

# Regional Skills Assessments

Oxford Economics Forecasts – Technical Note

October 2020

# Contents

1. Introduction .....	3
2. Model Overview .....	4
2.1 Local Authority Forecasting Model .....	4
2.2 Time Periods.....	6
2.3 Using the Model.....	6
3. RSA Infographics.....	7
3.1 Impact of COVID-19 on the Regional Economy .....	7
Gross Value Added (GVA)/Output .....	7
Productivity .....	7
3.2 Resilience of the Region to COVID-19 Impacts .....	7
Vulnerability .....	7
The OE Coronavirus Vulnerability Index .....	7
Caveats/Additional Information .....	7
3.3 Current Demand for Skills .....	8
Total employment (People) .....	8
Employment by Industry (People) .....	8
Employment by industry and occupation (People).....	8
Employment by Occupation and Qualification (People).....	8
3.4 Future Demand for Skills.....	8
Total Requirement – Expansion and Replacement Demand (People).....	9
Total Requirement by Qualification (People) .....	9
Total Requirement by Industry (People).....	9
Employment by Occupation and Qualification .....	10
3.4 Spotlight on the Public Sector.....	10
4. The Data Matrix .....	<b>Error! Bookmark not defined.</b>
4.1 Key Sectors.....	<b>Error! Bookmark not defined.</b>
4.2 Employment by Status and Gender .....	<b>Error! Bookmark not defined.</b>
4.3 Total Requirement by Occupation (People) .....	<b>Error! Bookmark not defined.</b>
Appendix A: Spatial cuts of Data.....	11
Appendix B: SIC Definitions for Scotland’s Key Sectors .....	12

# 1. Introduction

In producing Regional Skills Assessments (RSAs) and their accompanying data matrix, Skills Development Scotland (SDS) draws on evidence from four key sources:

- Published data;
- Real time data;
- Qualitative evidence; and
- Forecast data.

This technical note refers to the fourth of these sources – forecasting data.

SDS has a long-standing partnership with Oxford Economics (OE) who produce economic and labour market forecasts to inform a range of SDS products and services including RSAs and the data matrix. The current set of forecasts was produced in June 2020 and, in normal circumstances, these would be updated annually. Given the evolving impact on the labour market of COVID-19 we plan to update this more frequently with the next update planned for late 2020.

The forecasts are produced by OE's Local Authority District Forecasting Model. The model builds evidence from local authority level and then aggregates this up to:

- Regional Outcome Agreement areas (ROAs);
- City Region and Growth Deal areas; and
- Nationally - Scotland and the UK.

Appendix A provides further detail on the spatial cuts of data.

This note is intended to provide information on the coverage, methodology and data sources underpinning the forecasts. The note is structured as follows:

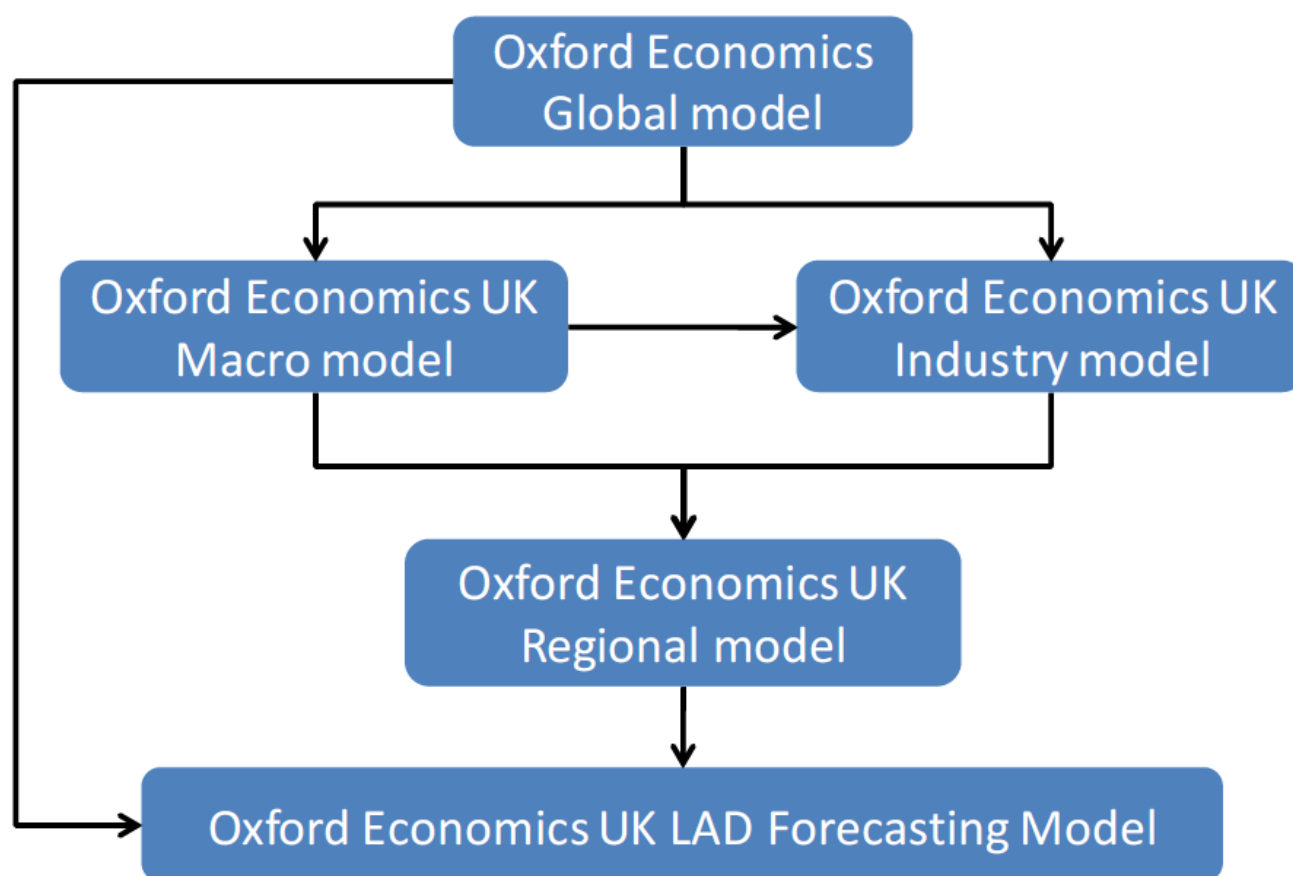
- An overview of the model;
- RSA Infographics - explanatory notes on forecast data contained in the RSA infographics;
- Data matrix – explanatory notes on additional forecast data included in the data matrix; and
- Appendices:
  - Geographic cuts of data;
  - Definitions for Scotland's key sectors.

## 2. Model Overview

### 2.1 Local Authority Forecasting Model

OE's Local Authority District Forecasting Model sits within the Oxford suite of forecasting models. This structure is unique as it ensures global and national factors (such as developments in the Eurozone, Government fiscal policy and Brexit) have an appropriate impact on the forecasts for a local authority. This empirical framework (or set of 'controls') is critical in ensuring the local area forecasts are much more than just an extrapolation of historical trends and reflect external economic conditions. Rather, the trends in our global, national and sectoral forecasts have an impact on the local area forecasts.

Fig. 1. Hierarchical structure of Oxford Economics' suite of models



The OE local forecasting model depends essentially upon three factors:

- **International, national and regional outlooks** - all the local area forecasts produced by OE are fully consistent with broader regional, national and international models and forecasts. This ensures global events that impact on the performance of UK local economies, such as the strength of global trade, are fully captured in the forecasts for a local area. So too are national level growth and policies, whether that be the impact of monetary policy on consumer spending or government spending on locally provided public services;
- **Historical trends in an area**, which implicitly factor in supply side factors affecting demand, combined with OE's staff knowledge of local areas and the patterns of local economic development. This ensures for example, that we recognise and factor into the

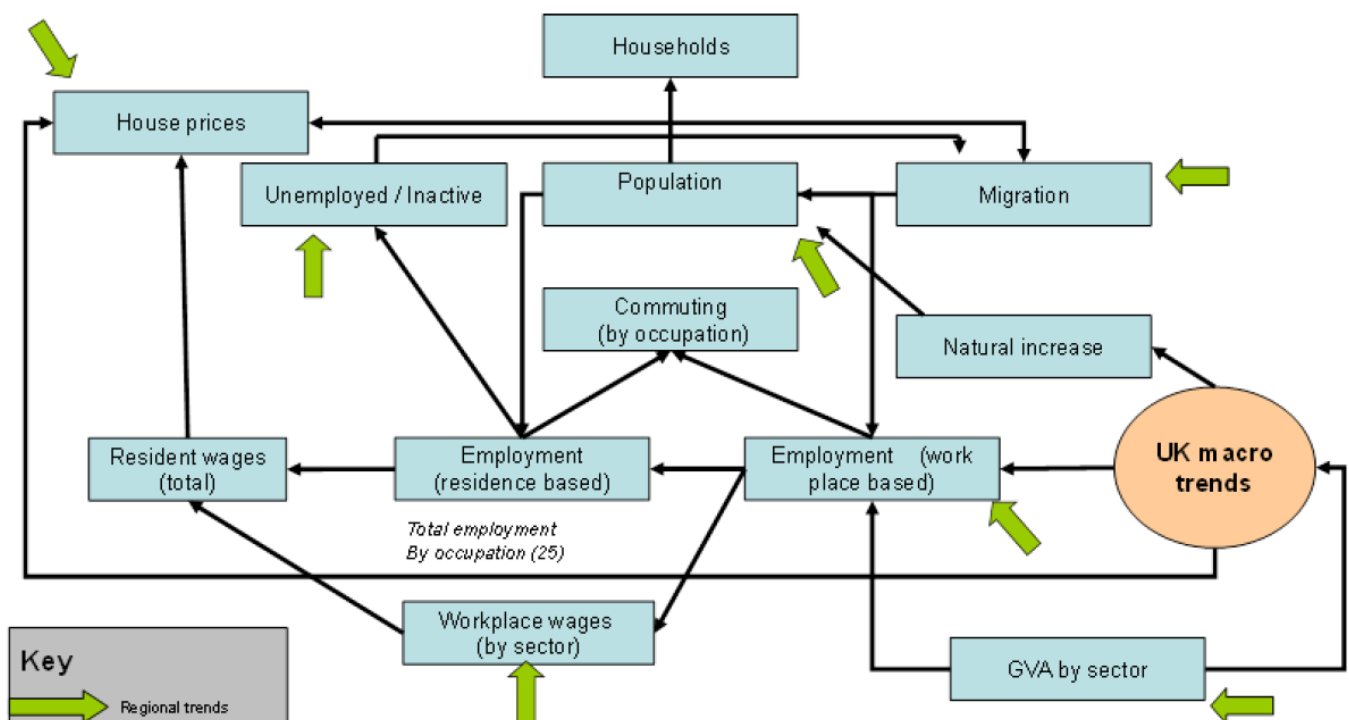
forecasts any evidence of particularly high/low levels of competitiveness that local economies have in particular activities. It also means national policy programmes that have a particular local impact and that are very likely to happen are appropriately reflected in the forecasts; and

- **Fundamental economic relationships** which interlink the various elements of the outlook. OE's models ensure full consistency between variables in a local area. For example, employment, commuting, migration and population are all affected by one another.

All OE models are economically driven, with all aspects of the economy interlinked as they believe that this is the best way to estimate the future outlook for the area. Given changes in economic conditions drive labour market performance, which in turn affects migration patterns and housing demand / make-up, economic based forecasts are essential. For example, if employment or productivity changes in one sector, there are implications for all sectors of the economy through indirect (supply chain) and induced impacts. The employment creation will then put downward pressure on unemployment, while encouraging increased commuting into the economy, and making it a more attractive location for migrants. This would effectively drive up population and housing demand (and put more demand on public services).

The main internal relationships between variables are summarised in Figure 2. Each variable is related to others within the models. Key variables are also related to variables in the other Oxford Economics models.

**Fig. 2. Main Relationships between variables**



## 2.2 Time Periods

The model is usually constructed on an annual basis. Historic data for most variables has been collected for 20 or more years to provide a basis for estimating inter-relationships between variables and future trends. Forecasts are currently set up for the period up to 2030 consistent with existing available global, national and regional forecasts. This will be re-visited at more frequent intervals due to ongoing impacts of COVID-19.

## 2.3 Using the Model

The model provides projections on a 'policy neutral' basis. Unconfirmed, aspirational or policies at planning/development stage are not included. Though forecasts are built primarily around the economic relationships above, the use of local knowledge and published material on local development is required to augment the results of the formal modelling process.

The UK formally left the EU on 31 January and is now in a transition period during which trading arrangements remain unchanged. During the transition period, the two sides are negotiating the future relationship. Despite progress being very slow to date, partly due to the coronavirus pandemic, the UK has insisted it will not agree to extend the transition period beyond the end of 2020.

Our forecast assumes that the two sides will ultimately strike a free-trade agreement, which keeps trade between the UK and EU tariff-free and has some success in limiting the introduction of non-tariff barriers. However, even if an FTA is agreed, this will still introduce trade barriers in the form of customs bureaucracy and some regulatory barriers. If the two sides were to agree to delay the introduction of these trade barriers for two years, the pace of the post-pandemic UK recovery would be a little firmer. In contrast, if talks break down, leaving the UK and EU to trade under WTO rules from 2021, UK output growth would be weaker over both the short-and long-term.

At the time of writing, the negotiations on Brexit are ongoing. The update to these forecasts later in 2020 will take account of any agreements reached on Brexit.

As with all forms of forecasting there are margins of error associated with the results which get larger over time. Furthermore, the quality of data decreases as the geography gets smaller. Models of this form under current data quality levels are most helpful for identifying trends, growth rates and relativities either across or within areas. The long-term trends are therefore important, and users are encouraged to use the time series information and not rely on 'point-in-time' estimates.

The remainder of this note provides detailed information on the data used within the model and the linkages between variables.

## 3. RSA Infographics

### 3.1 Impact of COVID-19 on the Regional Economy

There are two indicators included – GVA (output) and productivity.

#### Gross Value Added (GVA)/Output

GVA data by sector is published on a nominal basis by the Office for National Statistics for Scotland and the local authorities. These are converted to real prices using the chain linked volume measures which are available for Scotland, NUTS2 regions, NUTS 3 regions and local authority districts. The GVA forecast is driven by sectoral employment in each area and Scottish productivity forecast adjusted by relative earnings. At the Scotland level, GVA is driven by sectoral employment and sectoral productivity relative to UK. GVA forecasts by key sector are driven by key sector employment and local estimates of productivity adjusted by relative detailed sectoral earnings.

#### Productivity

Productivity is calculated as GVA per job.

### 3.2 Resilience of the Region to COVID-19 Impacts

#### Vulnerability

Areas will be vulnerable to the Coronavirus pandemic in many ways and a range of economic commentators have carried out analysis to assess the vulnerability of different areas. As with forecasts, different indicators and assumptions will result in difference in conclusions. The assessment of vulnerability contained in RSAs has been carried out by OE.

OE's Coronavirus Vulnerability Index examined a range of indicators including sectoral structure, the types of businesses in each area as well the ability of workers to adapt to home working. OE's Coronavirus Vulnerability Index is designed to help identify the ability of an area to withstand and respond to the economic shock resulting from the COVID19 pandemic.

#### The OE Coronavirus Vulnerability Index

OE's Index is based on three key themes; Economic diversity, Business environment, and Digital connectivity. Table 1 outlines the variables used in the assessment of vulnerability.

**Table 1: Coronavirus Vulnerability Index**

Theme	Variables
Economic diversity	Share of GVA in arts, entertainment, & recreation, and accommodation & food services
	Share of GVA in manufacturing
	Share of GVA in transportation & storage
Businesses environment	Share of small firms: share of businesses with 0-9 persons employed of the total number of businesses
	Share of employment who are self-employed
	Share of high-growth businesses as a proportion of all firms over 10 persons employed
Digital connectivity	Share of properties that are unable to receive a 10Mbps broadband connection.
	Share of workers that never work from home.

#### Caveats/Additional Information

Early discussion with partners on the themes and variables used in the OE Index has given rise to some requests for additional information, particularly in relation to how digital connectivity was calculated and assessed. OE has provided further clarification as follows:

- Ofcom data was used to analyse broadband speeds. OE used the share of properties that were unable to receive 10Mbps broadband connection. The rationale for this was that many

people will work from home and connectivity of at least 8Mbps is recommended for reliable video conferencing. The data is sourced from [Ofcom](#);

- Home working also feeds into the digital connectivity component. This data was estimated at the LAD level, using Eurostat data on homeworking at NUTS2 level. This was then adjusted to Local Authority areas based on their occupation structure.

We will continue to keep this technical note updated with any further questions of clarification and responses as they are received.

### 3.3 Current Demand for Skills

There are four indicators included – Total employment (workforce size), Employment by Industry, Employment by Occupation and Employment by Qualification.

#### Total employment (People)

The RSA infographic includes a calculation of current employment of people i.e. workforce size based on OE analysis of the Annual Population Survey (APS) that provides data on employment by occupation for Scotland and its local authorities.

#### Employment by Industry (People)

To produce a people-based employment forecast, OE use the Annual Population Survey (APS) data which is available by sector (on a workplace basis). It is driven by the numbers of full-time and part-time employees by sector in each area. Individuals are assumed to hold only one full-time job each. Part-time jobs are assumed to account for half a full-time job. The self-employed people are added to the full-time employees plus half of the part-time employees to arrive at an estimate of workplace-based employment.

#### Employment by industry and occupation (People)

The APS provides data on employment by occupation for Scotland and its local authorities. The forecasts are derived using a SIC/SOC (Standard Industrial Classification/Standard Occupational Classification) matrix. The ratio of occupations within each sector for 2001 and 2011 is calculated from the Census. For all other years, OE use the Labour Force Survey for Scotland. The share of each occupation by sector is forecast based upon trends and are applied to the sectoral employment data for each local area, to give an estimate of occupations within each sector. The results are adjusted to reflect the APS data for each local area. The occupations by sector are then aggregated to give occupations by 25 minor occupation groupings. Therefore, the overall economy occupational structure is heavily dependent upon sectoral composition and future trends can be largely explained by sectoral trends.

#### Employment by Occupation and Qualification (People)

The APS provides data on employment by qualification for Scotland and its local authorities. The forecasts are derived using a matrix of qualification by occupation calculated using the Labour Force Survey for Scotland. The share of each qualification category within each occupation is forecast and is applied to the occupation employment data for each local area, to give an estimate of qualifications for each occupation. The results are adjusted to reflect the APS data for each local area.

### 3.4 Future Demand for Skills

In previous iterations of RSAs, forecasts have been presented for a 10-year period. Given the particular circumstances of the current time, this suite of RSAs presents forecasts for the short to medium term (2020-2023) and for the medium to long term (2023-2030). Forecasts in the RSA infographics include information on:



- Total Requirement – Expansion and Replacement Demand;
- Total Requirement by Qualification;
- Total Requirement by Industry; and
- Employment Growth by Occupation.

### **Total Requirement – Expansion and Replacement Demand (People)**

Expansion demand refers to the net change in total employment by over the forecast period and thus the results can be positive or negative.

Replacement demand represents how many more people will be required due to people leaving the workforce. There are many reasons why people leave the labour market - with retirement perhaps the prime example – and need to be replaced. Whilst replacing the vacant position creates additional labour demand, it has no net effect on total employment. Reasons for leaving employment include:

- Unemployment;
- Inactivity;
- Out migration;
- Retirement;
- Death; and
- Leaving for another job in a different occupational group or sector.

This ‘replacement’ category is much larger than expansion demand and explains why even declining sectors still require new staff / advertise vacancies.

Replacement demand and expansion demand are summed to produce total requirement.

### **Total Requirement by Qualification (People)**

Expansion demand refers to the net change in total employment by qualification over the forecast period and thus the results can be positive or negative. The results are presented for each of the 6 SCQF qualification groupings.

For replacement demand, the net occupation demand figures are applied to an occupation by highest level of qualification matrix to produce an estimate of the likely skills requirements over the forecast period. The matrix is generated using the Labour Force Survey. The data is filtered to select only those people who were in employment one year ago and who changed their job. A crosstabulation is run on this sample for each of the last three years and taking a three-year average. Rather than use the current qualification structure of all employed people, the qualification structure of ‘inflows’ is used to try and capture the fact that entry requirements to occupations have increased over time. In other words, it is entirely possible that current corporate managers who are approaching retirement may have climbed up the career ladder without having any formal qualifications whereas, to become a corporate manager now will most likely require a degree or similar formal qualification.

Replacement demand by qualification and expansion demand by qualification are summed to produce total requirement.

### **Total Requirement by Industry (People)**

Expansion demand refers to the net change in total employment by industry over the forecast period and thus the results can be positive or negative. The results presented are jobs based for each of the 1-digit industries and key sectors.

For replacement demand, leaver rates by industry are calculated from the Labour Force Survey for Scotland. These rates are forecast and applied across all geographies. The number of leavers by

1-digit industry and apportioned to key sectors using employment shares from the Business Register and Employment Survey (BRES).

Replacement demand and expansion demand are summed to produce total requirement.

Early discussion with partners on total requirement for industry has given rise to some requests for additional information as follows:

- Wholesale and Retail – despite this sector being significantly impacted by COVID-19, forecasts show a high overall total requirement for Scotland over the next 10 years. This is explained in three ways:
  - Expansion demand in the main shows either contraction or small expansion demand in each of the years over the 10-year forecast so this makes a small contribution to total requirement;
  - The SIC code for Wholesale and Retail includes online retail which is expanding and would contribute to expansion demand; and
  - The majority of contribution to total requirement is from replacement demand i.e. filling jobs due to people leaving the labour market. As stated earlier, even when a sector is facing small levels of growth or even contraction, there will still be a need to fill jobs due to labour market churn; and
- Green Energy – Green energy is recognised as a growth area but does not appear in this section of the RSA for expansion demand, replacement demand or total requirement. Reference to green energy/climate change is referenced in two parts of the RSA:
  - The introduction that cites climate change as a key driver for skills and the impact on the labour market as the economy moves to net zero carbon emissions; and
  - The section on ‘Opportunities for Recovery – Resilience, Growth and Job Openings’ that cites green jobs and the move to a low carbon economy as an opportunity for recovery.

The reason that green energy is not included as a sector in the industry section is because industries as classified by SIC code and green energy can be included in a range of SIC codes. Further analysis of this area is underway in the development of a Climate Emergency Skills Action Plan. We will keep this issue under review for future iterations of RSAs.

We will continue to keep this technical note updated with any further questions of clarification and responses as they are received.

### **Employment by Occupation and Qualification**

The APS provides data on employment by qualification for Scotland and its local authorities. The forecasts are derived using a matrix of qualification by occupation calculated using the Labour Force Survey for Scotland. The share of each qualification category within each occupation is forecast and is applied to the occupation employment data for each local area, to give an estimate of qualifications by each occupation. The results are adjusted to reflect the APS data for each local area.

### **3.4 Spotlight on the Public Sector**

The RSAs also include a spotlight on demand for the public sector. This section draws on the following information from the OE forecasts:

- Employment by Industry (people); and
- Total requirement – expansion and replacement demand.

The preceding sections of this note explain how these have been derived.

## Appendix A: Spatial cuts of Data

OE forecasts have been developed using Local Authorities as building blocks and then aggregating this into various spatial levels:

The results have been provided for Regional Outcome Areas (ROAs), City Regions, Growth Deals and at national level – Scotland and UK.

Details of the local authorities used for ROAs, City Regions and Growth Deals are outlined below:

<b>ROAs</b>	<b>Local Authorities</b>
Aberdeen City and Shire	Aberdeen City, Aberdeenshire
Ayrshire	East Ayrshire, North Ayrshire, South Ayrshire
Borders	Scottish Borders
Dumfries and Galloway	Dumfries and Galloway
Edinburgh and Lothians	East Lothian, Edinburgh, Midlothian
Fife	Fife
Forth Valley	Clackmannanshire, Falkirk, Stirling
Glasgow	East Dunbartonshire, East Renfrewshire, Glasgow
Highlands and Islands	Argyll and Bute, Eilean Siar, Highland, Moray, Orkney Islands, Shetland Islands
Lanarkshire	East Dunbartonshire, North Lanarkshire, South Lanarkshire
Tayside	Angus, Dundee, Perth and Kinross
West	East Renfrewshire, Inverclyde, Renfrewshire, West Dunbartonshire
West Lothian	West Lothian
<b>City Regions</b>	
Edinburgh and South East Scotland	Edinburgh, Midlothian, East Lothian, West Lothian, Fife, Scottish Borders
Glasgow	Glasgow, East Dunbartonshire, East Renfrewshire, Inverclyde, North Lanarkshire, Renfrewshire, South Lanarkshire, West Dunbartonshire
Inverness	Highland
Stirling and Clackmannanshire	Clackmannanshire, Stirling
<b>Growth Deals</b>	
Argyll and Bute	Argyll and Bute
Falkirk	Falkirk
Islands	Eilean Siar, Orkney Islands, Shetland Islands
Moray	Moray
<b>Other</b>	
South of Scotland	Dumfries and Galloway, Scottish Borders

## Appendix B: SIC Definitions for Scotland's Key Sectors

The Office for National Statistics Standard Industrial Classifications can be found [here](#), the Standard Occupational Classifications can be found [here](#). The SIC definitions for the SDS Key Sectors are as follows:

<b>Financial and Business Services</b>		
64.1	Monetary intermediation	100%
64.3	Trusts, funds and similar financial entities	100%
64.9	Other financial service activities, except insurance and pension funding	100%
65	Insurance, reinsurance and pension funding, except compulsory social security	100%
66	Activities auxiliary to financial services and insurance activities	100%
69.1	Legal activities	100%
69.2	Accounting, bookkeeping and auditing activities; tax consultancy	100%
70.2	Management consultancy activities	100%
71.129	Other engineering activities (not including engineering design for industrial process and production or engineering related scientific and technical consulting activities)	100%
73.2	Market research and public opinion polling	100%
74.3	Translation and interpretation activities	100%
78.109	Activities of employment placement agencies (other than motion picture, television and other theatrical casting) n.e.c.	100%
78.3	Other human resources provision	100%
82.1	Office administrative and support activities	100%
82.2	Activities of call centres	100%
82.30	Organisation of conventions and trade shows	100%
82.91	Activities of collection agencies and credit bureaus	100%
82.99	Other business support service activities n.e.c.	100%
<b>of which, Financial and Professional Services</b>		
64.1	Monetary intermediation	100%
64.3	Trusts, funds and similar financial entities	100%
64.9	Other financial service activities, except insurance and pension funding	100%
65	Insurance, reinsurance and pension funding, except compulsory social security	100%
66	Activities auxiliary to financial services and insurance activities	100%
69	Legal activities and accounting activities	100%
70.2	Management consultancy activities	100%
82.91	Activities of collection agencies and credit bureaus	100%
<b>of which, Financial Services</b>		
64.1	Monetary intermediation	100%
64.3	Trusts, funds and similar financial entities	100%
64.9	Other financial service activities, except insurance and pension funding	100%
65	Insurance, reinsurance and pension funding, except compulsory social security	100%
66	Activities auxiliary to financial services and insurance activities	100%

<b>of which, Professional Services</b>		
69	Legal activities and accounting activities	100%
70.2	Management consultancy activities	100%
82.91	Activities of collection agencies and credit bureaus	100%
<b>Chemical Sciences</b>		
20.11	Manufacture of industrial gases	100%
20.12	Manufacture of dyes and pigments	100%
20.13	Manufacture of other inorganic basic chemicals	100%
20.14	Manufacture of other organic basic chemicals	100%
20.15	Manufacture of fertilisers and nitrogen compounds	100%
20.16	Manufacture of plastics in primary forms	100%
20.17	Manufacture of synthetic rubber in primary forms	100%
20.20	Manufacture of pesticides and other agrochemical products	100%
20.30/1	Manufacture of paints, varnishes and similar coatings, mastics and sealants	100%
20.30/2	Manufacture of printing ink	100%
20.41/1	Manufacture of soap and detergents	100%
20.41/2	Manufacture of cleaning and polishing preparations	100%
20.51	Manufacture of explosives	100%
20.52	Manufacture of glues	100%
20.53	Manufacture of essential oils	100%
20.59	Manufacture of other chemical products n.e.c.	100%
20.60	Manufacture of man-made fibres	100%
21.1	Manufacture of basic pharmaceutical products	100%
21.2	Manufacture of pharmaceutical preparations	100%
<b>Creative industries</b>		
73.11	Advertising agencies	100%
73.12	Media representation	100%
71.11	Architectural activities	100%
90.03	Artistic creation	70%
47.78/1	Retail sale in commercial art galleries	100%
31.09	Manufacture of other furniture	100%
16.29	Manufacture of other wood products	30%
32.12	Manufacture of jewellery and related products	100%
32.13	Manufacture of imitation jewellery and related articles	100%
23.41	Manufacture of ceramic household and ornamental articles	35%
23.49	Manufacture of other ceramic products	35%
23.13	Manufacture of hollow glass	15%
23.19	Manufacture of other glass	15%
47.79/1	Retail sale of antiques and antique books	100%
95.24	Repair of furniture and home furnishings	100%
13	Manufacture of textiles	25%
14	Manufacture of wearing apparel	20%
15	Manufacture of leather and related products	20%
74.1	Specialised design activities	25%
71.12/1	Engineering design activities for industrial process and production	100%
74.1	Specialised design activities	75%
90.01	Performing arts	100%
90.02	Support activities to performing arts	100%

90.04	Operation of arts facilities	100%
78.10/1	Motion picture, television and other theatrical casting	100%
59.2	Sound recording and music publishing activities	100%
18.20/1	Reproduction of sound recording	100%
32.2	Manufacture of musical instruments	100%
74.20/1	Portrait photographic activities	100%
74.20/2	Other specialist photography (not including portrait photography)	100%
74.20/9	Other photographic activities (not including portrait and other specialist photography and film processing) n.e.c.	100%
18.20/2	Reproduction of video recording	100%
59.11/1	Motion picture production activities	100%
59.11/2	Video production activities	100%
59.12	Motion picture, video and television programme post-production activities	25%
59.13/1	Motion picture distribution activities	100%
59.13/2	Video distribution activities	100%
59.14	Motion picture projection activities	100%
58.21	Publishing of computer games	100%
62.01/1	Ready-made interactive leisure and entertainment software development	100%
59.11/3	Television programme production activities	100%
59.13/3	Television programme distribution activities	100%
59.12	Motion picture, video and television programme post-production activities	75%
60.1	Radio broadcasting	100%
60.2	Television programming and broadcasting activities	100%
90.03	Artistic creation	30%
58.11	Book publishing	100%
58.13	Publishing of newspapers	100%
58.14	Publishing of journals and periodicals	100%
58.19	Other publishing activities	100%
18.11	Printing of newspapers	100%
18.129	Other printing (not labels)	100%
18.13	Pre press and media services	100%
63.91	News agency activities	100%
91.01	Libraries and archive activities	100%
58.29	Other software publishing	100%
62.01/2	Business and domestic software development	100%
62.02	Computer consultancy activities	100%
85.52	Cultural Education	100%
<b>Construction</b>		
02.2	Logging	20%
08.11	Quarrying of ornamental and building stone, limestone, gypsum, chalk and slate	70%
08.12	Operation of gravel and sand pits; mining of clays and kaolin	70%
16.23	Manufacture of other builders' carpentry and joinery	40%
20.30/1	Manufacture of paints, varnishes and similar coatings, mastics and sealants	25%
20.30/2	Manufacture of printing ink	25%

22.11	Manufacture of rubber tyres and tubes; retreading and rebuilding of rubber tyres	20%
22.19	Manufacture of other rubber products	20%
22.23	Manufacture of builders' ware of plastic	35%
23.32	Manufacture of bricks, tiles and construction products, in baked clay	85%
23.41	Manufacture of ceramic household and ornamental articles	60%
23.42	Manufacture of ceramic sanitary fixtures	60%
23.43	Manufacture of ceramic insulators and insulating fittings	60%
23.44	Manufacture of other technical ceramic products	60%
23.49	Manufacture of other ceramic products	60%
23.51	Manufacture of cement	25%
23.52	Manufacture of lime and plaster	25%
23.61	Manufacture of concrete products for construction purposes	90%
23.62	Manufacture of plaster products for construction purposes	90%
23.63	Manufacture of ready-mixed concrete	90%
23.64	Manufacture of mortars	90%
23.65	Manufacture of fibre cement	90%
23.69	Manufacture of other articles of concrete, plaster and cement	90%
25.11	Manufacture of metal structures and parts of structures	60%
25.12	Manufacture of doors and windows of metal	60%
25.21	Manufacture of central heating radiators and boilers	40%
25.29	Manufacture of other tanks, reservoirs and containers of metal	40%
25.3	Manufacture of steam generators, except central heating hot water boilers	40%
26.11	Manufacture of electronic components	35%
41.10	Development of building projects	100%
41.20/1	Construction of commercial buildings	100%
41.20/2	Construction of domestic buildings	100%
42.11	Construction of roads and motorways	100%
42.12	Construction of railways and underground railways	100%
42.13	Construction of bridges and tunnels	100%
42.21	Construction of utility projects for fluids	100%
42.22	Construction of utility projects for electricity and telecommunications	100%
42.91	Construction of water projects	100%
42.99	Construction of other civil engineering projects n.e.c.	100%
43.11	Demolition	100%
43.12	Site preparation	100%
43.13	Test drilling and boring	100%
43.21	Electrical installation	100%
43.22	Plumbing, heat and air-conditioning installation	100%
43.29	Other construction installation	100%
43.31	Plastering	100%
43.32	Joinery installation	100%
43.33	Floor and wall covering	100%
43.34/1	Painting	100%
43.34/2	Glazing	100%
43.39	Other building completion and finishing	100%
43.91	Roofing activities	100%
43.99/1	Scaffold erection	100%
43.99/9	Specialised construction activities (other than scaffold erection) n.e.c.	100%

46.13	Agents involved in the sale of timber and building materials	50%
46.63	Wholesale of mining, construction and civil engineering machinery	50%
46.73	Wholesale of wood, construction materials and sanitary equipment	50%
71.11/1	Architectural activities	100%
71.11/2	Urban planning and landscape architectural activities	50%
71.12/1	Engineering design activities for industrial process and production	50%
71.12/2	Engineering related scientific and technical consulting activities	50%
71.12/9	Other engineering activities (not including engineering design for industrial process and production or engineering related scientific and technical consulting activities)	50%
74.90/2	Quantity surveying activities	100%
<b>Energy</b>		
05	Mining of coal and lignite	100%
06	Extraction of crude petroleum and natural gas	100%
09	Mining support service activities	100%
19	Manufacture of coke and refined petroleum products	100%
20.14	Manufacture of other organic basic chemicals	100%
35	Electricity, gas, steam and air conditioning supply	100%
36	Water collection, treatment and supply	100%
38.22	Treatment and disposal of hazardous waste	100%
71.12/2	Engineering related scientific and technical consulting activities	100%
74.90/1	Environmental consulting activities	100%
<b>Engineering</b>		
24	Manufacture of basic metals	100%
25	Manufacture of fabricated metal products, except machinery and equipment	100%
26	Manufacture of computer, electronic and optical products	100%
27	Manufacture of electrical equipment	100%
28	Manufacture of machinery and equipment n.e.c.	100%
29	Manufacture of motor vehicles, trailers and semi-trailers	100%
30	Manufacture of other transport equipment	100%
33	Repair and installation of machinery and equipment	100%
71	Architectural and engineering activities; technical testing and analysis	100%
72.19	Other research and experimental development on natural sciences and engineering	100%
13.94	Manufacture of cordage, rope, twine and netting	100%
38.31	Dismantling of wrecks	100%
<b>Food and Drink</b>		
01	Crop and animal production, hunting and related service activities	100%
03	Fishing and aquaculture	100%
10	Manufacture of food products	100%
11	Manufacture of beverages	100%
<b>of which, Primary production</b>		
01	Crop and animal production, hunting and related service activities	100%
03	Fishing and aquaculture	100%
<b>of which, Manufacturing</b>		
10	Manufacture of food products	100%
11	Manufacture of beverages	100%
<b>Health and Social Care</b>		



86.1	Hospital activities	100%
86.21	General medical practice activities	100%
86.22	Specialist medical practice activities	100%
86.23	Dental practice activities	100%
86.9	Other human health activities	100%
87.1	Residential nursing care activities	100%
87.2	Residential care activities for learning disabilities, mental health and substance abuse	100%
87.3	Residential care activities for the elderly and disabled	100%
87.9	Other residential care activities	100%
88.1	Social work activities without accommodation for the elderly and disabled	100%
88.91	Child day-care activities	100%
88.99	Other social work activities without accommodation n.e.c.	100%
<b>of which, Social care</b>		
87.1	Residential nursing care activities	100%
87.2	Residential care activities for learning disabilities, mental health and substance abuse	100%
87.3	Residential care activities for the elderly and disabled	100%
87.9	Other residential care activities	100%
88.1	Social work activities without accommodation for the elderly and disabled	100%
88.91	Child day-care activities	100%
88.99	Other social work activities without accommodation n.e.c.	100%
<b>of which, Health</b>		
86.1	Hospital activities	100%
86.21	General medical practice activities	100%
86.22	Specialist medical practice activities	100%
86.23	Dental practice activities	100%
86.9	Other human health activities	100%
<b>Child day-care activities</b>		
85.1	Pre-primary education	100%
88.91	Child day-care activities	100%
<b>ICT/Digital</b>		
18.20/3	Reproduction of computer media	100%
26.11	Manufacture of electronic components	100%
26.12	Manufacture of loaded electronic boards	100%
26.20	Manufacture of computers and peripheral equipment	100%
26.30	Manufacture of communication equipment	100%
26.40	Manufacture of consumer electronics	100%
26.8	Manufacture of magnetic and optical media	100%
27.31	Manufacture of fibre optic cables	100%
58.21	Publishing of computer games	100%
58.29	Other software publishing	100%
61.1	Wired telecommunications activities	100%
61.2	Wireless telecommunications activities	100%
61.3	Satellite telecommunications activities	100%
61.9	Other telecommunications activities	100%
62.01	Computer programming activities	100%
62.02	Computer consultancy activities	100%

62.03	Computer facilities management activities	100%
62.09	Other information technology and computer service activities	100%
63.11	Data processing, hosting and related activities	100%
63.12	Web portals	100%
63.99	Other information service activities n.e.c.	100%
95.11	Repair of computers and peripheral equipment	100%
95.12	Repair of communication equipment	100%
<b>Life Science</b>		
21	Manufacture of basic pharmaceutical products and pharmaceutical preparations	100%
26.6	Manufacture of irradiation, electromedical and electrotherapeutic equipment	100%
32.5	Manufacture of medical and dental instruments and supplies	100%
72.11	Research and experimental development on biotechnology	100%
72.19	Other research and experimental development on natural sciences and engineering	100%
<b>Tourism</b>		
55.1	Hotels and similar accommodation	100%
55.2	Holiday and other short-stay accommodation	100%
55.3	Camping grounds, recreational vehicle parks and trailer parks	100%
56.1	Restaurants and mobile food service activities	100%
56.3	Beverage serving activities	100%
79.12	Tour operator activities	100%
79.9	Other reservation service and related activities	100%
91.02	Museum activities	100%
91.03	Operation of historical sites and buildings and similar visitor attractions	100%
91.04	Botanical and zoological gardens and nature reserve activities	100%
93.11	Operation of sports facilities	100%
93.19/9	Other sports activities (not including activities of racehorse owners) n.e.c.	100%
93.21	Activities of amusement parks and theme parks	100%
93.29	Other amusement and recreation activities	100%