Small Business Survey Scotland 2014
Topic Report: Innovation

Office of the Chief Economic Adviser

Introduction

Innovation is vital to economic growth, through its influence on productivity. This note examines the existing statistics relating to innovation in Scotland and then presents more detailed analysis of the characteristics of innovative Small and Medium Enterprises (SMEs) in Scotland using a range of data including results from the Small Business Survey (SBS).

Key Findings

- Scotland performs below average on a range of indicators of innovation, including business expenditure on R&D and the number of patents registered.

- SMEs in Scotland are more likely to have introduced new products or processes if they are in the service sector, 0-4 years old, export and plan to grow.

- Results for firm size are mixed: smaller firms are more likely to have introduced new products or services, while larger firms are more likely to have introduced new processes.

Background

Long-term economic growth is driven primarily by increases in productivity (i.e. the efficiency with which inputs are used to create outputs). The drivers of productivity growth are factors which improve the quality of outputs or the efficiency with which inputs are used. Innovation can influence both of these and has been recognised as one of the four priorities for sustainable growth in Scotland's Economic Strategy[1].

Innovation is not limited to the introduction of new products and services. Workplace innovation, encompassing new methods of business practice, workplace development and applications of new technologies is also important for productivity and economic growth[2].

In addition to boosting long-term growth, innovation also usually requires investment which influences short-term growth.

[1] http://www.gov.scot/Resource/0047/00472389.pdf
[2] http://www.gov.scot/Resource/0047/00472389.pdf

According to NESTA[3], when both the investment in innovation and the wider productivity benefits of innovation are considered, 63% of UK economic growth between 2000-2008 was due to innovation.

Evidence[4] shows that firms which innovate grow faster than firms which do not innovate. Innovation therefore increases turnover but the key to economic growth is the speed and scale of adoption of productivity enhancing innovations within the sector and across the economy.

Individuals who acquire knowledge, skills and expertise are rewarded through higher salaries, better job prospects and improved welfare. As innovation related activities are specialised it tends not to directly create a large number of jobs, however, the prosperity and spill-over benefits of innovation lead to wider employment growth.

Innovation has also been linked to a greater likelihood of firms exporting[2], which benefits firms through faster growth and benefits the economy from an improved trade balance and growth.

Innovation in Scotland

One of the main indicators of innovative activity is the expenditure on research and development (R&D).

Gross expenditure on research and development (GERD) includes expenditure by businesses, higher education establishments, government and the non-profit sector. The latest statistics for Scotland show that GERD was 7.2 per cent of the UK total at just over £2 billion in 2013, lower than Scotland's population share, but higher than Scotland's share of private sector businesses (6.2 per cent)[5].

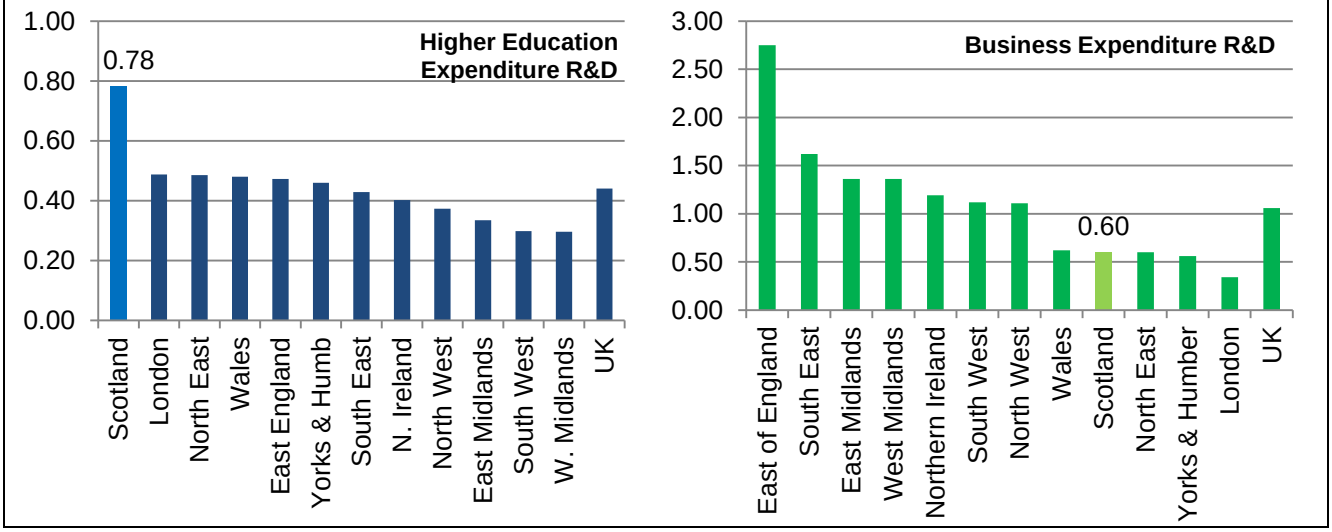
The largest component of GERD was expenditure by higher education institutions, accounting for over half the total. Scotland's higher education spending on R&D as a percentage of GDP was the highest of the UK countries and regions (Figure 1), and fourth highest in the OECD.

Scotland's performs less well on **business expenditure on R&D (BERD).** BERD has grown relatively quickly, increasing by 29 per cent in real terms between 2007 and 2013 compared with an increase of 3 per cent in the UK. However, as a

[3] http://www.nesta.org.uk/sites/default/files/annual_innovation_report_2010.pdf
[4] http://www.enterpriseresearch.ac.uk/wp-content/uploads/2013/12/ERC-White-Paper-No_5-Innovation-final.pdf
[5] https://www.gov.uk/government/statistics/business-population-estimates-2014

percentage of GDP, Scotland ranked poorly compared with other UK countries and regions and in the bottom quartile of OECD countries, at only 0.6 per cent of GDP in 2013, compared with 1.06 per cent in the UK. Finland and Sweden spend nearly four times as much as a proportion of GDP (2.3 per cent).

Figure 1: HERD and BERD as a % of GDP
Source: Scottish Government, Gross Expenditure Research and Development 2013, Business Expenditure Research and Development 2013



The **Community Innovation Survey 2013**[6] showed that the **share of enterprises engaging in innovation activity** in Scotland increased by 10 percentage points, from 33 per cent in the 2011 survey to 43 per cent in 2013. This is now only 1 per cent lower than the UK average of 44 per cent.

There were **142 patents** registered in Scotland during 2013, or 2.7 per 100,000 people[7]. This is only 70 per cent of the 3.8 patents registered per 100,000 people in the UK.

[6] https://www.gov.uk/government/collections/community-innovation-survey
[7] https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/318346/Facts_and_Figures.pdf and population data from National Records Scotland

European Regional Innovation Scoreboard 2014[8]

The European Union draws together information on all the above and other data to compile a scoreboard which shows the relative performance of all regions in the EU.

Relative to the other UK regions and countries, Scotland performs well on R&D expenditure in the public sector, population with tertiary education and SMEs introducing marketing or organisational innovations (Figure 2). Scotland ranked less well on innovative SMEs collaborating with others, SMEs introducing product or process innovations and sales of new to market and new to firm innovations.

In terms of Scotland's performance relative to other European regions, Scotland ranks in the upper quartile on three measures and the bottom quartile on 1 measure. Interestingly, while Scotland performs poorly relative to UK regions on SME collaboration, it is still in the first quartile of all EU regions. Conversely, although Scotland performs well compared with other UK regions on SMEs introducing marketing or organisational innovations, it ranks in the third quartile compared with European regions.

Figure 2: Scotland's innovation performance against EU regions[9]
Source: European Union Regional Innovation Scoreboard 2014

	Scotland Rank (out of 12)	Quartile compared with all regions
Population with tertiary Education	2	1st
R&D Expenditure in the public sector	1	1st
R&D Expenditure in the Business Sector	10	3rd
Non-R&D innovation expenditure	n/a	n/a
SMEs innovating in-house	10	2nd
Innovative SMEs collaborating with others	12	1st
EPO Patent Applications	7	2nd
SMEs introducing product or process innovations	12	4th
SMEs introducing marketing or organisational innovations	3	3rd
Employment in medium-high/high-tech manufacturing and knowledge intensive services	9	3rd
Sales of new to market and new to firm innovations	12	3rd

Giving each of the above indicators an equal weight, Scotland's composite score places it in seventh position relative to the other regions and countries of the UK and in the second quartile of European regions.

[8] http://ec.europa.eu/enterprise/policies/innovation/files/ris/ris-2014_en.pdf
[9] Including Norway and Switzerland

Small Business Survey

This section draws on analysis from the Small Business Survey, a survey of SMEs with employees carried out in 2014.

In 2014, 43 per cent of SMEs had introduced a **new or significantly improved product or service** in the last 12 months. This was the highest percentage of SMEs out of the UK countries and 5 percentage points higher than the UK average (38 per cent).

24 per cent of these new products or services were completely new, while 75 per cent were new to the business. While this may seem low, it is adoption of innovations across a sector which is necessary for growth- individual innovations themselves will not necessarily lead to it.

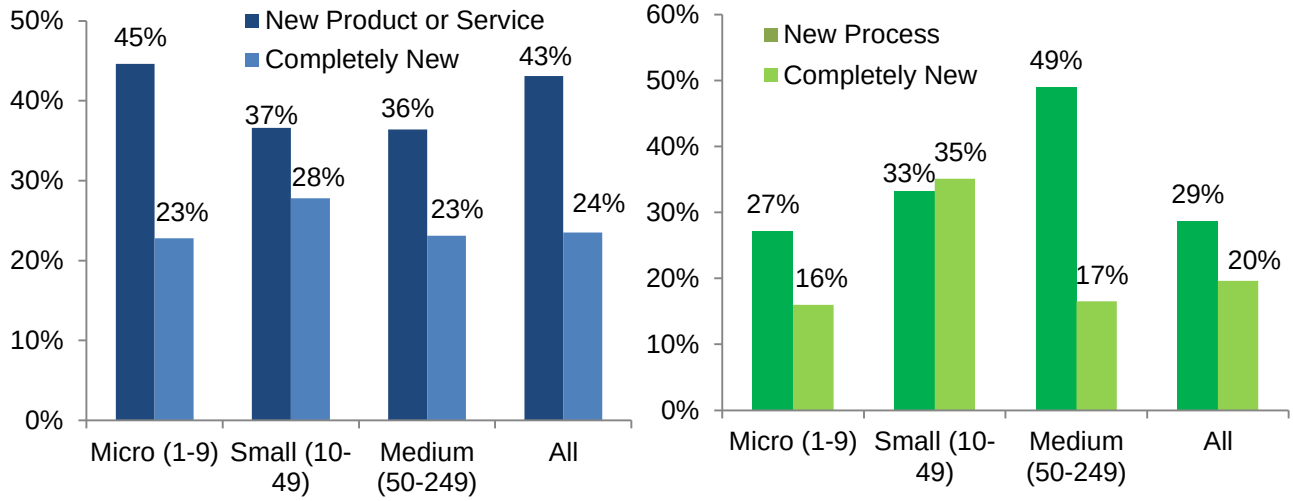
29 per cent of SMEs in Scotland introduced a **new or significantly improved process** in the last 12 months. This was slightly lower than the average across the UK (32 per cent).

However, a higher proportion of these new processes were completely new, rather than just new to the business (24 per cent vs. 17 per cent in the UK).

Size band

Micro firms were more likely to have introduced a new or significantly improved product or service in the last 12 months than larger firms (Figure 3). However, smaller firms were more likely to say that the product or service was completely new (28 per cent).

Figure 3: Innovators by size
Source: Small Business Survey 2014



Base minimum: Medium firms, 68

While, larger businesses were more likely to have introduced new processes in the last 12 months, again, small businesses were most likely to report that these were completely new, rather than just new to the business.

Sector

Service sector firms were more likely to have introduced new or significantly improved products or services in the last 12 months. They were also more likely to report that these products or services were completely new rather than existing ideas that were new to the business.

Figure 4: Product innovators by sector
Source: Small Business Survey 2014

	Introduced new product or service	*of which, completely new*
Primary	38%	*4%*
Construction	35%	*5%*
Transport/ Retail/ Distribution	40%	*30%*
Business Services	51%	*31%*
Other Services	49%	*19%*
All Sectors	**43%**	***24%***

Base minimum: Construction, 31

SMEs in the business service sector were also more likely to have introduced new processes, and these processes were more likely to be completely new.

Figure 5: Process innovators by sector
Source: Small Business Survey 2014

	Introduced new process	*of which, completely new*
Primary	25%	*26%*
Construction	23%	*10%*
Transport/ Retail/ Distribution	24%	*13%*
Business Services	32%	*36%*
Other Services	42%	*9%*
All Sectors	**29%**	***20%***

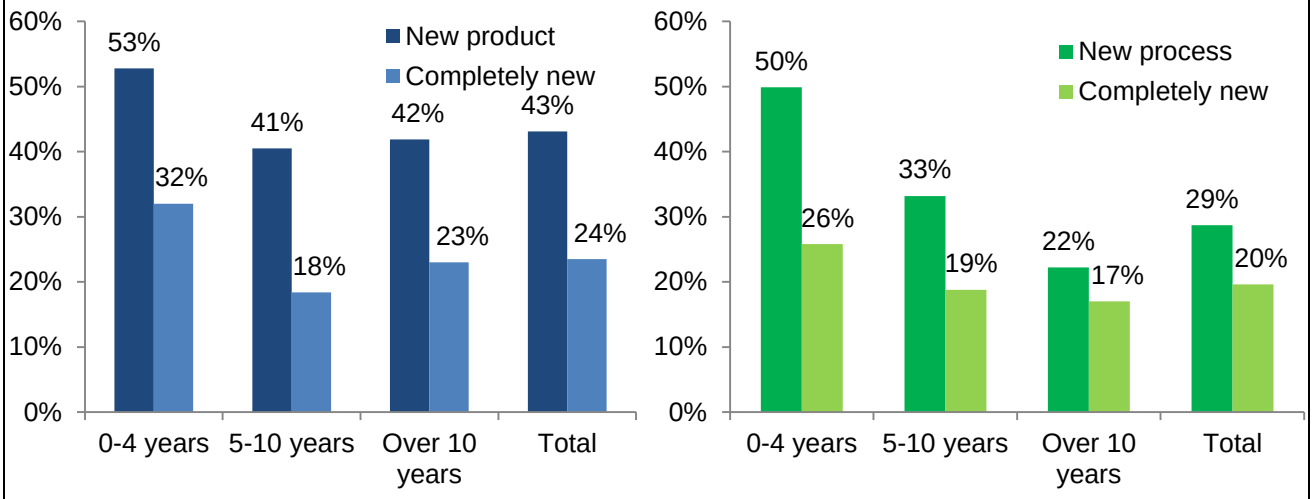
Base minimum: Construction, 31

Age

Younger firms are more likely to have introduced new or significantly improved products or services than older firms, although two thirds of these are new to the business, perhaps reflecting their age.

Younger firms were however, also more likely to have introduced new processes, a high proportion of which were new to the business.

Figure 6: Innovators by SME age
Source: Small Business Survey 2014



Base Minimum: SMEs 0-4 years old, 41

Exporter

Exporters sell goods and services outside of Scotland – either internationally or to the rest of the UK.

Exporters were slightly more likely to have introduced a new or significantly improved product or service in the last 12 months (48 per cent vs. 40 per cent). However, they were twice as likely to have introduced a new or significantly improved process in the last 12 months (41 per cent vs. 21 per cent).

The evidence is not clear around causality, i.e. whether exporting firms are more likely to innovate, or innovative firms are more likely to export.

Figure 7: Innovators by export status
Source: Small Business Survey 2014

	Exporter (%)	Non-Exporter (%)	All Firms (%)
Introduced a new product/service	48	40	43
-of which, completely new	*21*	*25*	*24*
Introduced a new process	41	21	29
-of which, completely new	*27*	*11*	*20*

Base minimum: non-exporters 164

Growth Firms

Firms which plan on growing over the next 2-3 years were more likely to have introduced a new or significantly improved product or service than firms which do not intend to grow (49 vs. 32 per cent). They were also more likely to have introduced a new process (36 vs. 14 per cent). This suggests that innovation and growth are linked, although again it is not clear whether growth firms are more likely to innovate, or innovative firms are more likely to grow.

Figure 8: Innovators by growth category
Source: Small Business Survey 2014

	Growth (%)	Non-Growth (%)	All Firms (%)
Introduced a new product/service	49	32	43
-of which, completely new	*25*	*20*	*24*
Introduced a new process	36	14	29
-of which, completely new	*23*	*2*	*20*

Base minimum: non-growth firms 107

R&D tax credits

One of the ways in which innovation is incentivised is through tax credits for R&D. This allows firms to off-set spending on R&D against their taxable profit and therefore pay a lower amount of corporation tax.

In 2015/16, the tax relief for SMEs on allowable costs is 230 per cent[10]. That is, for each £100 of R&D expenditure, the taxable profit on which corporation tax is paid is reduced by an additional £130 on top of the £100 spent on R&D. For larger companies, the rate of relief is 130 per cent, or a £30 reduction in taxable profit on top of a £100 spend on R&D.

According to HMRC statistics[11], 905 Scottish businesses claimed R&D tax credits in 2012-13, worth £45 million. This was the eighth lowest of the 12 countries and regions of the UK. However, HMRC apportions the tax credits on the basis of where the businesses head office is registered. This means that the figure for London may be artificially inflated since it is often the location of corporate head offices. SMEs accounted for 75 per cent of the claims, but only 67 per cent of the value of tax reliefs.

Figure 9: R&D Tax Credit Statistics
Source: HMRC, Research and Development Tax Credit Statistics 2012-13

	SMEs	Large Companies	SME sub-contractors
Number of Claims	680	180	40
Amount Claimed (£m)	30	15	0

[10] https://www.gov.uk/corporation-tax-research-and-development-rd-relief#the-small-and-medium-sized-enterprise-scheme
[11] https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/356382/Research_and_Development_Tax_Credits_-_August_2014.pdf

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