireland, Italy, Israel,

Japan, Korea, Mexico, Netherlands, New Zealand, Norway, Poland, Portugal, Russia, Singapore, Spain and Sweden, South Africa, United Kingdom and United States. In addition, parallel GEM studies were conducted in Scotland and Wales, using exactly the same methodology, in 2000 and 2001.

The study focuses on three fundamental questions:

Does the level of entrepreneurial activity vary between countries and, if so, by how much?

Are the differences in entrepreneurial activity associated with national economic growth?

What national characteristics are related to differences in entrepreneurial activity?

Further details of the methodology and model employed in the GEM project are given in Appendix 1. The GEM2001 Executive Report is available from www.genconsortium.org

What's New in GEM2001

1. 9 more countries have joined the GEM consortium, including representation for the first time from Eastern Europe and Africa.
2. GEM2001 heralds a forward step in understanding the complexity of entrepreneurial activity. A distinction has been made between "opportunity entrepreneurship", where an individual starts a firm to take advantage of a new business opportunity, and "necessity entrepreneurship", in which an individual starts a firm in the absence of other viable ways of making a living. These two forms of entrepreneurship correlate closely with the overall rate of entrepreneurial activity, but not with each other. They appear to be driven by different entrepreneurial framework conditions and have different growth prospects.
3. Measurement of new business activity by industry sector is reported for the first time. The pattern of new business activity by sector is linked to the ratio of opportunity to necessity entrepreneurship.
4. Technical improvements have been made to the measurement of nascent entrepreneurs and new firm owner/managers in the population, both to ensure more accurate measures of each, and to account for the variation among countries in the proportion of respondents that provided "don't knows" or "refusal" responses to the screening items related to entrepreneurial activity. Adjustments have resulted in a slight increase in Total Entrepreneurial Activity rates for some countries, but the rank order of countries has not been dramatically affected, with the exception of Ireland. Rates for 2000 have been recalculated to allow comparison.



The key overall findings of GEM2001 are as follows:

- **Entrepreneurship is a global phenomenon with significant differences between countries.** On average, slightly less than 10% of the 1.4 billion working-age individuals (18 to 64 years old) that live in the 29 GEM countries are, at any point in time, in the process of creating or running new businesses. However, total entrepreneurial activity varies from a low of approximately 5% of the adults in Belgium and Japan to about 18% in Mexico.
- **Entrepreneurship is a multi-faceted phenomenon.** All the 74,000 people interviewed in the national surveys were asked if they were starting or running their new business to take advantage of a unique market opportunity (*opportunity entrepreneurship*) or because it was the best option available (*necessity entrepreneurship*). The analysis indicated that developing countries generally have a higher prevalence rate for necessity entrepreneurship.
- **The relationship between entrepreneurship and economic growth is complex.** The prevalence rate for necessity entrepreneurship in 2001 was positively associated with economic growth. The prevalence rate of opportunity entrepreneurship, on the other hand, was not associated with any measure of economic growth. Further work in subsequent years will reveal whether opportunity entrepreneurship is itself a complex of different types of entrepreneurship.

- **Several national contextual factors influence the level of entrepreneurial activity.** Both opportunity and necessity entrepreneurship were higher in countries where there was greater income inequality and where the population expected the national situation to improve. Opportunity entrepreneurship was higher where there was a) a reduced national emphasis in manufacturing, b) less intrusive government regulations, c) a higher prevalence of informal investors, and d) a significant level of respect for entrepreneurial activity. Necessity entrepreneurship was higher in countries where a) economic development was relatively low, b) the economy was less dependent on international trade, c) there was not an extensive social welfare system and d) women were less empowered in the economy.

The GEM2001 Executive Report authors offered the following policy principles to governments wishing to enhance their entrepreneurial economy:

- **Emphasise economic adaptation as a collective responsibility,** where the greater the proportion of economic activity conducted in the private sector, the greater the potential for entrepreneurial activity.
- **Enhance education – general and specific.** Those with limited education are less likely to participate in entrepreneurial initiatives and will have more limited business ambitions.
- **Lessen the burden on new and small firms.** GEM2001 clearly identified government regulatory burdens as a major deterrent to higher levels of entrepreneurial activity.

- The Total Entrepreneurial Activity (TEA) rate for Scotland in 2001 is similar to that for 2000. This places Scotland in the lowest of three bands of activity among the 31 GEM nations (29 sovereign nations plus Scotland and Wales), along with most other European countries, including the UK.
- Scotland's rate of necessity entrepreneurship is similar to that of other small modern nations, but its rate of opportunity entrepreneurship is around half the rate of these peer nations.
- Culture prevails as the most important issue raised by entrepreneurship sector experts in Scotland, and fear of failure continues to be a major barrier to business start-up, relative to other nations. The rate of opportunity perception remains below average compared with other small modern nations, as does the proportion of people who know an entrepreneur. Poor networking continues to hinder entrepreneurial activity through its effect on opportunity perception and informal investment rates.
- Scottish experts on entrepreneurship rate Scotland highly in terms of access to formal sources of finance. However, Scotland continues to have a very low rate of informal investment, with only 1% of the population sample having invested in someone else's new business in the last three years. This is around a quarter of the average for small modern nations.
- Like most other GEM countries, Scotland's female entrepreneurship rate is around half of that for males. Female entrepreneurs tend to start consumer-oriented firms, while males start a wider range of businesses. Women who are actively trying to start a new business expect to employ fewer people in five year's time than their male counterparts. However, actual levels of employment, and projected employment in five years, of new businesses do not vary by gender.
- Entrepreneurs with more formal education are more likely to start business services firms and less likely to start transforming and consumer-oriented services businesses. Entrepreneurs with university experience are more likely to employ people than non-graduate entrepreneurs. Postgraduates have the highest job creation expectations.
- Women are less likely than men to know an entrepreneur, and more women than men are deterred from business start-up due to fear of failure. Only a third of women believe they have the skills to start a business compared to over half of men. While improvements in attitudes occur as education increases, the gap between attitudes of males and females towards entrepreneurship prevails for all except postgraduates.
- Nascent female entrepreneurs in Scotland tend to expect to finance their start-up with personal funds to a lesser extent than males. This may further reflect types of firms typically started by females, which may require less capital than those started by males. There is no difference between male and female expectations with regard to the use of government funding or bank finance. The former is likely to be a reflection of the public sector's lack of targeting of support for, specifically, female entrepreneurs. The latter implies that female nascent entrepreneurs in Scotland do not expect to face discrimination from banks.
- The effect of education on entrepreneurship varies with gender. The gap between rates of male and female entrepreneurship does not close as education increases until the postgraduate level.
- Most post-code areas in Scotland have TEA scores between 5 and 7. There are no 'hot' regions of entrepreneurial activity in Scotland, though there is evidence that the areas west of Glasgow have a lower TEA rate than the rest of the country. In these areas, the population survey recorded a TEA score for males that was 6 times lower than in the rest of Scotland.
- We recommend the Scottish Executive continue to widen and deepen its programmes for enterprise education, information for entrepreneurship, entrepreneurship amongst graduates and female entrepreneurship. We also recommend the Scottish Executive continue to seek new ways to encourage networking for business as a means of addressing low informal investment and opportunity perception rates in Scotland.

Table 1 National Total Entrepreneurial Activity (TEA) scores

Source: GEM2001 Population Survey

TEA band	Nation
High (15-20)	Australia, Brazil, Korea, Mexico, New Zealand
Med (10-14)	Argentina, Canada, Finland, Hungary, India, Ireland, Italy, Poland, South Africa, United States
Low (5-9)	Belgium, Denmark, France, Germany, Israel, Japan, Netherlands, Norway, Portugal, Russia, SCOTLAND , Singapore, Spain, Sweden, United Kingdom, Wales

The GEM 2001 survey suggests that new business activity rates in Scotland were similar to the previous year. This places Scotland in the lowest of three bands of activity among the 31 GEM nations (29 sovereign nations plus Scotland and Wales). For technical reasons, the rank ordering of nations within bands of activity is not reliable¹. Therefore we present the nations in Table 1 as occurring within these three bands in alphabetical order. The three bands are low (TEA scores between 5 and 9), medium (TEA scores between 10 and 14) and high (TEA scores between 15 and 20).

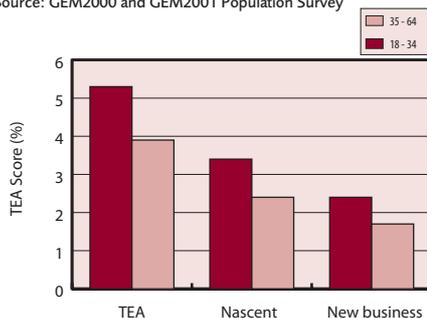
European nation is in the high band. No American nation is in the low band. However, each band features small modern nations the size of Scotland. Rates of entrepreneurial activity are independent of national size.

Distribution of entrepreneurial activity by age

In last year's report, it was suggested that in Scotland, younger adults appeared to be more entrepreneurial than older adults. In the 2001 sample, TEA scores of older adults rose by one point, but the scores of younger adults remained the same. The passing of the dot.com craze may have inhibited growth in the younger age group. By adding the 2001 and 2000 samples together (see Figure 1), we get a more accurate picture of differences in entrepreneurial activity by age over the last 2 years. Though the difference by age group is not statistically significant, it is encouraging.

Figure 1 TEA scores, nascent entrepreneurship rates and new business rates by age group for Scottish GEM 2000 and 2001 population samples

Source: GEM2000 and GEM2001 Population Survey



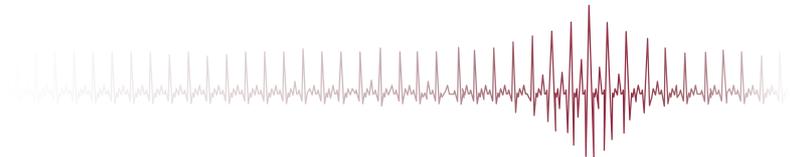


Figure 2 Distribution of business types for Scotland, small modern nations and 29 nation average

Source: GEM2001 Population Survey

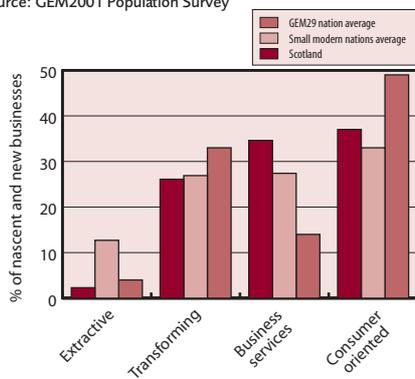
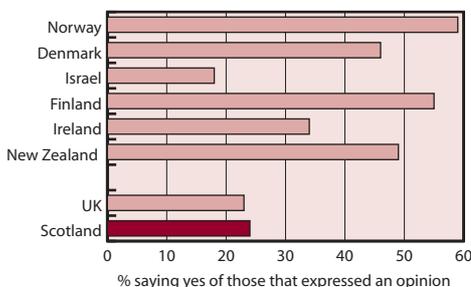


Figure 3 Percentage of adults who expressed an opinion and agreed with the statement "In the next 6 months there will be good opportunities for starting a business in the area where you live"

Source: GEM2001 Population Survey



Distribution of entrepreneurial activity by business type

Figure 2 shows the distribution of nascent and new businesses by 4 different categories of business: extractive, transforming, business services and consumer-oriented³. Scotland is compared with the average for 6 small modern nations (Denmark, Finland, Ireland, Israel, Norway and New Zealand) and the 29 nations states that participated in GEM2001. Scotland has an unusually low proportion of extractive start-ups for a small modern nation; a reflection perhaps of the concentration of land ownership. The proportions of new business services firms and consumer-oriented firms in Scotland are different from the GEM average, but are typical of small modern nations with developed economies.

Opportunity, skills and motivation for entrepreneurship

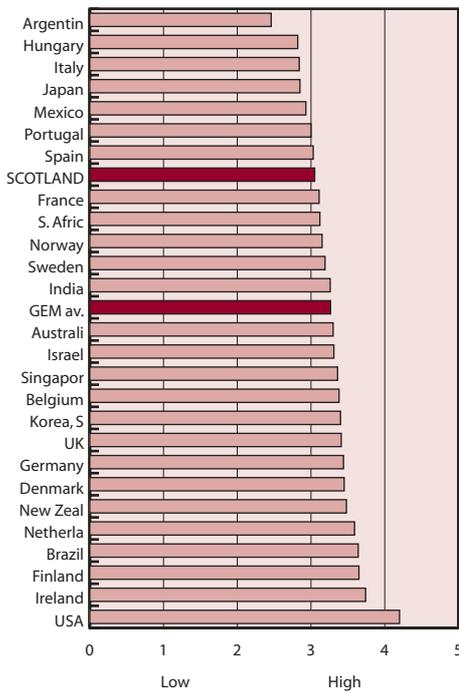
For 2001, a new feature of the GEM research is the ability to distinguish between individuals starting businesses to exploit unique market opportunities ("opportunity entrepreneurship") and those starting businesses because they have no other alternative ("necessity entrepreneurship"). Across the GEM nations, the ratio of necessity to opportunity entrepreneurship is higher among poorer or developing nations with less generous state-run social security systems⁴. Scotland's rate of necessity entrepreneurship is similar to that of other small modern nations (at less than 1%), but its rate of opportunity entrepreneurship is around half that of other small modern nations.

National rates of opportunity entrepreneurship correlate with GEM measures of perception of opportunity and entrepreneurial capacity (including perception of entrepreneurship skills, knowing an entrepreneur, motivation to start a business, and experts' rating of entrepreneurial capacity)⁵. The Scottish GEM2001 results corroborate the 2000 findings on opportunity perception and motivation. The proportion of adults in Scotland who see good opportunities for starting a business in the next six months, at 24% of those that expressed an opinion (unchanged since 2000), is around half the rate of most small modern nations; see figure 3. The Scottish expert informants also scored Scotland relatively low for opportunities,



Figure 4 Entrepreneurial Opportunity Index for 26 nations and Scotland

Source: GEM2001 Expert Survey



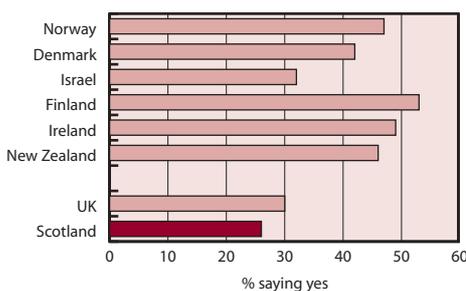
by comparison with their peers in other GEM countries. Figure 4 shows where Scotland fits on a national opportunity index, based on 5 items in the expert questionnaire⁶. The index was compiled from the survey returns of over 985 experts in different aspects of the environment for entrepreneurship in 27 nations, including Scotland.

The proportion of Scots who know an entrepreneur (26%, similar to last year) is also just over half the typical rate for small modern nations, as figure 5 shows. On the positive side, around 42% of Scots feel they have the skills to start a business. This is the same proportion as the UK average and is typical of other small modern nations (figure 6). However, this optimism is not borne out by Scottish key informants, who rate the capacity of Scots to start businesses as quite low, by comparison with other GEM nations (figure 7).

It therefore appears that both opportunity perception and entrepreneurial capacity of the population are low in Scotland. The Scottish GEM2000 report highlighted the continuing problem of attitudes to entrepreneurship, and cultural barriers to entrepreneurship such as dense social networks among many Scots. Government should see this as a long-term culture-change project.

Figure 5 Percentage of adults who expressed an opinion and agreed with the statement: "You know someone personally who has started a business in the past 2 years"

Source: GEM2001 Population Survey



The Scottish key informants gave Scots an average rating for motivation to start a business (3.5 compared with 3.4 for 27 GEM nations). However, fear of failure as a deterrent to starting a business is relatively high in the Scottish adult population (40%, compared with a 34% average for small modern nations); see figure 8. And the effect of cultural and social norms on entrepreneurship rates was again the most frequently mentioned of Scottish key informants' top issues in 2001.

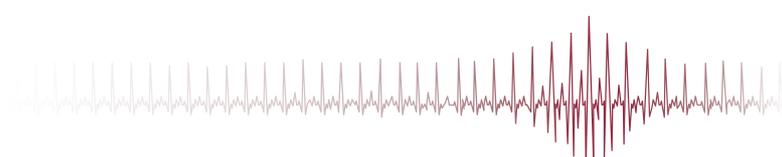


Figure 6 Percentage of adults who expressed an opinion and agreed with the statement "You have the knowledge, skill and experience required to start a business"

Source: GEM2001 Population Survey

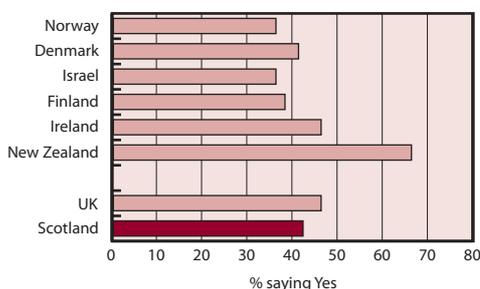
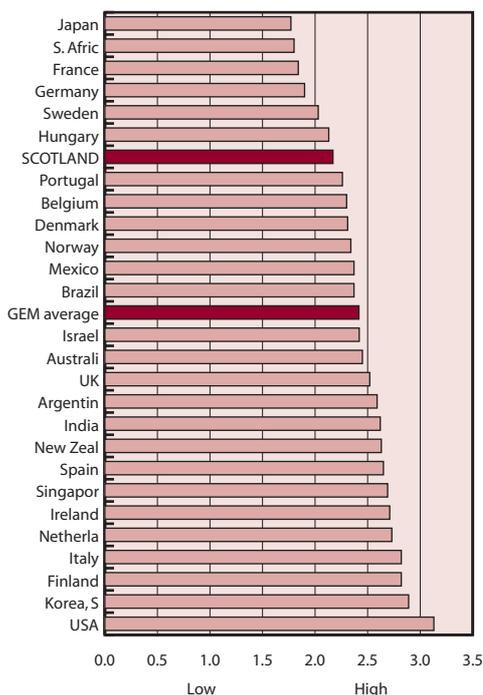


Figure 7 Entrepreneurial Capacity Index for 26 nations and Scotland

Source: GEM2001 Expert Survey



Entrepreneurial framework conditions

This year, using expert survey data, we are able to compare Scotland's entrepreneurial framework conditions, as specified in the GEM model, with other nations. Experts were asked to rate their agreement with a series of statements on specific aspects of the environment for entrepreneurship using a 5 point scale, where 1 denotes a very unfavourable environment and 5 denotes a very favourable environment. The results in table 2 suggest that Scotland is not out of line on any framework condition. In fact, Scotland scores highly for access to formal sources of finance, ranking ninth and fourth highest for the first two entrepreneurial framework conditions. This is a positive result. It suggests that Scotland should be a reasonably good place to start a business. We turn now to sources of informal finance.

Informal Investment

There is a statistically significant correlation between informal investment rates and opportunity entrepreneurship rates (but not necessity entrepreneurship rates) across the 2001 GEM nations⁷. Figure 9 compares the rates of private investment in Scotland with that for other small modern nations, and the UK, as reported by respondents to the population survey. Similar to last year's findings, Scotland has a very low rate of private investment. Only around 1% of Scots adults have invested in someone else's new business in the past three years. This is about a quarter of the average rate for the small modern nations in the GEM sample and one-sixth the US rate. This offsets the availability of more formal sources of finance. Indeed, the low rate of informal investment will have a negative effect on formal funding rates, as informal investors often provide the seed funding required for the subsequent attraction of formal venture capital. As such the

Table 2 Entrepreneurial framework condition indices

Source: GEM2001 Expert Survey

Entrepreneurial Framework Condition Indices (number in brackets denotes number of statements used to compile the index)	Average GEM score	Average small modern nation score	Scottish score
Access to debt and equity (3)	3.1	3.3	3.4
Access to venture capital, informal investment, ipo's (3)	3.1	3.4	3.6
Government procurement, policies on new firms (3)	2.7	2.8	2.8
Government regulations, speed of licensing (3)	2.3	2.5	2.3
Government support programmes for new firms (5)	2.7	2.9	2.9
Education and training for entrepreneurship (5)	2.2	2.3	2.4
R&D Transfer to new firms (5)	2.5	2.6	2.2
Intellectual Property is protected (5)	3.1	3.4	3.6
Commercial infrastructure: cost, quality, availability (5)	3.2	3.4	3.2
Rapid market changes in national economy (2)	2.9	2.6	2.6
No major barriers to entry (4)	2.8	2.8	3.2
Access to physical infrastructure (space, utilities) (5)	3.7	3.8	3.7
Economic independence valued by national culture (3)	2.6	2.6	2.8
Individuals accept jobs will change frequently (2)	3.5	3.6	3.5

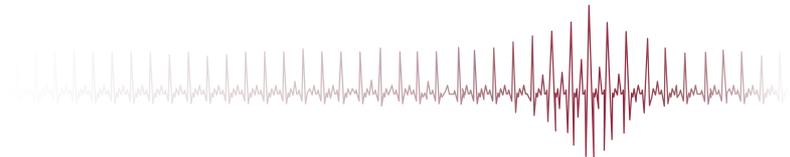


Figure 8 Percentage of adults who expressed an opinion and agreed with the statement: "Fear of failure would prevent you from starting a business"

Source: GEM2001 Population Survey

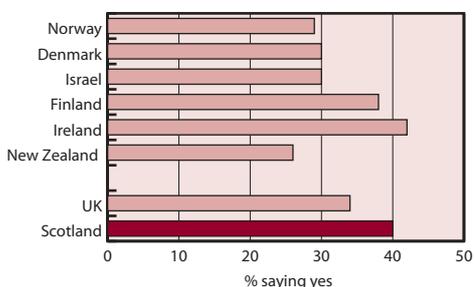


Figure 9 Percentage of adults who expressed an opinion and agreed with the statement: "You have, in the past 3 years, personally provided funds for a new business start-up that was not your own"

Source: GEM2001 Population Survey

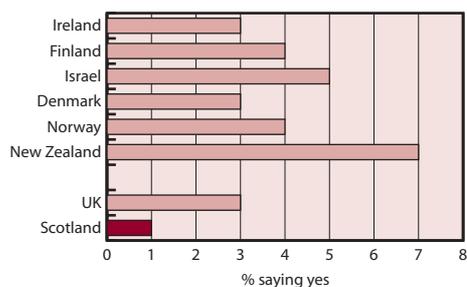
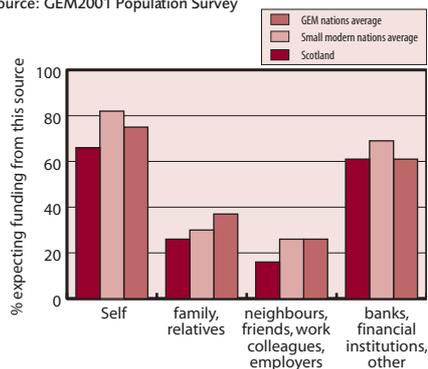


Figure 10 Percentage of nascent entrepreneurs expecting start-up funding from different sources

Source: GEM2001 Population Survey



low rate of informal investment in Scotland should be a continuing source of concern for policy-makers. Of equal concern should be the low rate of expectation by Scottish nascent entrepreneurs of start-up funding from informal sources. Figure 10 show that there is no difference in the proportion of Scottish nascent entrepreneurs who expect funding from formal sources, compared with the average for 30 GEM nations (including Scotland). However, fewer Scottish nascent entrepreneurs expect to receive funding from close family or relatives, or neighbours, work colleagues or their employer. This fits with this year's finding that 83% of informal investments located in the Scottish GEM2001 survey went to family members and relatives, compared with 50% for all GEM nations combined. No informal investments to "strangers with good ideas" were detected in the Scottish survey, compared with a 20% global GEM average⁸. The GEM2000 results were almost identical.

Lack of access to finance was among the top three most frequently cited important issues by 2001 Scottish key informants, despite their favourable view of formal finance availability in Scotland. It seems clear from GEM data that this is primarily an issue of informal investment by individuals in other individuals. Given the global importance of informal investment in new businesses, at 1.1% of national GDP on average among the 29 GEM nation states (compared with 0.5% for classic, early stage venture capital)⁹, it should be high on the government policy agenda for entrepreneurship in Scotland.

Entrepreneurs access resources, including informal investment, through their social networks, particularly through weak ties. Compared with other national populations, Scots seem to lack extended networks with weak ties. "Poor" networking is a "Scottish problem" with serious implications for resourcing start-ups that public policymakers should be concerned about.

¹ These reasons include relatively low national sample sizes, lack of strict comparability in sampling across nations, and adjustments to national TEA scores to account for variability in "don't know" responses. On the basis of ranks, Scotland is near the bottom of the low band. However, the Scottish data was least affected of the GEM nations by the technical upwards adjustment of TEA scores mentioned above, and because of this we are not confident about Scotland's rank order for 2001. The 2002 GEM data will not require this technical adjustment.

² For methodological reasons, the data for Ireland's 2000 GEM results may have understated new business activity. The 2001 result, which shows Ireland as the most entrepreneurial nation in Europe (instead of the least entrepreneurial, as in 2000) may be a more accurate reflection.

³ Extractive firms: farming, fishing, hunting, forestry, mining
Transforming firms: construction, manufacturing, transportation, wholesale, communications, utilities
Business Services firms: financial, insurance, real estate, consulting, business professionals
Consumer-Oriented firms: retail, hotels, restaurants, consumer services, health, education and social services

⁴ See GEM 2001 Global Executive report, p.9

⁵ Details of correlation coefficients and statistical significance are outlined in the GEM2001 Global Executive Report, p.22. Necessity entrepreneurship does not correlate with these factors. It appears to be driven by immediate need.

⁶ A typical item would be: "In my country, people see lots of good opportunities for the creation of new firms". Respondents were asked to mark their degree of agreement with this statement on a 5 point scale

⁷ R=0.65, p<0.01.

⁸ GEM2001 Executive Report, p.26

⁹ See GEM 2001 Executive Report, p.24

Female Entrepreneurship in Scotland

Figure 11 Perception of opportunity and capacity in Scotland by gender

Source: GEM2001 Population Survey

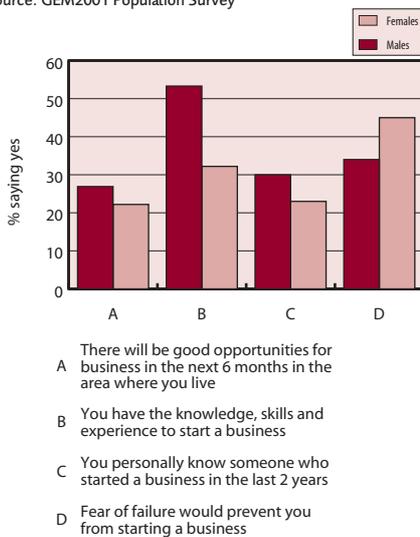
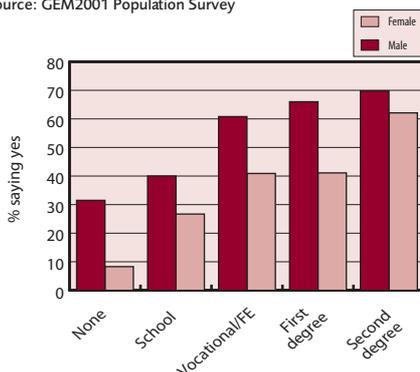


Figure 12 Entrepreneurship skills self-perception in Scotland by education and gender (Percentage of adults who agreed with the statement "You have the knowledge, skills and experience to start a new business")

Source: GEM2001 Population Survey



In this chapter, we take a closer look at female entrepreneurship in Scotland. The ratio of females to males engaged in new business activity is 30:70 for all 2001 GEM nations combined. Scotland follows this average pattern, with a TEA score of 2.9 for females and 6.8 for males. TEA rates for men and women were identical for only 3 GEM nations in 2001: Italy, New Zealand, and Spain. The ratio of female to male business owners (irrespective of size or age of firm) was exactly 50%, the same as the UK. However, business ownership rates in the Scottish GEM sample (8.4% of males and 4.2% of females) are half the UK rates.

Why do fewer women become entrepreneurs than men? The GEM model proposes that new business activity requires perception of opportunity and entrepreneurial capacity (skills and motivation). About the same proportion of men and women in Scotland feel there will be good opportunities for starting new businesses in the next 6 months: 22% of men and 17% of women. However, there are statistically significant¹ differences of opinion in measures of capacity, such as perceived skills, knowing an entrepreneur, and fear of failure (figure 11). Only one third of women believe they have the skills to start a business, compared with half of men. Only 23% of women know someone who started a business recently, compared with 29% of men. 43% of women would not start a business because they fear the consequences of failure, compared with 32% of men. For both

males and females, self-perception of skills increases and fear of failure decreases with education (figures 12 and 13). In both cases, though, a gender gap in perception remains. The gap in the case of knowing an entrepreneur closes for university graduates, however. We will return to gender and education in the next chapter.

New business aspirations

Do women entrepreneurs tend to have different aspirations for their businesses than men? Table 3 shows estimates by male and female nascent entrepreneurs of how many people their business will employ in 5 years time and estimates by new business owners of how many people they employ now and will employ in 5 years time. Because of small sample sizes, we have combined the 2000 and 2001 survey results. Average estimates can be skewed by single large estimates. The medians (middle estimate when all estimates are ranked by size) are a more reliable comparator of size. They suggest that female nascent entrepreneurs seem to have more modest employment expectations than males, but that actual employment and projected employment levels of male and female new business owners are similar. Similar results have been obtained in other UK studies².

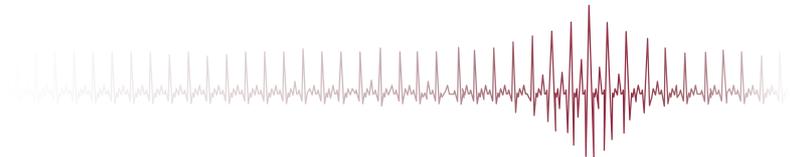


Figure 13 Fear of failure self-perception in Scotland by education and gender (Percentage of adults who disagreed with the statement "Fear of failure would prevent you from starting a business")

Source: GEM2001 Population Survey

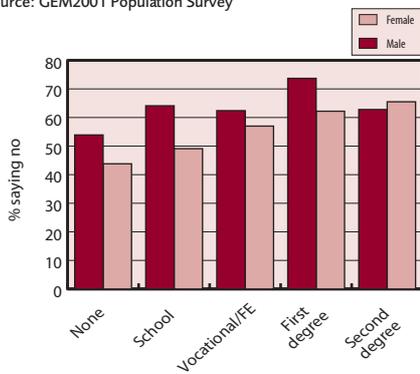
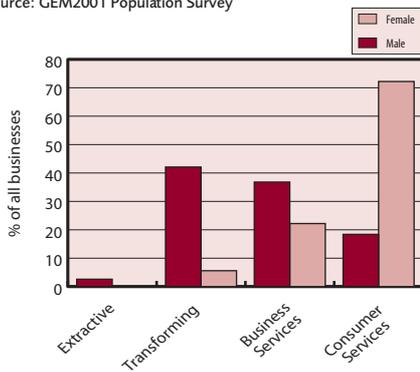


Figure 14 Types of nascent and new businesses by gender

Source: GEM2001 Population Survey



Differences in self-perception of skills and self-perception of future business size may reflect a less optimistic (or more realistic) view of future success and failure among women than men.

Perhaps females are more concerned about the impact of failure on their family. Perhaps more males are driven by factors not measured by the 2001 GEM survey, such as a desire for independence. More research is needed into these gender-based differences in perception of capability.

Types of business

What types of businesses do Scottish women start? Are they different from the businesses started by their male counterparts? The answer is yes. Figure 14 shows that women are less likely to start up transforming and businesses services businesses, but more likely to start consumer-oriented businesses. This evidence corroborates findings from the Scottish GEM 2000 survey, which found female businesses were concentrated in the Retail and Service sectors³.

A study of 2000 University of Strathclyde alumni found similar differences in industry entry choices by male and female graduates⁴. This is covered in more detail in section 5.

Finance for start-up – are there gender-based differences?

When nascent entrepreneurs were asked from whom they expected to source finance for their businesses, some gender-based differences were found, as Figure 15 shows⁵. Females appear to expect to fund their businesses from personal sources to a much less extent than males. This may reflect females' comparatively lower rates of income and thus personal wealth⁶. It may also be a reflection of the types of businesses females tend to start. Consumer services businesses may require less start-up capital than transforming or business services. Indeed, they are more likely to be self-funding. Males also had a wider variety of expected sources of finance than women. This may be a reflection of different social networks.

Table 3 Employment estimates of nascent entrepreneurs and new business owners, by gender

Source: GEM2000 and GEM2001 Population Survey

	Male			Female		
	median	mean	max	median	mean	max.
Nascent entrepreneurs: expected number of employees in 5 years (average)	4	13	150	1	19	500
New business: number of employees (average)	1	3	90	1	6	100
New business: expected number of employees in 5 years (average)	2	6	90	3	9	100



Figure 15 Expected sources of funding for start-up by gender

Source: GEM2001 Population Survey

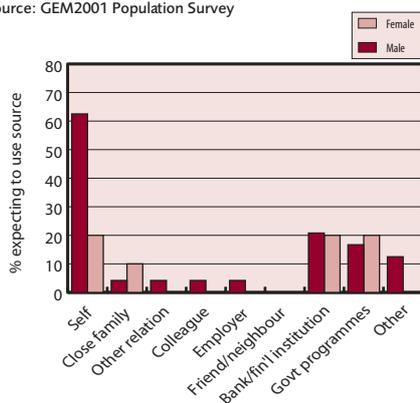


Figure 15 also illustrates that there is little difference between males and females in terms of expected use of government funding. Were the government targeting females for financial support for business start-up we would expect to observe a higher rate of female nascent entrepreneurs expecting to use government funds. Until recently, although female rates of entrepreneurship have continued to lag behind those of males, there has been little focused government intervention. In late 2001, however, the Industrial Society published a report calling for more public and private support for female businesses⁷. One of the priorities of Scottish Enterprise for 2001/2002, is to "assist 2670 women into business start-up", though this does not necessarily involve providing finance⁸. Future GEM reports will track gender-based differences in perception of funding sources for start-up.

Similarly, Figure 15 illustrates that there is no difference between the proportions of male and female nascent entrepreneurs expecting to use bank finance. Several studies of female entrepreneurship have contended that females are deterred from using bank finance because they experience, perceive or expect discrimination⁹. This year's GEM data does not suggest that female nascent entrepreneurs expect to be discriminated against by banks.

¹ Gender responses for "Fear of failure" and "skills" items are significantly different at the 0.01% level; gender responses for "knowing an entrepreneur" are significantly different at the 0.05% level.

² Carter, personal communication. Typically, male-owned firms and female-owned firms start up with similar median numbers of employees, but the median size of male-owned firms outstrips the median size of female-owned firms over the long term (Carter and Anderson, 2001).

³ See Galloway, et al., 2001

⁴ See Levie, et al., 2001

⁵ This analysis is based on statements of only 25 males and 10 females. It may not be representative of male or female nascent entrepreneurs generally.

⁶ See Low Pay Unit (2001) for evidence that the average male income is higher than that for females.

⁷ Carter, at al., 2001

⁸ See Scottish Enterprise, 2001

⁹ See Carter, et al., 2001

Educational Attainment and Entrepreneurial Activity

Figure 16 Average TEA scores for 24 GEM countries by educational attainment and gender

Source: GEM2001 Population Survey

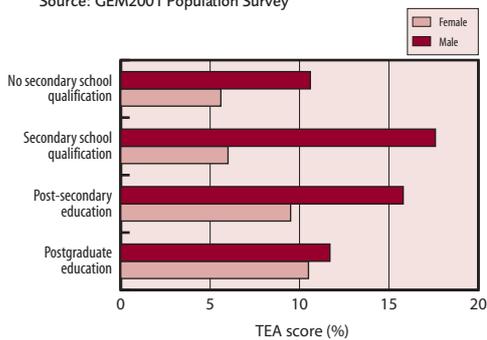


Figure 17 TEA Scores for Scotland by educational attainment and gender

Source: GEM2000 and GEM2001 Population Surveys

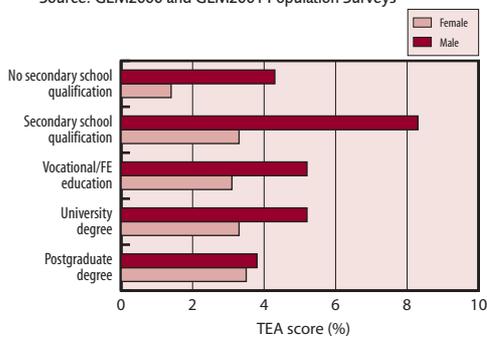
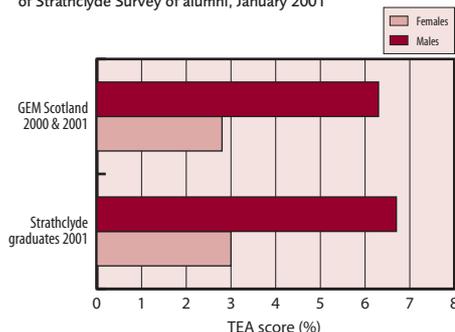


Figure 18 Graduate entrepreneurship rates for the Scottish population and alumni of the University of Strathclyde

Source: GEM2000 and GEM2001 Population Surveys and University of Strathclyde Survey of alumni, January 2001



Education has a strong impact on entrepreneurial activity, but it appears to influence male and female rates of new business activity in different ways¹. On average, entrepreneurial activity increases with educational attainment for women. This is particularly true for opportunity entrepreneurship. For men, opportunity entrepreneurship rates are over 3 times higher for those who have completed secondary school education than for those who drop out of school. However, rates do not tend to increase with further formal education for men.

Rates of necessity entrepreneurship actually *decline* with educational attainment for both men and women. This would reflect the greater choice of job opportunities that comes with educational attainment. When both opportunity and necessity entrepreneurship are combined, the overall effect is an increase in TEA scores with educational attainment for women, and an increase to secondary level followed by a decrease for men (see Figure 16). In Scotland, using both 2000 and 2001 samples combined to increase the sample size, the same universal trends are apparent (see Figure 17). Opportunity and necessity entrepreneurship have not been separated out for the Scottish sample because of very small samples sizes.

The gender gap in entrepreneurial activity both for all GEM countries combined and for Scotland seems to persist up to first degree level. However, the gap narrows for postgraduates. This is because male entrepreneurial activity rates dip for graduates who go on to postgraduate education, not because female postgraduates have high entrepreneurial activity rates. Postgraduates only make up 3% of the population, but have some unique entrepreneurial features. We will return to them later in this section.

In January 2001, 2000 University of Strathclyde graduates were surveyed, using the same GEM methodology as for the national population samples. The results for graduate entrepreneurship at Strathclyde mirror the gender gap among university graduates in the Scottish population sample (figure 18).

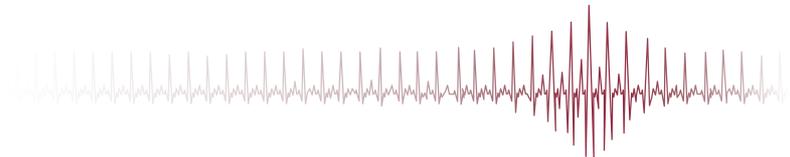


Figure 19 Projections by nascent entrepreneurs of employee numbers in 5 years time.

Source: GEM2000 and GEM2001 Population Surveys and University of Strathclyde Survey of alumni, January 2001

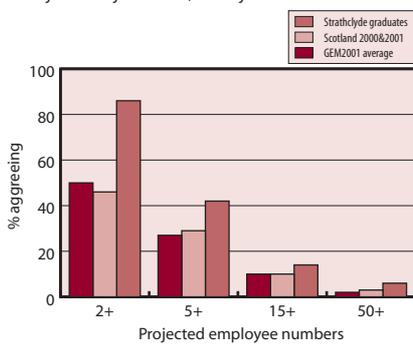


Figure 20 Distribution of nascent and new businesses in Scotland by business type and educational attainment of male entrepreneurs

Source: GEM2001 Population Survey

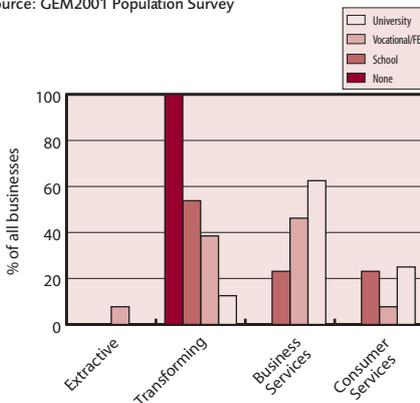
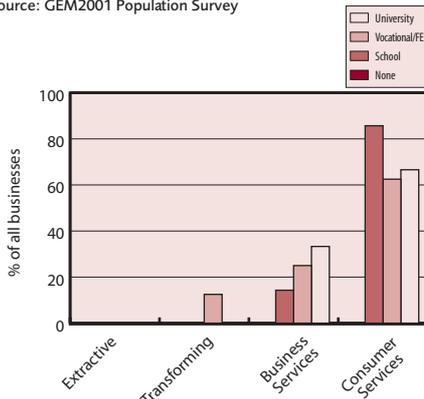


Figure 21 Distribution of nascent and new businesses in Scotland by business type and educational attainment of female entrepreneurs

Source: GEM2001 Population Survey



Expectations of job creation and educational attainment

Do graduate entrepreneurs create more jobs? 86% of Strathclyde nascent entrepreneurs projected that their nascent business would employ at least two employees other than the owners in 5 years time. This is significantly more than the 46% of the Scottish national nascent entrepreneur sample with similar job projections. However, with increases in projected employee numbers, the samples gradually converge, as figure 19 demonstrates.

It appears that fewer graduates expect to remain self-employed with no employees than non-graduates. For the 24 nation GEM sample for which education data was available, 21% of graduate nascent entrepreneurs and new business owner/managers expected to have no employees in 5 years time, compared with 34% for the sample as a whole. Postgraduates are, again, a special case. It appears from the worldwide GEM sample that 31% of nascent entrepreneurs and new business owner/managers with postgraduate experience expected to create more than 5 jobs in 5 years, compared with 18% of the total sample². Clearly, a greater proportion of graduate entrepreneurs expect to create jobs for others rather than remain as sole traders, and postgraduates expect to create more substantial organisations.

Education attainment and business types by gender

For GEM nations as a whole, the proportion of entrepreneurs starting transforming businesses and consumer-oriented businesses declines with educational attainment, while the proportion of entrepreneurs starting Business Services ventures increases³. Scotland generally follows this trend. These trends seem to hold equally for both male and female entrepreneurs (see Figures 20 and 21).

25% of university alumni entrepreneurs in the global GEM sample were starting business services firms, compared with 14% of all entrepreneurs. The Strathclyde alumni and Scottish national samples follow a similar pattern. 53% of Strathclyde alumni nascent entrepreneurs and new business owners were starting business services firms, compared with 22% of all entrepreneurs in the Scottish national sample. Most of the Strathclyde businesses were advisory, professional consultancies, e.g. law, engineering or IT consulting firms. Given the knowledge-intensive nature of many of the businesses being formed by these Strathclyde alumni, the quality of the jobs created and the multiplier effect of these businesses may be high.

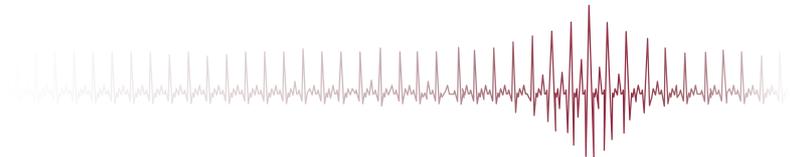
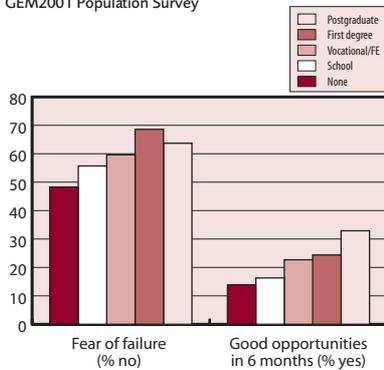


Figure 22 Responses to statements "fear of failure would prevent me from starting a business" and "there will be good opportunities for starting a business in the next 6 months" by Scottish GEM2001 respondents by educational attainment.

Source: GEM2001 Population Survey



The proportion of business services start-ups is also in part a function of the stage of development of an economy. For example, 27% of all entrepreneurs in six small modern nations (average) were starting business services firms, compared with 14% of all entrepreneurs in the GEM global sample.

Attitudes to entrepreneurship and educational attainment

Attitudes to entrepreneurship are also affected by educational attainment. Figure 22 shows that those with higher educational attainment answer more positively to the statements "fear of failure would prevent me from starting a business" and "there will be good opportunities for starting a business in the next 6 months".

As educational attainment increases, fear of failure as a barrier to entrepreneurship decreases, while perception of opportunities increases. Individuals' exposure to entrepreneurs is also related to educational attainment. In the GEM2001 Scottish population survey, 42% of university-educated respondents agreed they knew someone personally who had started a business in the past 2 years, compared with only 23% of people with no university education.

Figure 23 Self-perception of skills for start-up and educational attainment in Scotland

Source: GEM2001 Population Survey

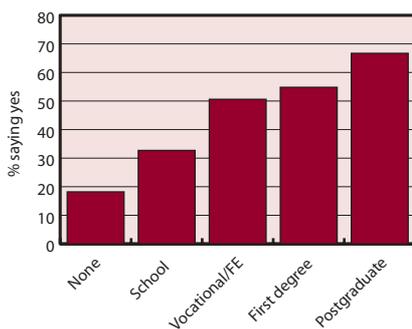


Figure 23 shows a strong positive correlation between education attained by Scottish respondents and their belief that they have the skills necessary to start a business. This is a universal finding across the GEM countries⁴.

As noted in Chapter 4 however, significantly more males than females agree they have the skills necessary to start a business. Although the proportion of women who agree they have the skills to start a business does increase with education, the female rate is consistently lower than that for males at each level of educational attainment except for postgraduates. Among Scottish university alumni as a whole, 68% of the males claimed to have the skills to start a business, compared with only 50% of females.

While it may be the case that women are more realistic about their ability to start a business than males, it is more likely that females' lower perception of skills is to do with confidence. This is not unique to entrepreneurship. Studies of the social psychology of gender and gender stereotypes within technology, education and business have found that there tends to be lower self-confidence and perception of skills and ability on the part of females than males⁵. This is most often ascribed to the different ways in which males and females are socialised, and the way in which they are educated – even within a mixed gender context⁶.



Expert assessments of education for entrepreneurship in Scotland

All the Scottish key experts were aware of and welcomed the recent changes that have been taking place in the Scottish education sector with regard to entrepreneurship, at primary, secondary and tertiary level. These changes include the Schools Enterprise Scotland programme which is now underway in primary schools, a more specific focus of Young Enterprise Scotland in secondary schools to entrepreneurship, and the expansion of the Scottish Institute for Enterprise to include every University in Scotland. However, education was the third most frequently mentioned area of concern for key informants, despite their recognition of progress. Issues included the competence of those now teaching entrepreneurship skills, and the need to change styles of education generally, not just for the purposes of teaching entrepreneurship.

Education for entrepreneurship is now becoming mainstream in Scotland. The notion that people who started their own business were typically those who had done badly at school and could not get a "real" job is misguided. In fact, the highest rates of new business activity come from those with at least a secondary school qualification. For women, the more educated one is, the more likely one is to become an entrepreneur.

¹ Based on a sample of 42,000 adults in 24 countries (2001 GEM Executive Report, p.16) In this section, when we refer to postgraduate education, we mean education for a second university degree. The GEM Executive Report refers to this as graduate education, following US convention.

² GEM2001 Executive Report, p.17

³ See GEM 2001 Executive Report page 17

⁴ The skills, knowledge, experience item correlated significantly with national TEA scores ($R=0.65$, $p<0.01$), and opportunity entrepreneurship rates ($R=0.73$, $p<0.01$); see 2001 GEM Executive Report, p.22.

⁵ See Steele, 1997; Margolis, et al.; Center for Gender Studies, 1999-2000

⁶ See American Association of University Women, 1992.

Entrepreneurial Activity and Geographical Location in Scotland

Compared with the rest of Europe, Scotland is thinly populated, with 0.7 people per hectare compared with 1.1 in Europe generally¹. The distribution of this population is, however, uneven, with two thirds of Scots clustered in only 10% of the land. Most economic activity is generated in a disproportionately small area: around Central Scotland, (including Glasgow, Stirling and Edinburgh), and in the North East, (including Dundee and Aberdeen). A tentative examination of the GEM 2001 data, based on categorising postcodes into "rural", "urban" or "both" revealed no difference in TEA rates between urban and rural Scotland². However, almost twice as many rural respondents reported themselves as business owners. There is much evidence that businesses in rural areas tend to be smaller scale and less growth oriented than those in urban areas³ and that, compared with urban centres, "twice as many people, proportionately, work at home in rural Scotland, reaching some 21% in Stewartry and Orkney"⁴.

Figure 24 illustrates differences in TEA rates by principal post-code area. Most areas lie within a narrow TEA score band between 5 and 7. This means that 5 to 7% of the population in those areas are actively trying to start a new business or running a new business. There are no "hot" regions of entrepreneurial activity in Scotland. However, there does appear to be a region, centred on the Firth of Clyde, west of Glasgow, which has significantly lower rates of entrepreneurial activity than the rest of Scotland. This region comprises Paisley, Renfrewshire, Inverclyde, Argyll, and Ayrshire.

Figure 24 TEA scores by post code area

Source: GEM2001 Population Survey

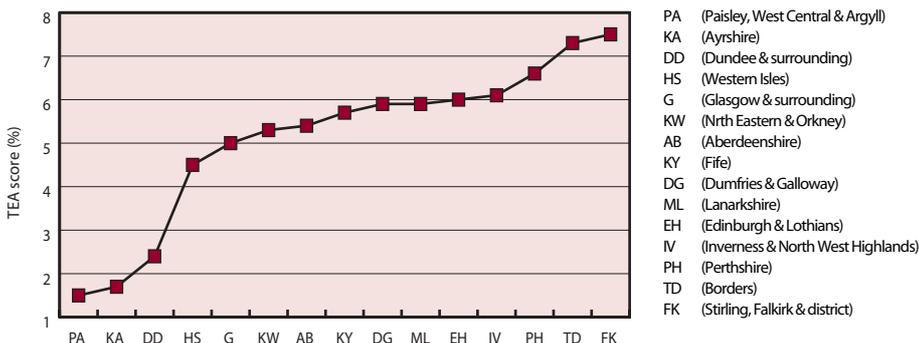
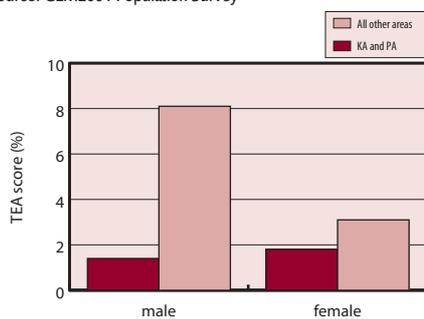




Figure 25 TEA scores in the "low rate" region and the rest of Scotland

Source: GEM2001 Population Survey



No difference could be found between the low rate region and the rest of Scotland in demographics such as age profile, social class, or working status. The low rate region actually had a higher rate of home owner-occupation (72% versus 64%). There is, however, an unusual distribution of male and female entrepreneurs in the low rate region. Generally, female rates of entrepreneurship are lower than those for males. In the low rate region, the female TEA scores are similar, but the male TEA score is 6 times lower than in the rest of Scotland (see figure 25).

Closer inspection revealed that of the 93 males aged 35 and older sampled in the "low rate" region, not one was either actively trying to start a business, or running a new business. There were also some significant differences in attitudes between respondents in the low rate region and the rest of Scotland. Only 20% of adults in the low rate region personally knew someone who had started a business in the last two years, compared with 27% in the rest of Scotland. Only 14% of adults in the low rate region agreed there would be good opportunities for starting a business in the areas

where they live, compared with 21% in the rest of Scotland. For males, the difference was greater: 13% versus 24%. The rate of opportunity entrepreneurship in the low rate region was almost one quarter the rate of the rest of Scotland, and the rate of necessity entrepreneurship was half the rate of the rest of Scotland. However, adults in the low rate region were just as likely to agree they had the skills to start a business, or agree that fear of failure would prevent them from starting a business, as the rest of the Scottish population.

If this result is representative of the region, and not a sampling anomaly, it appears that males in this low rate region have particularly low rates of opportunity perception. Perhaps this is an area that the local development agencies could consider addressing. Persuading local entrepreneurs to explain how they came to start their businesses through local media would be one possibility.

¹ Scottish Executive, 2000(b)

² John Randall in a 1984 *Scottish Economic Bulletin* article first defined Rural Scotland as comprising local authority districts with a population density of less than 1 person per hectare, or 100 people per KM². This definition continues to be used by both the Scottish Executive (for example, in the 1995 Rural Scotland White paper), and the new unitary authorities. The unitary authorities identified as rural on this basis are: Aberdeenshire; Angus; Argyll & Bute; Dumfries & Galloway; East Ayrshire; Highland; Moray; Orkney Islands; Perth & Kinross; Scottish Borders; Shetland islands; South Ayrshire; Stirling; Western Isles.

³ Scottish Executive, 2000(a)

⁴ Rural Scotland, 1997

Scottish Entrepreneurship Policy and Programmes Review 2001

In this section, we review progress on entrepreneurship-related policy and programmes in Scotland during 2001.

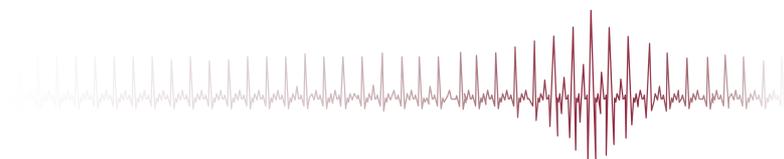
An increasingly negative economic situation, marred by foot and mouth disease, some huge manufacturing plant closures, and international terrorism was the backdrop for a year of intense debate for Scottish entrepreneurship policy makers and opinion leaders. In January, the Scottish Executive launched a policy document that set out, for the first time, objectives for local, regional and national economic development agencies¹. The first of 3 main objectives was: "boosting Scotland's long run sustainable growth rate" through stimulating greater entrepreneurial dynamism and creativity. January also saw the publication of a paper in the Scottish Economic Review which concluded that the 4-year decline in business births in Scotland was associated with macro-economic changes such as lower GDP growth rates, and mirrored similar declines in the UK as a whole².

In June, the Fraser of Allander Institute at the University of Strathclyde produced its report into the effect of the Scottish Business Birth Rate Strategy (BBRS). The report concluded that the original targets set were over-optimistic, that relatively little new money was spent on the BBRS, and that the Strategy had had a positive but very small effect on actual business starts (less than 10% of the original

target of 25,000 extra new starts). It suggested a modest shift in resourcing between promoting business starts in general and new businesses with growth potential, sought greater recognition for the role the private sector could play, and urged a continued emphasis on enterprise education and improving delivery of information and advisory services. The report stimulated top level debate among leaders of the entrepreneurial community on the role of entrepreneurship in the economy, and on how government and Scottish economic development agencies should promote entrepreneurship. Ian Ritchie, serial entrepreneur, prominent business angel, and a director of Scottish Enterprise set out his view in July³:

"Scotland has a relatively small corporate sector, and although we have some genuine world-class players such as the Royal Bank and Scottish Power, it is vital that we also have new blood coming through.... Over the next few years, we can expect electronics manufacturing jobs to migrate to lower-cost economies such as in eastern Europe. Without the dynamic of new high-growth, home-grown businesses, Scotland is doomed to remain a branch factory economy, and our jobs and our futures will remain at the mercy of corporate headquarter decisions in Tokyo or Chicago. So it is vital that new growth businesses are created and thrive here in Scotland."

Ritchie hinted that future entrepreneurship support programmes would be aimed more at



high growth, graduate-led startups, that enterprise education would be a particular target, and that the private sector would play a more prominent role in delivery.

In August, Sir Angus Grossart, investment banker and founder of Scotland International⁴, circulated a "position paper" on economic policy in Scotland. This argued that trying to grow the economy by supporting new and small firms was like propelling a boat with "the bailing can" instead of "the oars". In November, Professor Neil Hood of Scottish Enterprise, responded by suggesting that large successful firms did not want public sector support, and that the economy needed new, small and large firms if it was to prosper⁵. Grossart subsequently denied that his position paper suggested he sought a transfer of public finances from small to large firms⁶. The debate continued at a private meeting of Scotland International in December.

Alongside the policy debate, several important programmes that impacted on entrepreneurship were initiated or extended in 2001. In February, the Scottish Executive launched a package of measures aimed at improving the business climate in Scotland. These included 10 year reviews of the impact of regulations on business, the assessment of the impact of new regulations on micro-businesses, test-runs of official forms with business organisations, and rate relief for small businesses.

In March, a special business startup programme for women aimed at narrowing the gender gap in startups was initiated. Called "Women into the Network", it built on previous work by Scottish Enterprise and the Wellpark Centre in Glasgow. In August, Scottish Enterprise's year-old Business Mentoring Programme was expanded by 30%, with a target of 130 mentored companies for 2001/2002.

New programmes in enterprise education at primary, secondary and tertiary level were launched in 2001. In August, a national roll-out of the Schools Enterprise Programme was formally launched. This is a much-heralded public/private partnership harnessing the pioneering development of enterprise education in primary schools by the National Centre for Work and Enterprise at the University of Strathclyde. With £5 million of funding, half from the Scottish entrepreneurial community and half from the Scottish Executive, it aims to provide every Scottish child with at least 2 enterprise education experiences while they are at primary school.

In June, the National Enterprise Campaign in Scotland, a private-sector-led initiative run by Enterprise Insight Scotland, a new public/private partnership of employers' organisations, businesses and the public sector, was launched. 13 events for schoolchildren of all ages were held across the country to introduce them to the world of enterprise.



At third level, the Scottish Institute for Enterprise won an additional £2 million to enlarge its membership from an initial group of 5 universities to include all 13 Scottish universities. The money is to be spent on student business facilitators and educational materials development and training of entrepreneurship teachers, with special emphasis on science and engineering students.

A Science policy document was published in January, in which technology transfer featured prominently⁷. The Scottish Executive also actively encouraged links between leading Scottish and US universities in 2001, with the aim of further accelerating the commercial potential of Scottish university-based research. Company spin-offs from Scottish universities

continued to accelerate in 2001 (see Table 4). This was in part helped by programmes such as the Scottish SMART awards, and an £18 million extension in February of the successful Proof of Concept scheme, which aims to bridge the gap between scientific discovery in Scottish universities and research institutes and the commercial world.

By the end of 2001, it appeared that all the new business start-up targets agreed between Scottish Enterprise and the Scottish Executive for the first half of the 2001/2002 planning year (July to December 2001) had been met or exceeded. However, the much awaited revamp of Scottish Enterprise's entrepreneurship programmes, due to be announced in December, was deferred until 2002.

Table 4 Scottish Enterprise Targets 2000-2001

Source: Scottish enterprise network operating plan - half year update

	Annual Target	6 month actual	Forecast Achievement for year
Entrepreneurship-related targets			
Strategic innovation plans implemented by assisted companies	185	220	190%
New starts assisted	3,573	7,200	100%
Social Inclusion Partnership residents	380	625	120%
Women startups assisted (included in above)	1,305	2,670	100%
High Growth Startups	102	140	130%
E-business processes adopted by assisted companies	479*	1,100	120%
New products and processes launched by assisted companies	143*	380	130%
Academic spin outs assisted	13*	35	150%

¹ 'A Smart Successful Scotland' Scottish Executive, January 2001.

² 'Explaining the Decline in Business Starts in Scotland 1997-1999' Scottish Economic Report (3), January 2001

³ Business A.M. Cloud over enterprise must have a silver lining by Ian Ritchie July 05, 2001

⁴ *Scotland International* is an annual private gathering of leading members of the country's business community, and includes influential expatriate Scots. Several major entrepreneurship programmes, including the *Schools Enterprise Programme*, had their origin in Scotland International meetings.

⁵ 'SE hits back after attack by Grossart', *Business a.m.*, November 21 2001

⁶ Letter to the Editor, *Business a.m.*, November 22 2001

⁷ A Science Strategy For Scotland, Scottish Executive, January 2001



GEM and Entrepreneurship Policy in Scotland



The GEM Scotland 2000 report urged wider and deeper provision of the Business Birth Rate Strategy programmes; for example the national implementation of the *Schools Enterprise Programme*. It is heartening to see that much has been achieved in 2001, including the *National Enterprise Campaign*, and *Women Into The Network*, and the extension of the *Business Mentoring*, *Scottish Institute for Enterprise*, and *Proof of Concept* and *SMART Awards* programmes. It is also good to see robust debate on entrepreneurship policy, recognition of the need for policy to be informed by relevant data¹, and debate on the interpretation of research on entrepreneurship in Scotland². This helps to keep entrepreneurship in the public eye.

How can GEM Scotland 2001 inform the current debate on entrepreneurship policy and programmes?

It is clear from the results in chapter 3 that opportunity perception and motivation to start businesses are low in Scotland, as are personal acquaintance with entrepreneurs and informal investment in new firms started by others. The increasing policy emphasis on enterprise education for all, with, increasingly, support from the private sector, is an appropriate long-term response to these deep-seated issues. But, more can be done in the short term to address the lack of business networking among the current generation of potential entrepreneurs. The Business Mentoring Programme, which in its first year served just 100 small firms, needs an equivalent (but much larger in scale) programme for nascent entrepreneurs. Mentors who are established business people can give nascent entrepreneurs invaluable entrées into their business networks. Being introduced to a

potential resource supplier by a trusted third party can tip the balance in favour of the entrepreneur.

Alongside the enterprise education programmes, there is a continuing need to improve provision of information and advice. The move towards internet-based delivery may in theory serve more people simultaneously. However, much more could be done to order the way information is presented by the Small Business Gateway system. Current assistance rates by Scottish Enterprise also appear quite low, given the population of nascent and new entrepreneurs revealed by GEM. The GEM results suggest that 3% of the adult working age population (18-64 years) of 3.19 million are attempting to start a business, and that 2% are running a new business that is less than 3 years old. On average, 2 people are running these nascent or new businesses³. This means that roughly 50,000 nascent firms and roughly 30,000 firms less than 3 years old existed in Scotland at the time of the surveys⁴. At present, Scottish Enterprise formally assists only one third of businesses that start in Scotland (outside the Highlands and Islands Enterprise area)⁵.

Some of the GEM experts noted continued concern over the variability of advice provided through Small Business Gateway. This is being addressed in part through accreditation of advisors. But more thought could be given to standardising and simplifying much of the information supplied. Many questions that nascent entrepreneurs ask are generic questions about starting a new business, raising finance, employing people, seeking customers, getting paid, dealing with regulations, etc. With appropriate intelligent software, many of these questions could be answered quickly, accurately, and adequately using computers. But nascent



and new entrepreneurs also need answers to questions that are specific to their business. Scottish nascent entrepreneurs' poor business networks make it all the more difficult for them to find answers to these questions. This is where a mentoring scheme for nascent entrepreneurs with business people as mentors could help.

Chapter 4 focused on female entrepreneurship. The female/male entrepreneurship ratio in Scotland is close to the GEM average. This should not be a cause for complacency; we suggest that this is more to do with low rates of entrepreneurship among older males than a thriving female entrepreneurial community. The WIN Programme launched in 2001 is a good start and a clear focal point for boosting female entrepreneurship in Scotland. But 32% of GEM nascent entrepreneurs and new firm owner/managers were female, so the Scottish Enterprise target of having 37% of assisted businesses owned by females does not seem to be very demanding. Given the low overall assistance rate of Scottish Enterprise programmes to nascent and new firms, if there is real commitment to boosting female entrepreneurship, a higher target would be justified. Other European countries (e.g., Italy, Spain) manage equal rates of entrepreneurship among men and women. This should be the long term aim.

Chapter 5 highlighted the special contribution that graduates could make to an entrepreneurial Scotland. Given Scotland's relative strengths in graduate education, it makes sense to seek to encourage graduate entrepreneurship. Until recently, the universities have focused on commercial spinouts by relatively senior academic staff. This can damage the intellectual assets of a university if taken too far. On the other

hand, there is still untapped potential to marry graduates with Scotland's research base. The Upstarts Programme at the University of Strathclyde, due to commence in 2002, is one initiative which seeks to do this. The Royal Society of Edinburgh Enterprise Fellowship Programme, assessed in 2001 and shown to be very successful, could be broadened in scope and scaled up to achieve a similar effect. Through the Scottish Institute for Enterprise, there is also potential to educate alumni through web-based learning materials and on-line tutoring.

Scotland is fortunate in that it has a private sector that wishes to engage in entrepreneurship policy and programmes. The Schools Enterprise Programme and Enterprise Insight Scotland have shown the potential for public/private sector partnerships in the entrepreneurship area. Universities are beginning to recognise the potential benefits of encouraging entrepreneurship among their students and alumni. The Scottish Executive should take heart from this groundswell of support for entrepreneurship in Scotland.

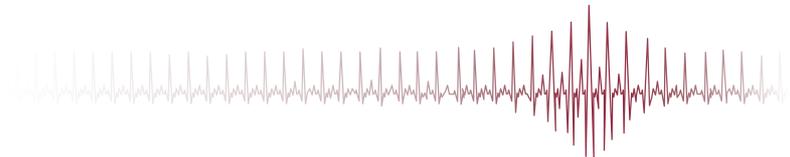
¹ For example, the Minister for Enterprise, Transport and Life-Long Learning, Wendy Alexander, welcomed the publication of the GEM Scotland 2000 Report as follows: "The Scottish GEM Report is a hugely important piece of work and sets the context for the Business Birthrate Strategy...the importance and value of a regular monitor that tracks entrepreneurial activity and attitudes cannot be understated."

² See, for example, the assessment of the GEM Scotland 2000 report, (Fraser of Allander, 2001)

³ The precise averages are 1.99 owner/managers for startups and 1.96 owner/managers for new businesses that are included in the TEA scores.

⁴ About 10% of nascent firms were sponsored by the entrepreneur's employer rather than autonomous startups.

⁵ Brian McVey, personal communication.



The general model that provides the basis for GEM is illustrated in Model 1. This model is described at length in the GEM2001 Executive Report, available at www.gemconsortium.org. The model assumes that national economic growth is a function of two distinct but complementary economic activities: (a) those associated with established firms – the top causal path in the model - and (b) those related directly to the creation and growth of new firms — the bottom causal path in the model.

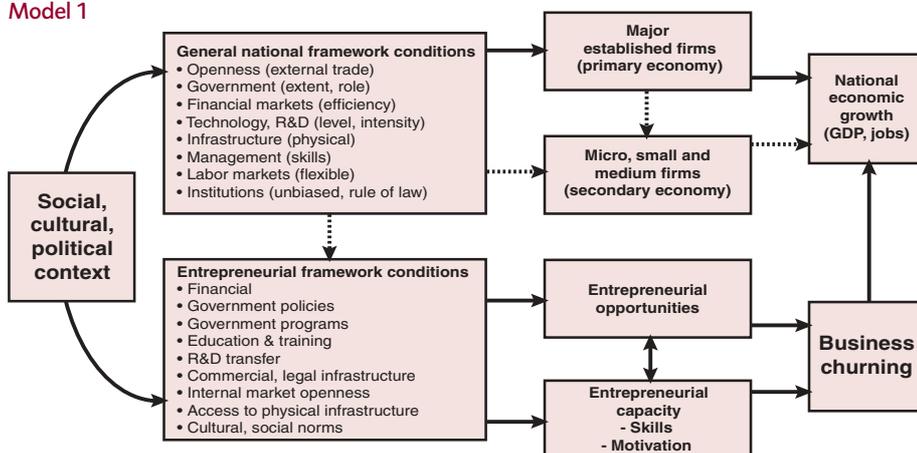
Established firms clearly make a major contribution to economic growth and prosperity, but variations in new firm activity may also explain a significant proportion of the differences in economic prosperity between countries. This latter activity is the focus of the GEM research project.

The GEM model proposes that economic growth is affected by *Business Churning* – the birth, growth, decline and death of firms. The amount of churning in an economy will be a function of

1) the emergence or presence of market *Opportunities* and 2) the *Capacity* of people (i.e. motivation and skills) to create new firms to pursue those opportunities. These dynamic changes occur within a particular context, referred to in the GEM Model as *Entrepreneurial Framework Conditions*. These key variables can vary in the short term, but are influenced by a more stable *Social, Cultural and Political Context*.

To assess the model, a wide variety of data were assembled with the consortium of research teams working in each GEM country. First, a representative sample of 2000 adults was interviewed in each country using a standardized questionnaire, translated into the official language of each country. Respondents were asked precise questions about their involvement in, and attitudes towards, entrepreneurship. Second, a wide selection of standardized national data was assembled from a variety of sources such as the World Bank, United Nations, OECD, and IMF. Third, each national team completed one-hour, face-to-face interviews with experts in their country (almost 1000 interviews in all); these experts were selected to represent the *Entrepreneurial Framework Conditions* referred to above. Fourth, each expert was asked to spend 15 minutes completing a brief questionnaire that involved providing an assessment of important features of their country's entrepreneurial sector. In Scotland, 17 experts were interviewed and surveyed and an additional 18 experts were surveyed. Fifth, all national teams provided their own assessment of the current level of entrepreneurial activity in their country.

Model 1



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