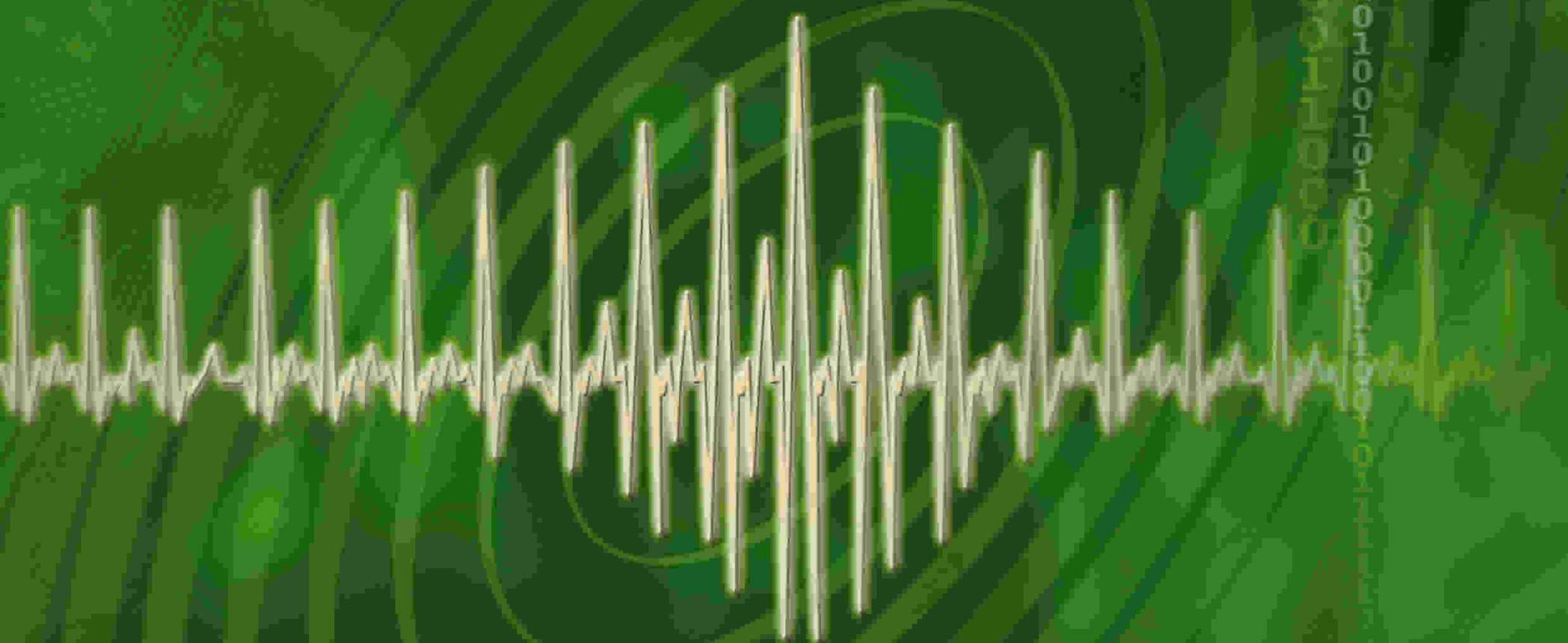




Global Entrepreneurship Monitor

Scotland **2002**



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Foreword



The third Scottish GEM report yet again provides marked food for thought for policy makers, educationalists, entrepreneurs and, in an election year, our politicians.

In analysing the GEM findings we should remind ourselves that quick fixes to Scotland's endemic cultural problems are the stuff of dreams. However that should not provide our policy makers with any excuses.

From these findings it is abundantly clear that we as a nation need to do much more in terms of investing in education, in fellow entrepreneurs and in driving a self-confident nation through cultural change.

We have come a long way in a short time and the Scottish Executive should take some deserved praise for supporting many new initiatives, not least the Schools Enterprise Programme. Indeed many new initiatives seem to have yielded marked effects although it may be too early at this stage to firmly state that corners are being turned.

Scotland finds itself around the middle of the lowest of three Total Entrepreneurial Activity (TEA) bands with a rate of one third the average of all 37 nations surveyed. TEA rates in young males have markedly declined, whilst females now match males in terms of their activity levels, excellent news indeed as our gender gap has closed at least for now.

Importantly opportunity perception amongst young males has risen, perhaps a precursor to more entrepreneurial activity in the coming years.

'Friends and Family' investment has declined yet further – we Scots don't like to invest in each other's businesses and this is a serious concern as this informal investment correlates significantly to opportunity rates.

And we are failing to produce the quantity of new businesses in order to generate more quality enterprises; the link I am assured is an absolute one.

Pleasingly our fear of failure has been narrowed, but we must do more to 'knock the 't' off the can't' if we are to grow and prosper as a nation. Yet again we see within this GEM report the absolute link between education and enterprise, the more we prepare ourselves for opportunities the easier it becomes to exploit them.

This report offers some clear policy direction that should be accepted and acted upon without delay. We do not need more inquiries, consultations nor debates – our core problems rest in our culture, education and investment practices.

The Scottish Executive presented this Parliament with the 'Determined to Succeed' review

of enterprise in education, Members of Scottish Parliament should approve that blueprint and implement its findings with utmost urgency. Moreover industry should play a full role in supporting that implementation.

As for 'Friends and Family' funding we should ask whether or not the Scottish Co-Investment Fund has missed a target market or whether funding another programme, seamlessly integrated to existing offerings, is needed to target an absolute funding gap. Equally we must question whether Scottish Enterprise's performance targets in supporting 8,000 new starts are not a little too easily achievable when the task for Scotland is so monumental.

On a personal note I would like to thank the media for their role in supporting change in Scotland. The real stars however are our teachers who work tirelessly to deliver the ultimate food of enterprise, education. I salute your efforts.

Fundamentally the greatest opportunity we in Scotland have is opportunity itself. All of our nation's population should be able and willing to afford themselves that thought.

For the sake of our nation's future let us grasp the opportunity to change; problems after all are merely masquerading opportunities.

Tom Hunter



Introduction



What's New in GEM2002

1. 10 more countries have joined the GEM consortium, and one has withdrawn, making a total of 37 nations.
2. GEM2002 explores "high potential" entrepreneurship, by measuring the age of critical technology employed by nascent and new entrepreneurs, the familiarity of customers with entrepreneurs' products or services, and the extent of competition in entrepreneurs' chosen markets, as well as entrepreneurs' predictions of how many people they will employ in 5 years time and whether they intend to export any of their sales. High potential entrepreneurship is a measure of the proportion of nascent and new entrepreneurs in the population who state they will create new markets and/or employ at least 20 people in 5 years, and have at least some customers outside the country. This measure does not correlate strongly with overall levels of entrepreneurship, or with either "opportunity entrepreneurship" or "necessity entrepreneurship", the two main motivation-based types of entrepreneurial activity uncovered by GEM2001. It is particularly associated with relatively high levels of informal investment, market openness, entrepreneurial skills, personal knowledge of start-up entrepreneurs, various measures of national IT development, protection of intellectual property, and enrolment in higher education.
3. The size of the UK sample has been considerably increased to 16,000. This includes 2,000 respondents each in Scotland and Wales, paid for by the Scottish and Welsh GEM teams. The final UK sample is weighted by age, gender and region for analysis and made available to the UK, Scottish and Welsh teams. The full Scottish sample, properly weighted for age and gender, was used for GEM Scotland analysis. Extra items have been added to the UK survey to uncover the ethnicity and place of birth of respondents. Postcode and county of residence was also collected.
4. Data collection has been further refined to reduce differences in sampling methodology between nations.

The Global Entrepreneurship Monitor (GEM) is a unique international project that explores and measures entrepreneurial processes in a wide range of nations. Entrepreneurial activity is measured at the level of the individual, and 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. It has grown in scale, scope, and accuracy, and now provides a unique, unprecedented resource for academics and policymakers with which to benchmark the nature, extent, and economic impact of entrepreneurship in their nation. In 1999, the project's feasibility was demonstrated in a pilot study of 10 nation states. The 37 countries studied in GEM2002ⁱ comprise 62% of the world's population and 92% of its Gross Domestic Product (GDP). Over 160 scholars from 34 sovereign nations were involved in collating and checking data this year. In addition, as in 2000 and 2001, parallel GEM studies have been conducted in Scotland and Wales.

The aim of GEM is to:

- Measure differences in the level of entrepreneurial activity between countries
- Probe for a systematic relationship between



entrepreneurial activity and economic growth

- *Uncover factors that lead to higher levels of entrepreneurial activity*
- *Suggest policies that may enhance the level of entrepreneurial activity*

Further details of the methodology and model employed in the GEM project are given in Appendix 1.

The key overall findings of GEM2002 are as follows:

- ***About 286 million working age adults, or 12% of the working age population of the 37 GEM2002 countries, were actively trying to start a business or running one that was less than 3½ years old.*** Extrapolating to include the 38% of the world's population living in countries not covered by GEM, this suggests that a total of about 460 million people worldwide are engaged in entrepreneurial activity.
- ***Entrepreneurship rates vary by country and by global region.*** Rates varied from as low as 3% for Belgium, Russia and Poland to as high as 18% for India and Thailand. The developed Asian nations and Eastern Europe had the lowest regional rates, while the highest were in Latin America and developing Asian countries. The United States had average entrepreneurship rates in 2002.
- ***On average, entrepreneurship rates declined by 31% in the past year in the 28 countries that participated in GEM2001 and GEM2002.*** The decline in entrepreneurial activity mirrors a global decline in economic growth. This compares with stable entrepreneurship rates and economic growth rates in the previous period. However, the relative standings of nations over time are quite stable. It appears that both macro-economic conditions and social and cultural factors influence entrepreneurship rates. There is increasing evidence that entrepreneurship rates have a statistically significant association with rates of economic growth in subsequent years. However the evidence is stronger for 'necessity entrepreneurship' than for 'opportunity entrepreneurship.' The GEM consortium will have to study this relationship for several more years before it can be described more fully.
- ***Entrepreneurship rates vary by age and gender.*** As in previous years, data suggests that men are twice as likely to engage in entrepreneurship as women and that the 25-44 age group is the most entrepreneurial. There appears to be an association between equality of career opportunity and female entrepreneurship rates in developed countries. In developing countries, female entrepreneurship may be more a reflection of lack of female economic participation and low levels of education.
- ***Over 90% of nascent and new entrepreneurs consider their business to be a replication of existing business activity.*** Around 7% expect to create a new market, around 28% expect to create in excess of 20 new jobs and around 16% expect to export some of their output.



- **Key experts in each country tended to identify 3 of the 9 entrepreneurial framework conditions as either national strengths or weaknesses: government policy, cultural and social norms, and education and training.**

Finance for new businesses was accorded an intermediate weighting. Experts appeared to be more informed about opportunity entrepreneurship than necessity entrepreneurship.

- **Venture capital allocated for start-up activity in 2001 in GEM2001 nations was \$59 billion, or one-fifth the amount of informal investment by individuals in other people's businesses in that year.** Less than 1 in 10,000 start-ups received venture capital among the GEM2001 countries. (Venture capital data is reported one year in arrears.)

The GEM2002 Executive Report authors offered the following suggestions to governments wishing to enhance their entrepreneurial economy:

- **Entrepreneurship is a major social and economic phenomenon.** Even in the less entrepreneurial countries, tens of thousands if not millions of citizens are engaged in entrepreneurship. Therefore, it would seem that it is incumbent on each government to make an effort to understand, if not harness, this pervasive socio-economic phenomenon.
- **The formal venture capital industry currently receives the bulk of attention from governments as a mechanism for new firm financing.**

Yet informal investment flows are far greater and help finance the vast majority of new firms.

Therefore, at the very least, governments should look for unobtrusive ways to identify and track the informal, personal, financial flows to new firms that occur within their borders.

They might also want to consider the development of policies that further encourage such flows.

Finally, it is clear that entrepreneurship is a major mechanism leading to economic growth and adaptation in all economies whether developed, in transition or developing.

Only a very few countries have developed strategies that allow them to grow without high levels of entrepreneurial activity – Belgium, Hong Kong, The Netherlands, and Singapore. It is also obvious that national differences in the level of activity – as represented by a relatively persistent rank order of countries – may reflect considerable institutional, social, and cultural factors that may be quite difficult to change in the short term. The fact that many national governments have implemented a wide range of programmes and procedures to facilitate or enhance indigenous entrepreneurial activity with little evidence of short-term impact is not proof that the programmes are necessarily wrong, only that major shifts in the phenomena may take time.

ⁱ The GEM2002 Executive Report is available from www.gemconsortium.org



Summary Highlights for GEM Scotland 2002

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- In the international Total Entrepreneurial Activity (TEA) rankings, Scotland is placed around the middle of the lowest of 3 TEA bands (from around 2 to around 5), with a TEA rate of around 4.6% compared with 12% for all 37 participating GEM nations combined. The TEA rate for Scotland declined by around 10% between 2001 and 2002. This decline is not statistically significant, given the small numbers of entrepreneurs in the sample, and compares with a decline of 17% among small modern nations the same size as Scotland. TEA rates in the UK and a group of 28 nations for which data was available for 2001 and 2002 declined significantly and by over 30%. Scotland's TEA rate is now at 85% of the UK level.
- TEA rates have declined markedly among young male Scots since 2001. However TEA rates among females have risen slightly each year since 2000, and there was in 2002 no statistically significant difference between male and female TEA rates in Scotland. In fact, TEA rates of Scottish females and UK females were the same. In 2002, there was no significant difference between female TEA rates in Scotland and in a group of small modern nations.
- The marked decline in TEA rates among young male Scots may be a temporary phenomenon. Opportunity perception, which appears to lead entrepreneurial activity, increased among young Scottish males this year and so TEA rates for males may bounce back in 2003.
- The gap in fear of failure rates between the Scottish and other benchmark samples has narrowed and Scotland did not have a significantly higher fear of failure rate in 2002.
- A study of TEA rates in postcode areas suggests that only Edinburgh & Lothians (EH) and Shetland (ZE) postcode areas reached the average TEA rate for small modern nations of 8%. There are no entrepreneurial hotspots in Scotland in international terms.
- Personal investment in other people's businesses at least once in the last 3 years declined from an already low base of 1.2% to 0.8% of the adult population. Scotland ranks fourth lowest of all GEM nations after Japan, Brazil and Poland on this measure. This is a serious worry for Scotland because personal investment rates correlate significantly with opportunity entrepreneurship rates. The Scottish personal investment rate appears to be even lower than it should be, given Scotland's already low rate of opportunity entrepreneurship.
- High Potential Entrepreneurship, i.e. entrepreneurs who expect to create new markets or create at least 20 jobs in 5 years and export some of their sales, is scarce in Scotland but no scarcer than expected given the nation's low rate of entrepreneurship generally. Scotland's problem seems to be in generating quantity, not quality.
- Non-white immigrants have significantly higher TEA rates than other groups in the UK. This group is particularly entrepreneurial in the Scottish sample. Scotland has a lower proportion of non-white immigrants than the rest of the UK. There may be scope for targeted attraction of talented people born outside Scotland and in particular outside the UK.
- A comparison of Scotland and Ireland reveals dramatic recent changes in population dynamics in Ireland when compared with Scotland. Ireland has a growing population and 50% more young adults as a proportion of the working age population. This in part accounts for the significantly higher TEA rate in Ireland. There are also important differences in attitudes towards entrepreneurship between the Scottish and Irish GEM samples.
- The First Minister, in a major economic strategy speech in October, endorsed the work being done to create a more enterprising culture in Scotland and linked this to his strategy of "Going for Growth" to counteract Scotland's declining population and low historic rate of economic growth. Scottish Enterprise revealed "A New Approach to Entrepreneurship" in January, and several important new programmes were in place by the end of the year.
- The results of GEM2002 Scotland suggest that the major policy and programme thrust of enterprise education that Scotland has embarked upon is badly needed. More could still be done to deliver additional volume-oriented support for start-ups.



New Business Activity in Scotland: 2002 Update

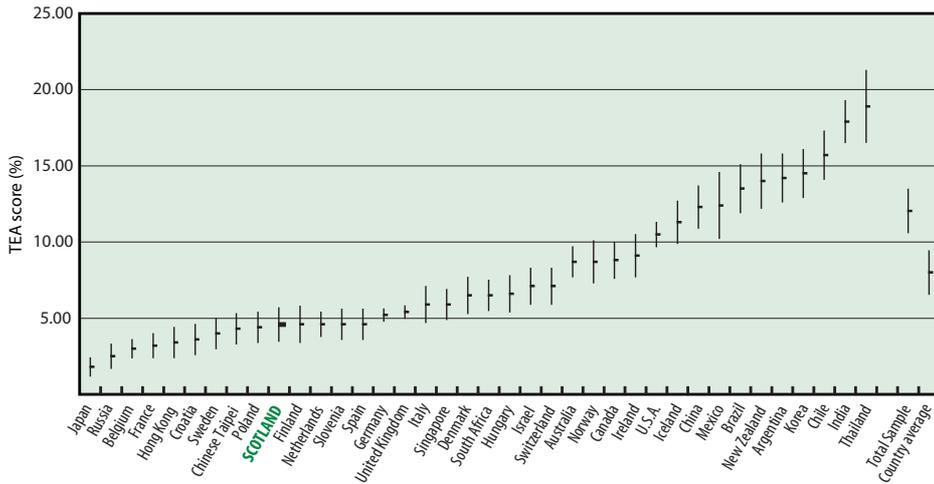


Figure 1. National TEA scores for 37 sovereign nations and Scotland

Source: GEM2002 Population Survey

GEM data collection techniques have been considerably refined in the past year, and we have greater confidence in their accuracy. Figure 1 shows that of the 37 sovereign nations that participated in GEM2002, only Japan and Russia had Total Entrepreneurial Activity (TEA) rates significantly below that of Scotlandⁱ. Scotland sits around the middle of the lowest of three TEA bands (from around 2 to around 5), with a TEA rate of around one third the average of 12%. This average TEA rate is calculated on the total population aged 18-64 of all GEM sovereign nations. Two-thirds of the working age population of GEM2002 countries reside in China and India. The average of all national TEA rates, without correcting for differences in national populations, is 8%, or around double the Scottish rate.

Table 1 benchmarks the TEA rate for Scotland for both 2001 and 2002 against the UK, against a group of six small modern nations the same size as Scotland (Denmark, Finland, Ireland, Israel, New Zealand, and Norway)ⁱⁱ, and against a group of 28 nations for which data is available for 2001 and 2002. This shows that for the past 2 years, Scotland's TEA rate was around half to two-thirds of the average for small modern nations and the group of 28 nations.

New business activity rates in Scotland declined by about 10% between 2001 and 2002. This rate of decline is not statistically significant. Significant declines of 31% were recorded for the United Kingdom as a whole, and for a group of 28 nations for which GEM data is available for 2001 and 2002. Small modern nations of a similar size recorded a decline of 17% on average. Because the UK TEA rate declined faster than the Scottish TEA rate, entrepreneurial activity in Scotland in 2002 was 85% of the UK figure, up from 66% in 2001. There is no statistical difference between the UK and Scottish TEA rates for 2002. However, the Scottish TEA rate is significantly below that of all small modern nations except Finland and Denmark.

Table 1. National Total Entrepreneurial Activity (TEA) scores

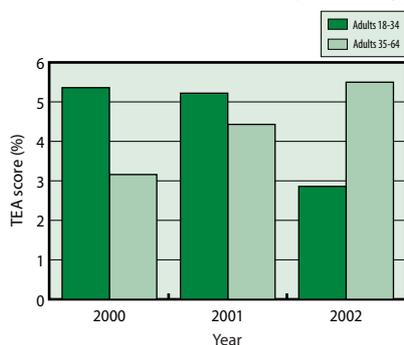
Source: GEM2001 and GEM2002 Population Survey

	TEA score		% decline	Scottish TEA as a % of other TEA scores	
	2001	2002		2001	2002
Scotland	5.1	4.6	10		
UK	7.8	5.4	31	66	85
28 nation average	9.9	6.9	31	52	67
6 small modern nation average	9.6	8.0	17	54	58



Figure 2. TEA scores by age group for Scottish GEM 2000, 2001 and 2002 population samples

Source: GEM2000, GEM2001 and GEM 2002 Population Surveys



Distribution of entrepreneurial activity by age

The previous two GEM Scotland reports held out a hope for a younger, more enterprising generation. This year's results do not support this hope. Although the differences between younger and older adults in Figure 2 are not statistically different, and TEA scores for these 3 years are not strictly comparable, the balance of activity appears to have shifted between 2000 and 2002. Figure 2 suggests that the apparent decline in activity in 2002 may be a result of lower entrepreneurial activity among younger adults. It is, of course, entirely possible that these apparent patterns are due to sampling error, but it may also be that there has been a recent, and possibly temporary, shift in the perceived attractiveness of entrepreneurial activity among young adults in Scotland. The evidence for this is discussed below.

by GEM2002, but 73% of the average female TEA rate for small modern nations.

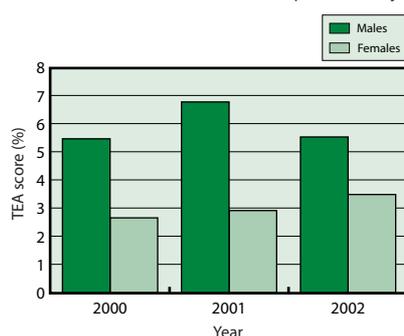
The TEA rate in 2002 for males at 5.6% was two percentage points lower than the UK TEA rate of 7.4%, but this difference is not statistically significant. However, the Scottish male TEA rate was only 40% of the international average TEA rate for men, and 52% of the average male TEA rate in small modern nations. Overall, it appears that the male TEA rate in Scotland in 2002 was significantly lower than the average for small modern nations, but that the female TEA rate was not.

The female TEA rate in Scotland was 63% of the male rate in 2002, compared with 43% in 2001. The equivalent participation rate for the UK in 2002 was 44%. The average female TEA rate for all 37 GEM2002 nations combined was 69% of the male TEA rate. The equivalent participation rate in small modern nations in 2002 varied from 63% for Finland to 30% for Israel.

These figures appear to show progress in Scottish female participation in entrepreneurial activity, but this is possibly due to a decline in TEA rates among young males, which could be a temporary phenomenon. There is still work to be done to encourage female entrepreneurship, especially among younger females.

Figure 3. Distribution of entrepreneurial activity by gender for 2000, 2001 and 2002

Source: GEM 2000, GEM2001 and GEM2002 Population Surveys



Distribution of entrepreneurial activity by gender

Figure 3 shows the TEA scores for men and women aged 18-64 in Scotland for the years 2000, 2001 and 2002. In 2000 and 2001, TEA scores for men were significantly higher than for women. In 2002, there was no statistically significant difference in TEA scores between men and women in Scotland. The TEA score for Scottish females in 2002 was 3.6%, which is virtually identical to the UK female TEA rate of 3.3%. It was only 40% of the average TEA rate for all females aged 18-64 in all 37 nations covered



Figure 4. Opportunity and necessity entrepreneurship in Scotland and the UK in 2002 by gender

Source: GEM2002 Population Survey

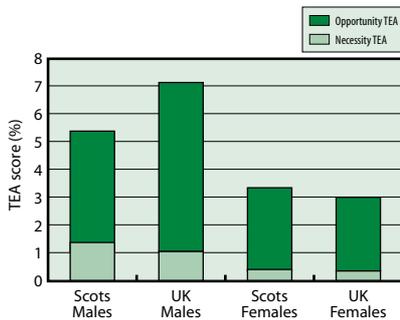
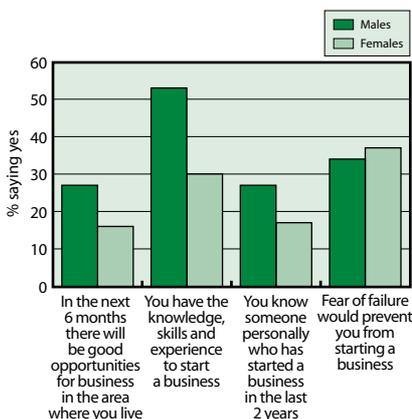


Figure 5. Perception of opportunity and capacity in Scotland in 2002 by gender

Source: GEM2002 Population Survey



Motivations for entrepreneurship

GEM distinguishes between opportunity entrepreneurship (individuals starting businesses to exploit unique market opportunities) and necessity entrepreneurship (individuals starting businesses because they have no other alternative). Across all 37 nations participating in GEM2002, 61% of nascent and new entrepreneurs could be categorised as opportunity entrepreneurs, 37% as necessity entrepreneurs, and 3% as having another motivation for starting a business. Figure 4 shows that the difference between the Scottish and UK TEA rates appears to be due to the significantly lower rates of opportunity entrepreneurship among Scottish males. Rates of UK and Scots male and female necessity entrepreneurship and rates of UK and Scots female opportunity entrepreneurship were similar. Further analysis suggests that there was a collapse in opportunity entrepreneurship among males aged 25 to 34, from 8.4% to 2.4%. At this level of analysis, numbers get extremely small (at less than 200 males aged 25 to 34 in each annual sample) and this apparent difference from 2001 may be due to a sampling error. It may also be a genuine reflection of shifting attitudes of young males towards opportunity in Scotland over the past few years. It is to this we now turn.

Attitudes towards entrepreneurship

Figure 5 compares the perception of opportunities for starting businesses over the next 6 months, self-capacity (skills, knowledge and experience) to start a business, recent personal contact with a start-up entrepreneur, and fear of failing in entrepreneurship amongst males and females. In 2002, of those who expressed an opinionⁱⁱⁱ, 36% of Scots agreed that fear of failure would prevent them from starting a business. This figure is down slightly, but not significantly, from 40% in 2001 and 41% in 2000. The prevalence of "fear of failure" in Scotland in 2002 was close to the average for the UK (34%) and all six small modern nations combined (32%). The average across all 37 nations was 28%.

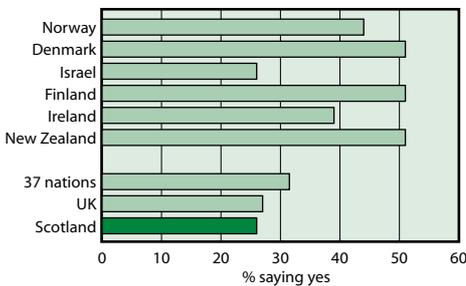
The proportion of females who expressed fear of failure declined slightly but not significantly from 43% in 2001 to 37% in 2002, while the proportion for males held steady at 34% (32% in 2001). There is now no longer a significant difference between Scottish males and females in terms of fear of failure preventing them from starting a business, and the overall rate is no longer significantly out of line with Scotland's entrepreneurship benchmarks.

In 2002, 53% of males and 30% of females thought they had the knowledge, skills and experience to start a business. This difference between males and females is statistically significant. These proportions have not changed in the last year, and



Figure 6. 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: GEM2002 Population Survey



are similar to international benchmarks. In all, 42% of those in Scotland who expressed an opinion stated they had entrepreneurial skills, compared with 39% for all 37 nations and 45% for the UK.

The proportion of respondents who said they knew someone personally who had started a business in the last 2 years declined slightly to 27% of males and 17% of females. This makes intuitive sense as the start-up rate has also declined. The difference between the male and female responses for knowing an entrepreneur is statistically significant. Of all those who expressed an opinion, 21% of Scots said they personally knew an entrepreneur, compared with 23% in the UK and 41% for all 37 nations combined. All small modern nations score over 40% on this measure. GEM2002 key experts considered that there was good access in Scotland to appropriate networks of entrepreneurs. The fact remains, however, that relatively few Scots think that they personally know a start-up entrepreneur.

In 2002, 27% of Scottish males but only 16% of Scottish females thought there would be good opportunities for business where they live in the next 6 months. Overall, opportunity perception in Scotland is at the lowest end of the range for small modern nations, as shown in figure 6, which uses a slightly different measure, excluding those who did not express an opinion^{iv}. It is, however, at similar levels to the UK.

Opportunity perception among older Scots has remained stable over the past 3 years at around 22% for males and around 17% for females. There have, however, been interesting shifts in opportunity perception among young adults in the past 3 years. A significant decline in opportunity perception of young adults to the level of their elders occurred between 2000 and 2001. In 2002, opportunity perception recovered significantly among young males (to 32%) but not among young females. Last year's GEM Scotland report considered the evidence for more risk averseness (or, perhaps, a greater sense of reality) among females than males. It will be interesting to see if opportunity entrepreneurship among young males bounces back in 2003, following this recovery in opportunity perception, and whether female opportunity perception recovers with more time.

Entrepreneurial activity and Location

Last year, TEA scores by principal Scottish postcode area were estimated for the first time. There appeared to be an area of very low entrepreneurial activity in the PA and KA areas west of Glasgow, comprising Paisley, Renfrewshire, Inverclyde, Argyll, and Ayrshire. Figure 7 shows the distribution for 2001 and 2002. Because of few or even no respondents in some postcode areas in different years, these estimates are subject to a high degree of error and should be treated with caution. Nevertheless, shifts of 3 percentage points or more between the 2001 and 2002 data



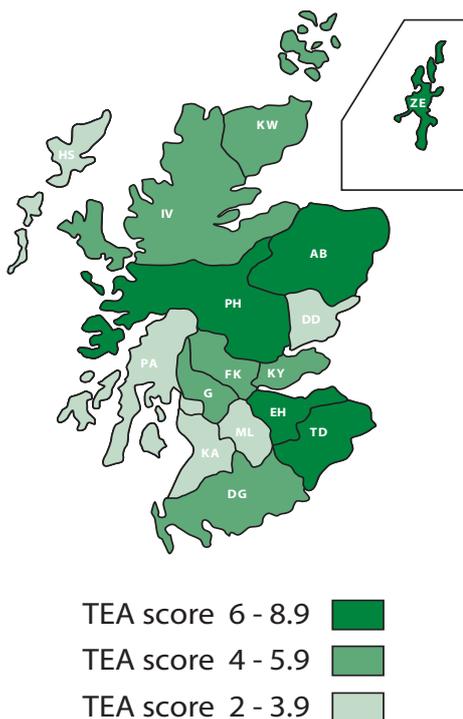
Figure 7. TEA scores by Scottish postcode area in 2001 and 2002

Source: GEM2001 and GEM2002 Population Survey



Figure 8. TEA scores by Scottish postcode area for combined GEM2001 and GEM2002 samples

Source: GEM2001 and GEM2002 Population Surveys



were recorded in only 3 of the large postcode areas: Motherwell area (ML), Falkirk area (FK), and Paisley and Argyll area (PA). Figure 8 shows a map of Scotland's postcode areas, with three bands of TEA scores for the 2001 and 2002 samples combined. This picture may be more representative of overall differences in entrepreneurial activity between different parts of Scotland. It appears that Shetland, Perth, the Borders, Edinburgh and Aberdeen postcode areas have the highest TEA scores, while Paisley, Kilmarnock, Motherwell, Dundee postcode areas and the Western Isles have the lowest TEA scores. This is broadly in line with VAT registration data for unitary authorities released by HM Treasury in November 2002.

A feature of this location map is that postcode areas that could be categorised as island, rural, urban, lowland and highland can be found in all three TEA rate bands. The difference in entrepreneurial activity between the most and least entrepreneurial postcode areas is less than 7 percentage points. Between the least and most entrepreneurial nations in 2002, there was a difference of 17 percentage points in the TEA rate.

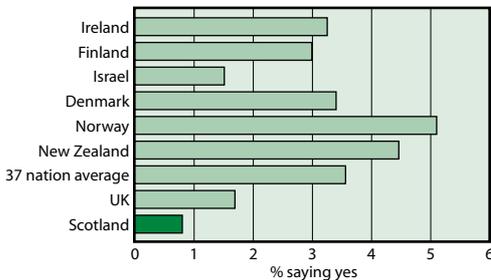
There were also relatively small differences between Scottish postcode areas in terms of perception of opportunity, from 12% in Dumfries & Galloway (DG) to 28% in Aberdeenshire (AB), compared with a gap of 46% between the lowest (at 5%) and highest (at 51%) scoring nation. Across nations, there is a significant correlation between perception of opportunity (i.e. thinking) and opportunity entrepreneurship (i.e. doing)⁹. Across the Scottish postcode regions, there is no such relationship, again probably because of the small range for these measures across the postcodes.

Only Edinburgh & Lothians (EH) and Shetland (ZE) postcode areas reached the average TEA rate for small modern nations in 2002 of 8%. In 2001, Edinburgh & Lothians TEA rate at 6% was below the average small modern nation TEA rate of 10%, while Shetland was not surveyed. It is fair to conclude, then, that all Scottish postcode areas returned relatively low TEA rates over the past two years, with the possible exception of medium level rates for Edinburgh & Lothians and Shetland. There are no entrepreneurial hotspots in Scotland in international terms.



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: GEM2002 Population Survey



Informal Investment

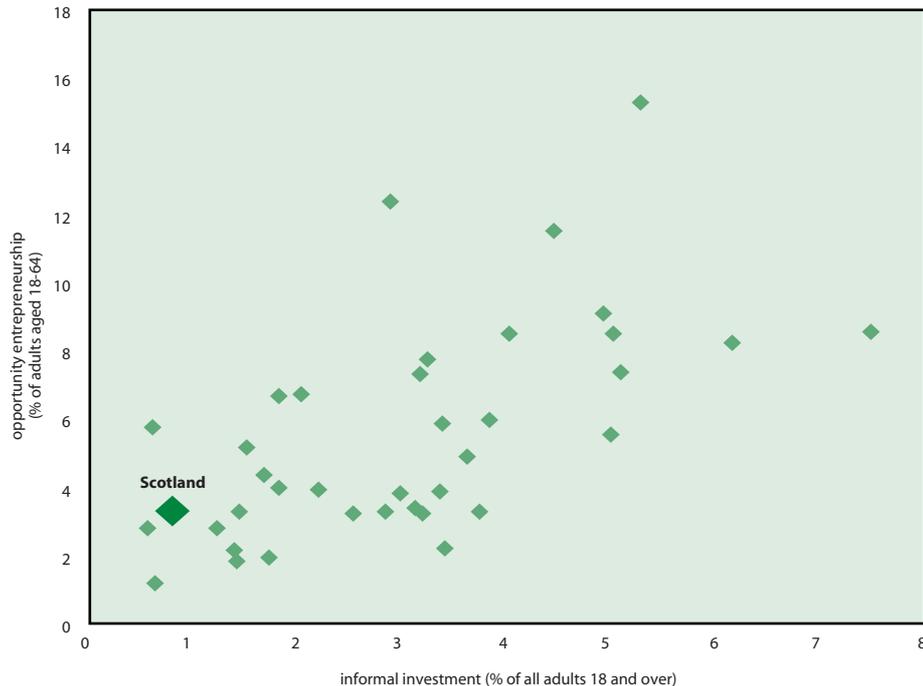
Figure 9 compares the rates of private investment by individuals over the age of 18 in other people's new businesses in Scotland (the informal investment rate) with its three main benchmarks. In Scotland, the informal investment rate appears to have fallen from a very low 1.2% in 2001 to an even lower 0.8% in 2002. This is about a quarter of the average rate for the small modern nations in the GEM sample, and ranks fourth lowest of all 37 nations surveyed after Japan, Brazil, and Poland. Overall rates among a group of 29 nations for which data is available for 2001 and 2002 have remained around 3%, with drops in some countries being offset by rises in others.

Scotland has had an extremely low rate of informal investment for the past 3 years. This should be a source of concern to Scottish policymakers and to

the entrepreneurial community, because there is a statistically significant correlation between informal investment rates and opportunity entrepreneurship rates across the 2002 GEM nations, as can be seen in Figure 10^{vi}. As discussed above, opportunity entrepreneurship is extremely low among Scottish males, and perception of opportunity in Scotland is also low by comparison with other small modern nations. A dearth of informal investment might be due to the low rate of start-ups, but the reverse could also be true. One indication of the direction of causality is the ratio of the informal investment rate to the opportunity investment rate. If this is low, then informal investment is probably lower than it should be, for a given rate of opportunity entrepreneurship. For Scotland, this ratio is 23%. This is well below the UK rate of 39% and less than half the average for small modern nations of 52%, or the average for all 37 nations of 58%. This suggests that the problem in Scotland is not just lack of opportunities to invest, but also lack of investment in the investment opportunities that do exist.

Figure 10. Opportunity Entrepreneurship and Informal Investment in 37 nations and Scotland

Source: GEM2002 Population Survey



The proportion of informal investments by Scots to non-family members (i.e., friends, colleagues, neighbours and strangers), at 30%, is also low. Typically it has been 50% on average among GEM nations. Indeed, this year, for the first time in 3 years, and after sampling a cumulative total of 6,000 adults, GEM Scotland recorded its first informal investment in a stranger. On average among the 37 GEM2002 nations, around 3.6% of the population have invested informally, and 10% of these investments



have been to strangers^{vii}. This means that at least 15 investments in strangers should have been detected over this time, rather than one, if Scotland had an average informal investment profile. If one defines business angels as those who invest in stranger's new businesses, this low detection rate contrasts with the view of several GEM2002 key informants that a robust business angel community is increasingly funding the shortfall in early stage business investments. This shortfall was, according to these key informants, due to a lowered taste for risk on the part of the venture capital community over the last 2 years. Efforts by the public sector to counteract this lack of investment confidence are reviewed in chapter 7.

The size of individual informal investments in Scotland in 2002 ranged from £1,000 to £20,000. The median (middle-ranking) investment was £6,000 compared with £8,000 in 2001. This lies in the middle of a wide range of median investments in small modern nations, from £1,000 in Finland to £16,000 in Israel. The median investment in the UK was £7,000 and the average for all 37 nations was £4,000. By comparison with UK and small modern nation benchmarks, the median investment size of the Scottish sample seems around what one might expect.

In Scotland the average informal investment was £11,000 in 2001 and £9,000 in 2002. The average for 5 of the 6 small modern nations in 2001 (data on Denmark was not available) was £15,000, but varied from £5,000 in Finland to £21,000 in Israel.

We should expect that the average size of investments might be larger in nations with large samples, simply because of the outlier effect. One is more likely to find some of the rare large investments in a large sample. By contrast, in a small nation with a low informal investment rate, the chances of sampling a large investment are low. In the UK, where 16,000 people were interviewed, the average investment was £33,000, thanks in part to the effect of 3 investments of £500,000 or more among the sample of 164 informal investors. Taking the outlier effect into account, the average amount invested in Scotland in 2002 does not seem unduly low. Scotland's informal investment problem appears to be the low number of investments rather than the size of amounts invested. The question of how to encourage more Scots to invest in other people's new businesses is one that should be exercising the minds of policymakers.

- i "Statistical significance" refers to a calculation of 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 1 by the 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 0.5 level. Reference in this report to significant differences implies statistically significant differences at the 0.5 level.
- ii The reason for comparing Scotland to these independent nations is that they are all around the same population size. 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. Thus by comparing Scotland with these nations, we avoid the population effect, and can learn from policy measures implemented on a similar scale to Scotland.
- iii Summary data for all 37 nations on these attitudinal questions provided by the central GEM global team had the "don't know" answers stripped out. On most questions, there is a low (less than 10%) "don't know" response. However, on the attitudes to opportunity question, the "don't know" response for Scotland was around 15% in 2002, and even higher in 2001 and 2000.
- iv See previous endnote.
- v $R=0.48$, $p<0.01$ (29 nations, 2001 data); $R=0.41$, $p<0.05$ (37 nations, 2002 data).
- vi $R=0.55$, $p<0.01$ (29 nations, 2001 data); $R=0.61$, $p<0.01$ (37 nations, 2002 data). If informal investment rate were the only factor affecting the rate of opportunity entrepreneurship among the 37 GEM2002 nations, it would explain 37% of the variance in opportunity entrepreneurship among them.
- vii Investee relationship data taken from GEM 2002 Data Collection-Operations Manual Volume IIA p244. Babson College-London Business School Internal GEM document, 7 January 2003.



High Potential Entrepreneurship – Foreword

4

Many of the benefits entrepreneurship contributes to our economy come through the small number of entrepreneurs who develop more significant businesses. It is now recognised that a significant proportion of the jobs, innovation and economic growth that comes from entrepreneurship is derived from those dynamic businesses that achieve rapid growth. Scottish Enterprise estimate that around 40% of the jobs generated from new business starts come from the very small number of businesses - measured in hundreds per decade - that achieve significant growth. Understanding how these fast-growth businesses are generated is a vital issue for anyone concerned with the health of our economy and the challenge of improving our growth performance.

The data presented in this Chapter is an important contribution to this understanding. In particular, the comparisons with other countries allows us to see Scotland's entrepreneurial performance in greater detail, illustrating more clearly the aspirations of our entrepreneurs, in terms of the ambitions of their businesses, the inventiveness of their ideas and their interest in achieving growth through exports. For a time, we've known that Scotland suffers from a low business birthrate. But within this, of the businesses that we do create, how many are capable of achieving growth? And how many of our nascent entrepreneurs are seeking to create businesses with the potential to grow beyond their local markets?

The findings presented here represent an important addition to the lively debate that takes place in Scotland over entrepreneurship policy.

In recent years we've seen some significant initiatives taken by the Scottish Executive and the Scottish Enterprise Network in this area, seeking to improve the environment for entrepreneurship. Some, like the development of the Small Business Gateway, are designed to improve the overall support given to the widest range of business start-ups. Others, like the Intermediate Technology Institutes announced last year, are designed to increase the flow of fast-growing businesses that build on Scotland's strengths in terms of science and research.

Scottish Enterprise places considerable emphasis on targeting high-growth start-ups. This involves delivering direct support to entrepreneurs, such as specialist start-up information, and advice and assistance on key issues including business plan development, fund-raising and access to markets. It also involves trying to improve the wider environment for entrepreneurs, for instance by addressing the crucial issue of improving access to development finance from the private sector.

In the coming year, Scottish Enterprise is seeking to extend further its range of measures to support high-potential entrepreneurs. Initiatives like the Network High-Growth Start-up

Unit, co-investment funding to support venture capital and business angel investment, and the Investor-Readiness initiative which will help entrepreneurs secure development finance, represent a renewed effort to provide a first-class support environment for this type of entrepreneur.

This support for high potential entrepreneurs must be seen as part of the wider spectrum of entrepreneurship within our economy. In Scottish Enterprise, it has always been our philosophy that support for fast-growing business start-ups must run alongside the task of increasing the overall number of start-ups. Although the approaches used in these two areas are necessarily very different, the two issues are not mutually-exclusive: success in one area breeds success in the other.

Understanding how this relationship works, both in Scotland and elsewhere, will contribute greatly to our ability to generate more entrepreneurship and improve our economy. The survey results set out in this chapter take us an important step towards this improved understanding.

Terry Currie

Director, Small Business Services
Scottish Enterprise



Scottish Enterprise

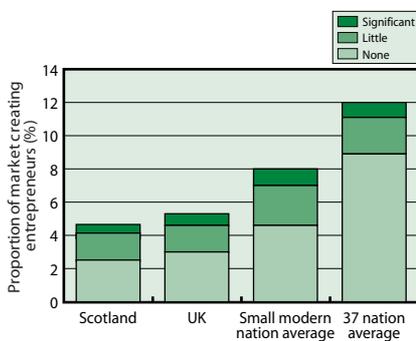


High Potential Entrepreneurship in Scotland



Figure 11. Proportion of market-creating nascent and new entrepreneurs in the GEM2002 Scotland and benchmark populations by extent of market creation

Source: GEM2002 Population Survey



The previous chapter has shown that Scotland has a low rate of new business creation and a low rate of informal investment in new businesses, even after taking the low number of investment opportunities into account. This year, additional questions were asked of nascent and new entrepreneurs to gain an insight into the nature of their new businesses in terms of the novelty of technology employed, the extent of competition faced by the new business, the familiarity of customers with the product or service provided by the new business, and the export potential of the new business. In addition, as in previous years, respondents were asked to estimate the current numbers employed and how many would be employed in 5 years time.

Taken together, these items can indicate the extent to which high potential entrepreneurship exists in Scotland. This will answer the question of whether Scotland is focusing on quality rather than quantity when it comes to entrepreneurship.

New Technology Entrepreneurs

10% of nascent and new entrepreneurs in the Scottish sample stated their business was based on technology that was not available a year ago, compared with 13% for both the UK sample and the average for small modern nations, and 7% for all 37 GEM2002 nations combined. The Scottish figure is within the range for small modern nations of 8% (Ireland) to 17% (Denmark). Scotland, then, does not seem to be out of line with its benchmarks on this measure.

Market Creating Entrepreneurs

Respondents involved in starting or running businesses were asked if customers would be familiar with the product or service to be provided and what was the extent of competition in their chosen market. On the basis of their answers to these questions, and to the old/new technology question, respondents were categorised into three groups:

1. no market creation potential (old technology, at least some familiarity, and high competition or vice versa),
2. a little market creation potential (old technology, some or no familiarity or competition), and
3. significant market creation potential (new technology, any level of familiarity or competition).

Figure 11 shows the market creation potential measure for Scotland, the UK, the average for 6 small modern nations and the average for all 37 sovereign nations sampled in 2002. In Scotland, about 3% of nascent and new entrepreneurs believe they will engage in new market creation. This is about the same proportion as the UK (2.4%), small modern nations (3.4%), and all 37 nations (3.1%).



Figure 12. Extent of market creation among nascent and new entrepreneurs in the GEM2002 Scotland and benchmark populations by extent of market creation

Source: GEM2002 Population Survey

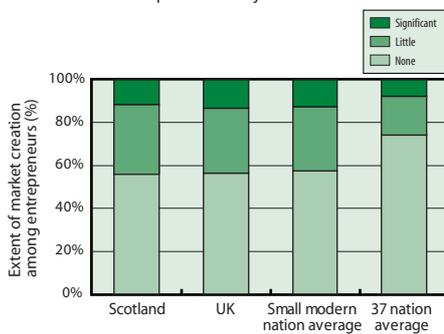


Figure 12 shows that 43% of Scotland's new and nascent entrepreneurs believe they will create new markets compared with 44% of their counterparts across the UK. The proportion of entrepreneurs in the small modern nations that are market creators is the same as Scotland. If we consider just those entrepreneurs whose responses indicated their new business would create a significant new market, the proportions are also similar, at 11% for Scotland and 13% for the UK and small modern nations. The 37 GEM2002 nations, taken as a whole, have a lower proportion of market creating entrepreneurs, at 26% of all new and nascent entrepreneurs, and only 7.5% of these are significant market creators.

export sales, similar to the UK proportion of 47%. The proportion of Scottish new and nascent entrepreneurs who believed they would export more than half of their output ("high export entrepreneurs") was also the same as the UK proportion at 9%. This was lower than the average for small modern nations, which was 14%, but higher than the 37 nations average of 3%. One might expect that if the Scottish entrepreneurs were asked if they expected to export more than half of their output beyond Scotland, that the proportion agreeing might well match or even exceed the small modern nation average.

An estimated 0.4% of the Scottish sample comprised high export entrepreneurs, the same proportion as the 37 nation average. This compares with 0.5% for the UK sample and 1.1% for small modern nations combined. These are extremely small proportions, and are not significantly different statistically.

Exporting Entrepreneurs

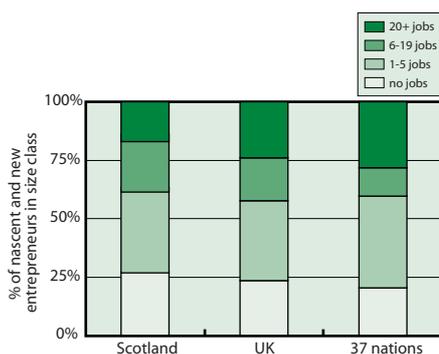
The GEM2002 database confirms the link between national population size and export propensity of nascent and new entrepreneurs'. Entrepreneurs in smaller nations are more likely to export most of their output. For Scotland, exports outside the UK, rather than outside Scotland's own border, were measured. Therefore, comparison with export propensity of sovereign small modern nations is unfair and we should expect the Scottish measure to be lower. A fairer benchmark in this case is the UK. We should expect the 37 nations benchmark, skewed as it is by the presence of some huge nations like China and India, to be lower than the UK figure.

Job-creating Entrepreneurs

Some nascent and new entrepreneurs expect to employ more people than others. Although the largest nations in the GEM2002 sample tend to produce high proportions of entrepreneurs with significant job-creating potential, there is no simple straight-line relationship between national size and job-creation projections of entrepreneurs. Figure 13 compares job projections by 4 size classes for nascent and new entrepreneurs. Figure 13 compares job projections by 4 size classes for nascent and new entrepreneurs in Scotland, the UK and the average for all 37 nations combined. Data for

Figure 13. Nascent and new entrepreneurs in Scotland, UK and 37 nations by 4 future size classes

Source: GEM2002 Population Survey



As expected, 54% of all Scottish nascent and new entrepreneurs expected to have at least some



Figure 14. Proportion of new and nascent entrepreneurs in Scotland and benchmark samples stating they would employ 20 or more people in 5 years

Source: GEM2002 Population Survey

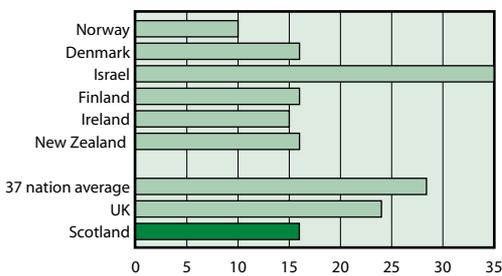


Figure 15. Proportion of respondents in Scotland and benchmark samples who were nascent or new entrepreneurs and stated they would employ 20 or more people in 5 years

Source: GEM2002 Population Survey

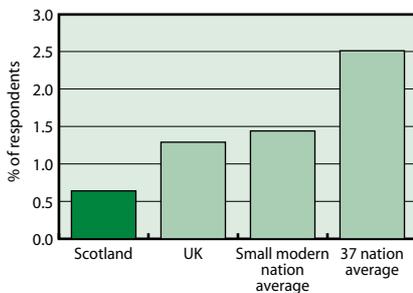
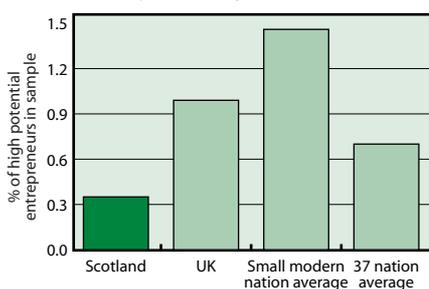


Figure 16. Percentage of entrepreneurs in the Scottish and benchmark samples who projected creating significant new markets and/or at least 20 jobs in 5 years, and at least some export sales

Source: GEM2002 Population Survey



small modern nations was not available for this measure. Figure 13 shows that it is in the high job-potential group that Scotland is most out of line.

Figure 14 shows the proportion of nascent and new entrepreneurs who expected to employ at least 20 people in 5 years in Scotland and its benchmark nations. In Scotland, the proportion was 16% of entrepreneurs, compared to 24% in the UK and 28% among all 37 nations combined. Among the small modern nations, the proportion was 18% on average, although this is skewed by the high estimate from Israel.

Figure 15 shows that there were only half as many nascent and new entrepreneurs with high job-creating potential in Scotland as in the UK as a whole or across all small modern nations combined, and one quarter the proportion found in the combined 37 nation sample. Only 0.7% of the Scottish sample versus 1.3% of the UK sample were entrepreneurs who forecast employing at least 20 people in 5 years. This is a statistically significant difference. Only 7 of the 37 nations rank lower than Scotland in the proportion of potentially high job-creating entrepreneurs in their adult working age populations.

plan to export at least some sales. Only 8% of Scotland's new and nascent entrepreneurs exhibit high potential. This is the about the same proportion as the average for all 37 nations combined (at 6%), but well below the UK and small modern nation average proportion of 18%. Scotland has a significantly lower proportion of high potential nascent and new entrepreneurs in its adult population than the UK. Due to the low rate of entrepreneurship in Scotland overall, and the low proportion of entrepreneurs projecting significant numbers of employees in the future, Scotland had only one quarter as many high potential nascent and new entrepreneurs in its population as in other small modern nations, about one third as many as in the UK, and about half as many as in all 37 nations combined. This is shown in Figure 16.

In conclusion, Scotland in 2002 did not appear to be pursuing quality entrepreneurship over quantity entrepreneurship. Instead, it appeared to be producing relatively few nascent or new entrepreneurs with an average potential in terms of market creation and export sales, and a job creation potential that seems typical of small modern nations but lower than larger nations.

High Potential Entrepreneurs

A class of "high potential" nascent and new entrepreneurs can be identified as those who fall into either the significant market creation group or the high job creating group, or both, and who

i In fact, the correlation between population size (transformed logarithmically) and the proportion of new and nascent entrepreneurs in the population who expect to export over 50% of their sales among the 37 GEM2002 sovereign nations is a modest but very statistically significant -0.52 ($p < 0.01$).

	Percentage	TEA score
White UK-born	90	4.86
Non-white UK-born	2	5.58
White immigrant	5	6.82
Non-white immigrant	3	12.36

Table 2. UK GEM sample (aged 18-64 only) by origin and ethnic background

Source: UK GEM2002 Population Survey

Figure 17. TEA scores for UK sample (aged 18-64 only) by origin and ethnic background, with 95% confidence intervals

Source: UK GEM2002 Population Survey

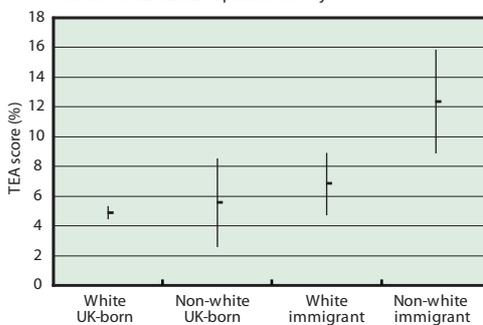


Table 3. Scottish GEM sample by origin and ethnic background

Source: Scottish GEM2002 Population Survey

	Proportion	TEA score
White Scots	83.4	3.8
Non-white Scots	0.4	
White UK-born, not Scots	12.0	8.1
Non-white UK-born, not Scots	0.3	
White immigrants to UK	2.8	4.5
Non-white immigrants to UK	1.2	22.2

entrepreneurial group comprises 3% of the UK sample, but contributes 8% of its nascent and new entrepreneurs.

Scotland has a low proportion of immigrants and people of ethnic/non-white background, compared to the UK. Table 3 gives a breakdown of the Scottish sample by origin and ethnic background. It shows that only 4% of respondents in the Scottish sample were born outside the UK. This is half of the proportion in the UK sample as a whole. However, an additional 12.3% were born in the UK but not in Scotland. Overall, only 1.9% of respondents in the Scottish sample were not white, compared with 5% of the UK sample. The important high entrepreneurial activity group of non-whites who were born outside the UK only made up 1.2% of the Scottish sample, compared with 3% of the UK sample. The TEA rate among this tiny group (only 18 respondents) was 22.2%, compared with 3.8% for white Scots, who comprised 83.4% of the Scottish sample. The only other significant grouping, white respondents who were born in the UK but not in Scotland, comprising 12% of the sample, had a TEA rate of 8.1%.

Because of the extremely low number of immigrants and non-white respondents in the Scottish sample, their TEA rates are not significantly different statistically from the rest of the sample. However, the broad trends reflect the pattern seen in the much larger UK-wide sample. Non-white immigrants appear to make



Place of birth	Resident in Scotland	Resident in London	Resident anywhere in UK	Resident in England, Wales or N. Ireland
Scotland	3.7		3.7	3.7
England	8.2	6.9	4.9	4.8
Wales	40.0	33.3	3.4	3.3
N. Ireland			3.5	3.5
Outside UK	10.4	9.2	9.2	9.0

Table 4. TEA scores by place of birth and present location (UK sample)

Source: UK GEM2002 Population Survey

a disproportionate contribution to entrepreneurial activity in Scotland, as they do in the rest of the UK. Even British migrants from elsewhere in the UK who settle in Scotland appear to have higher rates of entrepreneurial activity than Scots who live in Scotland. Unlike the English and Welsh, Scots who migrate from their nation of birth to elsewhere in the UK do not appear to have higher rates of entrepreneurial activity than those who stay at home. Table 4 shows the TEA scores of internal migrants and immigrants in the UK. The very high rates for Welsh migrants reflect low sample sizes, and should be treated with caution.

Table 5. New business creation activity and attitudes for non-white immigrants versus other respondents (UK sample)

Source: UK GEM2002 Population Survey

*Based on Chi-square test of difference of proportion; $p < 0.01$

Statement	% non-white immigrants expressing an opinion and saying yes	% other respondents expressing an opinion and saying yes	Are percentages significantly different?*
Actively starting a business or owning/managing a new business	13.4	5.0	Yes
Of which will export over 50% of sales	19.6	7.9	Yes
Informal investment in past 3 years	3.6	1.6	Yes
Expect to start a business in next 3 years	17.9	6.1	Yes
Personally know someone who started a business in last 2 years	32.5	23.0	Yes
Good opportunities to start a business in this area in next 6 months	38.7	27.9	Yes
Have knowledge, skills, experience to start a business	50.6	45.5	No
Fear of failure would prevent me from starting a business	31.4	34.5	No

Why do non-white immigrants have relatively high rates of entrepreneurial activity in the UK? Apart from actual business start-up rates and informal investment rates, there are significant differences between non-white immigrants and other groups in attitudes towards, knowledge of, and familiarity with entrepreneurship, as shown in table 5. Interestingly, there is no significant difference in the proportion of owner/managers of established businesses (those more than 3½ years old) in these two groups: 6% for natives versus 4% for non-white immigrants. The difference is in new venture creation activity and attitudes, rather than business ownership.



Figure 18. TEA rates of non-white immigrants and other respondents by age group.

Source: UKGEM2002 Population Survey

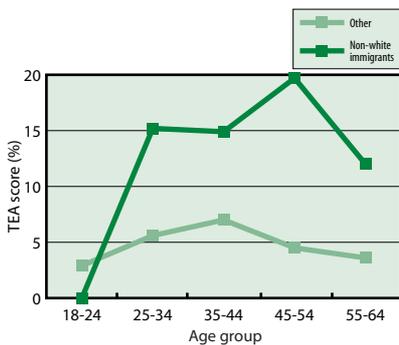


Figure 19. Educational attainment by ethnicity and origin in UK sample

Source: UK GEM2002 Population Survey

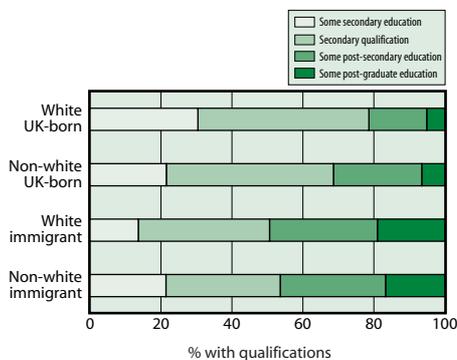
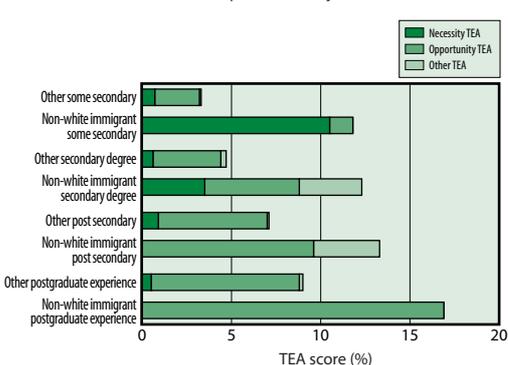


Figure 20. TEA rates for non-white immigrants and other respondents in UK sample by educational attainment

Source: UK GEM2002 Population Survey



Gender-based and age-based differences

Rates of female entrepreneurship among non-white immigrants in the UK are higher than for other females (7% versus 3%), but in approximately the same proportion as males (18% versus 7%). Thus the higher rate of activity in the non-white immigrant group is not because of an unusually high female participation rate. Figure 18 shows TEA rates for non-white immigrants and other respondents by age group. With the exception of young adults, non-white immigrants sustain higher TEA rates through to retirement age.

The link with education

Figure 19 shows the educational attainment of different groups by ethnicity and origin. Clearly, immigrants tend to be more highly educated than natives. 48% of immigrants in the UK sample had at least some post-secondary education, compared with 22% of the natives in the UK sample.

Figure 20 shows the effect of education on different TEA rates (necessity, opportunity, other) for non-white immigrants and for all other respondents. Opportunity entrepreneurship among non-white immigrants rises more sharply with educational attainment than for other respondents. Necessity entrepreneurship is also higher among less well-educated non-white immigrants. This may be because immigrants see more opportunities due to their experience of

different cultures and because of perceived discrimination in the job market by less well-educated non-white immigrants. This combination of better education and higher opportunity perception, plus, perhaps, fewer alternatives for less well-educated non-white immigrants, may account for much higher rates of entrepreneurial activity in this group.



Location

49% of non-white immigrants in the UK sample live in London, and comprise 13% of the region's population. 28% live in the East and West Midlands, and the South East, and make up around 3% of the population of these regions, which is the national average. All other regions have less than the average share of non-white immigrants. There is a high correlation ($R=0.825$, $p<0.01$) between the proportion of non-white immigrants in a region and its TEA rate. However, this correlation is artificially raised by London, where non-white immigrants make up 13% of the respondent sample and 23% of nascent and new entrepreneurs. Excluding London, the correlation is low. Nevertheless, in almost every region where non-white immigrants make up at least 1% of the population, the TEA rate among this group is high by comparison with other respondents. High entrepreneurial activity among this group does seem to be a widespread phenomenon.

Would attracting immigrants raise Scotland's TEA rate?

Non-white immigrants comprise 3% of the UK sample but only 1.2% of the Scots sample. It is important to note here that the composition of non white immigrants varies in different parts of the UK, for example while African Caribbean immigrants comprise a significant proportion of ethnic minorities in England and Wales, there are very few African Caribbean immigrants in Scotland. Indeed according to self-employment data, in the UK there is variation in the self-

employment propensity of different ethnic minority groups, with Asian immigrants tending to have higher rates of self-employment compared with African Caribbean immigrants. In the GEM2002 UK survey, those of African (not Caribbean) origin had the highest entrepreneurship rates, and over 80% of them were based in the London area. Scotland's immigrant population is primarily comprised of Asians including those from India, Pakistan, Bangladesh and China.¹

If we assume, however, that recent immigrants have the same entrepreneurship rates as established immigrants, then if the proportion of non-white immigrants in Scotland was brought up to average UK levels, the overall TEA rate in Scotland would theoretically increase to 5.1%, closing most of the current gap between Scottish and UK TEA rates. In other words, over half of the difference between Scottish and UK levels of entrepreneurial activity can be accounted for solely on the relative absence of non-white immigrants in Scotland.

Should policy-makers seek to attract immigrants as part of their entrepreneurship policy? Attracting another 70,000 or so working age non-white immigrants (about 2% of the working age population of Scotland), would have the same theoretical effect on entrepreneurship rates (raising them by 0.5% to produce another 8,700 firms) as attracting about 194,000 more working age UK-born non-Scots. Alternatively, one could



set a relatively modest target of raising the Scottish male TEA rate from 5.6% to 6.6%, that is, getting another 16,000 or so Scots males to engage in entrepreneurial activityⁱⁱ.

Targeted attraction would reduce the number of immigrants needed to reach business start-up targets. But apart from any social implication of large numbers of new immigrants plus their dependents arriving in Scotland, it is unclear how long immigrants take to engage in new business activity after immigrating. Research in the US suggests that people who have lived in a US county (typically having moved from another part of the United States) for less than 5 years are not involved in nascent entrepreneurshipⁱⁱⁱ. Further, there is no significant correlation between national net inward migration rates and entrepreneurship rates among GEM nations. This may be because immigrants take time to engage in entrepreneurial activity, or because new immigrants form such a low proportion of most national populations, or because net immigration data can mask complex inward and outward flows of different types of people^{iv}. However, there is a significant correlation between net immigration and population growth^v, and a strong correlation between population growth and entrepreneurial activity^{vi}.

In conclusion, the GEM data suggests that attracting immigrants may not be a "quick fix", but one of several longer-term options to boost entrepreneurship rates that could be pursued simultaneously. While there is much research on

UK ethnic minority entrepreneurship and related issues, such as a recent report for the British Bankers Association^{vii} about Ethnic Minority access to finance and business support, more research on migration between nations and entrepreneurship needs to be done. For example, a replication of the UK immigrant/ethnic research across GEM nations and collection of data on years since immigration would be beneficial for comparative purposes.

i UK Labour Force Survey available at www.statistics.gov.uk/

ii Based on a working age population of 3,140,000 and an average number of 1.8 owners per start-up (GEM Scotland 2002 data).

iii Reynolds, P. and White, S. (1997). *The Entrepreneurial Process*. Quorum Books: Westport, CT.

iv The estimated median annual inward migration rate as a proportion of the population in 2002 for all 37 GEM nations was 0.95%. Only 4 nations had annual inward migration rates of 4% or more.

v $R=0.53$, $p<0.01$ (36 nations, 2002 data, correlation of average annual % net inward migration for 1996-2002 and % population increase from 1996-2002)

vi $R=0.52$, $p<0.01$ (36 nations, 2002 data, correlation of 2002 TEA rates and % population increase from 1996 to 2002). If the exceptionally high population growth nations of Singapore, Hong Kong and Israel are excluded, a very high correlation is obtained ($R=0.83$, $p<0.01$). If population increase were the only factor affecting national entrepreneurial activity, it would explain 70% of the variance in entrepreneurial activity among these 33 nations. See also Figure 21.

vii Ram, M., Smallbone, D. & Deakins, D. (2002). *Access to finance and business support by Ethnic Minority firms in the UK*. Report to the British Bankers Association.



Country Comparison: Scotland and Irelandⁱ

	Scotland	Ireland
2002 TEA rate, % of working age adults*	4.6	9.1
Opportunity perception rate, % of working age adults*	26	39
Entrepreneurship skills, knowledge perception rate, % of working age adults*	42	50
Fear of failure rate, % of working age adults*	36	35
Know an entrepreneur, % of working age adults*	21	47
Informal investment rate, % of adults 18 or over	0.8	3.3
Population, 1991	5,102,400	3,525,719
Population, 2001	5,064,011	3,838,900
Population annual average growth rate, % 1986-1991	-0.001	-0.04
Population annual average growth rate, % 1996-2002	-0.001	1.2
Average annual natural increase (births over deaths), 1986-1991	4,000	24,000
Average annual natural increase (births over deaths), 1996-2002	-3,000	23,000
Net average annual immigration, 1986-1991 (thousands)	-5,000	-27,000
Net average annual immigration, 1996-2002 (thousands)	0	26,000
Males 25-34 as % of population 20-64, 2002	10.7	15.3

Table 6. Comparison of demographic and entrepreneurial variables for Scotland and Ireland

Sources: Central Statistics Office, Dublin, General Register Office for Scotland, Edinburgh, GEM2002 Population Survey.

*See Chapter 3 for detailed definitions of these measures.

Ireland in 2002 appears to have one of the highest rates of entrepreneurship in Europe (see Figure 1). Yet, just 15 years ago, it was enduring one of the highest rates of unemployment and emigration in Europe, and Ireland was being compared unfavourably with other small modern nationsⁱⁱ. Although truly comparative data on entrepreneurship is not available for the 1980's, one study indicated that there was little difference between the number of young growing manufacturing firms per 1,000 people emerging in Scotland and Irelandⁱⁱⁱ. Now, however, Ireland's TEA rate is twice that of Scotland.

The notion that Ireland lacks an entrepreneurial tradition and is at an early stage in entrepreneurial development is regularly mentioned in the Irish GEM reports. One Irish key informant described Ireland as a country in transition to a fully entrepreneurial nation. This self-confidence and

belief in a better future comes through in the attitudinal data collected by GEM. Table 6 shows the Irish population to be markedly more optimistic in terms of opportunity, capacity, and knowing an entrepreneur. Furthermore, informal investment in other people's businesses is 4 times higher in Ireland than in Scotland. Can the Scots learn anything from Ireland's recent entrepreneurship miracle?

There are several reasons for Ireland's current success in the entrepreneurship league tables. A combination of government investment in higher education and creation of economic growth through attraction of foreign direct investment (FDI), and a high birth rate over many decades creating pressures in the labour market, positioned Ireland to take advantage of economic recovery after the recession of the early 1990's.

Throughout the 1980's, Ireland had been working to attract foreign companies in sectors that turned out to be key growth industries of the 1990's: IT, chemicals, pharmaceuticals, and healthcare. Not enough jobs could be created, however, for the children born in Ireland's last period of economic growth (the late 1960's and 1970's). Between 1986 and 1991, Ireland lost a net 3% of its population, or 27,000 people, through emigration *per year*. The country was deep in debt and personal taxation was high, and this crisis forced deep soul-searching in which many traditions were questioned.



High unemployment and emigration in the late 1980's and early 1990's, combined with a relatively high birth rate and a high proportion of young adults in the working population, created pressures for entrepreneurship. A loss of faith in the government's ability to provide jobs led some not to emigrate but to take responsibility for their own economic future in Ireland. At the same time, a decentralisation of the government's support system for entrepreneurship, including the creation of County Enterprise Boards, and EU-backed local LEADER projects, helped create a change in the culture towards taking personal responsibility and away from expecting the government to create jobs.

From around 1994, the world economy picked up and as the FDI-based industries took off, fed by international demand and the ready availability of Irish graduates needing jobs, they rapidly brought real wealth into the economy, creating entrepreneurial opportunities in infrastructure development, sub-supply and services. Up to 1999, the high demand for labour was satisfied by graduates and returning emigrants, but after 1999 a new phenomenon appeared in Ireland: economic migrants. The birth rate, which had been steadily declining in Ireland since the late 1970's, began to rise after 1996, while deaths remained stable and a net 26,000 people immigrated each year. As a result, the population of Ireland grew on average by 49,000 each year, or 1.3% of the 1997 population^{iv}. The late 1990's were an extraordinary time for Ireland, with

double-digit growth rates, 15% year on year growth in FDI, and huge inflows of capital from the EU for infrastructure projects. As tax income from increasing numbers of workers increased, tax levels decreased, making the option of wealth creation more attractive.

In Ireland, entrepreneurship belongs mainly to the younger generation. In 2002, over 60% of new Irish entrepreneurs were young adults aged 18-34, compared with less than 25% in Scotland and just over 50% in the 37 nations (country average). The Irish GEM team argue that the new Irish entrepreneurs have been primarily employees of Irish companies, followed now by growing numbers of employees of foreign-owned branch plants and universities, with returning emigrants a fourth source. Many of these young entrepreneurs started their own businesses either providing infrastructure for growth, or supplying foreign industry with parts or services, or upgrading the quality of business or consumer services in Ireland. The growth of the population itself provided new opportunities for business replication, so feeding a virtuous economic cycle. Early 1990's entrepreneurs have become role models, and their success by and large is applauded. One Irish serial entrepreneur noted a cascade effect of many Irish start-ups spinning out of other Irish start-ups.

Ireland over the past 10 years has, in marked contrast with previous decades, enjoyed significant economic and population growth. Scotland's population, on the other hand, has continued a



gentle decline of 2% over the past 20 years. Scotland's economic growth rate did briefly increase to an average of 2.2% in the first half of the 1990s^v, as it benefited from FDI by copying the Irish model, but its success in this area was nothing like that of Ireland, and growth decelerated in the late 1990s. Net migration in Scotland has been slowly declining to zero, and may soon turn negative, judging by long term trends, but this has masked substantial inflows and outflows, with young male adult Scots emigrating and older adults immigrating^{vi}.

In Scotland, there has been no flood of returning emigrants to fill jobs created by FDI. And while births exceeded deaths in Ireland by 23,000 on average over the past 5 years, in Scotland the number of births in 2001, at 52,527, was the lowest in Scotland since civil registration began in 1855 and only around 90% the number of deaths. Scotland's declining population is not a

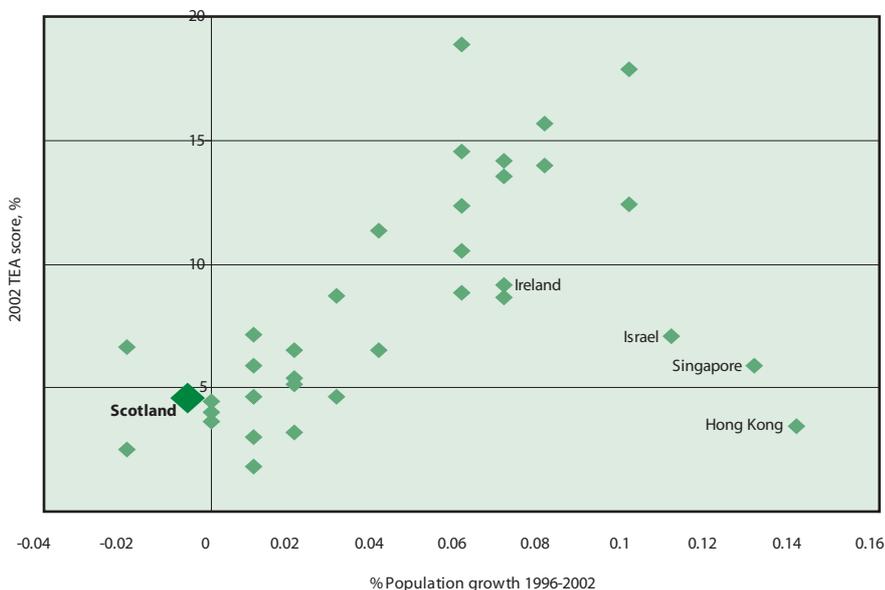
UK-wide phenomenon. In fact, Scotland is the only UK region with a declining human population. A low birth rate, compounded by relatively low survival rates and net emigration of young male adults, is to blame^{vii}. Of the GEM nations, only Russia and Hungary - in addition to Scotland - have declining populations.

In Scotland, there has been relatively low unemployment yet little evidence of returning emigrants, or of a desire on behalf of grass-roots Scottish communities to have their people back. By contrast in Ireland, almost every local village hosted its version of a "welcome home" week, to keep in touch with its diaspora, during the worst of the period of emigration. Perhaps this general acceptance of young adult emigration in Scotland is because, instead of dramatic, highly visible 20-year cycles of boom and bust as in Ireland, Scotland has been in very slow population decline and relative economic decline for a very long time. In addition, Scots leaving for elsewhere in the UK are not necessarily considered to be emigrating, and so the act of emigration has been perhaps less traumatic than in Ireland.

It should be noted here that the Irish GEM team is of the view that recently-returned emigrants were not to the fore as entrepreneurs. Rather, the success in FDI and visible infrastructure investment fuelled optimism and self-confidence (through images such as "the Celtic Tiger") and created opportunities for new businesses serving the Irish market to be established. Returned

Figure 21. Six-year population growth rates and TEA rates of 36 GEM2002 nations

Source: GEM2002 Population Survey and US Bureau of Census





emigrants contributed mainly through supplying labour to the foreign-owned plants and by providing local demand for goods and services.

The recent demographic and economic development histories of Scotland and Ireland are dramatically different. There is a very strong and highly significant correlation between population growth and entrepreneurship^{viii}, as Figure 21 shows, and a modest but highly significant correlation between the proportion of males aged 25-34 in the working age population and entrepreneurship^{ix}. Since economic growth, population growth and the presence of young adults plays such a significant role in the rate of entrepreneurship in a nation, it is not surprising then that at this point in Ireland's demographic development, it should be outperforming Scotland in entrepreneurship.

- i We are very grateful to Paula Fitzsimons and Dr Frank Roche of the Irish GEM team, for reviewing several drafts of this chapter. Responsibility for errors of interpretation rests solely with the authors.
- ii See, for example, Wrigley, L. (1989). Corporate Strategy and the Competitive Factor. In: McAleese, D. (ed.), *Competition and Industry: The Irish Experience*. Dublin: Gill and Macmillan. pp.79-99.
- iii Levie, J. (1995). The effect of Government Nurturing Policies on Early Corporate Growth in Denmark, Ireland and Scotland, 1973 - 1987. Unpublished PhD thesis, University of London.
- iv Source: Central Statistics Office, Dublin. www.cso.ie
- v Fraser of Allander Institute Quarterly Economic Commentary, October 2002
- vi Data from speech by Dr John Randall, Registrar General for Scotland, "Scotland's Population: Current Trends and Future Prospects", Institute for Contemporary Scotland, 30 October 2002.
- vii Source: Data from speech by Dr John Randall, Registrar General for Scotland, "Scotland's Population: Current Trends and Future Prospects", Institute for Contemporary Scotland, 30 October 2002.
- viii See endnote v, chapter 5. Hong Kong and Singapore are high import/export nations and behave differently to the other nations in the GEM sample. Israel is a clear outlier, with high immigration particularly from Russia in the 1990's and a severe security and economic crisis in 2002.
- ix $R = 0.61$, $p < 0.01$, 37 nations, % males aged 25-34 in population aged 20-64, 2002. Source: US Census data compiled by GEM global team.



Scottish Entrepreneurship Policy and Programmes Review 2002

Introduction

This chapter reviews progress and highlights new developments in entrepreneurship-related policy and programmes in Scotland during 2002. This is set against a backdrop of the first technical recession in Scotland in the last quarter of 2001 and the first quarter of 2002, with, in October, a forecast of economic growth from the Fraser of Allander Institute at the University of Strathclyde for 2002 of 0.7%. In May, Iain Gray took on the ministerial portfolio of Enterprise, Transport and Life Long Learning following the resignation of Wendy Alexander. In September, the budget for enterprise and life-long learning was cut from £2.15bn to £2.09bn.

Policy

In October, counteracting an impression that the enterprise area had been downgraded by the Scottish Executive, the First Minister Jack McConnell made a major economic strategy speech in which he acknowledged the challenges of Scotland's demographic situation and offered "going for growth" as the solution:

"I am acutely aware that successful enterprise underpins our public services. The private sector is the wealth creator in Scotland today generating the jobs and prosperity that sustains the public sector. It is easier to close gaps in opportunity if we have a growing cake – rather than trying to do more and more with an existing set of resources. That is why creating growth in our country is so important for me – successful Scottish business creates a successful Scottish economy."

Chastising the doubters and the cynics, he said:

"Let's lift the level of the debate and start talking about what we can do rather than what we can't. We will not grow the Scottish economy if we are continually negative and pessimistic. Young Scots need to feel proud of their country and have belief in their future."

McConnell outlined his vision for an enterprising Scotland and how to achieve it:

"I want to make clear today that my vision of Scotland in the future is one where we lift our eyes to the horizon, look outwards. We must retain the talent we have, attract former Scots back home and be open to welcome people from new cultures, nationalities and backgrounds.

For a growing economy, we need a growing population, and I am determined to see us focus policy and promote Scotland to meet that objective.

So much of this potential for the future depends upon the extent to which the people of Scotland aim high and can realise their ambitions. We are seen from outside as an increasingly confident country, with high levels of civic pride and a real sense of community. Yet still we are scared of taking risks – there is a fear of failure – and ambivalence about success.

The creation of an aspirational Scotland starts with the current generation of young people. The encouragement of ideas and initiative – their exposure to role models and opportunities to broaden their horizons through



connections to other countries and cultures will do much to entrench aspiration deep in the hearts and minds of these young people. A culture of aspiration will go hand in hand with a culture of entrepreneurship. While government can't change cultures single handedly, or overnight, we know we must break down outdated attitudes that only serve to hold us back.

Government can make a difference – and where we can make the biggest difference is in our schools while our next generation of adults are forming their ideas and opinions.

We will mainstream exposure to enterprise and the concepts of entrepreneurship – to really make a difference within secondary schools and to have changed the experiences of the next generation of school leavers. Only then will we have begun to create a truly modern, aspirational country on which our future economic success can be based.

We all need to do more in encouraging schoolchildren to see themselves as creators of business opportunities.

When I say we, I mean the public sector, the private sector, and us all as parents."

McConnell reiterated his support for the Smart, Successful Scotland policy document released in 2001 that had growing businesses as the first of three main strands. He outlined some of the reforms in programme delivery and new programmes that were being developed.

In a speech in November, the new Minister for Enterprise, Transport and Life-Long Learning, Iain Gray, described the Executive's policy on the link between education and enterprise as follows:

"The Executive's heavy investment in skills and learning is building a culture of entrepreneurship among young Scots that is central to fostering a knowledge economy in Scotland. To ensure this process continues we are creating an additional 40,000 college places, investing in our universities to increase entrepreneurship course opportunities and working towards ensuring every Scottish student is IT literate. We are also helping to promote new ideas through fellowships for young technology entrepreneurs on top of a pipeline of financial support for high-tech business start-ups."

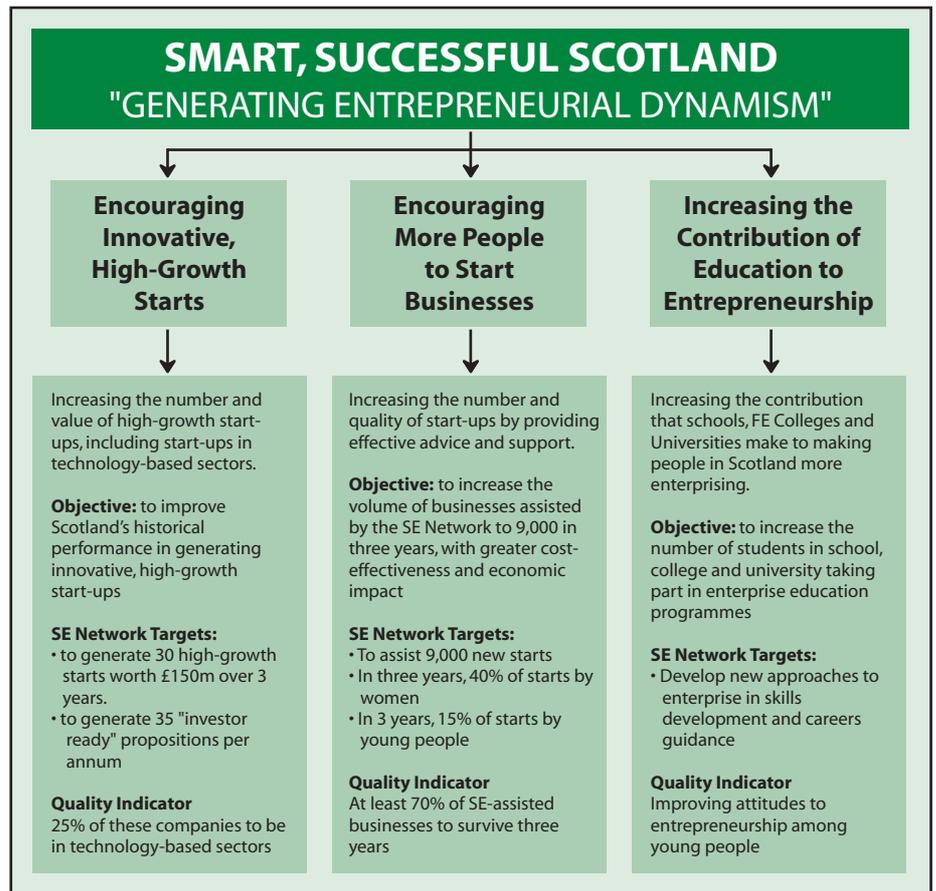
By the end of 2002, it was very clear that the Executive was serious about boosting entrepreneurship as part of its strategy of going for growth, and saw all levels of the education system as needing to play an increasing part, in a partnership with Government and the private sector. This was underlined in December by the release of "Determined to Succeed: A Review of Enterprise in Education" by the Scottish Executive Education Department. The Review Group, drawn from people in business, education and support agencies, recommended a deepening of Enterprise Education provision in schools through a series of specific measures. A response from the Scottish Ministers was expected early in 2003.



Programmes

In January Scottish Enterprise (SE) launched its "New Approach to Entrepreneurship" following extensive research, consultation and debate in 2001ⁱⁱ. The new Approach is summarised in the box below.

a target of reaching the UK average business start-up rate by 2000. This was deemed unrealistic and replaced by a series of short-term targets that measured the impact of SE programmes. The delivery of these programmes would feature the private sector much more than



This new approach featured three different thrusts: encouraging more high quality start-ups, encouraging more people to start businesses, and increasing the contribution of education to entrepreneurship. SE's previous Business Birth Rate Strategy, developed in the early 1990's, had

before. For example, a mentoring or buddy system of support for start-up entrepreneurs from established business people was to be set up. Variations in quality of delivery across the SE Network would be addressed through better training and quality control.



An important feature of this new approach was that Scottish Enterprise maintained that it was important to continue to address the low business birth rate in Scotland through delivering quantity-oriented programmes, while at the same time recognising that high potential start-ups were deserving of specialist support.

Some new programme highlights of the year included:

The Network High-Growth Start-up Programme

This national programme, headed up by Andy McNab who had created a highly successful Entrepreneurs Programme in SE Lanarkshire, commenced operations in April 2002. By year end, a team of 30 specialists were supporting 25 start-up projects.

Informal Support for Entrepreneurs

Scottish Enterprise invited private sector organisations such as the Scottish Chambers of Commerce and the Federation of Small Businesses to participate in an ambitious scheme of partnering experienced entrepreneurs with start-up entrepreneurs. After considerable discussion, a "lighter touch" web-driven programme was developed, to operate through the Small Business Gateway website, where start-up entrepreneurs could ask questions and interact "virtually" with more experienced business people. At the end of 2002, the scheme was still under development.

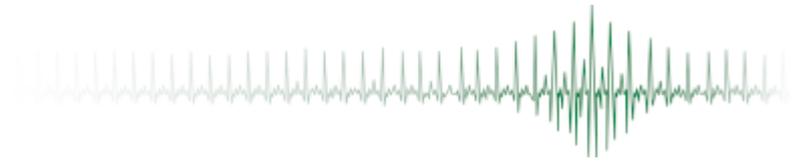
Private Sector Involvement in the Small Business Gateway

The target was to secure at least matched funding from the private sector for the development of web-based services to start-up entrepreneurs and to have at least 4 viable proposals developed for the financial year 2002/03. By the end of 2002, several deals had been agreed, and would begin to come on-stream in 2003.

Access to Finance

Two new programmes and one revamped programme in the Access to Finance area were proposed and reaction sought in 2002. Two were subsequently launched in November.

- An Investor Readiness Programme to deliver advice and financial support to companies requiring professional help to improve the quality of investment proposals was announced in January. After consultation, SE began a process of assembling a team to deliver the programme at a regional level. As of the end of December, the team was not yet fully complete.
- A £20 million Scottish Co-investment Fund financed by the Scottish Executive to counter continued equity gaps in the Scottish financing market for early-stage growth-oriented companies was proposed and put out to consultation. The target was to double the number of investments in growing companies in Scotland on an annual basis from around 200 to 400. The fund would co-invest as a silent partner alongside previously approved private



fundors of equity, such as venture capital funds or business angel syndicates, in amounts from £10,000 to £500,000 in deals between the sizes of £20,000 and £1million. The Co-investment fund proposal was well received by the financial community and one month after launching it in November, over 30 applications for funding of £50million had been received. Applicants were divided evenly between early stage venture capitalists, angel syndicates, individual business angels and corporate venturing organisations.

- In August, the Minister for Enterprise, Transport and Life-Long Learning, Iain Gray MSP, announced that the existing Business Growth Fund would be enhanced by enabling equity as well as debt finance. Following consultation with the financial and business community, the Business Growth Fund was relaunched in November with the equity offering in the form of zero-coupon preference shares with fixed-price buy-back agreements over a number of years. This meant that amounts of £20,000 to £100,000 could be invested in qualified Small and Medium-sized Enterprises (SMEs) that show ambition to grow in a way that strengthened their balance sheet in order to leverage support from banks and other investors. Matching funding from the private sector was a condition of funding.

By the end of December, SE's half-year progress to its performance targets was announced. It was on target to assist 8,000 new starts under the volume programme, 40% of whom would be women, possibly overachieve on its target of 175 high growth firms assisted, and achieve 90% of target on corporate and academic spinouts assisted. In addition, there was considerable progress with the Proof of Concept Fund, with 124 applications received for Round 4 by the September closing date. The second, growth phase of the Royal Society of Edinburgh Enterprise Fellowships announced in 2001 also commenced in 2002.

i Fraser of Allander Institute Quarterly Economic Commentary, October 2002.

ii *Generating Entrepreneurial Dynamism: A New Approach for the Scottish Enterprise Network.* Glasgow: Scottish Enterprise. January 2002.



GEM and Entrepreneurship Policy in Scotland

From figure 21 on page 26 which positions Scotland relative to 36 other nations on both entrepreneurial activity and population growth, it could be concluded that entrepreneurship in Scotland, closely tied as it is to Scotland's negative population growth rate, is in crisis. Yet, there are some positive signs this year. Scotland's TEA rate is now 85% of the UK's TEA rate. There is, statistically, no significant difference between the two rates given the small number of people who are entrepreneurially active in each sample. Female entrepreneurship in Scotland seems to be slowly rising, and this year was the same as the UK rate and not statistically different from the average for small modern nations. Male entrepreneurship has fallen but this is mainly due to a collapse in activity among young males. If perception of opportunity is a leading indicator of entrepreneurial activity, then entrepreneurship among young males may bounce back next year.

These hopeful signs are perhaps inflated by a more dramatic reduction in TEA rates in the UK than in Scotland. It is quite possible that as people anticipate the end of the slump in economic growth, TEA rates will rapidly rise to former levels in the UK. Past experience suggests a slower rise in Scotland. However, there are other signs of a possible change in Scottish enterprise culture. Fear of failure, which in 2000 and 2001 appeared to be relatively high in Scotland compared with its benchmarks, and which was mentioned by the First Minister in his "Going for Growth" speech in October, now appears to be around typical

levels for the UK and other small modern nations. It remains to be seen whether this improvement remains for next year. But for this year, at any rate, it is good news.

There is also bad news. In Scotland, the giving of so-called "love money", or funding that start-up entrepreneurs get from family and friends, occurs only one half to one quarter times as often in Scotland as in its benchmark countries. Little research on this type of funding of new businesses has been conducted. But it has been estimated that across the 37 GEM nations, roughly 5 times more informal finance flowed in to new businesses in 2001 than formal venture capital¹. Research on this area is badly needed, and needed in Scotland more than most nations. A joint project on this topic with GEM teams in other small modern nations might be a possibility.

What does this all mean for entrepreneurship policy? The Scottish Executive is well aware of Scotland's demographic problems. The statistics on immigrant and ethnic entrepreneurship suggest that targeted attraction of talented people from outside Scotland (and outside the UK) could pay dividends, though possibly not in the short term. The Executive is trying to change racism in Scotland through its "One Scotland" campaign and make Scotland a more attractive home for immigrants. Scottish Enterprise is trying to involve, attract and keep talented Scots through its GlobalScot programme. But more could be done. Three questions need to be



addressed. Does the current system provide non-EU immigrants with an equal opportunity to be entrepreneurial^{ii,iii}? Are there enough employment opportunities for non-EU graduates of Scottish universities, and are employers prepared to apply for work permits for non-EU graduates seeking employment^{iv}? The emigration of foreign graduates represents a significant loss to Scotland. These are people who have become familiar with Scotland and its culture, and could plug in to existing entrepreneurship support and funding channels relatively seamlessly.

The Scottish Executive and its agencies have been busy in other areas. Entrepreneurship support programmes have been devised and revised with extensive consultation from the private sector. A culture-change project has begun through integrating enterprise education in schools. Initiatives to release technology with commercial potential from universities have proved very popular.

The GEM data suggests that the proportion of entrepreneurs with high potential in the pool of nascent and new entrepreneurs is not out of line with Scotland's benchmarks with the possible exception of organisational growth aspirations. The main problem is the overall quantity of entrepreneurs. Scottish Enterprise appears to be delivering on its targets for supporting start-ups. However, given the volume of people actively trying to start a business or running a new business in Scotland (144,000 in 2002, according

to the GEM survey), and the volume to which we should aspire, having regard to Scotland's benchmark nations, one should ask is a target of 8,000 new starts supported a sufficiently high target? Most entrepreneurs may not feel the need to access this help. But given the urgency of the situation, the cost-benefit of further investment in information provision and brokering of mentoring should be investigated.

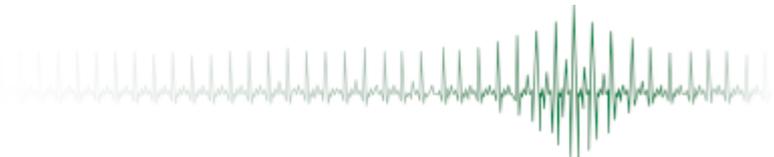
There is of course only so much that Government can do. If people do not want to create their own economic future, little will happen. This is why the focus on education, lifting self-confidence and thereby lifting aspirations is so important. The Enterprise in Education Review recommendations could deliver this. If Figure 21 is any guide, no GEM nation, with the exception of Russia, needs it as much as Scotland.

i GEM2002 Global Executive Report, p.33. Available from www.gemconsortium.org

ii For more information on current regulation see Work Permits UK www.workpermits.gov.uk

iii For more information on current regulation see Immigration and Nationality Directorate UK www.ind.homeoffice.gov.uk

iv Jim Wilson, University of Strathclyde International Office, personal communication



The general model that provides the basis for GEM is illustrated in Model 1. This model is described at length in the GEM2002 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.

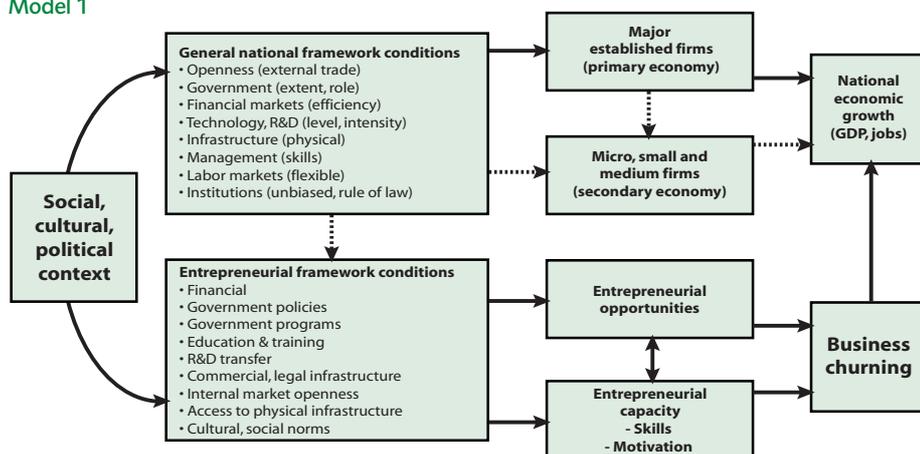
Established firms clearly make a major contribution to economic growth and prosperity, but variations in new firm activity may also explain a significant proportion of the differences in economic prosperity between countries. This latter activity is the focus of the GEM research project.

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 was assembled by the consortium of research teams working in each GEM country. First, a representative sample of 2,000 adults (except for 1,000 in Mexico and Thailand) was interviewed in each country using a standardized questionnaire, translated into the official language of each country. Over 113,000 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 (about 1,000 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, 14 experts were interviewed and surveyed and an additional 17 experts were surveyed. Fifth, all national teams provided their own assessment of the current level of entrepreneurial activity in their country.

Model 1





Acknowledgements

We would first like to thank the key experts who gave up time to be interviewed and complete the key expert questionnaires, and the 2,000 Scots who agreed to answer our survey questions. Secondly, we thank all those who read and commented on drafts of chapters of this report. In particular, thanks go to Professor Colin Mason, Professor Richard Harrison, Professor Frank Roche, Paula Fitzsimons, Victor O'Reilly and Colin Bottomley. Professor Paul Reynolds, GEM's Principal Coordinating Investigator, was always ready to spend time on tricky data issues and we are grateful for his patience. Thanks also to Professor Michael Hay and Rebecca Henderson for sharing the UK GEM data, and letting us develop our ethnic and immigrant entrepreneurship work. Gareth and Mario at Scribble were as usual very patient with our last minute changes. And finally, we would like to thank Scottish Enterprise for sponsoring a section of the report and Tom Hunter for his continued support of our work.