University of Strathclyde Business School

Global Entrepreneurship Monitor

Scotland **2012**

Jonathan Levie

GEM

Contents

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www.strath.ac.uk
University of Strathclyde Glasgow G1 1XQ
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Foreword

It's that time of year again – are we doing any better at creating an entrepreneurial nation or not? The answer as ever is not simple but there are reasons to be cheerful...

Firstly in a matter of three years we've moved from being in the fourth quartile of TEA rates up to the second quartile and our TEA rates now exceed the average of the Arc of Prosperity countries – the Premiership beckons! Well, maybe – we still lag the UK rate.

The GEM sample interestingly also saw some 40% of graduates there compared to 21% in 2002 so perhaps the move towards a more entrepreneurial environment in our Universities and Colleges is having a positive effect, but as ever we need to do more, much more.

Sadly that graduate movement may also be as a result of the jobs market being less buoyant hence starting a business becomes a necessary option rather than an ingrained desire – the results add impetus to this thought as most of the TEA from graduates was of a low aspirational nature.

We need to keep banging the drum about grasping opportunity and seeing the bigger picture...Recently I met Eric Schmidt the CEO of Google who reiterated one of the key points of his recent book – he predicts 5 billion more internet users to add to the existing 2 billion in only a few years time; now there's an opportunity for our graduates!

If we needed evidence that we need to get out a little more and wake up to these sorts of opportunity, GEM also notes migrants to England from here and vice versa are more entrepreneurial and more ambitious.

Ultimately it seems we need to continue the cultural shift towards enabling our people to recognise entrepreneurialism as a real career option. We are in the teeth of a recession but when I started out in a similar recession there was very little by way of support. Today it's different and I really do believe that we are finally integrating the support network for aspiring entrepreneurs.

In this John Swinney deserves praise, not only has he backed Entrepreneurial Spark but he's also seen market gaps and acted upon them hence the EDGE Fund...

Entrepreneurial Spark and the Entrepreneurial Exchange I believe underscore the need for self-help; entrepreneurs flourish from peer to peer support and we need more of this. Similarly I worry that enterprise education is losing momentum in our schools when in fact it needs greater, not lesser, emphasis.

And I again go back to one of my main thoughts – shouldn't we reward our educationalists based upon the successful destination of ALL of their students?

An entrepreneurial Scotland can't be achieved by Government, nor our educationalists nor our businessmen and women on their own. It takes all of us together to achieve that.

We need to aim for the Premiership together and like any football team we need the fan base, backroom staff, players and managerial frontline to come together to achieve that; can we do that? Yes we can.

Yours aye

Tom

Sir Tom Hunter

Introduction

GEM is a major research project aimed at describing and analysing entrepreneurial processes within a wide range of countries. GEM has three main objectives:

- To measure differences in entrepreneurial attitudes, activity and aspirations among economies.
- To uncover factors determining the nature and level of national entrepreneurial activity.
- To identify policy implications for enhancing entrepreneurship in an economy.

In 2012, GEM surveyed 69 economies, representing around 74% of the world's population and 87% of the world's GDP, and conducted over 200,000 individual interviews. Participating countries in 2012[1] were:

13 Factor-driven Economies[2]:

Algeria, Angola, Botswana, Egypt, Ethiopia, Ghana, Iran, Malawi, Nigeria, Pakistan, Palestine, Uganda, Zambia

30 Efficiency-driven Economies:

Argentina, Barbados, Bosnia and Herzegovina, Brazil, Chile, China, Colombia, Costa Rica, Croatia, Ecuador, El Salvador, Estonia, Hungary, Latvia, Lithuania, Macedonia, Malaysia, Mexico, Namibia, Panama, Peru, Poland, Romania, Russia, South Africa, Thailand, Trinidad & Tobago, Tunisia, Turkey, Uruguay

24 Innovation-driven Economies:

Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Israel, Italy, Japan, Republic of Korea, Netherlands, Norway, Portugal, Singapore, Slovakia, Slovenia, Spain, Sweden, Switzerland, Taiwan, United Kingdom, United States

The Entrepreneurial Process

GEM views entrepreneurship as a process rather than as an event. An important manifestation of entrepreneurship (though not the only one) is new business activity. GEM collects data on the proportion of individuals in an economy who are expecting to start a business, are actively trying to start a business, are running their own young business, are running their own established business, and who have recently closed a business.

Nascent entrepreneurs are those individuals, between the ages of 18 and 64 years, who have taken some action towards creating a new business in the past year. In order to qualify in this category, these individuals must also expect to own a share of the business they are starting and the business must not have paid any wages or salaries for more than three months.

New business owners are individuals who are active as owner-managers of a new business that has paid wages or salaries for more than three months, but less than 42 months.

One of the principal measures in GEM is 'total early-stage entrepreneurial activity' (TEA), the proportion of people who are involved in setting up a business or owners-managers of new businesses. In addition to those individuals who are currently involved in the early stages of a business, there are also many individuals who have owned and managed a business for a longer time. These individuals are included in GEM's estimates of the number of established business owners (EBO).

GEM can also measure other forms of entrepreneurial activity, including social entrepreneurial activity and employee entrepreneurial activity (intrapreneurship).

Key Findings of GEM2012 Global Report[3]

Regional Patterns of Entrepreneurial Activity

With a record 69 countries to draw on, the GEM Global 2012 report split its country sample not just by stage of economic development but also by global region. Very different patterns of attitudes, activity and aspiration were found between global regions.

For example, in Latin America/Caribbean, the Middle East/North Africa (MENA) and Sub-Saharan Africa regions, over three quarters of the respondents considered entrepreneurship to be a good career choice. Fewer people in Latin America/Caribbean attached high status to entrepreneurs and fewer believed there was positive media attention for this endeavour. EU countries exhibited lower levels on all three measures. Only about half the EU respondents agreed that entrepreneurship was a good career choice and received positive media attention, while two-thirds attributed high status to this activity. It is probable that more employment alternatives with established corporations or governments could account for at least some of this result in these developed economies.

Attitudes may also mirror current conditions. For example, perceptions about opportunities have mostly increased in the Nordic countries since a drop in 2009, while they remain at a low level in the Southern European countries.

Overall, TEA rates displayed upward trends in many economies in 2012. Yet a difference between male and female TEA rates continues to persist worldwide. The highest average TEA rates were found in Sub-Saharan Africa and Latin America/Caribbean. Zambia (41%) and Ecuador (27%) reported the highest rates in these regions. The Asia Pacific/South Asia region showed a mix of TEA levels with Thailand (19%) and China (13%) recording the highest rates. While TEA rates were typically higher than established business rates in factor-driven economies, the gap narrowed in the innovation-driven economies, with some showing more established business owners than entrepreneurs. For example, Greece, Spain, Switzerland, Ireland and Finland in the EU and Japan, Republic of Korea and Taiwan in Asia showed at least one-third more established business owners than entrepreneurs.

Nearly a fifth of entrepreneurs in non-EU Europe, despite its low TEA rate, forecast they would have 20 or more employees within five years. The USA exhibited a high proportion of 20+ employee projections in addition to a high TEA rate for an innovation-driven economy. Turkey, Latvia, Singapore, China and Colombia also displayed both high TEA and high employment aspiration relative to other economies in their regions.

Migrant entrepreneurs can make significant

What's new in GEM Scotland 2012?

1. GEM Scotland 2012 has thirteen years of data to draw on, with around 2000 individuals aged between 16 and 80 interviewed each year.
2. Chapter 4 contains an analysis of Scotland's innovation-based entrepreneurship ecosystem.
3. The special topic in this year's Global GEM survey is migration: see Chapter 5.
4. The education level of the Scottish working age population has changed profoundly over the past decade. The impact of this on entrepreneurship is examined in Chapter 6.

contributions to economic growth and global competitiveness in both their host and home economies. The GEM results show that migrant entrepreneurs are more likely to have growth intentions at all economic development levels. Additionally, in the efficiency and innovation-driven economies, they are more likely to sell to international customers. As such, migrant entrepreneurs can create jobs, boost global competitiveness and influence the transfer of resources, information and technological know-how. Policy makers in receiving economies can recognize the value migrants can provide in creating jobs and globalizing the business environment. Economies of origin should make every effort to build and support connections to those that have emigrated to other parts of the world.

1 In addition, India and Jamaica participated, but data issues uncovered by GEM quality controls meant that they were excluded from the Global Report.

2 Phases of economic development are decided on the level of GDP per capita and the extent to which countries are factor-driven in terms of the shares of exports of primary goods in total exports. See Porter, M.E. and Schwab, K. (2008), *The Global Competitiveness Report 2008-2009*, Geneva, Switzerland: World Economic Forum.

3 This section is extracted with permission from the Summary and Conclusions of the GEM 2012 Global report, available at www.gemconsortium.org

Summary Highlights for GEM Scotland 2012

- In 2012, the proportion of working age individuals in Scotland who intended to start a business in the next three years dipped from 9.8% to 8.5%. This was significantly below the UK estimate of 11.3%.

- The Total Early-Stage Entrepreneurial Activity (TEA) rate rose from 6.2% to 6.9%, significantly higher than the 2010 Scottish TEA rate of 4.2%, but significantly lower than the 2012 UK rate of 9.8%.

- For the first time in the GEM series, the Scottish TEA rate estimate exceeded the average for Arc of Prosperity countries and matched the average for 20 innovation-driven economies. This placed Scotland in the second quartile of this group, up from the third quartile in 2011 and the fourth quartile in 2010.

- This growth in the Scottish TEA rate is mainly accounted for by a rise in graduate self-employment/low aspiration start-ups.

- An analysis of Scotland's innovation-based entrepreneurship ecosystem suggests Scotland is relatively weak in Opportunity Perception, Start-up Skills, Networking, and Aspirations. These weaknesses cannot be addressed by government alone but require a collective ecosystem-wide approach.

- Both Scottish migrants to England and English migrants to Scotland are more entrepreneurial than their non-migrant peers. English early-stage entrepreneurs in Scotland are also more growth-oriented than Scots early-stage entrepreneurs, despite their older profile.

- Ten per cent of early-stage entrepreneurs are immigrants from outside the UK, even though immigrants make up only 5% of the GEM random sample of the Scottish working age population.

- Graduates, who made up 40% of the GEM random sample in 2012 compared with only 21% in 2002, had more positive attitudes towards entrepreneurship than non-graduates. One important exception was attitudes to starting a business as a career choice, which were more negative among graduates. Graduates also had significantly higher TEA rates than non-graduates. However, this was mainly due to higher entries into self-employment and low aspiration business creation rates rather than higher rates of more ambitious businesses.

- There is an opportunity for "Team Scotland" to work on turning this recent increase in the quantity of low aspiration start-ups into more quality start-ups, particularly since so many of these new entrepreneurs are graduates. Otherwise, as the UK economy recovers and established businesses begin recruiting again, they could shift from self-employment back to employment.

3 Entrepreneurial Business Attitudes, Activity and Aspirations in Scotland: 2012 Update

This chapter reports measures of entrepreneurial attitudes, activity and aspirations in Scotland in 2012. Where relevant, comparisons are made with the UK and UK home nations, Arc of Prosperity countries, and other innovation-driven, high income nations, and with measures in previous years[1]. In recent years, there has been a significant increase in mobile-only households across the UK[2]. To mirror this increase, in 2012, 19% of the GEM sample across the UK consisted of mobile-only households, compared with 13% in 2011, 10% in 2010 and none in previous years. There was no significant difference in TEA rates between mobile only households and other households in Scotland in 2012.

Entrepreneurial Attitudes

Table 3.1 displays historical trends of entrepreneurial attitudes among the non-entrepreneurially-active population – those who were not nascent, new or established business owner-managers. Opportunity perception continued to slowly recover in 2012, but fear of failure remained historically high. Opportunity perception is higher in Arc of Prosperity countries with the exception of Ireland. Non entrepreneurially-active individuals in Arc of Prosperity countries (again, with the exception of Ireland) tend to be less likely than those in Scotland and the UK generally to agree they have the skills, knowledge and experience to start a business, but more likely to agree that they know an entrepreneur, although the gap has narrowed in the past few years.

Item	Know someone who started a business in past 2 years			Good opportunities for starting a business in the next 6 months			Have knowledge, skills to start a business			Fear of failure would prevent me starting a business (among those who see opportunities)		
Sample	Scot	UK	AOP	Scot	UK	AOP	Scot	UK	AOP	Scot	UK	AOP
2002	19	21	46	23	26	44	37	41	36	40	37	33
2003	23	22	50	34	32	41	41	43	34	37	35	36
2004	26	24	43	33	33	43	47	46	36	36	36	36
2005	25	25	44	29	35	52	42	46	36	33	36	36
2006	25	25	43	34	34	52	45	45	36	33	37	39
2007	23	24	44	36	36	55	39	44	35	31	38	34
2008	20	24	43	33	27	41	41	44	36	34	38	35
2009	22	23	45	21	23	40	40	44	34	34	35	34
2010	27	31	38	25	27	42	44	47	37	43	36	35
2011	28	28	36	25	28	49	38	37	31	38	41	40
2012	26	27	33	27	31	45	37	39	30	43	43	41

Table 3.1: Entrepreneurial attitudes among non-entrepreneurial individuals in the Scottish, UK and Arc of Prosperity adult population samples, 2002 to 2012 (% agree with statement)

Source: GEM UK and Global Surveys. Note: 2009 AOP estimates exclude Ireland; 2011 and 2012 AOP estimates exclude Iceland

Attitudes of the general population towards entrepreneurs tend to be very similar in in Scotland and the UK. In 2012, positive perception of the status of successful entrepreneurs remained at a historic high of 80% of working age adults in Scotland for the second year running (77% in the UK). Scotland ranked third-highest on this measure out of 20 innovation-driven countries, with similar rates to Norway, Finland and Ireland. However, only 50% of the UK and Scottish working age population thought that starting a business was a good career move. Scotland ranked 14th out of 20 innovation-based countries on this score, the same as Norway but ahead of Finland and Ireland (45%).

There is relatively low agreement in Scotland and the UK with the statement "you will often see stories in the public media about successful new businesses" in comparison with other countries. It remained at 46% in 2012 (45% in 2011), the third lowest rating among 19 innovation-driven countries. Only Greece and France had lower levels of agreement with this statement.

Entrepreneurial Activity

In 2012, representative samples of the working age population (aged 18-64) were surveyed by GEM teams in a record 69 countries. Figure 3.1 shows the estimates of Total early-stage Entrepreneurial Activity (TEA) in each of the 24 innovation-driven (high income) sovereign nations participating in GEM 2012, plus Scotland, ordered by TEA rate[3]. TEA measures the proportion of nascent and new business owner/managers in the population of working age adults. In "innovation-driven" nations such as Scotland, stimulating innovation and entrepreneurship should be a focus of government attention, according to the World Economic Forum[4].

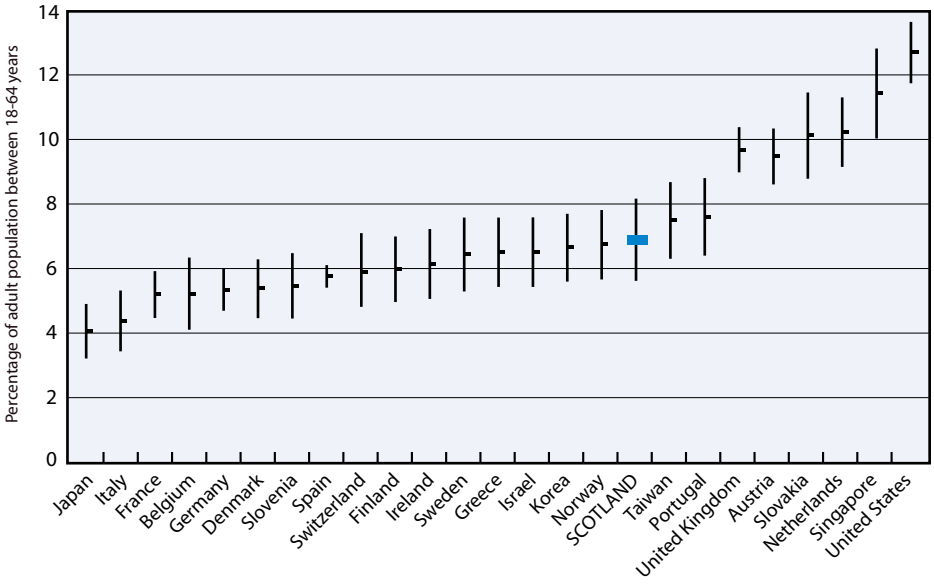


Figure 3.1: National 2012 TEA rates for 23 sovereign innovation-driven nations and Scotland, ordered by TEA rate

Source: 2011 GEM UK and Global Surveys

	TEA		% change	Scottish TEA as a % of other TEA rates	
	2011	2012		2011	2012
Scotland	6.2	6.9	11%		
UK	7.6	9.8	29%	82%	70%
20 High income/ innovation-driven nations (like-for-like)	6.8	7.0	3%	90%	99%
4 Arc of Prosperity nations (like-for-like)	6.3	6.1	-3%	98%	113%

Table 3.2: Scottish and benchmark TEA rates, 2011 and 2012
Source: 2011 and 2012 GEM UK and Global Surveys

If the vertical bars on either side of the point estimates for TEA for any two countries do not overlap, they have statistically different TEA rates[5]. Figure 3.1 shows that Scotland was in the second quartile of innovation-driven countries in 2012, up from the third quartile in 2011 and the fourth quartile in 2010 and 2009. Among these countries, only Japan and Italy had a significantly lower TEA rate than Scotland in 2012, while all six of the first quartile countries, including the UK, had TEA rates statistically higher than those of Scotland.

Table 3.2 benchmarks the TEA rate for Scotland for 2012 against the UK, "Arc of Prosperity" (AOP) nations that participated in 2011 and 2012 (Denmark, Finland, Ireland, and Norway) and 20 high income/innovation-driven sovereign nations that participated in GEM in 2011 and 2012. The TEA rate in Scotland grew by 11%, less than that of the UK but more than the benchmark country group estimates. The 2012 Scottish TEA rate was significantly higher than the 2010 Scottish TEA rate, but significantly lower than the 2012 UK rate. As

Figure 3.2 shows, the Scottish TEA rate has consistently remained below the UK rate since 2002, and under-performed the average AOP rate until 2012. The average AOP rate has been in steady decline since 2007. In contrast, the Scottish and UK TEA rates show a steady rise since 2009 above their long run average. The Scottish TEA rate was the same as the average for innovation-driven economies in 2012.

The increase in the Scottish TEA rate is due to rises in both the nascent and new business owner-manager rate estimates, from 3.4% to 3.6% and 2.9% to 3.5% respectively.

This steady rise is mirrored in the official statistics of enterprise births in Scotland, which are issued in December each year for data on the previous year. The official statistics show a rise of 5% in 2010 and 9% in 2011. In contrast, business start-up estimates from the Committee of Scottish Clearing Banks, based on new business bank account openings, have shown year on year declines every year from 2008 to 2012.

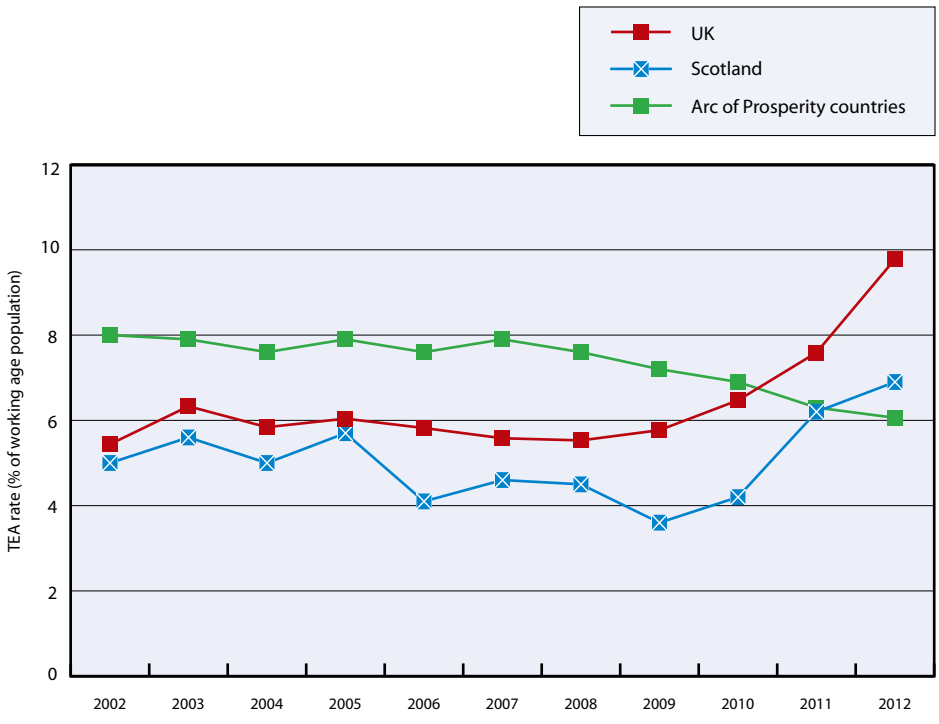


Figure 3.2: TEA rates in the UK, Scotland and Arc of Prosperity countries, 2002 to 2012
Source: GEM surveys 2002 to 2012

Table 3.3: Entrepreneurial activity in the Scottish and UK adult population samples, 2002 to 2012 (% agree with statement)

Source: GEM UK and Global Surveys

Note: Numbers in bold denote significant differences between Scottish and UK samples in the same year. Ireland did not participate in GEM in 2009, and Iceland did not participate in 2011 or 2012.

Item	I expect to start a business in the next 3 years (%)			Total early-stage Entrepreneurial Activity (TEA) rate (%)			Established Business Owner-manager (EBO) rate (%)			I have shut down a business in the last 12 months (%)		
Sample	Scot	UK	AOP	Scot	UK	AOP	Scot	UK	AOP	Scot	UK	AOP
2002	5.9	6.7	11.9	5.0	5.4	8.0	4.4	5.6	7.7	1.3	1.7	2.2
2003	6.8	8.0	10.9	5.6	6.4	7.9	5.3	5.7	7.4	1.4	2.0	2.3
2004	**6.5**	**8.6**	11.4	5.0	5.8	7.6	4.8	4.7	6.5	1.6	1.8	2.1
2005	**6.2**	**8.7**	11.7	5.7	6.0	7.9	4.1	5.1	7.1	1.6	1.9	2.3
2006	**5.8**	**7.9**	11.1	**4.1**	**5.8**	7.6	4.2	5.3	6.9	1.6	2.0	2.2
2007	**5.6**	**6.8**	11.5	4.6	5.5	7.9	**3.9**	**5.8**	7.5	**1.3**	**2.0**	2.4
2008	**5.1**	**6.8**	10.6	4.5	5.5	7.6	5.5	6.0	7.2	**1.2**	**2.1**	2.9
2009	**4.3**	**6.2**	10.5	**3.6**	**5.8**	7.2	4.8	5.8	7.6	**1.2**	**2.2**	1.7
2010	6.0	7.3	10.6	**4.2**	**6.5**	6.9	6.5	6.2	7.5	1.0	1.2	2.4
2011	9.8	9.8	9.1	6.2	7.6	6.3	5.2	6.5	7.1	0.7	1.6	1.7
2012	**8.5**	**11.3**	5.5	**6.9**	**9.8**	6.1	**5.2**	**7.0**	6.4	1.2	1.0	1.1

Figure 3.3: Two-year moving average TEA rates for Scotland and Arc of Prosperity countries, 2002 to 2012

Source: GEM Global surveys

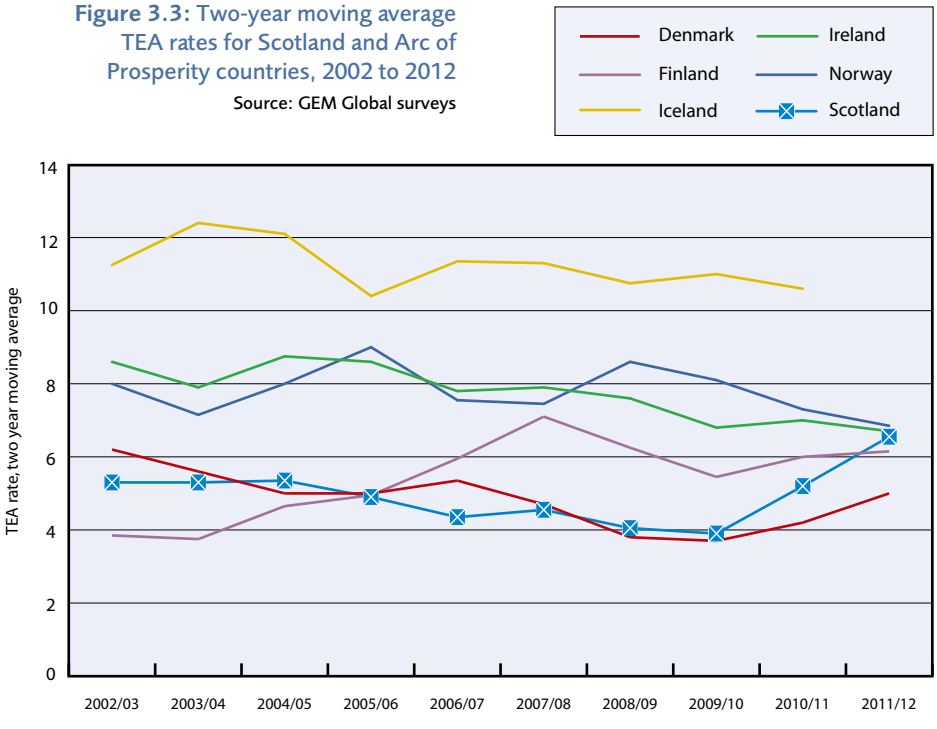


Table 3.3 shows trends in four different entrepreneurial activity rates in Scotland, the UK and Arc of Prosperity countries. The steady increase in activity rates in the UK and Scotland in the last few years have been matched by a steady decline in activity in the AOP countries. In fact, business start-up expectation rates in AOP countries are half of what they were before the financial crisis. Figure 3.3 shows the trend in TEA rates in Scotland and each AOP country from 2002 to 2012, using two-year moving averages to smooth the year-to-year fluctuations due to small sample sizes. Long term, gradual declines are evident in all AOP countries except Finland. Only Denmark shows signs of a recovery in TEA rates after the financial crisis, and this is not as marked as in Scotland.

Figure 3.4 shows the two-year moving average TEA rates for 2002 to 2012 for three age groups: 18 to 29, 30 to 49 and 50 to 64 years. Moving averages are shown to smooth out random year-to-year fluctuations in small age group samples in the Scottish sample. This reveals a clear pattern in which the TEA rates of younger and older age groups in Scotland are almost 90% of the TEA rate of their peers across the UK, but TEA rates of the high activity 30 to 49 age group in Scotland are less than 75% that of the UK rate. The gap in TEA rates of the 30 to 49 age group has widened since the mid-2000s.

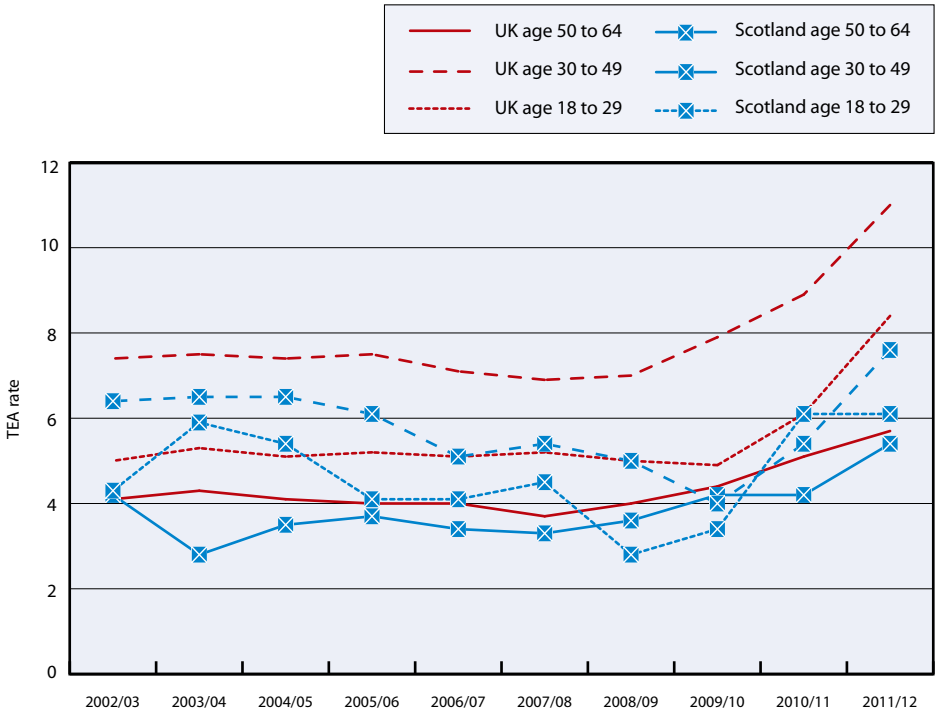


Figure 3.4: Two-year moving average TEA rates of Scottish and UK adults aged 18 to 29, 30 to 49 and 50 to 64, from 2002 to 2012

Source: GEM UK surveys 2002 to 2012

Entrepreneurial Aspirations

Table 3.4 shows estimates of how aspirational Scots early-stage entrepreneurs are compared with their peers in the UK and Arc of Prosperity countries. Equivalent data for three measures of entrepreneurial aspiration are available for seven years. On each of these, the measures for Scotland do not appear very different from those of the UK or AOP countries.

In the GEM 2011 Extended Report, a distinction was made between Solo-Low ambition early-stage entrepreneurial activity (SLEA), defined as the TEA rate for those who expected to employ no more than four people in five years' time, and Medium-High ambition early-stage entrepreneurial activity (MHEA), defined as the TEA rate for those who expected to employ at least five people in five years' time. The trend for 2002 to 2012, shown in Figure 3.5, suggests that the bulk of the growth in the TEA rate in Scotland in the last two years has come from individuals planning to employ less than five people.

Table 3.5 shows the ratio of SLEA and MHEA rates in Scotland to TEA rates in the UK for the 2002 to 2009 and 2010 to 2012 periods, by age group. It shows that the gap in MHEA rates is concentrated in the 30 to 49 age group, and that this gap has grown, extending into SLEA rates in the last few years.

Item	High Job Expectation (% of TEA entrepreneurs expect at least ten jobs and growth>50% in five years)			New Product Market (% of all TEA entrepreneurs)			High or Medium technology sectors (% of all TEA entrepreneurs)		
Sample	Scot	UK	AOP nations	Scot	UK	AOP nations	Scot	UK	AOP nations
2006	9.1	19.8	16.2	18.0	22.0	23.8	7.4	9.3	9.5
2007	18.0	16.5	16.2	22.9	19.7	24.2	5.3	9.4	9.3
2008	11.2	15.2	19.8	20.0	22.0	25.0	13.7	12.0	10.1
2009	14.4	17.6	18.1	18.9	25.8	35.8	15.0	8.3	3.5
2010	21.2	14.4	17.4	36.1	25.0	33.6	9.1	13.5	7.5
2011	21.8	17.3	18.1	38.0	39.2	35.3	**3.0**	**10.8**	8.6
2012	16.2	17.1	16.7	38.3	32.1	33.3	7.5	8.1	8.5
Average 2006 to 2012	16.0	16.8	17.5	27.5	26.5	30.1	8.7	10.2	8.1

Table 3.4: Entrepreneurial aspirations in the Scottish, UK and Arc of Prosperity nations adult population samples, 2002 to 2012 (% agree with statement)

Source: GEM UK and Global Surveys

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

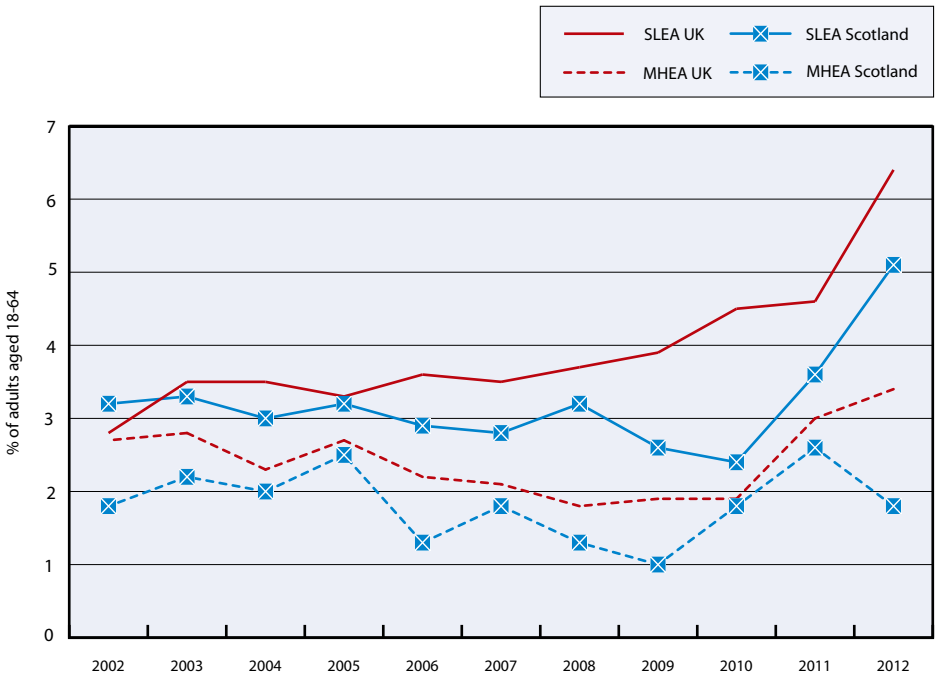


Figure 3.5: Solo-Low ambition TEA rates (SLEA) and Medium-High ambition TEA rates (MHEA) in the UK and Scotland, 2002 to 2012.
Source: GEM UK and Global Surveys

Conclusion

Early-stage entrepreneurial activity increased strongly in the UK in 2012, propelling it into the "first division" of 20 innovation-driven countries in GEM. Scotland moved up into the "second division", but remained significantly behind the UK, particularly among the high activity 30 to 49 age group. Scotland's TEA rate is now the same as that of AOP countries and the average of innovation-driven countries, which is a marked change from its position before the financial crisis. However, most of the increase in the Scottish TEA rate since 2010 comes from entrepreneurs with relatively low employment expectations. Influences on entrepreneurial aspiration are considered in the next three special topic chapters.

1 "Arc of Prosperity" is a term used by the Scottish Government to describe five small, high income, independent nations that surround Scotland in an arc from Ireland to the west, Iceland to the North, and Norway, Finland and Denmark to the east.

2 According to an Ofcom Survey in Q1 2012, 15% of adults in the UK lived in households that were mobile-only. This rose to a quarter of those aged 25-34 and a third of those aged 16-24. Source: The Communications Market 2012, Ofcom.

3 Comparison of Scotland with factor-driven or efficiency-driven countries is less useful because their environments are so different.

4 Porter, M.E. and Schwab, K. (2008), *The Global Competitiveness Report 2008-2009*, Geneva, Switzerland: World Economic Forum.

5 "Statistical significance" refers to a calculation of where the range within which the average value of 95 out of 100 replications of the survey would be expected to lie. This range is shown in Figure 3.1 by vertical bars on either side of each data point. The length of the vertical bars is a function of the sample size, the smaller the sample size, the lower the length. If the 'confidence intervals' (denoted by the vertical bars) of two national TEA rates do not overlap, the difference between the TEA rates is not statistically significant at the 0.05 level. Reference in this report to significant differences implies statistically significant difference at the 0.05 level.

	2002 to 2009		2010 to 2012	
	SLEA	MHEA	SLEA	MHEA
Age 18 to 30	79%	84%	79%	85%
Age 30 to 49	85%	71%	63%	62%
Age 50 to 64	93%	85%	87%	116%

Table 3.5: Scottish SLEA and MHEA rates as a percentage of UK rates, by year group and age group
Source: GEM UK surveys

4 Scotland's Innovation-based Entrepreneurship Ecosystem[1]

Introduction

In 2012, a Scottish team participated in the inaugural Regional Entrepreneurship Acceleration Program (REAP) run by Massachusetts Institute of Technology (MIT) for regions that wished to increase their levels of innovative entrepreneurship. The REAP Scotland team[2] conducted an assessment of innovative entrepreneurship in Scotland in 2012/13. While the REAP programme does not finish until 2014, this chapter summarises the findings of this assessment to date.

The REAP framework

REAP faculty at MIT argue that innovation-based entrepreneurship (IBE) provides a greater contribution to regional economic development than small and medium-sized enterprises (SMEs), because the former can develop global advantage through innovation, whereas the latter tends to be restricted to regional or local advantage. A region's level of IBE is a function of the strength of its innovation capacity, its entrepreneurship capacity, and the networks that link these capacities. If a region wishes to accelerate its IBE ecosystem, then, it needs to assess the current strengths of these three components, and identify what may be holding back the levels of IBE.

The GEDI method

A group of GEM team scholars[3] developed a methodology of assessing national systems of entrepreneurship that fits well with the REAP perspective. Their Global Entrepreneurship and Development Index focuses on the quality as well as quantity of the business formation process and on the context within which these processes are expressed or repressed. In other words, they attempt to connect different measures of IBE-related attitudes, activity and aspiration to relevant aspects of the environment for entrepreneurship that impact IBE.

The REAP Scotland team commissioned a GEDI-based analysis of innovation-driven entrepreneurial capacity in Scotland, then extended the GEDI approach so that gaps could be identified between the areas that current policies aim to address and the bottlenecks in the entrepreneurial ecosystem revealed by the GEDI analysis. The GEDI analysis then became the starting point for a debate among expert stakeholders on the health of an innovative entrepreneurial ecosystem.

A set of 14 individual and 14 institutional variables was developed to represent the quality and size of the entrepreneurial ecosystem at the regional level. Scottish estimates for half of the institutional measures were successfully obtained from published sources. For the remainder, UK-wide measures were used[4]. Fourteen "pillars" were generated; each comprised a measure of the prevalence in the working age population of an entrepreneurial attitude, activity or aspiration over the 2008 to 2011 period, multiplied by a measure of a relevant aspect of the environment that might affect the prevalence measure.

Figure 4.1 shows how, for each of the 14 pillars, Scotland's IBE ecosystem compares with 27 "innovation-driven" countries[5]. The spider diagrams plot Scotland's scores for each pillar and show visually where Scotland fits relative to the 25th (green), 50th (amber) and 75th (red) percentile country on each pillar. Scotland is placed in the bottom quartile of innovation-driven nations in three pillars: Process Innovation, Product Innovation and Risk Capital.

Looking at the underlying variables, three weaknesses in institutional variables emerged: the current level of participation in post-secondary education among young adults (aged 18-22), the level of internet usage, and Gross Expenditure in Research and Development (GERD). These have knock-on effects on their respective pillars: Start-up skills, Networking, and Process Innovation. Relative weaknesses are also apparent in most individual variables measuring aspiration.

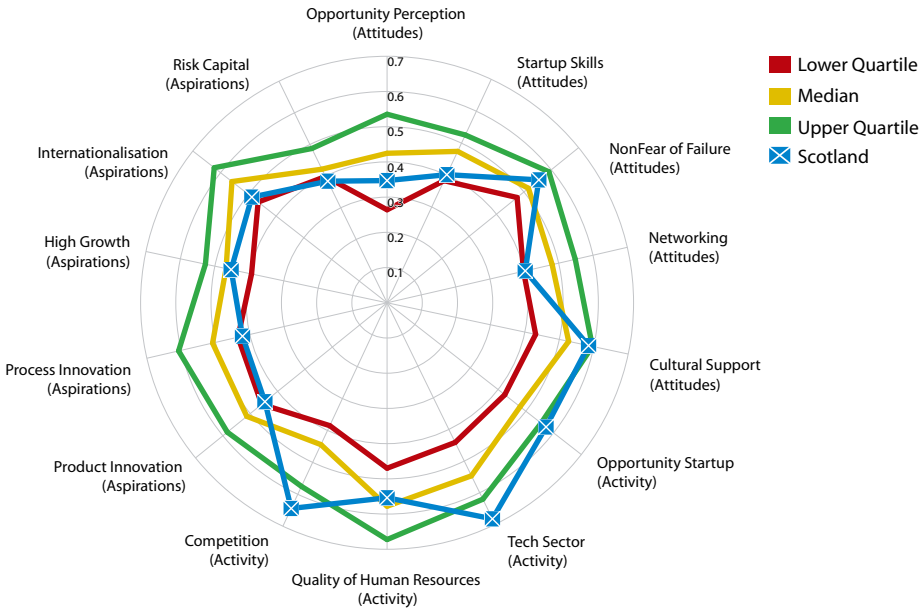


Figure 4.1: Scotland's innovation-based entrepreneurship ecosystem compared with 27 innovation-driven economies

Source: GEDI

Figure 4.2 compares Scotland with "Arc of Prosperity" countries[6]. Denmark appears to have strengths in pillars where Scotland is relatively weak, such as Process Innovation and Networking, and where it is absolutely weak, such as Opportunity Perception. Ireland follows a similar pattern to Scotland, and is worse in some pillars, such as Opportunity Perception and Opportunity Start-up. Iceland fares worse than Scotland in Competition but better in some pillars where Scotland is weak, such as Process Innovation and Networking. Finland does better than Scotland in some Attitudes measures and most Aspiration measures.

Figure 4.3 benchmarks Scotland against England, Wales and Northern Ireland. Scotland appeared "worse" than England in Opportunity Perception and Start-up Skills, and "better" than Wales and Northern Ireland in some Activity measures and Opportunity Perception.

A mathematical sensitivity analysis suggested that three attitude pillars (Opportunity Perception, Start-up Skills, Networking) and all of the five Aspiration pillars could be acting as "bottlenecks" in the ecosystem, with weaknesses that were holding the ecosystem back from developing to its full potential. This fitted with the judgement of the Scottish REAP team.

The next stage was to validate the bottleneck pillars with a series of stakeholder meetings in Scotland, to which experts were invited to debate between one and three of the eight pillars. Four groups of 12 to 15 experts attended one of four stakeholder meetings. The meetings revealed a set of perceived weaknesses in Scotland's entrepreneurial ecosystem. Repeating themes documented in a summary report of the meetings included: networking and networks (67 mentions), business, management and commercial skills (28 mentions) and in particular sales and selling skills (21 mentions), global outlook (10 mentions) and the need to connect with other

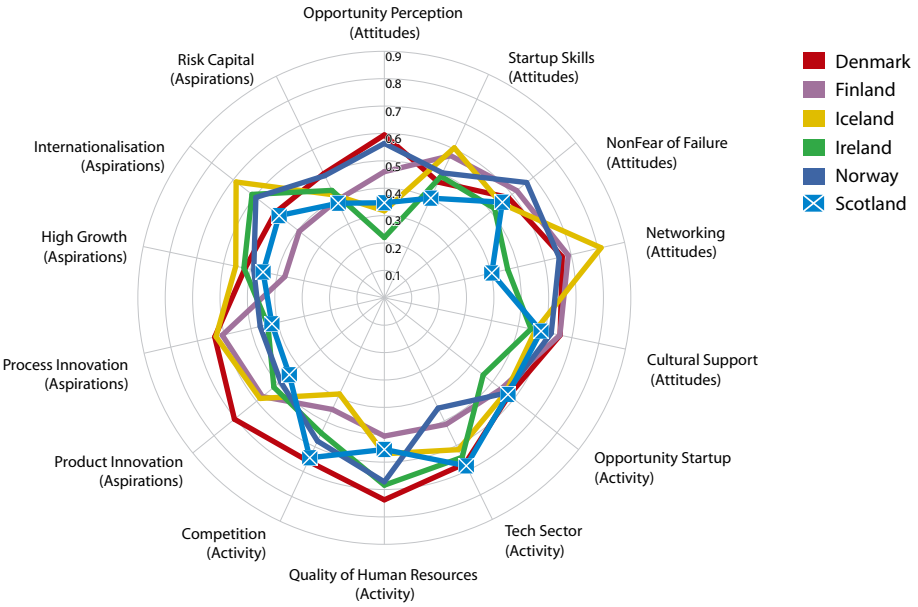


Figure 4.2: Scotland's innovation-based entrepreneurship ecosystem compared with 'Arc of Prosperity' economies

Source: GEDI

cultures (11 mentions), the contribution of Scottish universities (12 mentions), mentors (12 mentions), role models (8 mentions), access to markets (4 mentions) and finance (12 mentions) including those outside Scotland, and exits (4). It was striking how individuals who had had the opportunity to experience entrepreneurial environments such as Boston returned to Scotland fired with enthusiasm.

The GEDI results and the stakeholder results suggest that alleviation of a small number of issues could lift a range of pillars. For example, one cross-cutting theme seems to be information flows within the ecosystem, and between the ecosystem and the outside world. There are tremendous sources of commercially valuable information and skills in certain pockets of the ecosystem, such as experienced entrepreneurs and the research base. But this is not filtering through to less experienced entrepreneurs as much as it could. Connections by entrepreneurs with markets and resources outside Scotland also seem relatively weak. Current formal and informal networks appear to be inadequate or not working as well as they might be, and as a result fewer potentially successful entrepreneurs benefit from appropriate role models and mentors. This low conductivity of information may reflect low aspirations and poor networking and selling skills in addition to failures in delivery of some organised networks. Several programmes to raise aspirations and skill levels in networking and selling appear to have been successful. Scaling up programmes like this will be a challenge.

In conclusion, the GEDI methodology helped to compare Scotland's innovative entrepreneurship ecosystem with benchmark nations. However, it only provides the first step in a process of assessment where stakeholder buy-in is critical if real change is to be effected.

1 This is a condensed version of a longer paper entitled Assessing Regional Innovative Entrepreneurship Ecosystems with the Global Entrepreneurship and Development Index: The Case of Scotland, by Jonathan Levie, Erkko Autio, Clive Reeves, Donna Chisholm, Jonathan Harris, Simon Grey, Ian Ritchie, and Matthew Cleevely. The paper is available from the first author upon request.

2 Simon Grey, AWS Ocean Energy Ltd.; Jonathan Harris, Young Company Finance; Ian Ritchie, Coppertop; Clive Reeves, Scottish Enterprise; Donna Chisholm, Highlands and Islands Enterprise, Jonathan Levie, University of Strathclyde.

3 Acs, Z.J., E. Autio, and Szerb, L. (2012), National Systems of Entrepreneurship: Measurement Issues and Policy Implications. SSRN eLibrary.

4 See note 1 for details of a paper which lists all variables and sources used in the analysis.

5 This the most advanced of three stages of economic development as defined in the World Economic Forum's Global Competitiveness Report 2011. Innovation-driven countries cannot compete on labour costs and therefore must compete on knowledge.

6 Small modern independent North European economies about the same size as Scotland: Ireland, Iceland, Norway, Denmark and Finland.

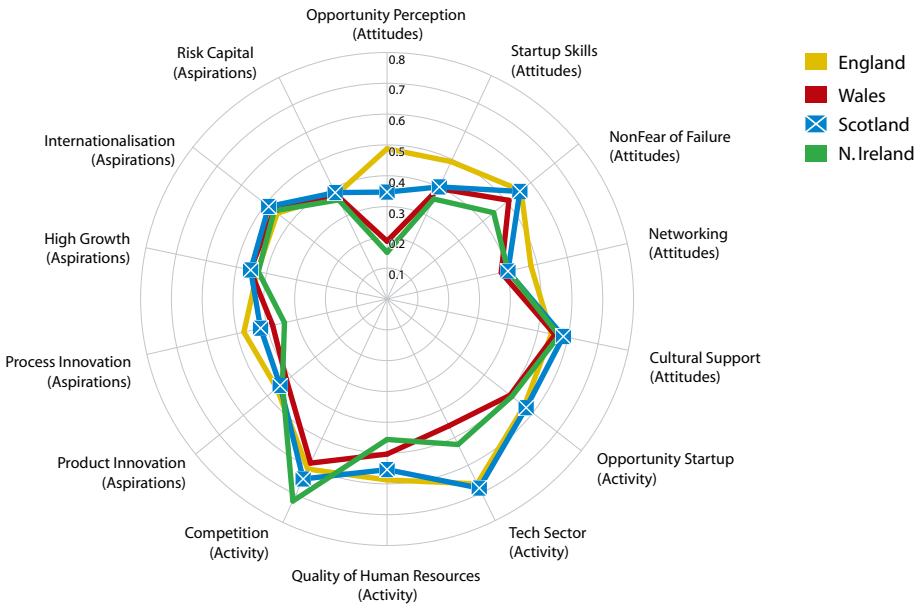


Figure 4.3: Scotland's innovation-based entrepreneurship ecosystem compared with other UK home nations

Source: GEDI

5 Ethnic and Migrant Entrepreneurship

In this chapter, we consider the impact of ethnic minorities, immigrants (those not born in the UK) and regional in-migrants (those who have migrated from another region of the UK) on Scotland's entrepreneurial ecosystem.

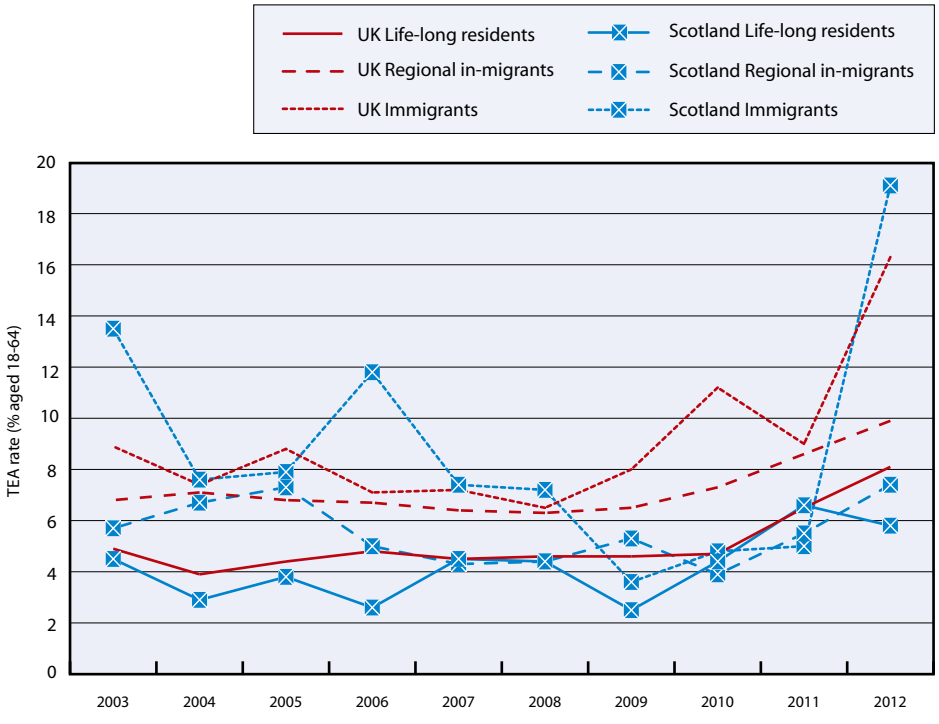
For the past ten years about 41,000 people per year on average have migrated from Scotland to England and Wales and about 50,000 have migrated from England and Wales to Scotland, though this gap has narrowed considerably since 2010[1]. Scotland has also seen growing net immigration of mainly younger adults and children from abroad in exchange for older, mainly retired, adults, resulting in a positive annual net migration into Scotland from elsewhere in the UK and abroad of around 23,000 on average every year since around 2004.

Data for 2009 to 2011 suggests that there is now net total in-migration at every age between 18 and 64; however at local authority level the presence or absence of third level education institutions can distort migration patterns of young adults, and net outmigration of adults in the 30 to 49 age group is an issue for Glasgow and its western hinterland[2].

Immigrants comprised only 5% of the Scottish GEM working age sample over the 2003 to 2012 period (one fifth of these were non-white), compared with 12% in the UK (half of these were non-white). Non-white individuals comprised only 2% of the Scottish sample, compared with 10% in the UK.

The proportion of Scots-born who reported themselves as life-long residents of the region they now live in increased from 41% in 2003 to 62% in 2012, while the proportion of Scots-born regional in-migrants declined from 40% to 21%. The proportion of English-born in-migrants remained stable at 9% to 12%. This suggests either a decline in returning emigrant Scots and/or a decline in intra-regional migration within Scotland. Consistent with the former, annual in-migration from England and Wales has dropped by 28% from a peak of 60,000 by the second quarter of 2004 to around 43,000 by the first quarter of 2012. Consistent with the latter, inter-council moves within Scotland (based on GP registrations) have declined from 217,000 in 2003/4 to 195,000 in 2010/11[3].

Figure 5.1: TEA rates by migrant status in Scotland and UK, 2003 to 2012
Source: GEM UK surveys 2002 to 2012



English in-migrants and immigrants in Scotland have significantly higher opportunity perception rates (37% and 38%) than Scots-born in Scotland (29%). Perceived skills in starting a business are also significantly higher (53% and 54% versus 45%).

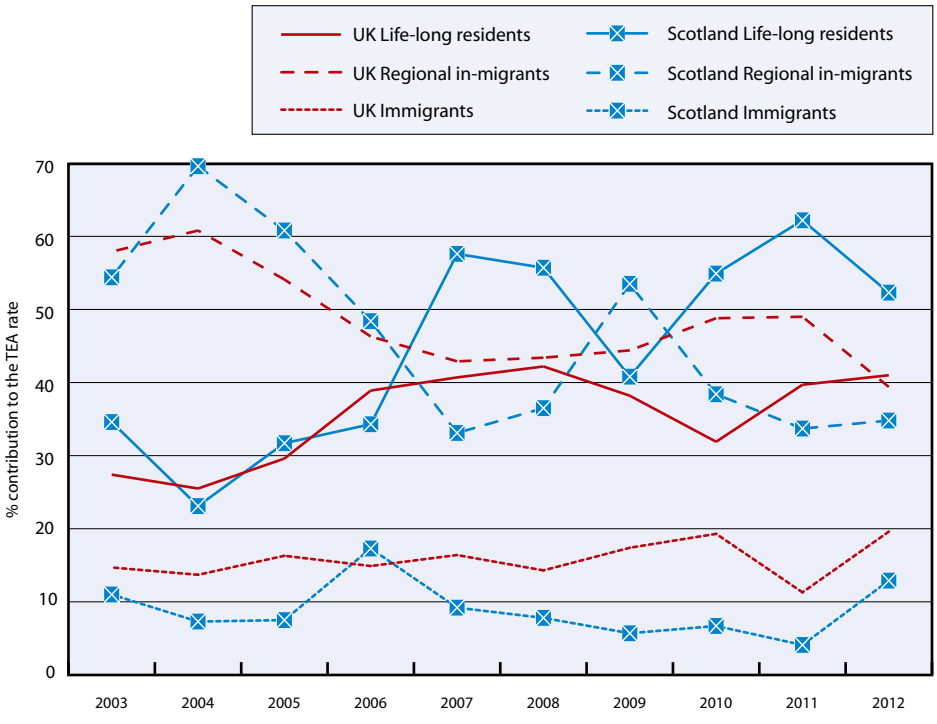
Across the UK, individuals with Mixed Black Caribbean and White, Mixed Black African and White, Pakistani, Black Caribbean and Black African ethnic heritage appear to have significantly higher early-stage entrepreneurial activity than White British, White Irish or Chinese[4]. However, the opposite is the case for the prevalence of established business owners (with the exception of Chinese, which also have low established business owner prevalence rates). TEA rates of Pakistani and other Asian (i.e. not Pakistani, Indian, Bangladeshi or Chinese) ethnic individuals were significantly higher than TEA rates of White British in the combined 2003 to 2012 Scottish GEM sample. But sample sizes of most ethnic groups in Scotland were too small to test for differences.

Figure 5.1 shows the TEA rate by migrant status from 2003 to 2012. Over this period, immigrants had significantly higher TEA rates in the UK and in Scotland (8% and 9% respectively over the period) than regional in-migrants (7% and 6%), and both groups had significantly higher rates than life-long residents (5% and 4%). The trend is flat in all three groups in the UK and declining for migrants in Scotland prior to the financial crisis, and increasing since 2010.

Figure 5.2 shows the relative contribution of individuals of different migrant status to the overall TEA rate in the UK and Scotland from 2003 to 2012. Immigrants consistently comprised 15% of UK entrepreneurs but 12% of the UK sample, and 10% of Scottish entrepreneurs but 5% of the Scottish sample. Thus immigrants to Scotland appear to be "punching above their weight" in entrepreneurship. The contribution of regional in-migrants to the overall TEA rate has decreased over time in both Scotland and the UK.

Figure 5.2: Relative contribution of individuals of different migrant status to the TEA rate in the UK and Scotland, 2003 to 2012

Source: UK GEM surveys 2003 to 2012



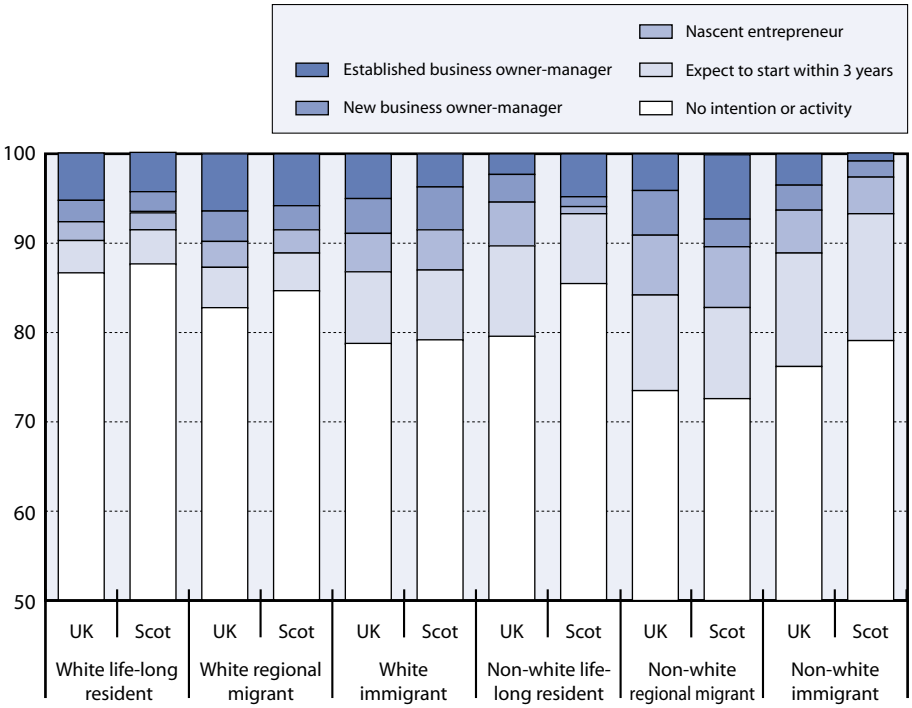


Figure 5.3: Proportion of working age population in UK and Scotland engaged in different levels of entrepreneurial activity, by ethnic minority and migrant status.
Source: GEM UK surveys 2003 to 2012

Figure 5.3 shows the proportion of working age individuals in Scotland and the UK in the combined 2003 to 2012 database engaged in different levels of entrepreneurial activity by ethnic minority and migrant status. Over one quarter of non-white regional migrants and non-white immigrants were engaged in some level of entrepreneurial activity, compared with less than 15% of white life-long residents.

The persistent difference in TEA rates between Scotland and the UK highlighted in Chapter 3 may be partly due to differences in the distribution of household income and migrant status. People who live in wealthy households are more likely to have the economic resources to start a business, to be better educated and to have parents with a business background. All these contribute to higher start-up rates. Migrants have higher start-up rates than life-long residents, perhaps because they may be more open to trying new things or because they have higher aspirations, because they are more likely to spot market needs in the local area that are not currently met, or because of difficulties in the labour market[5].

Table 5.1 shows that Scotland has a relatively low proportion of individuals in segments of the population that tend to have higher TEA rates (shaded in green) and a relatively high proportion of individuals in segments of the population that tend to have lower TEA rates (shaded in red). A simulation found that the difference in population proportions of these segments could account for over one third of the difference in the TEA rate between Scotland and the UK over the 2003 to 2012 period.

In Chapter 3, attention was drawn to the unusually low TEA rate in Scotland among 30 to 49 year olds, the age band with the highest TEA rate across the UK. In the GEM combined 2003 to 2012 sample, 60% of Scots-born TEA entrepreneurs in England were aged

1 National Health Service Central Register patient movement data, General Register Office for Scotland

2 Ibid.

3 Ibid.

4 Hart, M. and Levie, J. (2013) Global Entrepreneurship Monitor UK Montoring Report, Aston Business School.

5 Levie, J. (2007) Immigration, in-migration, ethnicity and entrepreneurship in the United Kingdom. Small Business Economics Vol. 28, No. 2, pp. 143-169.

6 This is also the pattern revealed by the 2001 census on migration and self-employment; data on country of origin for the Scottish 2011 census was not publicly available at the time of writing.

7 MHEA, or medium-high aspiration early-stage activity is the proportion of working age individuals who expect to employ at least 5 people in five years' time. This measure excludes the self-employed with no employees and very small businesses.

		UK			Scotland			Scotland as % of UK rate	
Migrant status	Household income	% of sample	TEA rate	% of TEA entrepreneurs	% of sample	TEA rate	% of TEA entrepreneurs	% of sample	% of TEA entrepreneurs
Life-long resident	Low	6.1	3.2	3.1	7.0	3.8	5.2	115	167
	Medium	30.8	4.6	22.4	35.4	4.1	28.0	115	125
	High	7.7	7.5	9.2	9.9	6.2	11.7	128	127
Regional In-migrant	Low	4.9	5.1	3.9	5.9	3.3	3.8	121	96
	Medium	27.1	6.6	28.4	26.8	5.1	26.4	99	93
	High	12.1	8.9	17.0	9.8	8.2	15.4	81	90
Immigrant	Low	1.8	7.7	2.2	0.8	5.7	0.8	43	38
	Medium	6.8	8.8	9.5	3.4	8.7	5.6	49	59
	High	2.7	9.9	4.3	1.2	13.3	3.1	45	73
Total		100.0	6.3	100.0	100.0	5.2	100.0		

Table 5.1: Proportion of sample and early-stage entrepreneurs by migrant status and household income in UK and Scotland, combined 2003 to 2012 sample

Source: GEM UK Survey 2003 to 2012 data

between 30 and 49, compared to just 54% of Scots-born TEA entrepreneurs in Scotland. However, there was no substantial difference in the proportion of all Scots-born individuals aged 30-49 in the English sample (48%) and Scottish sample (46%). What's more, the TEA rate of Scots-born in England aged 30 to 49 at 8.1% was almost 60% higher than that of Scots-born in Scotland (5.2%). This difference was statistically significant.

The entrepreneurial profile of the 1,900 English in the combined Scotland sample is different. The proportion of English TEA entrepreneurs in Scotland aged 30-49 and 50-64 was in proportion to the proportion of all English in Scotland of those ages (52%/48% and 30%/31% respectively), whereas in England, the proportion of English TEA entrepreneurs aged 30-49 was higher than the proportion of all English aged 30-49 in England (59%/47%) and the proportion of older English TEA entrepreneurs was lower (21%/29%).

In summary, Scotland appears to be losing more entrepreneurial Scots of peak-age than we might expect to England and receiving more older English entrepreneurial migrants than we might expect[6]. The older English in-migrants have the highest TEA rate of any group in Table 5.2, significantly higher even than Scots-born regional in-migrants. They appear also to be more likely to be growth-oriented than Scots-born in Scotland, with a significantly higher MHEA rate[7] of 2.9% compared with 1.6%. English-born in England and Scots-born in England had intermediate MHEA rates of 2.1% and 2.2% respectively.

Table 5.2: TEA rates of Scots-born and English-born in Scotland and England, combined 2003 to 2012 sample

Source: UK GEM 2002 to 2012 surveys

Nation of birth	Scotland			England	Not UK	Scotland	England	Any
Nation of residence	Scotland			Scotland	Scotland	England	England	All UK
Migrant status	All	Life-long resident	Regional in-migrant	Regional in-migrant	Immigrant			All
age 18 to 30	4.2	4.7	3.6	6.9	5.3	4.8	4.9	5.3
age 30 to 49	5.1	4.8	5.7	8.4	9.8	8.1	7.3	7.5
age 50 to 64	3.2	2.6	3.7	7.5	11.0	5.1	4.1	4.2
Total	4.3	4.2	4.6	7.8	8.8	6.5	5.8	6.0

Entrepreneurship and Education

This chapter summarises the relationship between level of education and entrepreneurial awareness, attitudes, activity and aspiration. The education level of the Scottish workforce appears to have steadily increased over the past decade. The proportion of graduates in the annual GEM Scotland random sample doubled from 21 % in 2002 to 40% in 2012, while the proportion with no qualifications declined from 18% to 8%. In the much larger UK sample, the proportion of graduates has also steadily increased from 25% to 41% and the proportion of those with no qualifications has declined from 13% to 6%.

Table 6.1 shows the difference in entrepreneurial awareness and attitudes between those with no education qualifications, with education qualifications below graduate level, and graduates for the combined GEM Scotland 2002 to 2012 sample. Entrepreneurial awareness and attitudes improved with education level with the exception of fear of failure, status of successful entrepreneurs and media coverage of new business, where there is no significant difference, and attitudes to starting a business as a career choice, which became more negative with increasing education level. This pattern is similar to the UK as a whole, and to Arc of Prosperity countries.

In the United States, a far higher proportion of both non-graduates (69% in the US versus 53% in Scotland on a like-for like basis) and graduates (64% versus 44%) responded positively to the item on career choice[1], and the response rates for these two groups are relatively close.

Percentage agreeing with statement and expressing an opinion	No qualifications	Non-graduate education	Graduate education
Knows someone who started a business in the last 2 years	**11.9**	**25.4**	**34.3**
Sees good opportunities for starting a business in the local area in the next 6 months	**15.6**	**29.1**	**38.6**
Has knowledge, skills and experience to start a business	**15.6**	**44.1**	**52.9**
Would not start a business in case in might fail	35.8	38.4	39.1
Starting a business considered a good career choice	**59.6**	**54.5**	**43.5**
People growing a successful new business have high status	74.1	76.2	75.5
Lots of media coverage for new businesses	51.0	53.1	52.8

Table 6.1: Entrepreneurial awareness and attitudes among individuals aged 18 to 64 in Scotland by level of education, combined 2002 to 2012 GEM Scotland database

Source: GEM Scotland 2002 to 2012 database

Note: Rows in bold denote statistically significant difference by education level

The attitudes of young (18 to 29 years) graduates to starting a business as a career appear to have been most affected by the financial crisis, plunging from a high of 65% in 2006 to a low of 29% in 2008 and climbing back to 65% by 2012. Among other groups, this attitude measure did not change substantially.

Figures 6.1 and 6.2 show the trend in TEA rates over time in the UK and Scotland by level of education. In the UK, graduates had higher TEA rates than non-graduates, and those with some educational qualifications had higher TEA rates than those without qualifications in every year except 2011. The spike in 2011 may be due to small numbers of individuals with no education qualifications in recent samples. In Scotland, TEA rates of graduates steadily reduced to the same rates as non-graduates between 2005 and 2008, and then recovered.

The education profiles of Scots-born in Scotland and Scots-born in England in the GEM UK combined 2002 to 2012 database vary considerably. In the 18 to 29 and 30 to 49 age groups, one third of Scots-born individuals in Scotland were graduates, compared with 50% of Scots-born in England. The 50 to 64 age group contained fewer graduates, but the difference in proportions remained (25% of Scots-born in Scotland were graduates versus 40% in England). This has implications for entrepreneurial activity in Scotland.

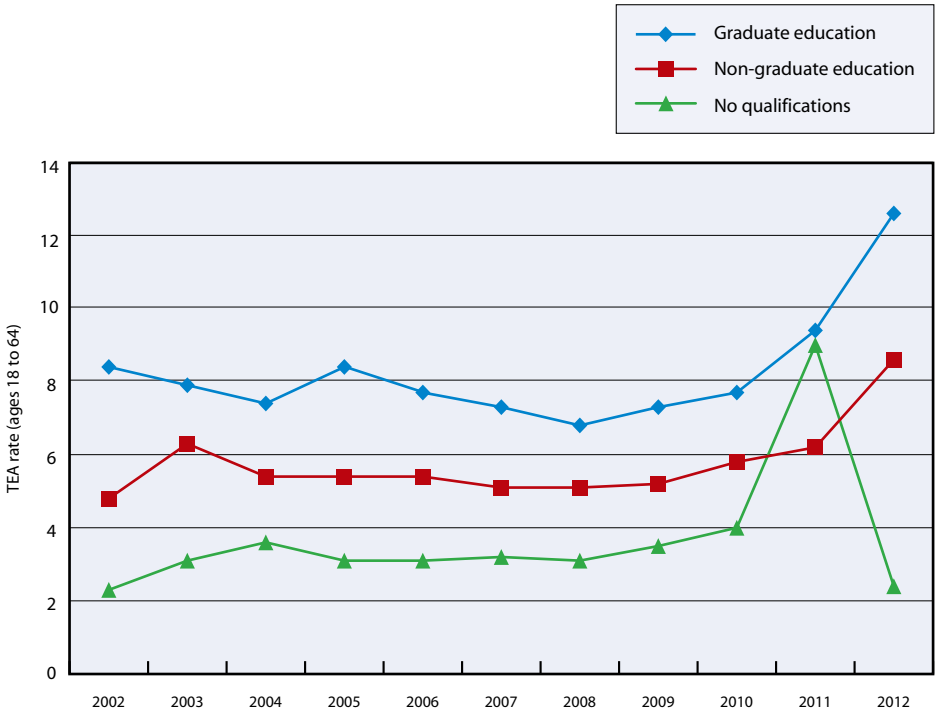


Figure 6.1: UK TEA rates by education level and year, 2002 to 2012
Source: GEM UK surveys 2002 to 2012

Figure 6.2: Scotland TEA rates by education level and year, 2002 to 2012
Source: GEM UK surveys 2002 to 2012

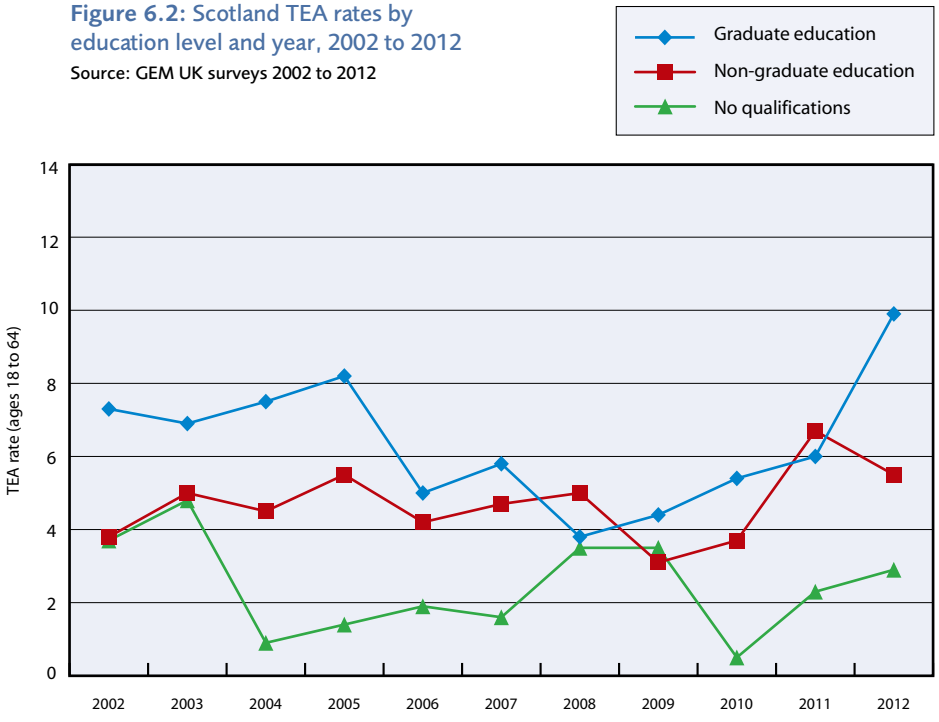


Table 6.2 shows the differences in TEA rates in Scotland and England for Scots-born, English-born and immigrants. TEA rates of Scots-born graduates in England are significantly higher than TEA rates of Scots-born graduates in Scotland. While this is a cross-sectional analysis and not a tracking study, it does suggest that the loss of Scots graduates to England may have a compounding effect on entrepreneurial activity in Scotland[2]. This compounding effect appears to increase with age, to the point where only 40% of older Scots-born individuals in England were graduates, but these graduates contributed over 70% of older Scots-born TEA entrepreneurs in England. In Scotland, by contrast, only 25% of older Scots-born individuals were graduates, and these contributed only 45% of older TEA entrepreneurs.

Table 6.2 also reveals a higher TEA rate of non-graduate than graduate immigrants in Scotland. This is the opposite of the pattern in England, and is an unexpected finding.

Among graduates in Scotland, the necessity-driven TEA rate increased from 0.6% in 2008 to 1.6% in 2012, while the opportunity-based TEA rate increased from 2.8% to 7.3%. Most of these graduate entrepreneurs had modest aspirations for their business. Figures 6.3 and 6.4 show the trend in self-employed/low ambition early stage entrepreneurial activity rates (i.e. nascent and new entrepreneurs expecting to employ no more than four people in five years' time), and medium/high ambition early-stage entrepreneurial activity in the UK and Scotland, from 2002 to 2012. After the financial crisis, activity increased in the UK except for MHEA rates among non-graduates. In Scotland, graduate SLEA rates doubled between 2010 and 2012 but other rates did not increase significantly. Thus the recent increase in the Scottish TEA rate is mainly due to graduates becoming self-employed or starting small businesses without significant medium term ambitions.

1 These estimates were compiled for the combined 2009 to 2011 GEM global database, using United Nations classifications of education level for comparison across nations.

2 For further evidence of a net high quality graduate outflow from Scotland, primarily to England, see Mosca, I. and Wright, R.E. (2010) National and international graduate migration flows, Population Vol. 141, pp. 36-53.

Table 6.2: Tea rates of Scots-born, English-born and immigrants resident in Scotland and England by education level, combined GEM database 2002 to 2012

Source: GEM UK surveys 2002 to 2012

Note: Pairs in bold are significantly different based on Chi-square tests.

	Scots-born		English-born		Immigrants	
	Non-graduates	Graduates	Non-graduates	Graduates	Non-graduates	Graduates
Resident in Scotland	**3.7%**	**5.7%**	7.4%	8.8%	**11.3%**	**6.4%**
Resident in England	**5.0%**	**8.0%**	**5.0%**	**7.6%**	**6.9%**	**9.2%**

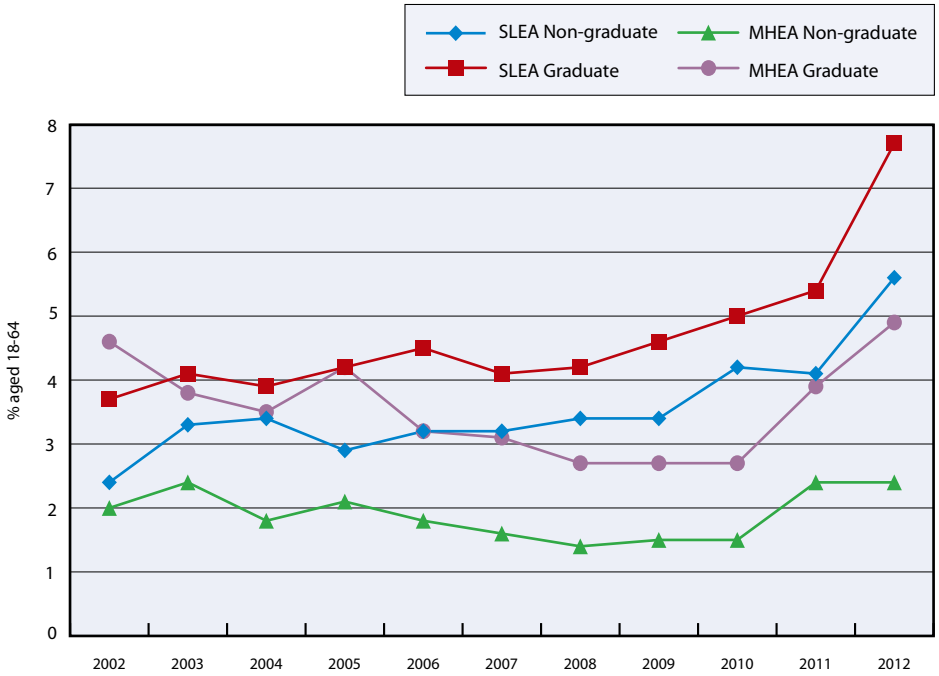


Figure 6.3: Solo/low ambition versus medium/high ambition early-stage entrepreneurial activity in the UK among non-graduates and graduates, 2002 to 2012

Source: GEM UK surveys 2002 to 2012

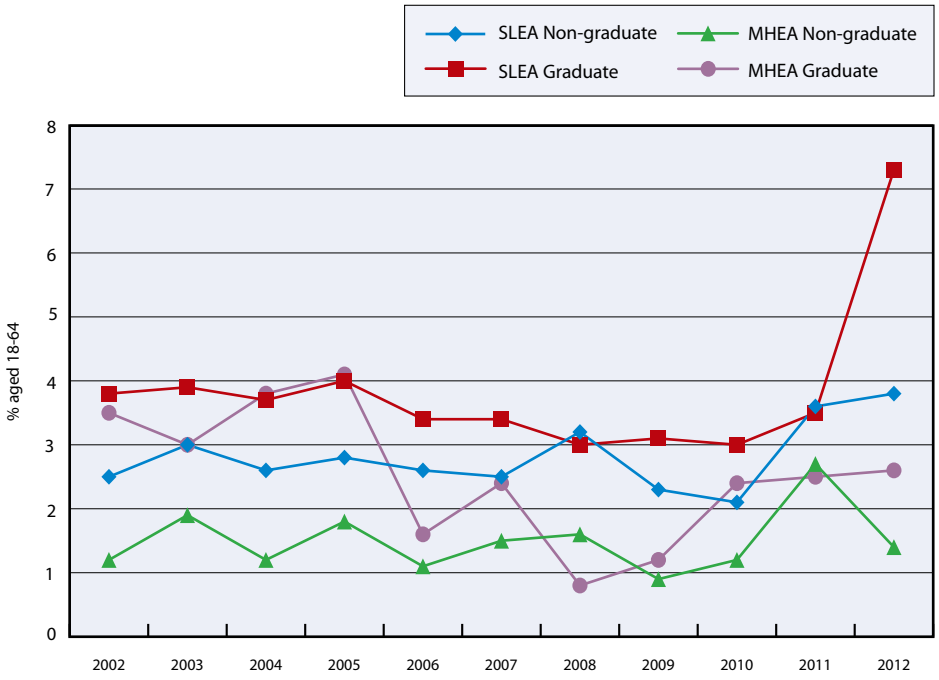


Figure 6.4: Solo/low ambition versus medium/high ambition early-stage entrepreneurial activity in Scotland among non-graduates and graduates, 2002 to 2012

Source: GEM UK surveys 2002 to 2012

Scottish Entrepreneurship Policy and Programmes Review 2012

Perhaps the most significant event in entrepreneurship programme development in Scotland in many years happened in January 2012 – and it was neither designed nor delivered, nor, in the beginning, funded – by any government or state agency official.

Jim Duffy, a Saltire Fellow, inspired by his experience in Boston, created a not-for profit start-up accelerator called Entrepreneurial Spark, using vacant office space offered for free by Sir Willie Haughey OBE of City Refrigeration Holdings. This inspired Sir Tom Hunter to do the same in Ayrshire, and a replicable model evolved of cooperation between E-Spark, local authorities and local entrepreneurs to create local start-up accelerators. One year later, this initiative had given intensive coaching and start-up space to 139 "chiclets" who had achieved over £3.5 million in turnover[1].

The E-Spark model rapidly attracted the attention of senior politicians in the Scottish Government, and arguably made a breakthrough in attracting high level attention of Scottish Government policymakers to entrepreneurship. This attention grew through the year[2].

In March, Scottish Enterprise announced plans to work with up to 400 additional companies with significant growth potential through its account management programme. Other plans in Scottish Enterprise's 2012 to 2015 business plan included helping up to 400 companies to present an attractive investment proposition to potential funders and securing up to £75 million of private sector capital through the Scottish Investment Bank's equity funds.

In June, First Minister Alex Salmond announced that The Prince's Trust Youth Business Scotland (PTYBS) would receive £1 million from Scottish Enterprise, through the Scottish Investment Bank, to enhance its Revolving Loan Fund that offers grants of up to £5,000 to young people aged between 18 and 25 who wish to set up or grow their business.

Several detailed reports on the state of innovation, commercialisation and business growth in Scotland were published by Scottish Enterprise in June and July 2012. They drew attention to, among other things, a relatively low proportion of technology-based companies in Scotland despite its relatively strong university research base[3], increased difficulty in securing external investment, especially at the later stages of getting products ready for the market, and weaknesses in marketing capability within companies[4].

In October, the Finance Secretary John Swinney announced the creation of a £1 million fund for entrepreneurs in Scotland called The Scottish EDGE – Encouraging Dynamic Growth Entrepreneurs. The fund would invest up to £50,000 in entrepreneurial businesses to help accelerate innovative business ideas. A key feature of the fund was an Investment Panel drawn from Scotland's leading entrepreneurs and business people. RBS also offered a package of mentoring, business security advice and two years free banking for the recipients of the award.[5] The fund was later raised to £2 million and the first round received 235 applications.[6]

In December, reflecting the Scottish Government's increasing attention to entrepreneurship, the tenth National Economic Forum had as its theme "Entrepreneurship and Innovation – delivering sustainable growth".

The Scottish Investment Bank's total investment, including deals done through the Scottish Loan Fund, reached almost £30million in 2011/12, and leveraged £62million from the private sector to invest in 91 Scottish companies[7]. In 2010/11, the SIB invested £23 million in 109 Scottish companies and leveraged £53.7 million of private sector investment[8].

1 E-Spark Impact report 2012, available at http://issuu.com/esparkuk/docs/espark-_impact_report_2012

2 For example, see http://blogs.scotland.gov.uk/scotlands-economy/2012/11/26/scotland-is-a-fertile-ground-for-entrepreneurs/

3 www.scottish-enterprise.presscentre.com/Press-releases/Scotland-needs-more-high-growth-technology-companies-to-drive-economic-performance-52a.aspx

4 www.scottish-enterprise.presscentre.com/imagelibrary/downloadMedia.ashx?MediaDetailsID=952

5 www.scottish-enterprise.presscentre.com/Press-releases/Entrepreneurs-Fund-to-give-Scotland-the-EDGE-56e.aspx

6 www.scotland.gov.uk/News/Releases/2013/02/scottishEDGE18022013

7 www.scottish-enterprise.presscentre.com/Press-releases/SIB-shows-positive-results-for-2011-2012-5b4.aspx

8 www.scottish-enterprise.com/about-us/how-we-work/accountability/annual-review/investments-annual-review.aspx

GEM and Entrepreneurship Policy in Scotland

In 2012, Scotland moved from the third to the second quartile of innovation-driven nations participating in GEM in terms of early-stage entrepreneurial activity, while the UK moved into the first quartile. For the first time ever, the TEA rate for Scotland was above the average of Arc of Prosperity countries. Attitudes to entrepreneurship among young adults have recovered to pre-crash levels.

Driving this growth in activity was a jump in low aspiration start-up activity by graduates, probably because of a reduction in attractive forms of graduate employment either in Scotland or elsewhere. In other words, the opportunity cost of entrepreneurship has dropped to the level where individuals who would not ordinarily contemplate an entrepreneurial career - graduates with relatively high human capital – see it as a relatively attractive option. An alternative explanation, that entrepreneurship education in Scottish universities has fuelled this increase, is less credible, because the number of students receiving entrepreneurship education is still so low that its effect is probably minor[1].

Now is the time to take advantage of this growth in activity, and turn quantity into quality, before the market for graduate jobs expands to the point where these entrepreneurs will abandon their small-scale businesses for a full-time job. A lot can be done in this area, but most of it cannot be done well by government alone. It requires a "Team Scotland" approach. The five priority themes identified by the REAP Scotland team are: "financing for growth" (including exits for investors in angel-backed companies, increasing access to institutional and international funds etc.); "effective connections" (this includes networks but is more fundamental than "networking"), "skills for growth" (for leadership teams within innovation-based entrepreneurial ventures or IBEs), "role of the universities in the IBE ecosystem", and "role models and positive messages".

Each theme can lift the level of ambition and self-belief, and help turn self-belief into reality. The battle for hearts comes first. The effect on Scottish entrepreneurs of one week in a high quality entrepreneurship programme in Boston is remarkable. Some experiments are already being conducted to replicate this experience in Scotland in a low cost, high volume way. But one week in a high velocity environment is not enough. It needs to be followed up.

An example of what could be done in Scotland is in sales training. It is shocking that only one university professor specialises in sales (as opposed to the management of sales forces) in the whole of the UK[2]. Sales is an established, respected field in US universities. Most graduate jobs involve an element of sales, yet the standard of sales training in Scotland is lamentable. "Team Scotland" is more than capable of addressing this.

Since this charge in entrepreneurial activity is being led by graduates, universities need to examine their provision of enterprise activities for their alumni. How many of them offer enterprise advisory or coaching facilities for alumni? How many offer opportunities for entrepreneurial alumni to meet high quality potential investors, customers or suppliers? How many honour their alumni who try to create international businesses, not just the ones who have become donor targets?

The special topic of GEM this year was migration. Migrants to Scotland, from England or further afield, make a disproportionate contribution to entrepreneurship in Scotland. UK-wide evidence suggests that this contribution continues into the second generation.[3] As England becomes increasingly hostile to migrants, this might be Scotland's chance to entice more immigrants, and attract back the best and brightest who have left Scotland in recent decades to work in England and abroad.

1 When asked in 2012 if something they did at school, college or university made them think of starting a business, 50% of graduate 18 to 29 years olds in Scotland said yes, compared with 44% of older graduates.

2 In Cranfield University, which is also highly regarded by entrepreneurs for its practical business growth programme.

3 Hart, M. and Levie, J. (2013) Global Entrepreneurship Monitor UK 2012 Monitoring Report, Aston Business School.

Appendix 1

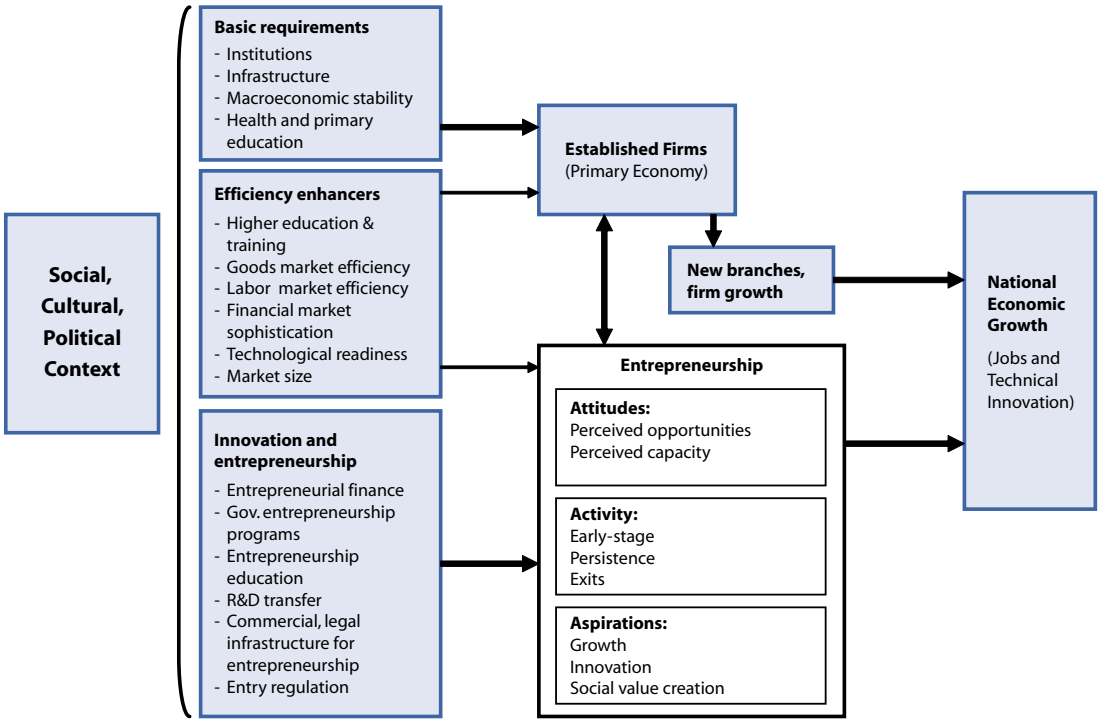
In the GEM 2008 Executive Report[1], the tenth in the series, a revised GEM model was presented. This model incorporated what has been learnt about entrepreneurial activity in the past ten years, and also what has been learnt about the economics of development and where entrepreneurship and innovation contribute to economic development. In particular, GEM adopted the World Economic Forum typology of "factor-driven economies", "efficiency-driven economies", and "innovation-driven economies"[2].

The revised model recognises that the nature and contribution of entrepreneurship may vary across countries with different levels of economic development. The model suggests a comparative study of entrepreneurship of an economy such as Scotland should focus on other innovation-driven economies rather than factor - or efficiency-driven economies.

The second major adjustment to the GEM model is the recognition that entrepreneurship is multi-faceted, and is not captured by one measure but by many. This is represented in the diagram by the Entrepreneurship box which has three main components: attitudes, activity and aspirations. Given the right institutional context (as represented by the left hand side of the diagram), entrepreneurial attitudes, activity and aspiration interact to contribute to national economic growth through the provision of new economic activity. This is important because it suggests that a narrow focus on measuring the number of business start-ups alone may miss the important impact that attitudes and aspirations, as well as institutions, may have on the effect of entrepreneurship in a nation on national economic growth.

1 Bosma, N., Acs, Z.J., Autio, E., Coduras, A., and Levie, J. (2009). *Global Entrepreneurship Monitor 2008 Executive Report*. London: GERA. Available at www.gemconsortium.org

2 Phases of economic development are decided on the level of GDP per capita and the extent to which countries are factor-driven in terms of the shares of exports of primary goods in total exports. See Porter, M.E. and Schwab, K. (2008), *The Global Competitiveness Report 2008-2009*, Geneva, Switzerland: World Economic Forum.



Appendix 2

Index of Special Topics covered in GEM Scotland reports, 2000 to 2012

Topic	Years covered
Young Entrepreneurs/Entrepreneurship and Age	2000, 2006, 2010
Financing Entrepreneurship	2000, 2003, 2004, 2010
Female Entrepreneurship/Women in Enterprise	2001, 2004
Entrepreneurship and Education/Entrepreneurship Training	2001, 2005, 2007/8, 2012
Location of Entrepreneurship	2001, 2004, 2007/8
High Potential/High Expectation Entrepreneurship	2002, 2005
Ethnic and Immigrant Entrepreneurship	2002, 2012
Country comparison: Scotland and Ireland	2002
Social Entrepreneurship	2003, 2005
University Spinouts	2003
Corporate Entrepreneurship/Employee Entrepreneurial Activity	2006, 2011
Business Closure	2006
Home-based Business	2007/8
Family Business and Entrepreneurship	2009
Motivation of Entrepreneurs	2009
Entrepreneurship in a Recession	2009
Repeat Entrepreneurs	2010
Entrepreneurship and Multiple Deprivation	2011
Start-up Challenges and Rewards	2011
Scotland's Innovation-based Entrepreneurship Ecosystem	2012

All GEM Scotland reports are available for download free from
www.strath.ac.uk/huntercentre/research/gem/ or www.gemconsortium.org

Notes