



Scottish Policy Foundation

Exports – a background note

April 2018

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Boosting Scotland’s export performance is crucial to delivering faster sustainable growth. Whilst our economy has many strengths, Scotland arguably lags behind many comparable nations both in terms of the value and diversity of its export base. With Brexit likely to impact upon current trade patterns, it is more important than ever to create a business environment that is conducive to greater internationalisation. This note summarises Scotland’s current export performance and uses the SPF model to illustrate the benefits and implications of a rise in exports.

Introduction

Boosting Scotland’s export performance offers an opportunity to grow the economy, raise productivity and create jobs.

Why? Firstly, exports provide an important source of external demand for the goods and services produced by Scottish businesses.

Secondly, there is evidence that firms that export – and/or are part of an international supply chain – become more productive and competitive over time.

Thirdly, some economists argue that countries with a strong export base tend to be more resilient and have more balanced growth trajectories.

Recent decades have seen the continued globalisation of the world economy, with volumes of trade quadrupling.

As the global economy continues to grow, particularly in emerging economies, the prospects for trade – even in a world of heightened protectionism – look positive.

There are many lessons from other countries who have established strong and diverse export sectors.



£76bn

Scottish exports
in 2016



960,900

jobs supported by
external demand
in 2014

Key facts

A range of statistics on Scottish exports is available. The preferred source is the Scottish Government’s Scottish Export Statistics series.

This provides a rich source of information both on the location of Scotland’s export markets and on the types of sectors and firms selling goods and services outside Scotland.

That being said, there are challenges in compiling export statistics for Scotland. Unlike for the UK, there is no compulsion on businesses to provide up-to-date information on such activities. This means that such estimates have a greater margin of error.

Another challenge is that some businesses may not know the final destination of their sales (e.g. if they are part of a UK-wide or EU supply chain).

Table 1 shows that Scotland’s international exports amounted to around £29.8 billion in 2016. By international exports we mean exports outside the UK.

Table 1: Scottish Exports, 2016

Destination	£ million
Rest of the UK	45,785
International	29,795
of which	
EU	12,675
Non-EU	17,120
Total	75,580

Source: Scottish Export Statistics

Exports to the rest of the UK were nearly £46 billion in 2016. The latest figures show a fall in Scottish exports of £3.9 billion between 2015 and 2016. This was driven by a sharp fall in rUK exports. Whilst international exports rose slightly in cash terms, they fell 1.2% in real terms.

*All data correct as of 9th March 2018. Data and analysis compiled by Fraser of Allander Institute.

Table 2: Top 10 international export destinations, 2016, £m

Destination	Exports (£m)	% of Total
USA	4,775	16.0
Netherlands	2,115	7.1
France	1,960	6.6
Germany	1,910	6.4
Norway	1,365	4.6
Ireland	1,025	3.4
Denmark	995	3.3
Spain	855	2.9
Switzerland	795	2.7
Brazil	770	2.6

Source: Scottish Export Statistics

The US is currently the leading destination for Scottish international exports, with sales valued at just under £4.8 billion in 2016.

However by market value, the EU is more important. As Table 2 highlights, 6 of Scotland's top 10 destinations for exports are in the EU (a result that is strengthened when including Norway and Switzerland who are part of the European Economic Area).

Exports to emerging markets remain relatively modest. For example, Scottish exports to Ireland are nearly double those to China, and exports to Luxembourg are greater than to India.

Accessing these growing markets can often be challenging. But the current low levels of export activity to emerging economies – coupled with their future growth potential – suggest that there is significant scope for Scottish firms to grow sales in these markets.

That being said, existing markets will still provide an important source of demand for years to come.

Since 2002 for example, exports to the rest of the UK are estimated to have grown by around 60% (despite a sharp fall in the last year).



Services

39%

of international exports

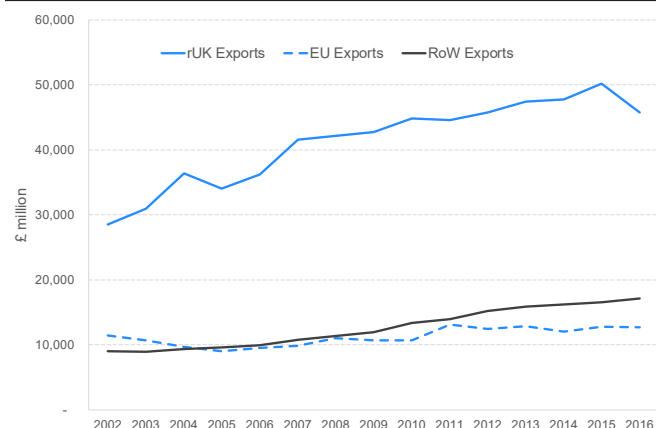


Manufacturing

52%

of international exports

Chart 1: Scottish exports by destination – 2002 to 2016



Source: Scottish Export Statistics

International exports have grown more slowly – up around 45% over the same period.

This has largely been driven by relatively weaker growth in EU exports which have grown by just 11% since 2002.

Despite the Scottish economy being a largely serviced based economy (with services accounting for around 75% of our total national output), manufacturing plays a disproportionate role in Scotland's export base (Table 3).

Table 3: Share of Scottish international exports by sector, 2016

	£m	Share of total international exports
Exports	29,795	
Manufacturing	15,415	52%
Of which		
Food & drink	5,455	18%
Coke, refined petroleum and chemical products	2,570	9%
Machinery and equipment NEC	1,400	5%
Rubber & plastic products	760	3%
Computer, electronic and optical products	1,310	4%
Services	11,640	39%
Wholesale & retail	1,710	6%
Professional services	3,715	12%
Administrative and support services	1,200	4%
Transportation and storage	1,165	4%
Other	2,745	9%

Source: Scottish Export Statistics

The sectoral composition of Scottish exports has changed significantly since the early 2000s.

Back in 2002, computer electronics accounted for nearly 30% of total Scottish international exports. Now it accounts for just 4%. The key growth sectors have include food & drink, professional services and chemicals.

Of course, there are areas where Scotland has an outstanding track record in exporting either at a company level or by industry. For example, between 2016 and 2017, [Scottish whisky and salmon](#) exports from the UK grew by 9% and 35% respectively.

A target to grow international exports by 50% (in nominal terms) by 2017 was set by the Scottish Government in 2011.

Between 2010 and 2016 (the latest year available) they have grown by around 24%. This suggests that performance is behind the target.

How does Scotland compare to other parts of the UK?

Data on international trade across the different parts of the UK is relatively limited.

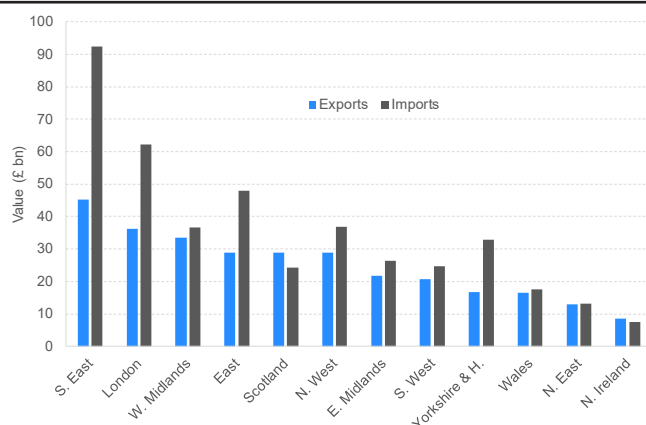
HMRC publish international data on goods for Scotland, Wales, Northern Ireland and the English regions. This is calculated on a slightly different basis than the Scottish Government methodology. Firstly, it only focusses on goods and secondly, it allocates UK wide activity according to the business address of the firm making the export. Where a firm has multiple locations, an employment share is used.

One technical issue with the HMRC approach is that it allocates to Scotland all oil directly exported from platforms in Scottish waters.

As Chart 2 highlights, Scotland and Northern Ireland were the only parts of the UK to have run a surplus in goods during 2017.

However, it should be noted that a significant proportion of Scotland’s ‘goods’ exports in the HMRC statistics are the transfer of crude oil from offshore platforms in Scottish waters to processing locations outside of Scotland. In 2017, this accounted for £9 billion of the Scottish export figure of £28.8 billion.

Chart 2: Goods exports and imports, 2017

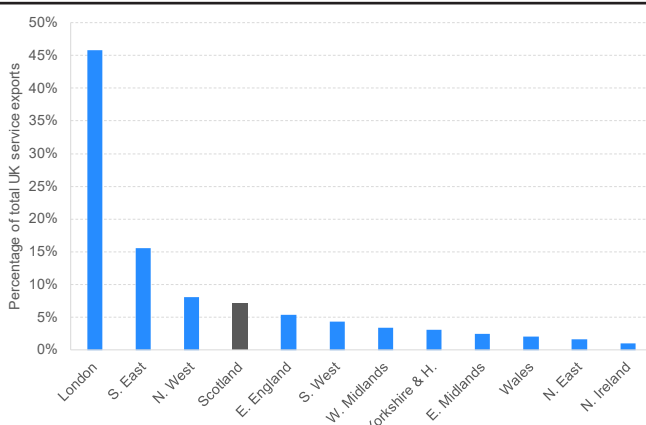


Source: HMRC

The ONS have recently published an [experimental series](#) trying to estimate international services exports across the UK. Unsurprisingly, as the chart highlights, services exports in the UK tend to be dominated by London.

Scotland’s share of international UK services exports is broadly in line with a per capita share.

Chart 3: Percentage of total UK service exports, 2015



Source: ONS

Scotland's trade balance

Unfortunately, there are limited official direct estimates of imports into Scotland (that is, goods and services that are produced in other countries but purchased in Scotland).

The [National Accounts](#) data series published by the Scottish Government provides an estimate of import flows. These should however, be viewed with some caution as they rely on modelling rather than be-spoke figures.

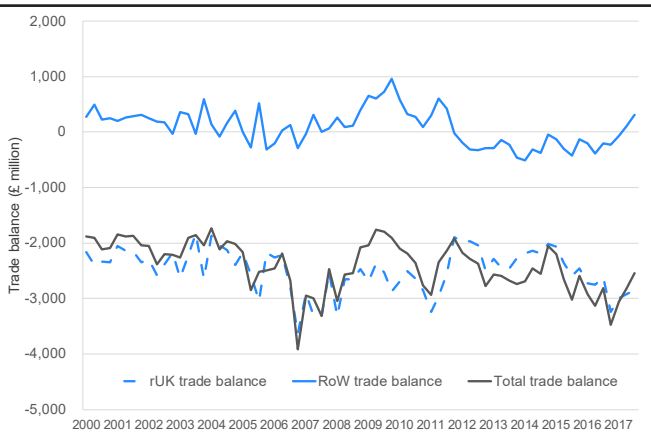
The gap between exports and imports leads to either a trade surplus – i.e. when exports exceed imports – or a trade deficit – i.e. when imports exceed exports.

Scotland's estimated trade deficit (using this modelled data for imports) was £12.3 billion in 2016, or 8.3% of GDP. This is the sum of the trade balance with the rest of the UK and the trade balance with countries outside the UK.

As chart 4 highlights, Scotland has tended to run a surplus in international trade, but this is offset by a deficit in trade with the rest of the UK.

It should be noted that these figures refer to the onshore economy only.

Chart 4: Scotland's quarterly trade balance (£ billion, current prices)



Source: Scottish National Accounts

Estimates show that Scotland's trade position is significantly boosted when including offshore oil and gas activity due to the high value of exported crude oil extracted from the North Sea. However, this needs to be seen in the context that oil is traded offshore by large international companies.

Jobs supported by export demand

It is possible to estimate the number of jobs supported by Scottish exports.

Each year, the Scottish Government publishes detailed statistics of the flow of goods and services across the Scottish economy in a given year. These are known as the 'Input-Output' tables (IO tables).

Note that these data are published with a slight lag, so the analysis refers to 2014.

Using these data, we can attribute jobs to different export markets by sector and estimate how many jobs are supported by different markets.

For rUK export demand, this is straightforward as the government publish such export flows data.

We then split international trade up into trade with the rest of the EU (excluding the UK) and all other international trade.

As with all such methodologies, different assumptions will impact on the final estimates. That being said, this method provides a useful and transparent benchmark.

Table 4: Scottish employment supported by external demand, 2014

	Non-resident	EU	ROW	RUK	Total
Direct	51,500	80,300	115,500	337,300	584,600
Indirect	8,200	33,000	49,700	144,200	235,200
Induced	6,900	21,100	30,500	82,700	141,100
Total	66,500	134,400	195,700	564,200	960,900

Source: Fraser of Allander

Table 4 shows that around 560,000 jobs in Scotland are estimated to be supported by demand for our goods and services from the rest of the UK.

Around 134,000 jobs are supported by export demand from the rest of the EU, and nearly 196,000 jobs are supported by export demand from the rest of the world.

We can convert these numbers into shares of total employment. In 2014, 24.6% of Scotland's employment (excluding public sector administration and defence) was supported by trade with the rest of the UK (RUK).

The equivalent number for trade with the rest of the EU (REU) was 5.9% and 8.5% for the rest of the world (ROW).

Table 5 looks in more detail at a sectoral level. Because of the higher multiplier effects from services – i.e. the spill-overs into the overall economy – the number of jobs ultimately supported by export demand in service industries is higher than their share of export sales would immediately suggest.

Table 5: Sectoral breakdown of jobs supported by export demand

	Non-resident	EU	ROW	RUK
Agriculture & Mining	1,100	6,450	10,400	57,600
Manufacturing utilities & Construction	1,500	55,100	63,450	151,350
Services	64,000	72,900	121,800	355,250

Source: Fraser of Allander

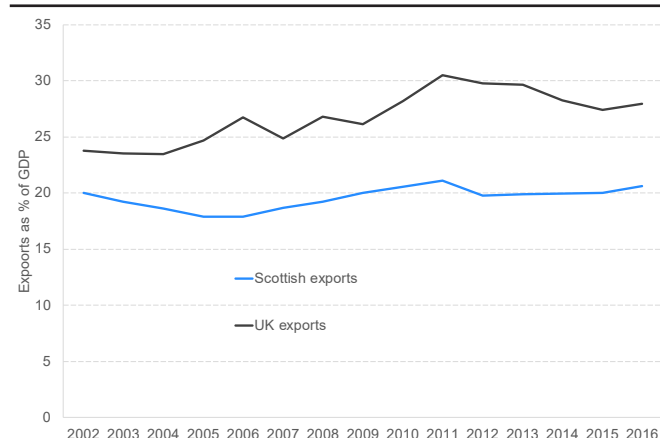
Note: non-resident activities is 'trade' with overseas residents who buy things in Scotland – e.g. tourists.

Comparisons with other countries

How does Scotland perform in terms of export performance relative to other countries?

A transparent way to measure this – although far from perfect – is to take the ratio of exports as a percentage of GDP. This provides a useful proxy of the 'openness' of an economy.

Chart 5: Scottish international exports as share of GDP vs. UK – 2002 to 2016



Source: Scottish Export Statistics, National Accounts & OECD

As Chart 5 highlights, Scotland currently exports a lower share of its overall output abroad than the UK as a whole.

If Scotland was to export the same amount as the UK internationally, this would be equivalent to an extra £12 billion in Scottish international exports.

It is also possible to provide illustrative comparisons between Scotland and other OECD countries. (Chart 6)

What matters in this case is how exports to the rest of the UK are incorporated.

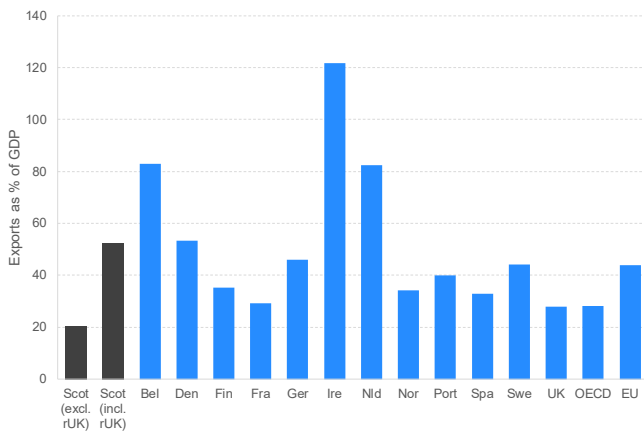
It is possible to include rUK exports alongside international exports to get a total estimate of sales outside of Scotland.

But many would argue that exports to the UK are quite different from international exports.

The UK conforms strongly to an economist's definition of a Single Market with very little in the way – if any in the vast majority of instances – of restrictions on trade.

Indeed, for many companies, selling across the UK is no different from selling across Scotland.

Chart 6: Export to GDP ratios in select OECD countries - 2016



Source: Scottish Export Statistics, National Accounts & OECD

Including UK exports, we see that Scotland has a higher ratio of exports to GDP than many other countries at 50%.

The EU and OECD average is 44% and 28% respectively.

Smaller countries are expected to have higher propensities to export given the size of their domestic markets. So whilst Scotland performs better than the UK in this ranking some other similar sized countries have even higher export intensities.

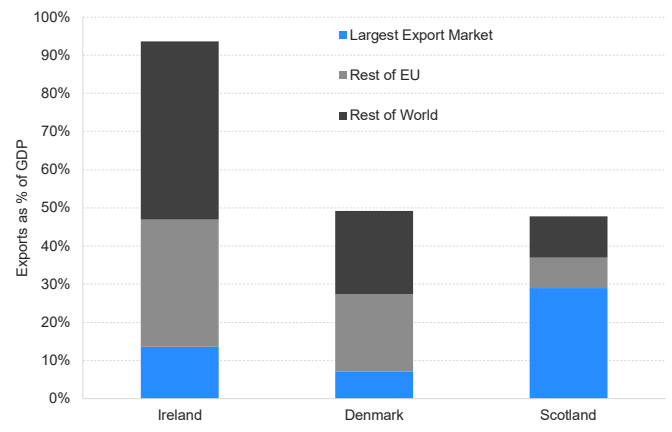
Excluding exports to the rest of the UK, the Scottish share of international exports in GDP is much lower at 20%. This is below the EU and OECD averages. This suggests that in terms of *international* trade, Scotland lags behind most other countries.

Looking at the experience of similar sized nation states, we also find that Scotland depends more upon one market (i.e rUK) than they do.

Chart 7 compares Scotland with Denmark and Ireland – two countries that Scotland often seeks to emulate – both in terms of overall exports and the relative contribution of different markets.

In summary, Scotland’s current export performance is mixed. As a share of domestic output, a significant proportion is sold outside Scotland. But this tends to be concentrated in just one market – the rest of the UK. In terms of international sales, Scotland does less well.

Chart 7: Percentage of total exports by market for Ireland, Denmark and Scotland - 2016



Source: Scottish Export Statistics, CSO, Statistics Denmark

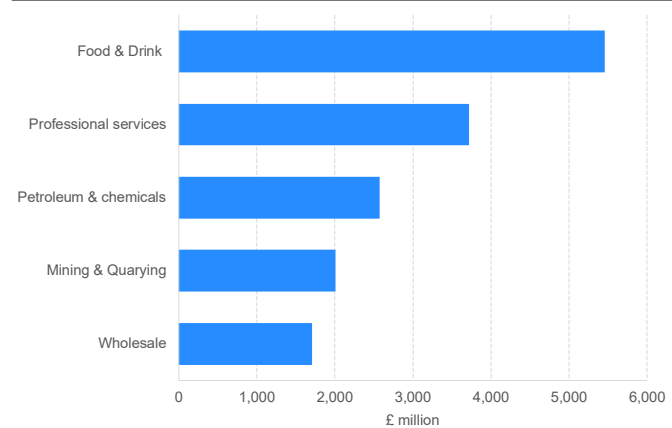
Who is exporting?

One barrier to increasing Scottish exports is the relatively small number of companies that export.

The Scottish Government [estimates](#) that more than half of Scotland’s exports are accounted for by just 70 companies.

Just five sectors account for over half of all Scottish international exports, with whisky accounting for a significant amount of that.

Chart 8: Scottish international exports by sector, 2016



Source: Scottish Export Statistics

A challenge appears to be encouraging small businesses to seize the opportunities overseas. Or more fundamentally, developing the mind-set, ambition, aspiration, skills and insights to pursue more demanding market opportunities.

According to the latest Small Business Survey Scotland report, in 2016, 16 per cent of SMEs in Scotland reported that they had sold goods or services outside of the UK in the last 12 months.

In the UK as a whole, 18 per cent of SMEs had exported goods or services in the last 12 months.

The majority of SME exporters in Scotland (83 per cent) are established exporters, exporting for four years or more.

Evidence suggests that the vast majority of businesses who do not currently export appear to have no wish to do so in the near future.

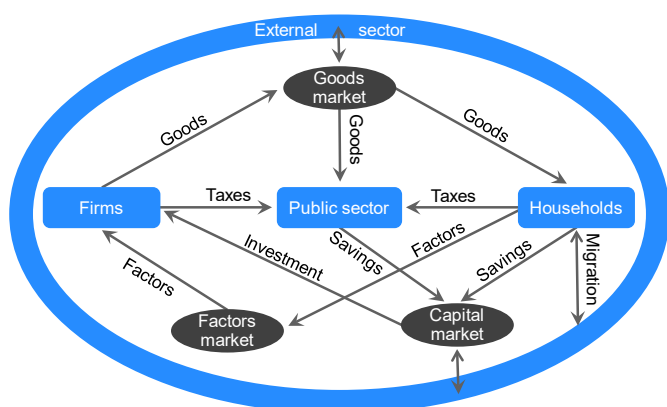
International exports from small companies are down nearly 7% since 2012. In contrast, for medium sized firms they are up significantly.

Table 6: International exports by size of company: 2012 and 2016 (£ million)

	2012	2016	% change
Exports	27,630	29,795	7.8
Size of firm			
Large	15,785	16,730	6.0
Medium	6,550	8,125	24.0
Small	5,295	4,940	-6.7%

Source: Scottish Export Statistics

Diagram 1: Outline of SPF model structure



Source: Scottish Policy Foundation

What impact will boosting exports have?

As highlighted above, boosting Scotland's export base has been a key objective of successive Scottish governments.

Given the efforts to increase international exports, it is of policy relevance to simulate a variety of export demand shocks to identify the likely impacts of successful export orientated policies.

To illustrate the scale of the impact, and the potential effects across sectors based upon existing trade patterns, it is possible to use the Scottish Policy Foundation's new macroeconomic model of the Scottish economy.

The modelling also helps to illustrate the types of research questions and analysis that can be undertaken using the SPF's model.

The SPF model is a detailed representation of the Scottish economy which captures the key interlinkages between firms, government, and households and their interactions in the goods, capital and labour markets, as well as the links with the outside world via trade, migration and investment.

The model links Scottish economic data with a set of equations which aim to capture not only the underlying structure of our economy, but also the behavioural responses of firms, households and government.

Diagram 1 provides an illustration of the various inter-linkages that the model captures.

One advantage of the SPF model is that it can capture all the major impacts of how a change in Scotland's export performance might impact on the economy – both positive and negative.

Not all of these consequences might be immediately obvious and they might take place at different points in time.

The model is also highly flexible, allowing the development of different scenarios – for example, different assumptions can be used for how migration might respond and how wages are set across Scotland (and the UK). This allows for sensitivity analysis to illustrate the impact of different (uncertain) factors on economic outcomes.

When assessing the possible impact of a boost to Scottish exports, it is possible to either simulate a general increase in all Scottish exports or to focus on changes in individual sectors – e.g. food and drink or financial services etc.

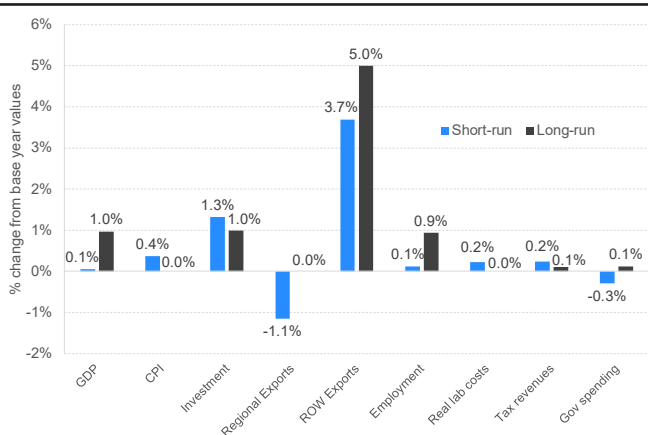
For the purposes of this note, we focus on a general uplift in Scottish rest of world exports of 5% – with all sectors being boosted by the same percentage change.

This could reflect a situation whereby a new trade deal was struck with a country, which reduced trade barriers on Scottish exports.

In Chart 9, we report the aggregate economy-wide results for the short and long-run from such a change. These figures are in percentage changes from the base year.

It is important to identify both the short and the long-run results for a number of reasons.

Chart 9: Short and long-run effects of a 5% increase in ROW export demands



Source: Scottish Policy Foundation Scottish economy model

First, workers and capital tend to take time to fully respond to changes in the economy so that quite often the short-run exhibits different properties from the long-run¹.

Second, it is important for policy makers and industry to be able to identify potential ‘winners and losers’ and the likely time periods over which these effects occur. In the case of a boost to exports, most of the spill-over effects are positive but this is not always the case for many of the policy simulations that could be conducted.

Indeed even in the simulation results reported here, for example, we see an initial fall (crowding out) in rUK exports.

Chart 9 shows that following the export demand stimulus – there is an increase in output, (tax) revenues, employment and net investment.

We also find that with wages rising in Scotland, and an expansion in economic activity, there is an incentive for workers to in-migrate to Scotland.

Over time, and based upon the assumption of full migration, whilst Scotland’s population and output both rise, real wages converge back to the UK level.

As highlighted above, the expansion in the economy puts pressure initially on prices which erodes the competitiveness of Scottish exports to the rest of the UK. International exports also initially rise by less than the permanent increase of 5% for similar reasons.

The boost to exports unlocks additional investment which leads to a higher capital stock in the long run. This reinforces the direct boost to the economy from the rise in exports.

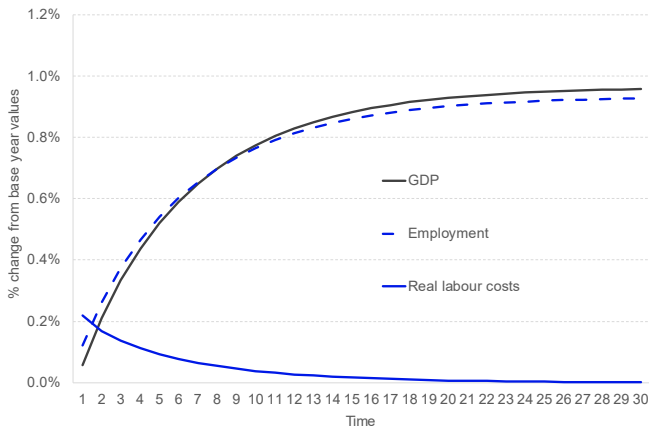
In the simulations, GDP increases by 0.1% in the short run, and by 1% in the long-run. The stimulus to ROW exports increases employment by 0.1% in the short-run, and by 0.9% in the long run.

¹ For example, it takes time for new workers to enter the labour force – e.g. through migration – whilst capital stocks gradually change as new investments take effect.

As noted, the ability to track such changes over time, and across individual sectors of the Scottish economy is crucial, especially when there are ‘winners and losers’. This is a key strength of the multi-sectoral modelling approach.

Chart 10 details the transition paths over time of GDP, employment, and real wages. These figures report the percentage change from base year values.

Chart 10: Transition paths of GDP, employment, and wages



Source: Scottish Policy Foundation Scottish economy model

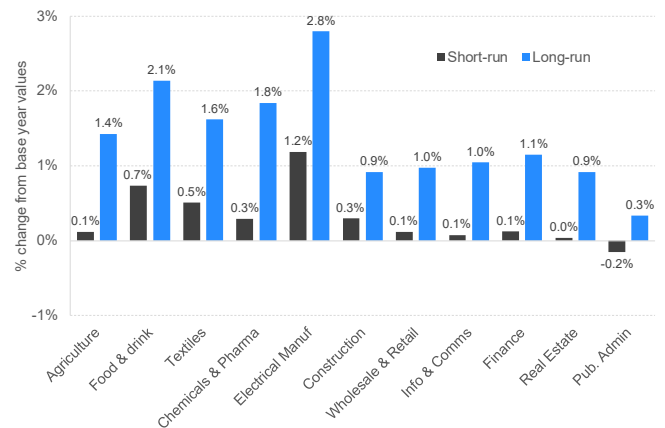
We see how real wages initially rise to around 0.2% and then gradually fall back given the migration response. Employment and GDP rise above base throughout the simulation.

Chart 10 details the short and long-run effects on sectoral output for a subset of industries in the model.

Interestingly, we find that whilst overall output rises both over the short and long-run, some sectors see less of an initial boost. These sectors mainly serve the domestic market and/or are labour intensive.

For example, the public administration sector is a labour intensive sector that is domestically focussed and therefore does not directly benefit from the boost in exports. Instead it suffers from crowding out in the short-run.

Chart 11: Short and long-run effects on sectoral output of a 5% increase in ROW export demands



Source: Scottish Policy Foundation Scottish economy model

Overall, by boosting demand in the economy – and by stimulating migration and investment – all sectors in the economy benefit over the long-run.

Policy context

The Scottish Government’s Economic Strategy has set out an overarching framework for increasing competitiveness and tackling inequality, underpinned by four priorities – innovation, investment, inclusive growth and internationalisation.

Export performance is influenced by several factors including market access, tariffs and non-tariff barriers, information and networks, and business support.

Economic fundamentals, such as competitiveness, infrastructure and a skilled workforce, are also important, not just for exports but for the creation of international supply chains.

In 2016, the government published a Trade and Investment Strategy.

Alongside this, the UK Government’s Industrial Strategy has boosting the UK (and therefore Scotland’s) export potential as a key priority. This is both about expanding the volume of trade (or as economists refer to it the intensive margin) as it is about increasing the number of firms who trade (the extensive margin).

With most independent economists – including the Scottish Fiscal Commission – forecasting a fragile outlook for Scotland over the next few years, boosting both margins of trade will be important to Scotland’s growth prospects.

The SPF economic model can be used to look at different scenarios regarding improvements to Scotland’s trade competitiveness. This may help shed light on the scale of the challenge to meet some of the ambitions for Scottish export performance. In particular thinking about some of the sectoral differences identified earlier in this note.

Of course, Brexit will have a significant impact on Scotland’s future trading relationships.

In the light of Scotland’s track record in exporting, the challenges of Brexit and the significant opportunities that are opening up in emerging markets, the Scottish Policy Foundation are keen to encourage fresh thinking and new policy ideas to boost Scottish exports.

Some of these ideas could be related to particular initiatives to support Scottish businesses already exporting – for example, in designing better sources of export finance and improving market access in key growth economies.

New ideas may also focus on developing an overall business environment conducive to a better export performance – for example through ensuring that the key economic fundamentals such as a skilled workforce, good infrastructure and connectivity are in place. Industrial policies that promote the sustainable development of highly productive and export potential sectors also have a role to play.

Greater effort from the private sector is also needed. As highlighted above, one of the potentially biggest barriers to increasing Scottish exports is an apparent lack of ambition amongst companies to export in the first place. This could be from a limited knowledge of international opportunities or the avenues through which their products could be exported

Of course, building ambition may be insufficient by itself to help increase overseas exports significantly; companies also need the capacity and capability to successfully exploit opportunities.

One such capability is productivity – boosting productivity more generally is crucial to export success as this facilitates efforts to expand their activities through stimulating competitiveness. This can be self-reinforcing. Evidence shows that the act of internationalising also increases productivity further, for example through companies becoming better at obtaining and using market intelligence and in being able to take advantage of new technologies and innovations.

In addition, improving Scotland’s net trade position can involve not just increasing exports but also increasing the share that domestic firms sell in the domestic economy by displacing imports.

Finally as highlighted above, the data on Scottish exports suffers from a number of limitations. For example, existing official surveys of firms suffer from relatively low response rates, whilst tracking supply chain exports across markets – particularly within the UK context – is not straightforward.

But there currently exists a lot of information on export performance from different official and non-official sources which if reviewed could provide a more nuanced and complete picture of Scotland’s export performance.

Improving the quality of data and evaluation will not only help identify future risks and opportunities but also support better evaluation of existing policy initiatives.

These are just some of the areas and ideas that the Scottish Policy Foundation are keen to hear more on.

