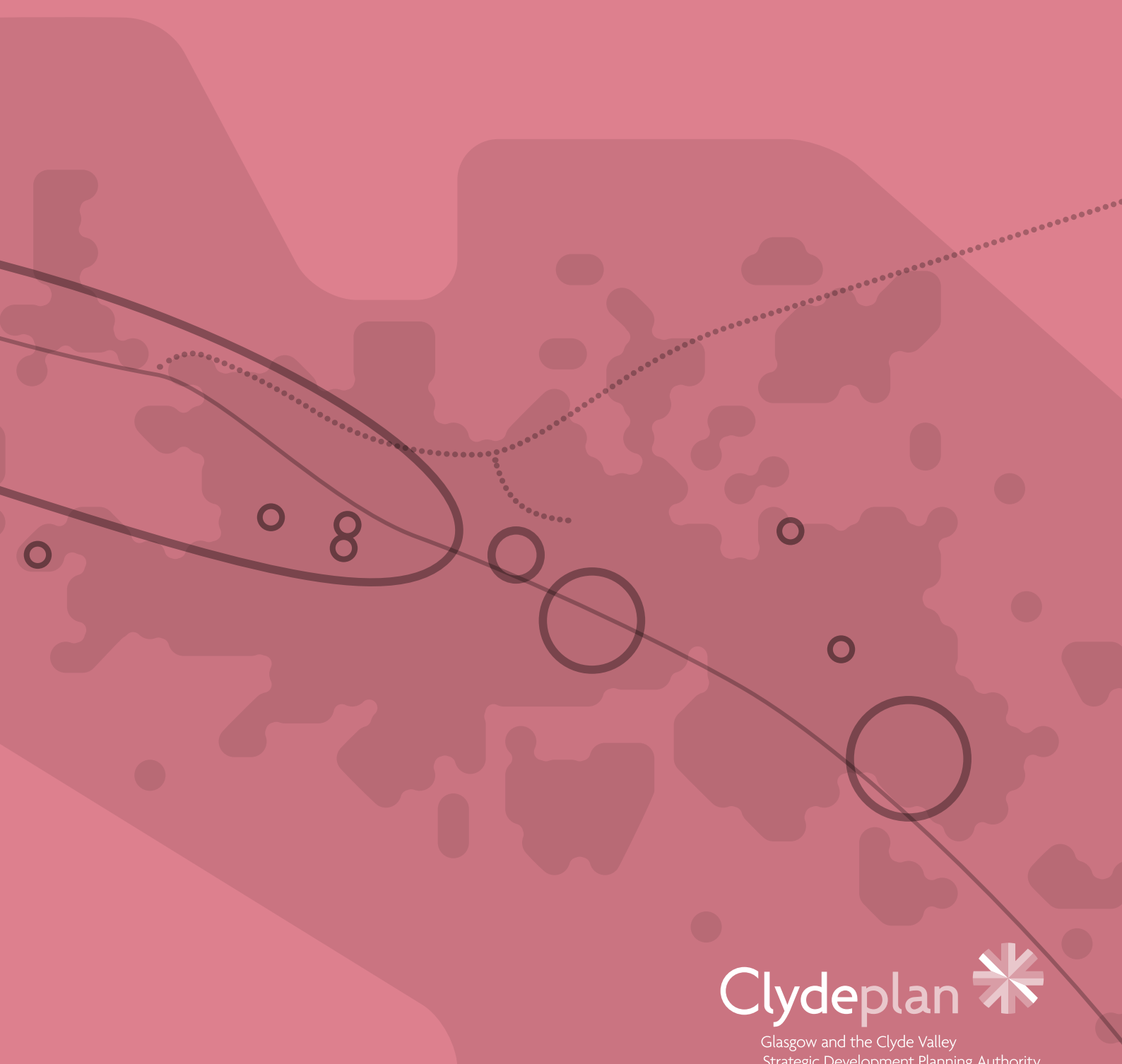
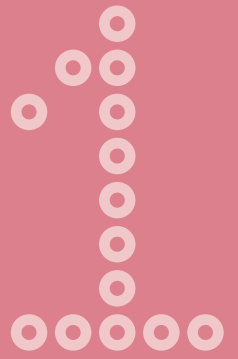


Strategic Development Plan

Proposed Plan - Background Report

January 2016

Economic Outlook and Scenarios for the
Glasgow and Clyde Valley city region 2013 – 2038



OXFORD ECONOMICS

Economic outlook and scenarios for the Glasgow and the Clyde Valley City Region 2013-2038

April 2014

**Prepared for the Glasgow and the Clyde
Valley Strategic Development Planning
Authority**



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List of Abbreviations used

ABI	Annual Business Inquiry
AES	Annual Employment Survey
APS	Annual Population Survey
ASHE	Annual Survey of Hours and Earnings
BRES	Business Register and Employment Survey
CBI	Confederation of Business Industry
GCVSDPA	Glasgow and the Clyde Valley Strategic Development Planning Authority
GDP	Gross Domestic Product
GVA	Gross Value Added
LFS	Labour Force Survey
LHS	Left Hand Side
MYE	Mid-Year Estimates
NES	New Earnings Survey
NRS	National Records of Scotland
NUTS	Nomenclature of Units for Territorial Statistics
NVQ	National Vocational Qualification
ONS	Office of National Statistics
PMI	Purchasing Managers Index
RHS	Right Hand Side
SIC	Standard Industrial Classification
UK	United Kingdom
US	United States
WFJ	WorkForce Jobs

1 Introduction

Glasgow and the Clyde Valley Strategic Development Planning Authority (GCVSDPA or the Authority) have commissioned Oxford Economics to provide an economic profile and forecasts for the Glasgow and the Clyde Valley city region, including assessing the implications for alternative scenarios on the region. The report is accompanied by a database of economic and labour market variables for each location.

This report has 4 sections:-

- 1 **Glasgow and the Clyde Valley city region economy today:** this section includes analysis of the Glasgow and the Clyde Valley city region examining the current economic structure of the area;
- 2 **The economies within the Glasgow and the Clyde Valley city region:** this section analyses of the current economic structure of the region's constituent local authorities;
- 3 **Looking ahead:** this section will provide an assessment of the current outlook for the Glasgow and the Clyde Valley city region. These baseline forecasts represent the Oxford Economics' view of the scale and depth of the recession in the area and what shape the recovery might take;
- 4 **Alternate futures for the Glasgow and the Clyde Valley city region:** this section contains analysis of how the outlook for the area would be changed by alternative assumptions about key influences on the local economy. .

The annexes to this report provide a technical section setting out details of the model structure as well as information on data sources and assumptions.

This work builds upon previous work with the Authority. In 2005, Oxford Economics produced economic forecasts for the Glasgow and the Clyde Valley city region with consideration of the potential for a sustained growth scenario. Since then, the UK economy entered into a largely unforeseen recession – the longest recession since records began in the 1950s – with the consequence that all regions experienced a decline in economic growth. In late 2009, Oxford Economic produced a short 'thinkpiece' for the Authority which assessed the strategic and economic implications of the recession on the Scotland economy. Based on the findings of this report, the Authority came to the view that the recovery is likely to be slow with muted net migration into the region in the medium term.

As a result in 2010, Oxford Economics produced an update of economic forecasts and assessed in detail the implications of alternative outlooks on the Glasgow and the Clyde Valley city region. This work concluded that the economic outlook remained very uncertain. The pressures on consumers and the government were weighing heavily on overall prospects and offsetting any improvement in the corporate sector. The economic recovery was depending on the strength of the exports sector. Though the possibilities in other sectors should not be discounted given the fright which the global recession gave to the global financial industry.

1.1 Review of the previous work

in The 2010 analysis highlighted the high degree of uncertainty in the economic outlook, with pressures on consumers and the government weighing heavily on overall prospects and offsetting any improvement in the corporate sector. The economic recovery was seen as depending on the strength of the exports sector and Oxford Economics considered services to be the likely source of such growth.

For Scotland and consequently for Glasgow Clyde Valley the recession had taken a significant toll, broadly proportionate to what occurred elsewhere in the UK, and the road to recovery looked both perilous and long. Baseline projections from 2010 suggested it would be a decade before employment levels returned to their

peak and also suggested a return to modest population decline as migration responded to the weakening conditions.

The possibilities for a re-balanced UK economy and a more positive migration pattern into Glasgow / Clyde Valley were considered within the work. Under these alternate outcomes the region performed more strongly. The likelihood of a faster growth was only modest but within the realms of possibility. In practice it would have required the Glasgow Clyde Valley region to attract a greater share of world demand in a range of exporting sectors, or offer housing quality and living standards to make the area relatively more attractive than other locations and thus displacing economic activity to Glasgow Clyde Valley.

The work concluded that recovery from recession would be slow and for many people it would take much longer than economists recorded the recession as having lasted. For Clyde Valley prospects were more muted than they were pre-recession, all eyes were on export potential, pressures on consumer incomes and on public sector jobs, with the decade ahead presenting a very different feel to the decade past.

2 The Glasgow and the Clyde Valley city region economy

This chapter is a point-in-time economic assessment of the Glasgow and the Clyde Valley city region economy with particular attention on population, employment, sectoral structure and productivity. The section provides a review of the region in comparison to Scotland in terms of demographics and recent economic performance. This will help to set the scene as we discuss the outlook for the area, and more specifically how the region will recover post-recession.

Table 2.1: Relative importance of the Glasgow and the Clyde Valley city region, 2012

	2012	% of Scotland
Total Population (000s)	1789	34%
Total Employed (000s)	868	33%
GVA (£m, 2010 prices)	36895	34%
Land	3383 km ²	4%

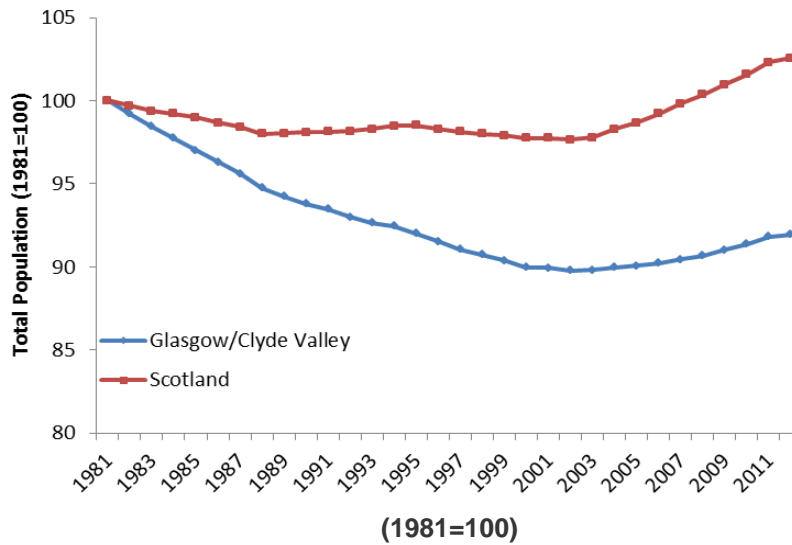
Source: Nomis, ONS

Table 2.1 above summarises the contributions of the Glasgow and the Clyde Valley city region economy in terms of population, employment and GVA showing that it accounts for around a third of the Scottish economy whilst only encompassing 4% of the region's landmass.

2.1 Population and migration

Consistent with the majority of cities in the UK, the Glasgow and the Clyde Valley city region had experienced a declining population until the turning of the 21st century. Figure 2.1 shows that population decline in the Glasgow and the Clyde Valley city region was much faster than in Scotland reflecting high levels of outward migration from inner city disadvantaged areas and rising living costs in the more urbanised centres. The migration out of the Glasgow and the Clyde Valley city region was most severe during the 1980s and early 1990s reflecting a period of contraction within the manufacturing sector – a leading sector in area which deteriorated sharply in this time period.

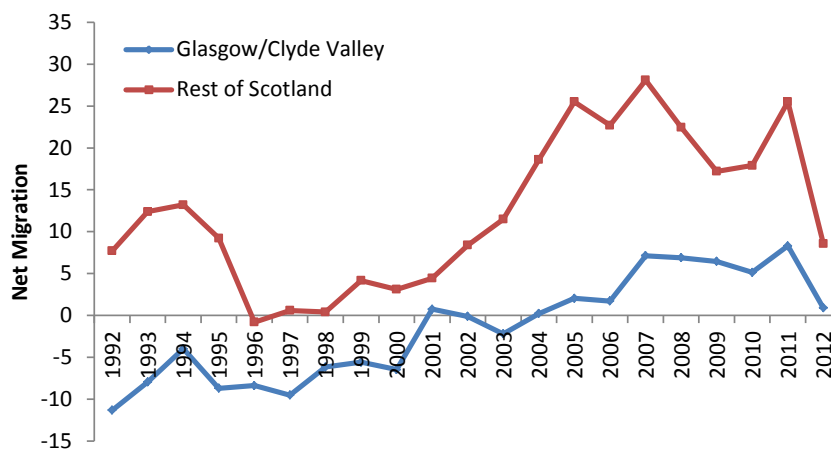
Figure 2.1: Population – Glasgow and the Clyde Valley city region and Scotland, 1981 – 2012



Source: National Records of Scotland

In 2000 the population fall in the Glasgow and the Clyde Valley city region has stabilised owing to the significant acceleration in the rate of inward migration. The inward migration is dominated by young graduates and professionals seeking employment and we suspect this is the case for the UK's cities. Most seek work in the growing service sector that has become a core part of the UK economy, located within the country's inner cities. The regenerated inner-city areas provide attractive living locations to this demographic due to the convenience to employment opportunities and social amenities. The population trend over the last decade not only represents migration into the area but reflects a general population rise also experienced in Scotland as a whole.

Figure 2.2: Net migration – Glasgow and the Clyde Valley city region and Rest of Scotland, 1992-2012



Source: National Records of Scotland

Note: includes other changes

Figure 2.2 shows the net migration trends in Glasgow and the Clyde Valley city region and Rest of Scotland over the past 20 years. Migration trends in Glasgow and the Clyde Valley city region follow a similar pattern to the Rest of Scotland. In the latter part of the 1990s the rate of outward migration began to fall in Glasgow and the Clyde Valley city region. Since 2003 both Scotland and Glasgow and the Clyde Valley city region have experienced persistent net inward migration.

The period 2007-2011 Glasgow and the Clyde Valley city region experienced significant population inflows above that achieved in any other recent period. The latest migration data for 2012 suggest a fall off from these historically-high levels - a trend which is apparent across the UK. A probable explanation for this is fewer job opportunities to attract migrants.

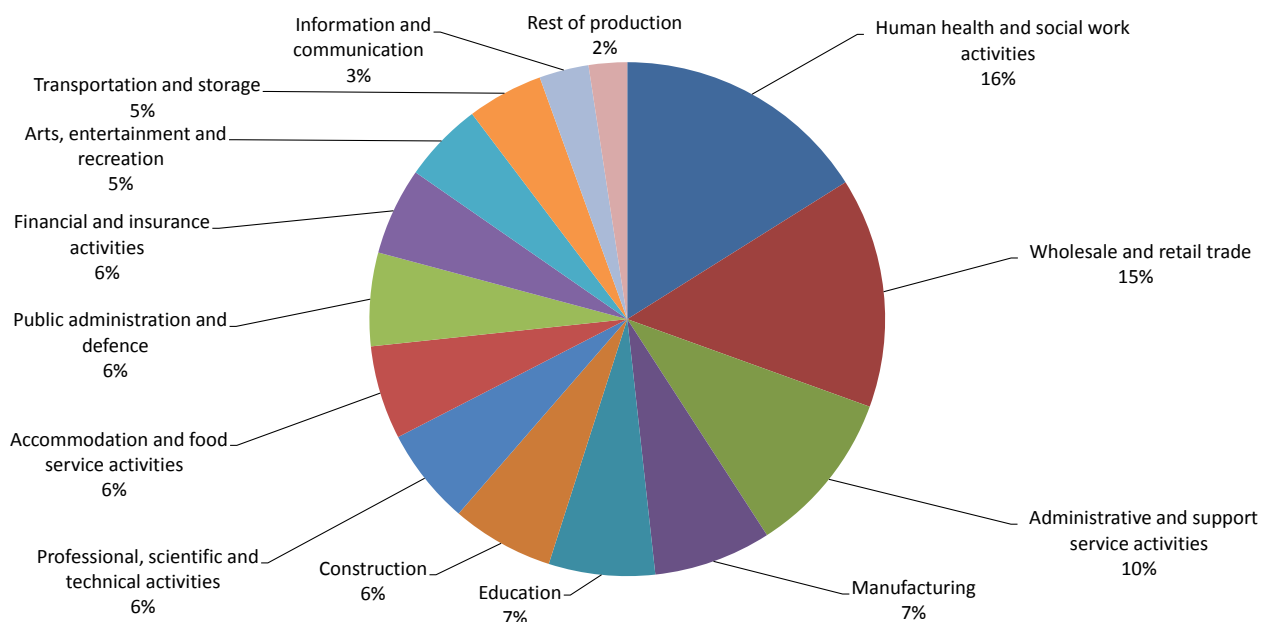
2.2 Employment

2.2.1 Current structure

Since the last report, the sectoral classification upon which the official data is published has moved to a new Standard Industrial Classification (SIC). Data is now available on a SIC 2007 basis which provides more detail on the professional services sector.

The latest employment data for Glasgow and the Clyde Valley city region is for 2012 and shows that the biggest sector in terms of jobs in the region is health and social work with 16% of total employment (Figure 2.3). This is followed by wholesale and retail with a 14% share and admin and support services which accounts for 10% of total employment. Business services were the largest sector in the 2010 report with a share of 18%. Split across the new SIC 2007 codes it remains unchanged with 10% of total employment in admin & support services, 6% in professional, scientific & technical and 2% in real estate. Despite the rapid decline in the 1980s and 1990s the manufacturing sector still holds a significant proportion of overall employment by urban standards, accounting for 7% of total employment.

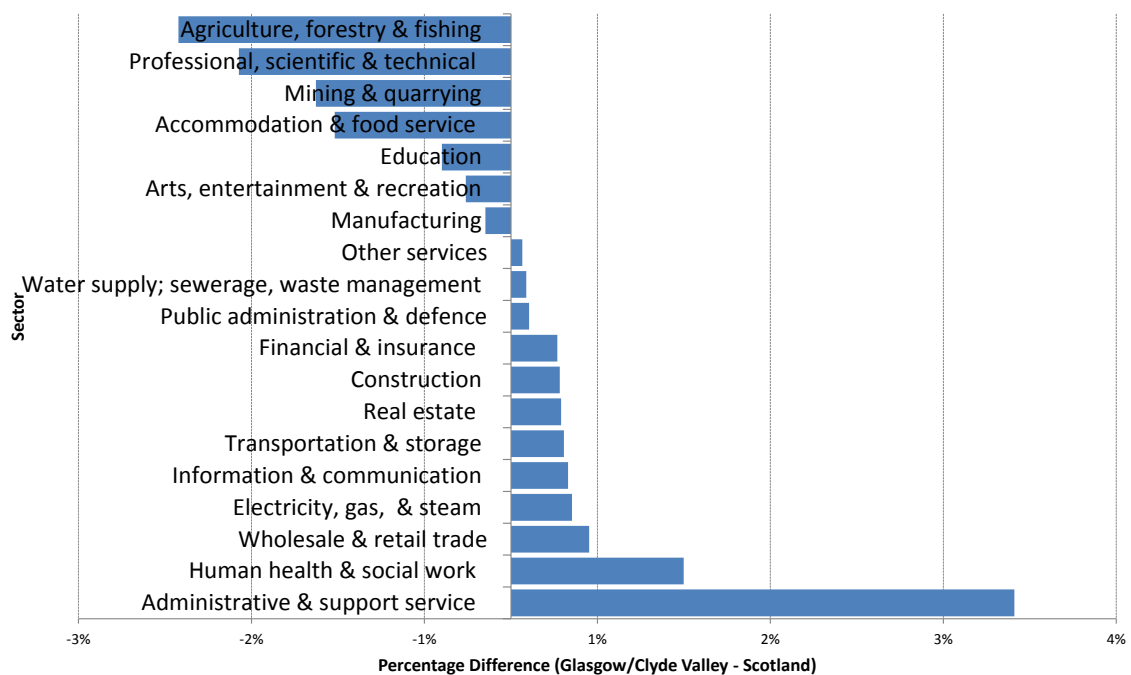
Figure 2.3: Total employment structure in Glasgow and the Clyde Valley city region, 2012



Source: BRES, Oxford Economics

As might be expected due to its high profile urban status and dominance within the region, the Glasgow and the Clyde Valley city region has a much higher concentration of employment in the service sector – both private and public services. Admin and support services have a percentage share of total employment that is over 2.5 percentage points higher than the Scottish average. Health and social work activities are also a major sector for the Glasgow and the Clyde Valley city region. Despite being an urban area, the region has a smaller share of employment in both accommodation and food services and professional, scientific & technical activities than Scotland.

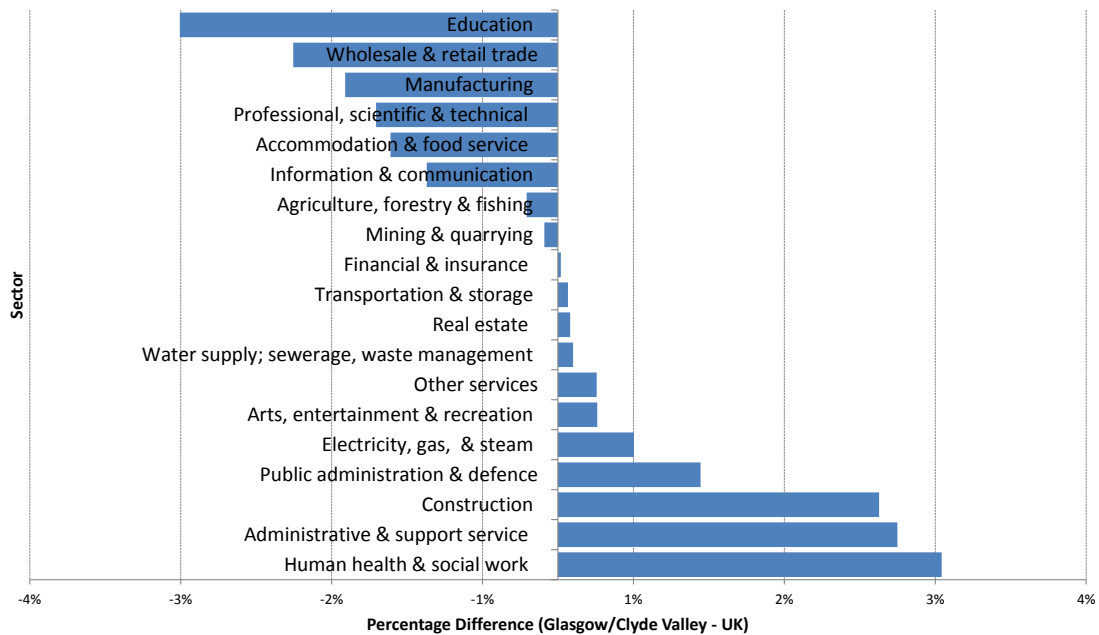
Figure 2.4: Relative employment concentration - Glasgow and the Clyde Valley city region, difference from Scotland, 2012



Source: Oxford Economics

Figure 2.5 sets the position of the Glasgow and the Clyde Valley city region in the context of the UK sectoral mix. The share of total employment is 2.5 percentage points higher in health and social work in the region than the UK. This is partially due to the urban structure of Glasgow and the Clyde Valley city region. This could represent a risk to the region as Scotland experiences an ageing population which will put ever increasing pressure on the health and social work budget. The region has strong admin and support service activities and construction sectors, with higher shares in these sectors compared to both Scotland and the UK. Relative to Scotland, the Glasgow and the Clyde Valley city region share of employment in education is only marginally lower (0.4 percentage points), however, when we compare the region to the UK, it is lower by 2.5 percentage points.

Figure 2.5: Employment shares - Glasgow and the Clyde Valley city region, difference from UK, 2012

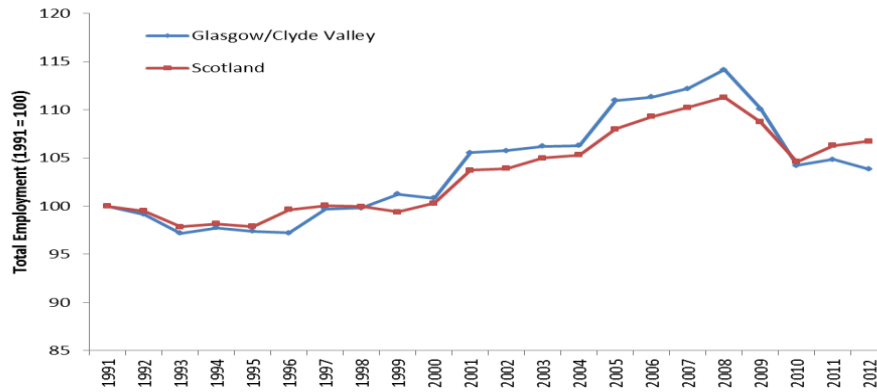


Source: Oxford Economics

2.2.2 Recent trends in employment

Figure 2.6 shows total employment growth in Glasgow and the Clyde Valley city region relative to total employment growth in Scotland, using 1991 as the base year. There is a clear correlation in the trends in total employment between Glasgow and the Clyde Valley city region and Scotland. The declining total employment levels of the early 1990s were a consequence of contractions within the manufacturing sector. With the exception of a dip in Scottish employment in 1999, the region and Scotland experienced rising total employment from 1996 up until the start of the recession in 2008. Over this period the rise in total employment in Glasgow and the Clyde Valley city region outstripped that of Scotland as the growth in the service sectors started to gather pace. Such growth can be attributed to an expanding admin and services sector, particularly in call centres and recruitment agencies – though recruitment numbers can often be exaggerated by temporary staff placed through recruiters being counted within this sector instead of their sector of placement. Since 2008 total employment has fallen heavily in both the Glasgow and the Clyde Valley city region and Scotland. Since 2008 total employment has fallen by 9.0% in the Glasgow and the Clyde Valley city region, the contraction in Scotland was less than half this at 4.1%. Total employment has fallen for 4 out of the past 5 years and now resides at levels not seen since before 2001.

Figure 2.6: Total employment - Glasgow and the Clyde Valley city region and Scotland, 1991 – 2012 (1991=100)



Source: BRES, Oxford Economics

Note: Includes self employment

Table 2.2 sets out the sectoral change in employment between 2008 and 2012. As expected, the latest data show that the recession has had a significant impact on the employment landscape across the UK, with Scotland and Glasgow and the Clyde Valley city region hit particularly hard. The largest contraction was experienced in the construction industry, which shrank by 31% over this period, with the loss of 17,500 jobs. Scotland's construction sector also experienced a sharp contraction over this period (29%). Wholesale and retail suffered notably in the period, with the loss of 14,700 jobs as the sector contracted by 12% in the Glasgow and the Clyde Valley city region, significantly higher than the 8% fall in Scotland. In the 2010 report it was noted that financial services had moved from a 'lower concentration' to a 'higher concentration' sector and that the fall-out from the 'credit crunch' could pose a substantial risk to jobs in the region. The available data now show that financial services employment shrank by 24%, twice the contraction in Scotland representing a loss of 8,200 jobs.

Job shedding has not been isolated to the private sector but is evident in the public sector too, as the government seeks to bring the fiscal deficit back to balance. Glasgow and the Clyde Valley city region has been hit particularly hard by budget cuts with total employment in public admin & defence and education both contracting by 18% between 2008 and 2012, representing 9,300 and 10,300 job losses respectively. These sectors contracted faster than the Scottish average. Though health and social work fell by only 3%, this equates to job losses of 4,200 as this is the largest sector in the region and has a larger share of total employment in comparison to Scotland and the UK.

Table 2.2: Change in employment - Glasgow and the Clyde Valley city region, 2008-2012

	% Change	
	Scotland	Glasgow/ Clyde Valley
Agriculture	10%	9%
Mining and quarrying	12%	26%
Manufacturing	-8%	-11%
Electricity, gas, & steam	14%	28%
Water supply; sewerage, waste management	-2%	-5%
Construction	-29%	-31%
Wholesale and retail trade	-8%	-12%
Transportation and storage	-3%	-10%
Accommodation and food service activities	-5%	-15%
Information and communication	1%	4%
Financial and insurance activities	-12%	-24%
Real estate activities	1%	-4%
Professional, scientific and technical activities	15%	-1%
Administrative and support service activities	3%	1%
Public administration and defence	-8%	-18%
Education	-11%	-18%
Human health and social work activities	-2%	-3%
Arts, entertainment and recreation	-1%	-11%
Other service activities	-11%	-19%
Total	-4%	-10%

Source: ~BRES / Oxford Economics

Note: Includes self employed

2.2.3 Part-time employment

A trend experienced during the recent recession was the transition of employees from full-time to part-time work, allowing firms to reduce labour costs without reducing headcount. This has the benefits of allowing firms to retain staff at a lower cost until business picks up whilst employees still earn an income, albeit a lower amount. The extent of the shift from full-time to part-time employment within Glasgow and the Clyde Valley city region during the recent crisis as can be seen in table 2.3.

The proportion of part-time employees in total may have only increased by 1% from 2008 to 2012 but this hides a significant increase in part-time working across the private sector, largely offset by reduced use of part-timers in the public sector. Some of the larger private services sectors within the Glasgow and the Clyde Valley city region economy have experienced a stronger shift towards part-time employees. The sector to experience the largest shift from full-time to part-time employees is the admin & support sector, an increase in part-time employees of 4,900, equal to a 6 percentage point rise in the proportion of part-time employees. Professional, scientific & technical sector experiences an increase of 1,500 part-time employees over the same period, equivalent to a 3 percentage point rise. A sector that needs to be able to adjust quickly to changing demand is the real estate sector. The 9% rise in the proportion of part-time employees from 2008 to 2012, an increase of 1,300 employees, reflects this flexing of the work force in the face of a changing economic climate.

The second largest sector in the Glasgow and the Clyde Valley city region is the wholesale & retail sector, which experienced a 5% rise in the proportion of part-time workers. Though the sector experienced a rise in the proportion of part-time employees, the number of part-time and total employees both fell in the sector in the period 2008 to 2012.

Table 2.3: Part-time employment as a percentage of total employment – Glasgow and the Clyde Valley city region and Scotland, 2008 & 2012

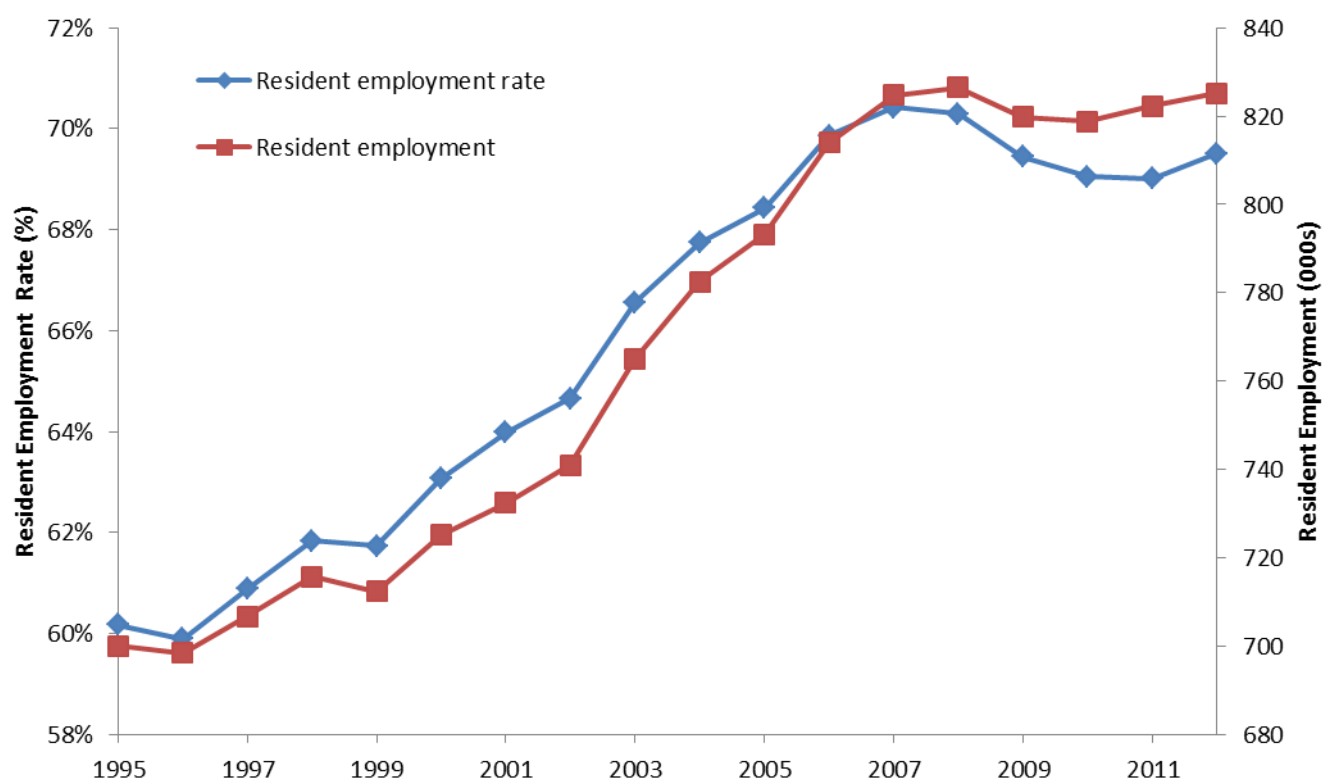
	Glasgow Clyde Valley			Scotland		
	2008	2012	% Change	2008	2012	% Change
Agriculture, forestry and fishing	12%	10%	-2%	39%	41%	2%
Mining and quarrying	8%	7%	-1%	2%	4%	1%
Manufacturing	8%	8%	1%	8%	9%	1%
Electricity, gas, & steam	10%	11%	0%	8%	8%	0%
Water supply; sewerage, waste management	9%	3%	-5%	7%	5%	-2%
Construction	6%	7%	1%	8%	8%	1%
Wholesale and retail trade	40%	45%	5%	42%	46%	4%
Transportation and storage	13%	16%	3%	16%	16%	-1%
Accommodation and food service activities	59%	58%	-1%	55%	54%	-1%
Information and communication	14%	19%	5%	17%	19%	2%
Financial and insurance activities	20%	20%	0%	19%	18%	-1%
Real estate activities	23%	32%	9%	28%	36%	9%
Professional, scientific and technical activities	16%	19%	3%	17%	19%	3%
Administrative and support service activities	36%	43%	6%	33%	38%	5%
Public administration and defence	24%	22%	-2%	24%	25%	1%
Education	39%	37%	-2%	42%	41%	-1%
Human health and social work activities	45%	43%	-1%	49%	47%	-2%
Arts, entertainment and recreation	54%	46%	-8%	51%	50%	-1%
Other service activities	39%	34%	-5%	45%	38%	-6%
Total	31%	33%	1%	32%	33%	1%

Source: BRES, Oxford Economics

2.3 Resident employment

The resident employment rate (residents in work divided by population aged 16-64) rose steadily from the late 1990s until the recession hit, before falling back slightly. In the aftermath of the credit crunch the level of resident employment held up better than the resident employment rate. This can be explained by the high levels of net in-migration between 2007 and 2011 which ensured that the growth in working age population was faster than growth in residence employment.

Figure 2.7: Resident employment in Glasgow and the Clyde Valley city region, 1995-2012



Source: APS, Oxford Economics

2.4 Occupational structure

The table below sets out the occupational structure of the area in the 12 months to December 2012.

Table 2.4: Occupational structure – Glasgow and the Clyde Valley city region and Scotland, 2012

	Glasgow / Clyde Valley	Scotland	Difference from Scotland
Managers & senior officials	7.9%	8.5%	-0.6%
Professional Occupations	19.6%	19.8%	-0.2%
Associate prof & tech occs	12.8%	12.7%	0.1%
Admin & secretarial	11.8%	10.8%	1.0%
Skilled trades occs	9.9%	11.1%	-1.2%
Personal service occs	9.5%	9.4%	0.1%
Sales & customer service	10.3%	9.2%	1.1%
Process, plant & machine	6.8%	6.6%	0.2%
Elementary occs	10.6%	11.2%	-0.6%
Total	100	100	0.0

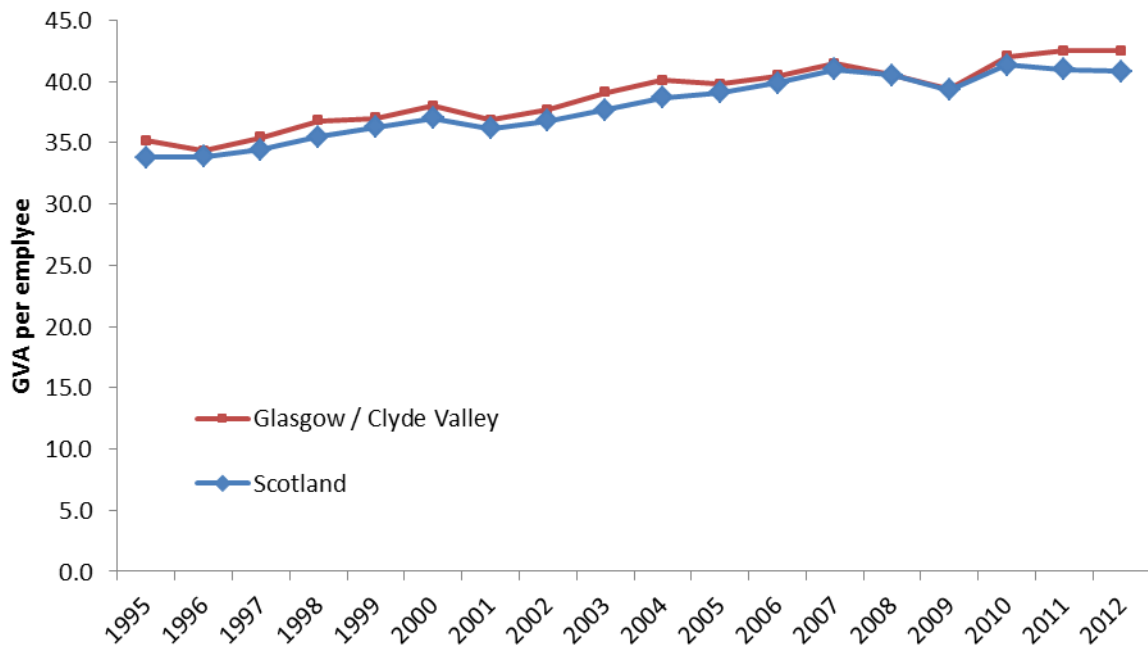
Source: APS

The occupational structure in Glasgow and the Clyde Valley city region is similar to the Scottish average. The greatest disparity, albeit only 1.2% lower in the Glasgow and the Clyde Valley city region than in Scotland, is in skilled trades. A reduced presence in this classification is compensated by a 1.1% higher representation in the sales & customer service classification and 1.0% higher representation in the admin & secretarial classification. The larger size of these classifications is driven by the higher share of total employment in admin & support services and wholesale & retail sectors relative to Scotland.

2.5 Productivity

The chart below sets out productivity levels within Glasgow and the Clyde Valley city region. Productivity is measured as real GVA per employed person including the self-employed.

Figure 2.8: Productivity in Glasgow and the Clyde Valley city region and Scotland, 1995-2012



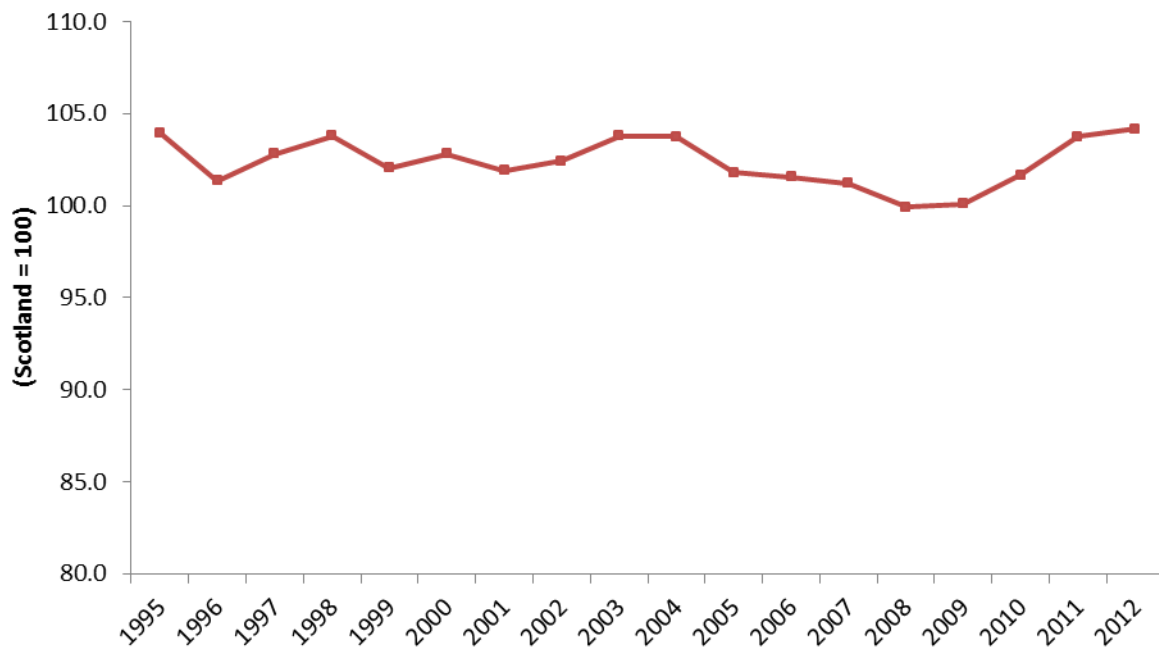
Source: Regional Accounts, BRES, Oxford Economics

In broad terms productivity has been increasing in the Glasgow and the Clyde Valley city region since 1995, interrupted by occasional blips. In 1996 there was a decline due to the deterioration of the manufacturing industry and in 2001 the dot.com crash negatively impacted productivity. In recent years, we see the effect of the credit crunch with a two-year fall in productivity in the Glasgow and the Clyde Valley city region in 2008 and 2009. It is evident from both figure 2.8 & 2.9 that productivity of the Glasgow and the Clyde Valley city region is marginally higher than Scotland. Due to the urban nature of the region this is to be expected as it contains a higher proportion of sectors that are fundamentally more productive such as admin & support services, information & communication and financial & insurance activities.

Despite productivity tending to be higher in Glasgow and the Clyde Valley city region than in Scotland figure 2.9 shows that the recent recession hit the region harder. Glasgow and the Clyde Valley city region's relative

productivity being lower than Scotland's for the first time in the period in 2008. Thereafter productivity in both Glasgow and the Clyde Valley city region and Scotland fell in 2009 to approximately the same extent. Since 2009 the region has regained a slight productivity edge on Scotland, with both areas experiencing GVA growth of 1.9% but Glasgow and the Clyde Valley city region experiencing a 5.7% contraction in employment whilst Scotland's labour market shrank by only 1.8%.

Figure 2.9: Relative productivity (GVA per employed person) - Glasgow and the Clyde Valley city region, 1995-2012 (Scotland = 100)



Source: Regional Accounts, BRES, Oxford Economics

2.6 Education

The latest data on skills suggests that Glasgow and the Clyde Valley city region lagged Scotland by 1.0% in 2012 in terms of the proportion of the working age population qualified with an NVQ4+. However the main concern is that the percentage of the working age population with no qualification in 2012 is 13.3% in Glasgow and the Clyde Valley city region, 2.6 percentage points higher than the Scottish average.

Despite the lower skill pool than the Scottish average, skills levels within the area are improving and closing the gap. If we compare the level of skills in Glasgow and the Clyde Valley city region in 2012 to 2008 it can be seen that a marked improvement has occurred. The percentage of the working age population with no qualifications has fallen from 18.0% in 2008 to 13.3% in 2012, a fall of 4.7 percentage points over the period and a narrowing of the gap with Scotland from 4.1 to 2.6 percentage points. Glasgow and the Clyde Valley city region has also experienced a sharp rise in the percentage of the working age population qualified at an NVQ4+ level, rising 5.7 percentage points from 31.8% to 37.5%.

Table 2.5: Education/Skills – Glasgow and the Clyde Valley city region and Scotland for population aged 16-64,

	Glasgow / Clyde Valley 2008	Scotland 2008	Difference 2008	Glasgow / Clyde Valley 2012	Scotland 2012	Difference 2012
% with NVQ4+	31.8%	33.1%	-1.3%	37.5%	38.5%	-1.0%
% with NVQ3 only	15.7%	15.5%	0.2%	14.8%	14.7%	0.1%
% with NVQ2 only	12.8%	14.0%	-1.2%	13.8%	14.6%	-0.8%
% with NVQ1 only	9.7%	9.9%	-0.2%	9.7%	10.1%	-0.4%
% with Trade Apprenticeships	5.2%	6.1%	-0.9%	4.5%	5.3%	-0.8%
% with other qualifications	6.8%	7.4%	-0.6%	6.4%	6.1%	0.3%
% with no qualifications	18.0%	13.9%	4.1%	13.3%	10.7%	2.6%
Total	100	100	0.0	100	100	0.0

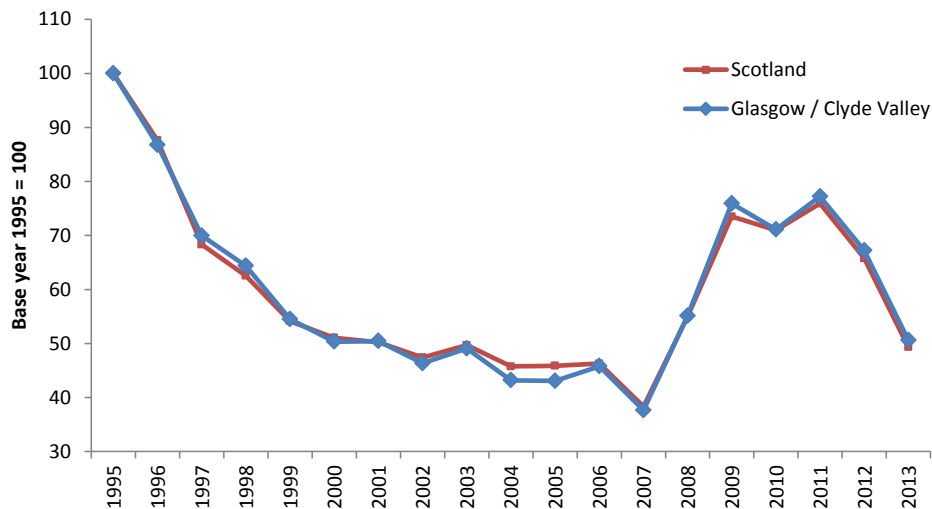
2008 & 2012

Source: APS

2.7 Unemployment

The figure below sets out the level of youth unemployment within the area and uses 1995 as the base year (=100). Whilst youth unemployment rose significantly from 2007, it never reached a similar level to that experienced in the mid 1990s. The figure also reveals that the change in youth unemployment with Glasgow and the Clyde Valley city region was similar to the Scottish trend.

Figure 2.10: Youth unemployment in Glasgow and the Clyde Valley City region & Scotland, 1995-2012



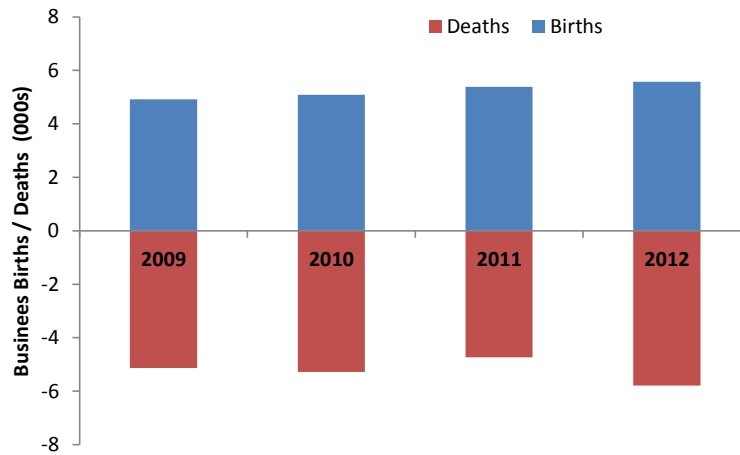
Source: Nomis

In 1995 youth unemployment in Scotland was 54,000 and 23,000 in Glasgow and the Clyde Valley city region. From 1995 to 2007 youth unemployment experienced a general decline with the fall most rapid in the late 1990s. In the period between 1995 and 2007 youth unemployment fell by 62% in Glasgow and the Clyde Valley city region from 23,000 to 8,000. The aftermath of the financial crisis caused this to more than double within 2 years to 17,000. A return to economic growth in 2011 has seen youth unemployment fall significantly to 11,000; still well above the levels experienced before the crisis but under half its 1995 level.

2.8 Entrepreneurship

Since the onset of the financial crisis in 2008 there has been a significant shift in the number of self-employed workers and business start-ups triggered by the fall in employment in the aftermath of the crisis (total employment shrank by 70,000 between 2008 and 2012 in Glasgow and the Clyde Valley city region). The number of self-employed in Glasgow and the Clyde Valley city region rose from 71,000 to 79,000 in the 5 years from 2007 to 2012.

Figure 2.11: Business Births/Deaths in Glasgow and the Clyde Valley city region, 2009-2012



Source: ONS, Oxford Economics

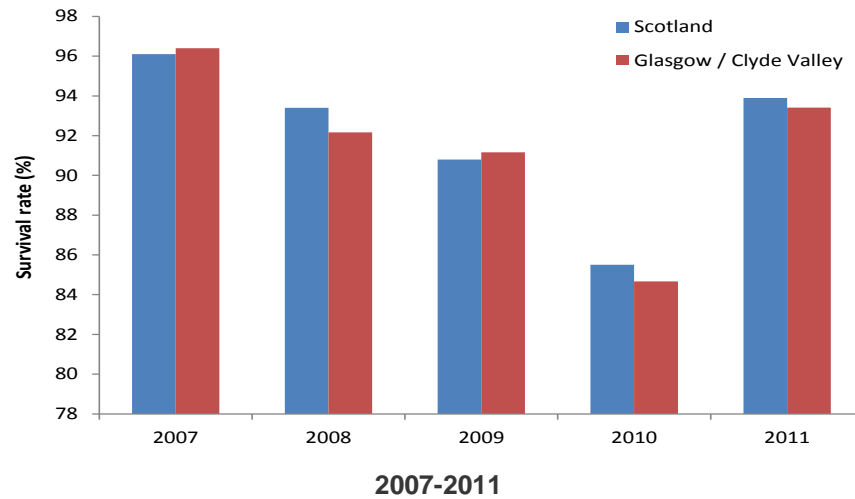
Business start-ups have also gathered pace since 2009. In Glasgow and the Clyde Valley city region business births have risen from 4,900 in 2009 to 5,600 in 2012, representing an average increase of 4.3% per annum. Despite the growth in business births, the effect on the overall population of firms is cancelled out by similar levels of closures (business deaths) which grew from 5,100 in 2009 to 5,800 in 2012; average growth of 4.1% per year.

Since 2009 Glasgow and the Clyde Valley city region has lagged behind Scotland in the rate of growth in business start-ups. Business births in Scotland rose from 14,700 to 17,400 between 2009 and 2012. The creation of 2,700 new firms over the period represents an average growth rate of 5.7% per annum, 1.4% higher than in Glasgow and the Clyde Valley city region. The number of business deaths in Scotland also increased, but at a lesser average rate of 3.6% per annum from 15,100 to 16,800. The disparity in the rate of growth of business births to deaths since 2009 has resulted in the aggregate outcome for Scotland reversing from a net closure of 400 firms in 2009 to the net opening of 600 firms in 2012.

The trend in business births and deaths is important but does not give a complete picture of the level of entrepreneurship in the regions. Business deaths can be comprised of the closure of both established and young enterprises, thus to assess the benefit of the growth in business births we must examine the survival rates of the new enterprises.

In figure 2.13 the adverse impact of the poor economic performance on the survival rates of new firms can be clearly seen. The percentage of new firms still trading after one year falls from 96% in 2007 to 85% in 2010 in Glasgow and the Clyde Valley city region. This trend mirrors the deterioration in survival rates across Scotland. The source of this higher mortality is down to macro factors which will have a broadly similar impact on Glasgow and the Clyde Valley city region relative to other Scottish regions. As the recovery took hold in 2011, improving economic conditions saw one year survival rates for firms climb back up to 93% for Glasgow and the Clyde Valley city region.

Figure 2.12: Percentage of firms to survive beyond 1 year, Glasgow and the Clyde Valley city region & Scotland,



Source: ONS, Oxford Economics

2.9 SWOT – Glasgow and the Clyde Valley city region

Strengths	Weaknesses
<ul style="list-style-type: none"> ■ GVA growth is historically higher than the Scottish average and is forecast to grow by in excess 2% per annum throughout the forecast period. ■ The region has higher productivity levels than the Scottish average. Making it an attractive location to invest in. ■ The number of business start-ups in the region has increased at an annual rate of 4.3% per annum since 2009. 	<ul style="list-style-type: none"> ■ Total employment has fallen by 86,000 since 2008. These jobs losses are not expected to be recovered within the 25 year forecast. ■ The region has an over-reliance upon public services for employment. The public service employment is expected to fall by 2% with a loss of 14,000 jobs over the next decade. ■ Slower population growth in the region compared to Scotland and the UK ■ High unemployment in some local authorities (Glasgow, Inverclyde, North Lancashire, West Dunbartonshire) relative to Scotland. Longer term labour mobility issues could arise if these levels remain.
Opportunities	Threats
<ul style="list-style-type: none"> ■ The region has a relatively large admin & support and construction sector. Both are forecast to undergo robust growth. ■ Total employment is forecast to grow at a greater rate than total population. ■ Affordable housing relative to the UK makes the region attractive to migrants. Inward migration is expected throughout the forecast period. ■ Financial & business services, tourism and creative industries are forecast to be key sectors for growth. The sectors are forecast to create 17,600 additional jobs by 2023. 	<ul style="list-style-type: none"> ■ The upcoming referendum on Scottish Independence will create uncertainty. ■ The region education sector is smaller relative to Scotland and the UK. Reducing the supply of skilled labour in the future.

3 The economies within the Glasgow and Clyde Valley region

In this section we will analyse the contribution to economic growth from the constituent local authorities to the Glasgow and the Clyde Valley city region.

3.10 Population

Glasgow City is the largest local authority within the Glasgow and the Clyde Valley city region with a third of total population, followed by North Lanarkshire with 18.9% of total population and South Lanarkshire accounting for a further 17.6% of total.

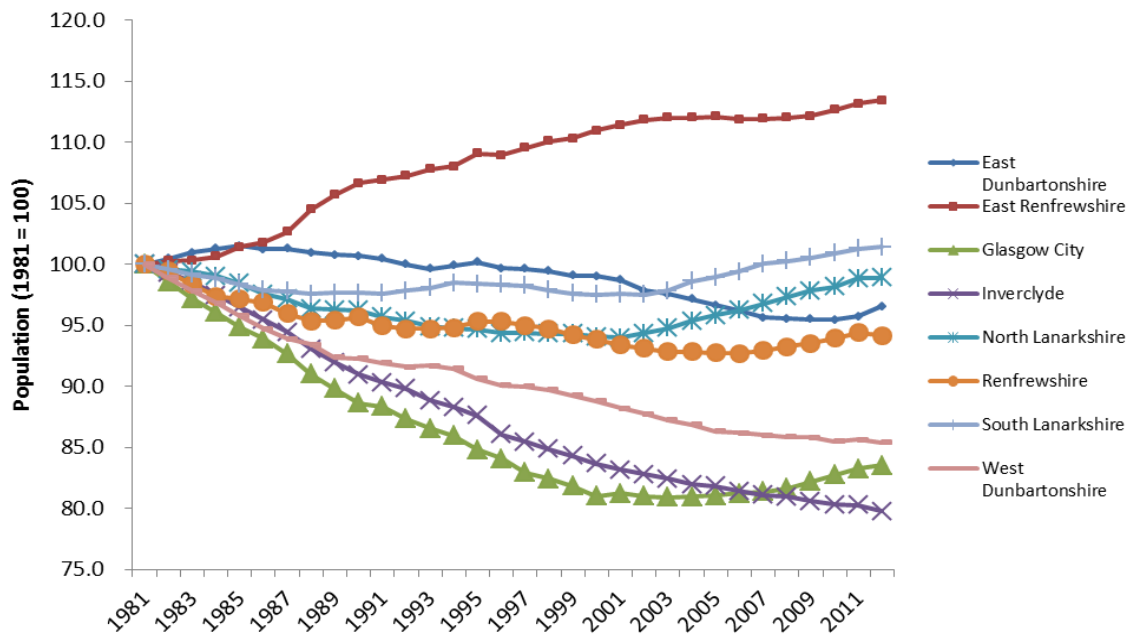
Table 3.1: Population - Glasgow and the Clyde Valley city region local authorities, 2002-2012

	% of Glasgow / Clyde Valley, 2012	% Change 2002-2012
East Dunbartonshire	5.9%	-1.4%
East Renfrewshire	5.1%	1.2%
Glasgow City	33.3%	3.2%
Inverclyde	4.5%	-3.7%
North Lanarkshire	18.9%	4.7%
Renfrewshire	9.7%	1.1%
South Lanarkshire	17.6%	3.8%
West Dunbartonshire	5.0%	-2.9%
Glasgow/Clyde Valley	100.0	2.3%

Source: Nomis

The population in Glasgow and the Clyde Valley city region has increased by 40,700 people over the past decade. The population change is in stark contrast with our last report which highlighted a fall in the region's population by 10,800 people. This turnaround in the estimated population results from the the addition of years to the data set in which there was significant migration to the region and revisions to reflect the Census results. The population rise is driven by the three largest local authorities. Glasgow City being the largest local authority experienced the greatest increase with a rise of 18,400 people in the decade. North Lanarkshire experienced an increase in population of 15,200 whilst South Lanarkshire gained 11,400 people over the last decade. Consistent with the 2010 report Inverclyde, West Dunbartonshire and East Dunbartonshire all show a decline in population – an cumulative contraction of 7,300 people in the 10 years to 2012.

Figure 3.1: Population – Glasgow and the Clyde Valley city region local authorities, 1981- 2012



Source: Nomis

East Renfrewshire has enjoyed the fastest growth in population over the last 30 years starting with a jump in numbers in the late 1980s. In the past decade the rate of growth in East Renfrewshire has tapered to a more gradual pace. Inverclyde shows the sharpest decline in population showing decreases for at least 30 years. The trend in Glasgow is typical of many UK cities which experienced rapid depopulation as manufacturing declined and people moved out of deprived inner city areas in the period to the turn of the century. Since then the exodus from Glasgow has reversed with the regenerated inner city areas appealing to the young professionals attracted by work in the emerging service industry. Interestingly, only East Renfrewshire and South Lanarkshire have higher populations in 2012 than at the start of the period in 1981.

3.11 Employment rates and unemployment

Resident employment rates are estimated by Oxford Economics based on data from the LFS which is adjusted to be consistent with the census employment rates in 2011. The unemployment rates are calculated as a 12 month average of the claimant unemployment data published on Nomis.

Table 3.2: Resident employment rate, 2012

	Resident Employment Rate 2012 (%)
East Dunbartonshire	68.2%
East Renfrewshire	71.1%
Glasgow City	64.4%
Inverclyde	66.6%
North Lanarkshire	78.0%
Renfrewshire	66.4%
South Lanarkshire	73.4%
West Dunbartonshire	67.9%
Scotland	72.5%

Source: APS / LFS, Census, Oxford Economics

Glasgow City still has the lowest resident employment rate, slipping even further away from the Scottish average in 2012. City regions tend to have lower resident employment rates primarily because of the high living costs in inner city areas driving people out into more built up wealthier suburban areas combined with a higher proportion of students. The unemployment rate has fallen across all localities in the Glasgow and the Clyde Valley city region as Scotland and the UK recover from the recession. In Table 3.3 it can be seen that West Dunbartonshire has the highest rate of unemployment; sitting at 5.4% this leaves it as the only constituent local authority with unemployment still exceeding 5% in 2013. Glasgow City still polls poorly with the second highest unemployment rate of 4.6; it had the highest unemployment rate in the 2010 report. Glasgow City experienced the fastest fall in unemployment rate over the last 12 months. East Dunbartonshire and East Renfrewshire have the lowest unemployment rate of 1.8%, the only constituent local authorities to have rates below the national average.

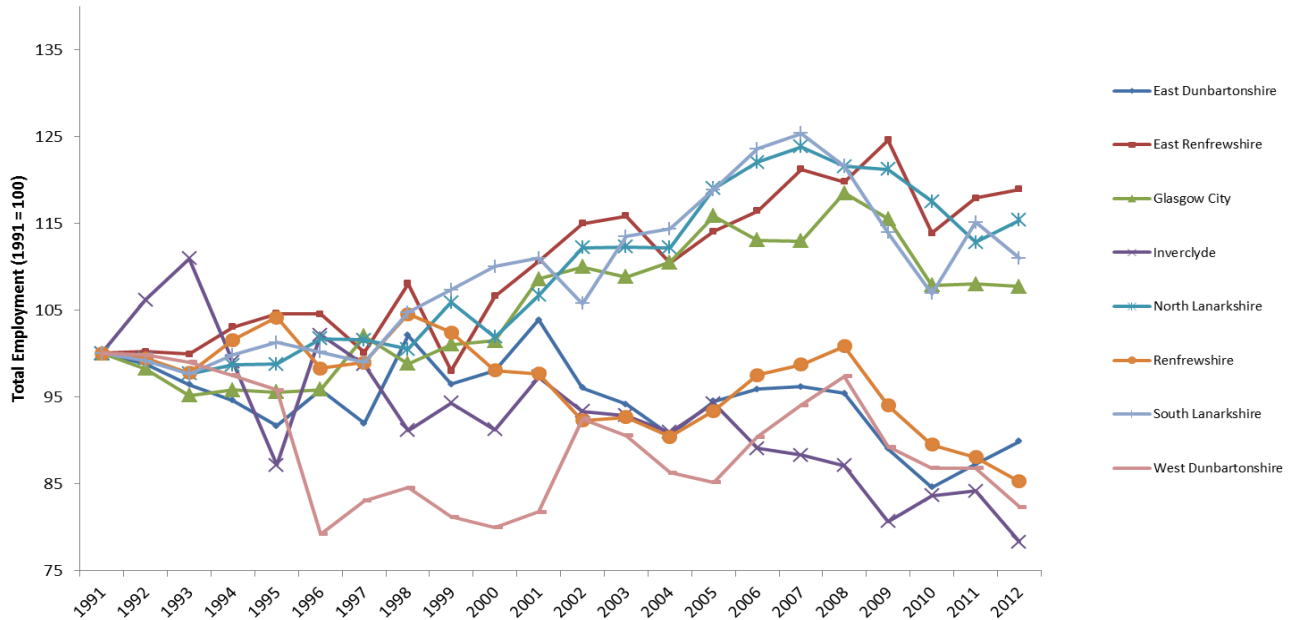
Table 3.3: Unemployment rate change 2012-2013

	Unemployment Rate 2012 (%)	Unemployment Rate 2013 (%)	% Change
East Dunbartonshire	2.5%	1.8%	-0.7%
East Renfrewshire	2.3%	1.8%	-0.5%
Glasgow City	5.6%	4.6%	-1.0%
Inverclyde	5.0%	4.2%	-0.8%
North Lanarkshire	5.1%	4.3%	-0.8%
Renfrewshire	4.5%	3.9%	-0.6%
South Lanarkshire	4.3%	3.7%	-0.7%
West Dunbartonshire	6.2%	5.4%	-0.8%
Scotland	3.9%	3.2%	-0.7%

Source: Nomis

3.12 Workplace employment

Figure 3.2: Total employment – Glasgow and the Clyde Valley city region local authorities, 1991 – 2012 (1991=100)



Source: BRES, Oxford Economics

Only half of the local authorities that comprise the Glasgow and the Clyde Valley city region have higher levels of total employment in 2012 than in 1991 – these are East Renfrewshire, Glasgow City, North Lanarkshire and South Lanarkshire.

The greatest increase in total employment is found in the largest local authority Glasgow City with a gain of 30,000 jobs. Despite an increase of 18,000 in North Lanarkshire and 13,000 in South Lanarkshire the total increase in the Glasgow and the Clyde Valley city region is only 2,000 above the rise in Glasgow City alone. Renfrewshire exhibits the largest decline in total employment, falling by 17.3%, 13,000 jobs losses. The local authority that has suffered the greatest percentage fall in total employment is Inverclyde which has seen employment contract by 27.7% - equivalent to 8,000 job losses.

Table 3.4: Total employment growth by local authority, 1991-2012

	1991-2012	% Change
East Dunbartonshire	-3,000	-11.3%
East Renfrewshire	4,000	15.9%
Glasgow City	30,000	7.2%
Inverclyde	-8,000	-27.7%
North Lanarkshire	18,000	13.3%
Renfrewshire	-13,000	-17.3%
South Lanarkshire	13,000	9.9%
West Dunbartonshire	-7,000	-21.4%
Glasgow/Clyde Valley	32,000	3.7%

Source: BRES, Oxford Economics

A useful way to investigate commuting patterns in an area, aside from census commuting proportions, is to compare the level of residence-based wages to workplace wages. Table 3.5 below indicates this ratio of residence based to workplace wages in the rightmost column. When this ratio is above 1.0 it indicates an area where the residents are wealthy and the living costs are lower, usually indicating a commuting district. Conversely, a ratio below 1.0 would typically signal a more built-up city area with high salaried industries but inhabited by less wealthy residents. Data is not available for East Dunbartonshire in 2012 as data has been suppressed as statistically unreliable.

Table 3.5: Average weekly earnings on a residence and workplace basis - Glasgow and the Clyde Valley city region local authorities, 2012

	Average weekly wage - Residence based 2012	Average weekly wage - Workplace based 2012	Residence / Workplace ratio
East Dunbartonshire			
East Renfrewshire	688	459	1.50
Glasgow City	572	589	0.97
Inverclyde	534	504	1.06
North Lanarkshire	527	554	0.95
Renfrewshire	583	616	0.95
South Lanarkshire	569	546	1.04
West Dunbartonshire	554	557	0.99
Glasgow/Clyde Valley	575	546	1.05
Scotland	586	585	1.00

Source: ASHE

Note: Data not available for East Dunbartonshire in 2012 as sample size is too small to be statistically reliable.

The most striking figure is the residence-based to workplace wages ratio for East Renfrewshire. At 1.50 this indicates that residents are on average paid 50% more than people who work within East Renfrewshire. As identified earlier East Renfrewshire has the lowest unemployment rate in the Glasgow and the Clyde Valley city region, a rate which is 1.4 percentage points below the Scottish average. The data illustrates that this local authority is an area of wealth where many city commuter residents choose to live but do not work. Supporting this analysis is the earlier population data showing the large increase in the population of East

Renfrewshire in the last few decades indicating high levels of inward migration. The low ratio of resident based to workplace wages in West Dunbartonshire and Glasgow City, coupled with the fact that they have the highest unemployment rates signal that these local authorities are comparatively more disadvantaged.

4 Looking ahead

This section summarises the outlook for Glasgow and the Clyde Valley city region and provides a summary of the global and macro forecasts.

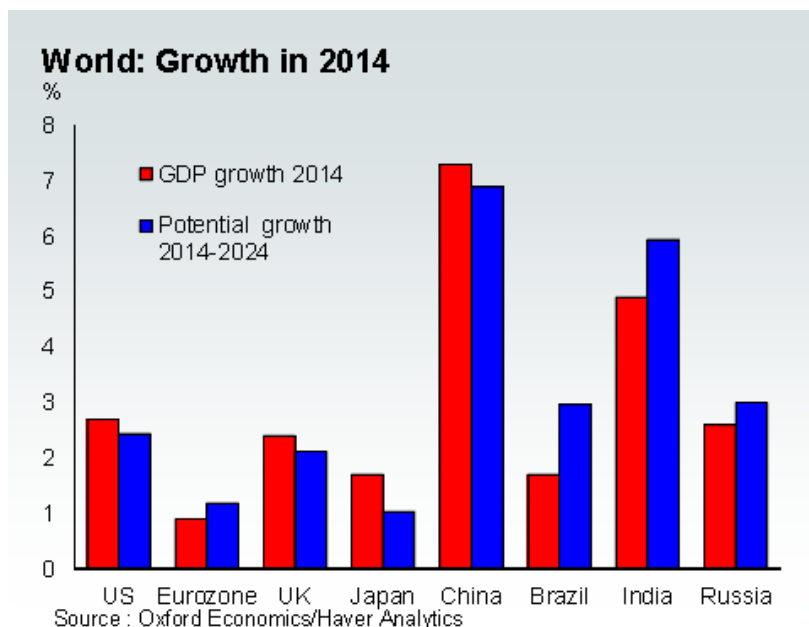
4.1 Global economy patchy

Overall, 2013 has been a disappointing year for global growth, with world output set to expand by a modest 2.1%. But growth has not disappointed everywhere – the US has seen sub-trend growth and key emerging economies have experienced a marked slowdown, but there have been strong rebounds in Japan and the UK. Our latest forecasts suggest this pattern of divergent growth trends will continue into 2014, among both the advanced and emerging economies.

Both the US and the Eurozone look set to end 2013 on a weak note with low growth in Q4. For the US this simply relates to a pause after strong Q3, but for the Eurozone more enduring problems exist.

We expect US growth to accelerate to a 3% annual pace by H2 2014, but the Eurozone is in danger of flirting with renewed recession; our forecast is for just 0.9% growth over 2014. The risk of a slide into deflation in the Eurozone may be a key theme next year.

Figure 4.1: Key emerging economies underperformed in 2013



Among the key emerging economies our forecasts suggest growth in China will continue at around a 7% pace next year, moderate by the standards of recent years. More serious underperformance is likely in Russia, India and Brazil – which appear to be facing structural impediments to sustained rapid growth.

Another area of divergence in 2013 has been policy settings. This too is likely to continue into next year. Some emerging economies will continue with tight or even tighter monetary stances due to inflationary pressures and currency weakness, holding back growth.

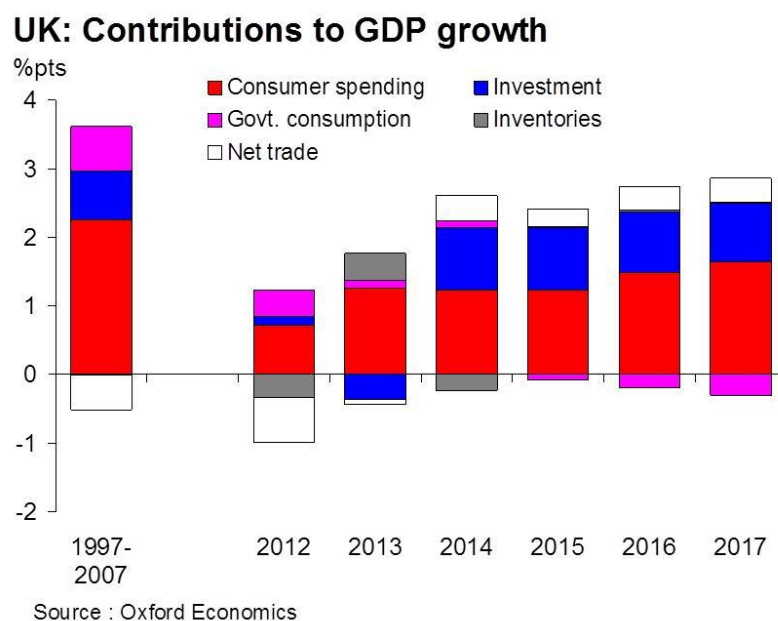
This may be exacerbated by the Fed reducing its asset purchases (which we expect from early 2014) the fallout from which remains uncertain. Meanwhile, in the Eurozone policy is likely to be loosened further – but probably not enough to underpin faster growth – while aggressive monetary expansion will continue in Japan. One consequence of this is likely to be downward pressure on the euro and the yen during 2014.

4.2 UK growth spurt

After several false starts, 2013 has finally seen the UK recovery gather momentum, with growth steadily accelerating through the year. Though the recovery has been narrowly focused on the consumer and the housing market thus far, our forecast shows it slowly broadening out towards business investment and exports over the next two years. While the economy makes this transition, quarterly growth is likely to slow a little from recent rates, though our forecast of growth of 2.4% in 2014 would still represent the strongest outturn for seven years.

Activity has steadily accelerated through 2013, culminating in quarterly GDP growth of 0.8% in Q3 2013, the strongest outturn for thirteen quarters. Early data for Q4 have been more mixed. On the one hand the PMI surveys have remained very strong at close to record levels and recent results imply GDP growth in excess of 1% in Q4. However, the PMIs appear to have decoupled from other indicators. Other evidence – most notably that related to the consumer sector – suggests that Q4 growth is likely to come in close to the Q3 outturn. Retail sales fell sharply in October and are little better than flat on a three-month on three-month basis, while the CBI Distributive Trends Survey has also reported a sharp slowdown in sales growth.

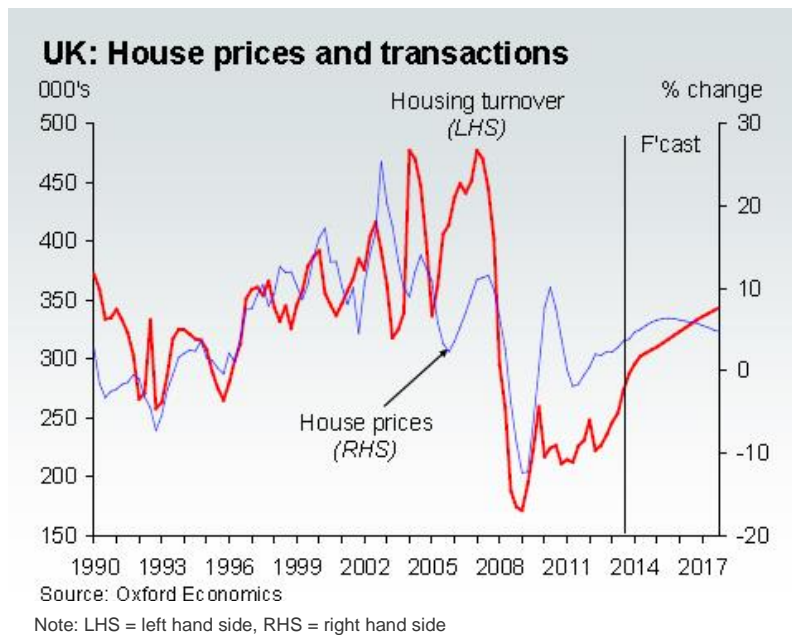
Figure 4.2: Improving and more balanced growth in prospect



This apparent cooling of the consumer sector emphasises the importance of the recovery broadening out to investment and exports and recent survey evidence provides some encouragement that this is beginning to happen. This transition is unlikely to be smooth and we expect GDP growth to cool a little in the early part of 2014. Nevertheless growth next year and beyond will be supported by:

- **Stronger household finances** – the acceleration in consumer spending growth through 2013 came despite relatively weak growth in real household incomes, with households financing this additional spending by sharply reducing their rates of saving. This reflects stronger consumer confidence, which has lowered precautionary saving, and a steady decline in deposit rates, which has reduced incentives to save. The scope to reduce savings further is limited, but prospects for household incomes are brighter in 2014. Falling unemployment and the emergence of skills shortages in some sectors should put upward pressure on wage growth. At the same time, we expect inflation to cool to below 2%, reflecting weaker pressures from energy and food prices. These factors will increase household purchasing power - though this process will be gradual and in the near-term consumer spending growth is likely to slow.
- **Increased housing market activity** – both house prices and activity have continued to recover, supported by the Help-to-Buy scheme. We expect momentum to continue to build as household incomes strengthen and the impact of the mortgage guarantee part of Help-to-Buy is seen. However, in a sign of concern that a bubble might develop, the Bank of England has removed the mortgage lending incentive from its Funding-for-Lending Scheme. Many lenders had made little use of the scheme in recent quarters, so the impact on mortgage availability should be limited, but this does send a clear message that the Bank is willing to intervene should it feel the need to. We think that further intervention will prove unnecessary because there are signs that the stronger market has encouraged a robust pickup in house building. Our forecast shows a firm recovery in residential investment, with housing also supporting consumer spending through confidence and wealth effects. As a result, UK house prices are forecast to grow by 3.1% in 2013 and 5.3 % in 2014. On the back of improving economic prospects we expect UK house price growth to continue beyond 2013. Indeed, UK house price growth is forecast to accelerate in 2015 (6.4%) and 2016 (6.0%). After 2016, UK house price growth is forecast to ease slightly to around 5% a year.

Figure 4.3: Revival in the housing market



- Oxford Economics expect UK house price growth to continue beyond 2014 due to a positive economic outlook for the UK. Indeed, UK house price growth is forecast to accelerate in 2015 (6.4%) and 2016 (6.0%) compared to 2014. After 2016, UK house price growth is forecast to ease slightly to around 5% a year.
- **Corporate confidence strengthening, supporting investment** – a wide range of business surveys including the Index of Production, Index of Services, the Purchasing Managers Index are now reporting stronger sentiment and investment intentions. With larger firms, in particular, reporting strong financial positions with plenty of cash on balance sheets, this should lead to an increasingly strong recovery in business investment over the coming years.
- **Improving export outlook** – business surveys including the Purchasing Managers Index, have reported an improvement in export demand since the summer, as the recovery in advanced economies has gained momentum. Our global forecasts suggest that this will continue, with annual growth in world trade (weighted by UK export shares) forecast to accelerate from 2.1% in 2013 to 4.6% in 2014 and 5.7% in 2015.

4.3 Longer term recovery still service led

The pace and composition of economic growth described above shape the UK sectoral employment outlook. UK employment is forecast to be about 7% higher in 2023 than today, equivalent to an extra 2.3 million jobs.

Professional, scientific & technical activities (an additional 601,000 jobs by 2023) and administrative & support service activities (554,000 jobs by 2023) are forecast to provide the largest absolute increases in jobs over the decade ahead. Most other sectors are expected to see employment rise over this period, including the relatively small but rapidly growing information & communications sector, and also a recovery for the long suffering construction industry.

Table 4.1: Sectoral employment growth in the UK, selected years

	1998-2008 (000s)	2008-2013 (000s)	2013-2023 (000s)	2023-2038 (000s)
Agriculture, forestry and fishing	-68	-24	-31	-37
Mining and quarrying	-12	8	-14	-22
Manufacturing	-1449	-218	-259	-520
Electricity, gas, & steam	-17	27	-13	-16
Water supply; sewerage, waste management	7	32	-13	-17
Construction	429	-277	325	288
Wholesale and retail trade	176	-100	272	50
Transportation and storage	195	67	169	-13
Accommodation and food service activities	267	79	221	36
Information and communication	247	105	238	154
Financial and insurance activities	91	-58	14	9
Real estate activities	192	58	161	122
Professional, scientific and technical activities	647	325	601	384
Administrative and support service activities	558	150	554	316
Public administration and defence	151	-177	-219	0
Education	573	171	-57	111
Human health and social work activities	796	383	40	326
Arts, entertainment and recreation	226	1	174	132
Other service activities	151	-74	128	62
Total	3157	477	2290	1365

Source: Workforce Jobs, Oxford Economics

The most significant reduction in absolute terms is forecast for the manufacturing sector, where more than 250,000 jobs are expected to be lost across the UK by 2023. This forecast incorporates various themes, including the long term structural decline in employment in the industry, and that it is a high productivity sector so a recovery in activity is less dependent on, or supports, additional jobs. Notwithstanding these trends, our forecasts for job losses in the sector are significantly less than we have seen over the past 10-20 years, and this partly reflects restructuring in the industry, but is also consistent with efforts by governments and others to support the industry.

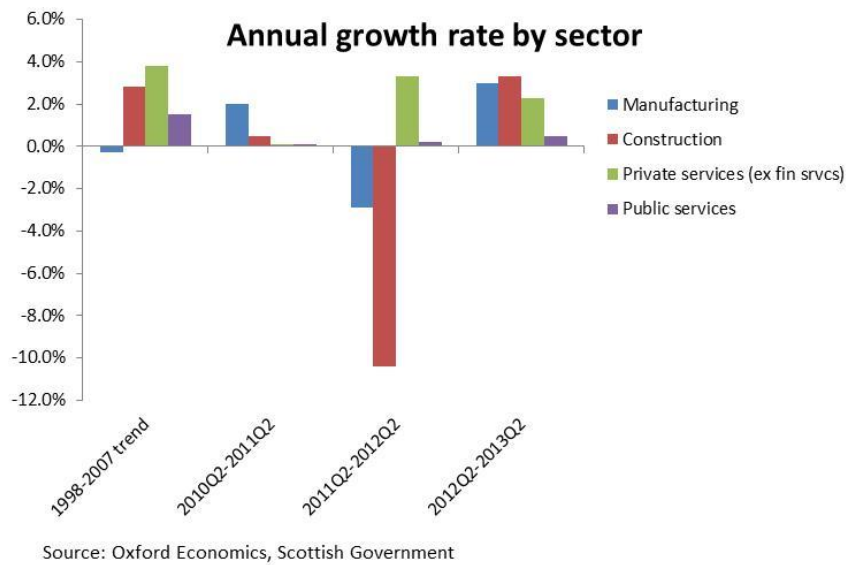
Parts of the public sector, most notably public administration and education are expected to employ fewer workers due to government spending restraint. The majority of cuts in these sectors will occur early in the forecast period, with a modest recovery, albeit to below current levels, over the longer term.

4.4 Scottish context

GVA

Scotland is enjoying the most sustained period of growth since the post crisis bounce back in 2010. The GVA data show the Scottish economy expanding by 1.9% over the year to the second quarter, with less volatility than the equivalent non-oil data for the UK. Over the year to the second quarter Scottish GVA growth outpaced the UK by 0.5%, making up some of the relatively weak Scottish growth performance in 2011.

Figure 4.4: Scottish GVA growth – a more balanced picture

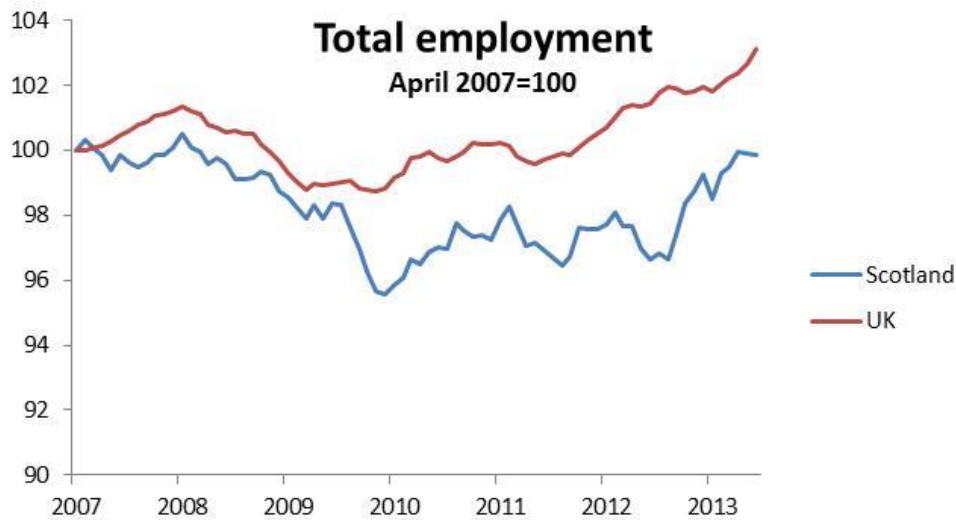


At a broad level all the major parts of the private sector in Scotland contributed to GVA growth over the past year, with both manufacturing and construction achieving growth rates in excess of their trend rates of growth in the ten years to 2008.

Private services growth of 1.8%, marginally below overall GVA growth, was held back by declines in output in the accommodation and food services segment, in transport & communication and in financial services (when financial services are excluded private services GDP in Scotland expanded by 2.3% in the year to the second quarter of 2013). These falls were offset by continued fast growth in the business services sector. Output in the sector, which accounts for 10% of Scottish GVA is up by nearly a quarter in the last three years and by 9% from the pre-crisis peak in 2007.

Over the year to September according to the Labour Force Survey the total number of people with jobs in Scotland has increased by 3.0%, faster than the UK increase of 1.7%. This claws back some of Scotland's relative loss of employment compared with the rest of the UK evident in recent years. This rise in employment has pushed the overall employment rate up to 72.6%, back above the equivalent measure for the UK, putting 74,000 more people into work.

Figure 4.5: Scottish employment on the up



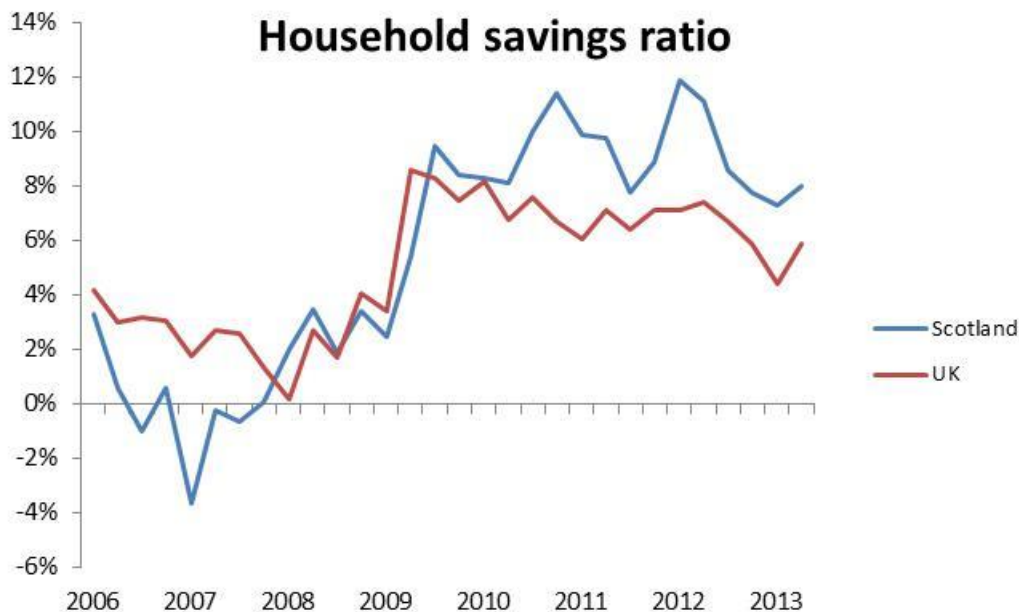
Source: Oxford Economics/LFS

Jobs growth has helped reduce the unemployment rate. On the wider measure the unemployment rate has fallen by 1.1 percentage points to 7.1% from its peak of 8.2% in the summer of 2012. On the claimant count basis, the numbers unemployed appear to have peaked in the autumn of last year at around 144,000, before dropping sharply this summer, to leave the aggregate down 28,000, or 10% in the last six months (to November), and back below 120,000. This fall has, however, been most pronounced among the shorter-term unemployed, with the numbers claiming job-related benefit for less than 6 months accounting for 82% of the drop; the number of people who have been on the register for more than two years actually climbed by 1,600 over the same period. However the focus in the Government's economic strategy on Learning, Skills and Well-being on youth unemployment may help to explain the sharper proportionate drop in the numbers of 18-24 year olds who had suffered spells of unemployment between 6 and 24 months claiming benefits.

Consumer behaviour

As for the UK as a whole, the spur for faster growth in Scotland appears to be a more confident consumer harbouring fewer fears over labour market prospects. This is underpinning a greater willingness to spend while increasing employment is a support to this pick up in spending, the continuing squeeze on spending power from below-inflation wage increases means that in part the higher levels of consumer spending are being funded by a reduction in the savings' rate.

Figure 4.6: Falling savings ratio boosting consumers' expenditure



Source: Haver Analytics/Scottish Government

Trade and investment

Improvements in the overall UK economy are also feeding through to a better GDP performance in Scotland via higher exports values to the rest of the British economy. These exports, which are around 2.3 times as great as Scotland's overseas exports, were £900 million, or nearly 6% higher in mid-2013 than the same point in 2012. The pick-up in imports from the rest of the UK over the last year was more muted, up by only 2%.

The disappointments in the most recent data on the components of demand in the Scottish economy relate to overseas trade and investment, the two key categories of spending on which hopes for a sustainable, robust recovery are pinned and which are important if the Scottish Government is to realise the ambitions of Scotland's economic strategy. For example, the strategic priority of maintaining a Supportive Business Environment sets the objective of delivering a 50% increase in exports by 2017, yet overseas export values are stagnant; total export values in the first half of 2013 were only marginally above those in the first half of last year and a little down on the first half of 2011. Only food, chemicals and, to a lesser extent, drink exports show any volume growth from the first half of 2011 to the first half of this year.

Shrinking investment spending was a drag on GDP growth in the first half of the year. Total gross capital formation was 7% lower in the second quarter of this year compared with the same quarter in 2012. The value of investment spending is running at around 85% of its peak level in early 2008.

Business start-up rate

Scotland's business birth rate continues to lag, both compared to the UK and internationally. In the latest data for 2011, there were 39 enterprise registrations in Scotland for every 10,000 resident adults, compared

with a figure of 51 for the UK as a whole and 45 for the UK, excluding London where the business birth rate is particularly high. On the positive side, business registrations in Scotland recovered by 15% from the post-crisis low point in 2009 and 2011. There has, also been considerable growth in the number of unregistered businesses¹ in Scotland. For example, there was a 16.4% increase in unregistered enterprises between March 2011 and March 2012, with unregistered enterprises accounting for more than half of the private sector business stock at March 2012. Some of this surge may have been a reaction to a weak labour market as displaced employees moved into self-employment. Equally, it may also represent an increase in entrepreneurship and a pay-off to the Government's strategic aim of supporting small business growth, part of the Supportive Business Environment strategic priority.

Population

Scotland's population continues to grow. The 2011 Census found nearly 50,000 more people living in Scotland than previously thought. It is now estimated that Scotland's population reached 5.31 million in mid-2012. This means the Scottish population is now at an all-time high, having grown by nearly a quarter of a million (4.6%) over the decade to 2011, with the bulk of the increase the result of net migration flows. Further, with most migrants to Scotland younger than average for the overall population, this should be a positive for Scottish growth prospects as it adds to the working age population and helps stem the rise of the ratio of the older, dependent population to those of a productive age.

House prices

House prices in Scotland appear to have bottomed out in early 2013. For example, the Nationwide House Price Index shows an average house price of just under £130,000 for Scotland in the first quarter of this year, down by nearly 16% from the mid-2007 peak. Since then average house prices may have risen by as much as 5%, back to the levels of late 2011/early 2012.

According to the Nationwide data, Scottish house prices are around 20% below the UK average. Moreover, relative to earnings, house purchase in Scotland is more affordable than in any other region except Northern Ireland and the North East. Scotland's relatively low house prices and relatively high full-time average earnings combine to give a house price to average earnings ratio of around 5 times; much more affordable than in the southern regions of England and well below the ratio of around 5.7 times at the peak in mid-2007.

Survey evidence

The Purchasing Managers' Index (PMI) points to solid growth for the Scottish economy over the summer and autumn months. This growth is evident in both the service sector and in manufacturing. Forward looking components of the PMI point also to further growth over the coming months. .

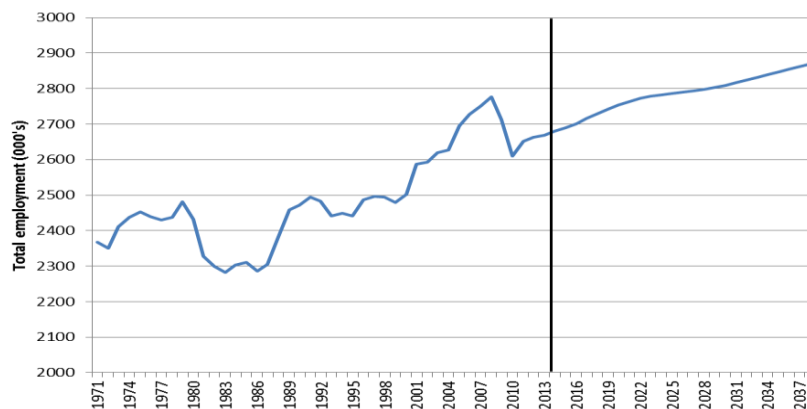
¹ Those whose turnover is below the VAT threshold.

4.5 Scottish outlook

The most significant factors in the Scottish outlook remain the national forecasts set out in the section above. Scotland remains a region with above average employment rates and measured productivity, but also above average claimant unemployment rates and public sector dependence. Looking over time it is clear how slowly patterns change in relative terms, further emphasizing how the macro outlook is the most important determinant of Scottish economic fortunes.

4.5.4 Labour market growth expected to pick up

Figure 4.7: Total employment in Scotland, 1971-2038



Source: Oxford Economics

Looking ahead, total employment in Scotland is forecast to rise by 0.4% in 2014, continuing to rise at this pace over the remainder of the decade. This outlook is broadly in line with our expectations for the UK economy, and means Scotland will continue to account for around 8% of UK employment. The pace of growth in the region is expected to slow post 2023, averaging 0.2% per year. On this basis, the number of jobs in the region is forecast to be 2,870,000 by 2038, 200,000 higher than current levels.

Table 4.2: Sectoral employment change in Scotland

	1998-2008 (000s)	2008-2013 (000s)	2013-2023 (000s)	2023-2038 (000s)
Agriculture, forestry and fishing	-5	-3	-4	-5
Mining and quarrying	-2	5	-6	-10
Manufacturing	-128	-19	-21	-41
Electricity, gas, & steam	-4	1	-2	-2
Water supply; sewerage, waste management	0	-1	-2	-2
Construction	45	-47	22	25
Wholesale and retail trade	20	-22	5	-5
Transportation and storage	11	-3	11	-1
Accommodation and food service activities	7	-13	18	6
Information and communication	16	1	12	7
Financial and insurance activities	20	-13	1	0
Real estate activities	15	2	9	8
Professional, scientific and technical activities	48	29	40	34
Administrative and support service activities	49	23	38	29
Public administration and defence	9	-14	-23	0
Education	38	-18	-7	7
Human health and social work activities	113	-7	-3	28
Arts, entertainment and recreation	21	-1	11	8
Other service activities	10	-8	9	6
Total	283	-108	109	91

Source: BRES, Oxford Economics

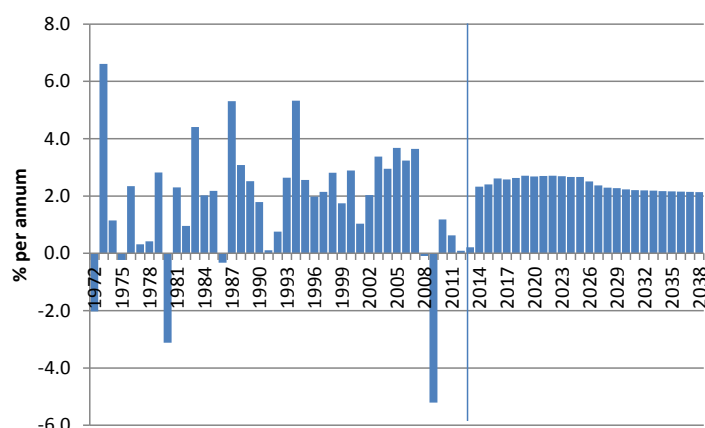
Employment growth within Scotland is expected to be concentrated in a small number of sectors over the forecast period. The largest gains in absolute terms over the decade ahead are expected in professional, scientific & technical activities (40,000 additional jobs) followed closely by administrative & support activities (38,000 additional jobs). Other noteworthy increases are forecast in construction and accommodation and food service activities. The public admin and defence sector is likely to post the most significant jobs losses in the short run as the austerity programme grinds on. Our central forecast suggests almost 23,000 fewer jobs in the sector in Scotland by 2023. The retail sector continues to be challenged by online competitors and reduced consumer spending. Indeed, we think that the pace of the consumer recovery is likely to be cooling. After a sharp drop in the savings ratio last year, the scope to reduce savings further is limited, and while the prospects for household incomes are brighter, it will take some time before spending power is sufficiently strong to support the rates of consumption growth seen recently.

Manufacturing employment is also expected to continue to decline, though the rate of decline will be much slower than that of the recent past. This is consistent with job losses from the sector at the UK level, and means the sector will account for less than 5% of jobs at the end of the forecast horizon.

4.5.5 GVA growth to gather pace

This outlook is reflected in GVA forecasts, which again records private services as the key sources of growth in the region. An important drag on overall Scottish GVA in the Oxford models is the continued loss of GVA in the extraction industry – the onshore element of North Sea Oil. In the short / medium term public administration cuts will act as a drag, and given its relatively larger size, this holds back Scottish GVA growth more than in other regions where the sector is, in relative terms, smaller. Scottish medium term growth is estimated at 2.6% per annum.

Figure 4.8: GVA growth in Scotland, 1971-2038



Source: Regional Accounts, Oxford Economics

Table 4.3: Average annual change in employment, GVA and productivity in Scotland, 2018-2038

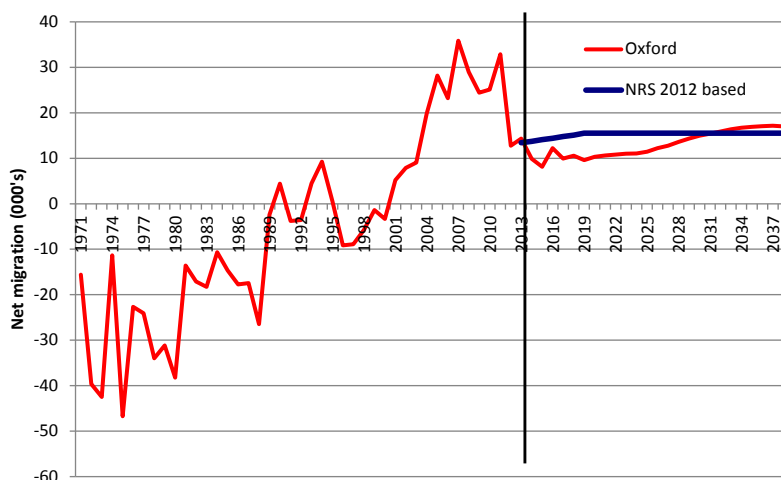
	Employment 2018-2038 (000s pa)	Employment % pa 2018- 2038	GVA % pa 2018-2038	Productivity % pa 2018- 2038
Agriculture, forestry and fishing	-0.3	-0.6	1.3	2.0
Mining and quarrying	-0.7	-2.9	-1.5	1.4
Manufacturing	-2.7	-1.7	1.3	3.0
Electricity, gas, & steam	-0.1	-1.3	2.2	3.6
Water supply; sewerage, waste management	-0.2	-1.0	1.9	2.9
Construction	1.7	0.9	2.3	1.8
Wholesale and retail trade	-0.2	-0.1	2.4	3.1
Transportation and storage	0.1	0.0	2.1	4.0
Accommodation and food service activities	0.6	0.3	2.6	3.3
Information and communication	0.6	0.6	3.7	0.3
Financial and insurance activities	0.0	0.0	2.7	1.8
Real estate activities	0.6	1.3	3.0	3.1
Professional, scientific and technical activities	2.7	1.0	4.0	2.9
Administrative and support service activities	2.3	0.8	3.6	2.7
Public administration and defence	-0.2	0.0	1.0	1.0
Education	0.3	0.2	0.9	0.7
Human health and social work activities	1.6	0.4	2.7	2.3
Arts, entertainment and recreation	0.6	0.7	1.7	1.0
Other service activities	0.5	0.6	1.7	1.0
Total	7.3	0.3	2.4	2.1

Source: Oxford Economics

4.5.6 And what does this mean for population?

On the back of continued net-in-migration, Scotland's population is forecast to continue to grow. This is part and parcel of continued strong net migration flows to the UK as a whole, with the Oxford Economics forecast for net migration showing an annual net inflow to the UK of 140,000 per annum over the medium term, lower than the official projection of 165,000 per annum. The forecast shows net in-migration of working age population of 140,000 in 2014, and an average annual inward flow of 117,000 in the medium term. This flow, along with relatively low house prices in Scotland – which attracts in-migrants and deters out-migration – and high overall employment rates will keep flows of population into Scotland positive.

Figure 4.9: Net migration, Scotland – Oxford vs. National Records of Scotland



Source: National Records of Scotland, Oxford Economics

Consequently, Scotland's population is projected to grow to 5.4 million by 2020, to 5.6 million by 2030 and to 5.7 million by 2038. This is equivalent to a growth rate of 0.3% over the period to 2038.

4.5.7 And incomes and housing

The extended period of falling average real wages, with price inflation outstripping earnings growth is forecast to end in the course of 2014, with a more typical relationship of earnings growing faster than prices re-establishing itself from 2015. This will begin to boost household spending power and will underpin rising house prices even in the face of increasing interest rates.

Scottish house price inflation is however likely to be below that of the UK as a whole, increasing the relative affordability of housing in Scotland. Average house prices are forecast to rise by 4.3% in 2014, 5.4% in 2015 and to trend higher at an annual average rate of 4.0 % over the medium term

4.6 Clyde Valley outlook

The outlook for the Glasgow and the Clyde Valley city region is set out below. The forecasts were produced using our Local Authority District Forecasting Model. The model is linked to the Oxford suite of forecasting models which ensures that global and national factors (such as developments in the Eurozone and UK Government fiscal policy) have an appropriate impact on the forecasts at a local authority level. Further details on the model structure are set out within Annex A.

The last year has seen a welcome return to growth, with all parts of the private sector in Glasgow and the Clyde Valley city region and Scotland participating. In particular the labour market has been stronger than past relationships between output growth and employment would have suggested. Better job prospects and an improved availability of housing finance have given the household sector enough confidence to reduce precautionary saving, so boosting consumption spending.

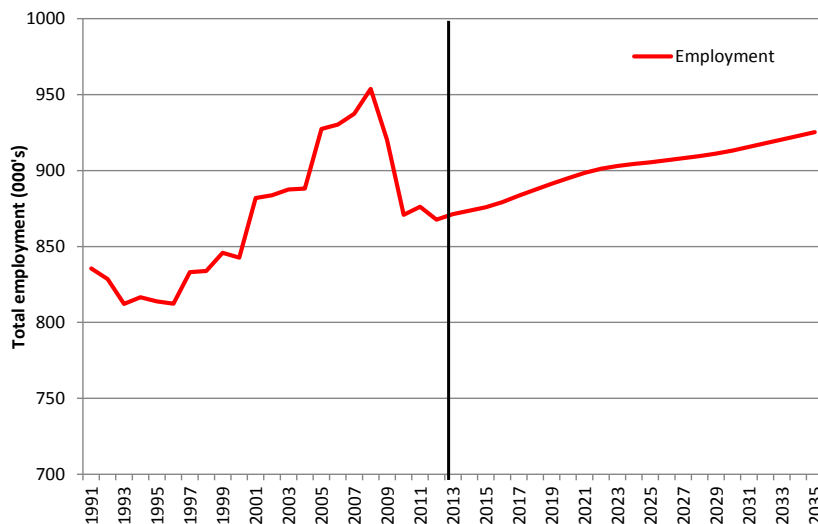
The baseline forecasts suggest that, despite a growing population, Glasgow and the Clyde Valley city region will not regain pre-crisis peak levels of employment until after the end of the forecast horizon to 2038. Over the course of the next decade (2013-23) the base employment forecast projects an increase of 32,000 jobs, recovering around only 40% of the post-crisis employment loss. In GVA terms the Glasgow and the Clyde Valley city region is forecast to grow by 2.6% in the 2013-23 period, the same pace as the Scottish economy as a whole. Some of this growth represents a catching up from the crisis and the projection for the fifteen years from 2023 sees annual GVA growth averaging 2.5%, again in line with the Scottish average.

The goal of the Government Economic Strategy is to “deliver faster sustainable economic growth with opportunities for all to flourish”. The outlook reveals that the Glasgow and the Clyde Valley city region will remain a key contributor of economic growth. The baseline forecasts suggest that the city region is expected to create over 30% of new Scottish jobs over the decade ahead. The area will remain a dominant centre for business services² (a key driver of the recovery), with one in every three business services jobs expected to be created within the Glasgow and the Clyde Valley city region. As the recovery gather pace, unemployment is expected to continue to fall, consumer confidence will rise and growth in earnings will return. This will help to relieve pressure of households and provide a greater sense of economic security.

4.6.1 Employment

The forecast shows total employment in the Glasgow and the Clyde Valley city region growing by 2,300 (0.3%) in 2014 and by 2,200 (0.4%) in 2015. Thereafter total employment, which bottomed out in 2012 at 867,600, is expected to grow by 0.3% per annum. Nevertheless, total employment remains below its 2008 peak of 954,000 throughout the period to 2038.

Figure 4.10: Total employment in Glasgow and the Clyde Valley city region, 1991-2038



Source: BRES, Oxford Economics

As is the case for Scotland as a whole, the growth in total employment depends critically on business-oriented services. Administrative and support services, the only sector of the economy to show meaningful

² Defined as professional services plus admin and support activities

employment growth over the 2008-13 period, Professional scientific and technical activities, real estate activities and Information and communication are projected to add just over 34,000 jobs in the decade to 2023 and a further 27,000 jobs in the fifteen years to 2038. This compares with net job growth for Glasgow and the Clyde Valley city region of 32,000 and 29,000 over these respective periods.

By 2023 25% of jobs in Glasgow and the Clyde Valley city region are expected to be in these business-oriented service activities. This compares with 20% on the eve of the financial crisis in 2007 and 22% in 2013.

Table 4.4: Sectoral employment change in Glasgow and the Clyde Valley city region

	1998-2008 (000s)	2008-2013 (000s)	2013-2023 (000s)	2023-2038 (000s)
Agriculture, forestry and fishing	1.1	-0.3	-0.3	-0.4
Mining and quarrying	-0.3	0.3	-0.2	-0.3
Manufacturing	-44.1	-8.3	-7.0	-13.3
Electricity, gas, & steam	0.2	1.9	-0.8	-1.0
Water supply; sewerage, waste management	-0.7	-0.4	-0.7	-0.9
Construction	9.3	-17.7	7.7	8.7
Wholesale and retail trade	8.3	-12.4	0.5	-2.5
Transportation and storage	0.6	-4.1	3.3	-1.0
Accommodation and food service activities	5.2	-8.6	4.1	1.1
Information and communication	6.3	1.1	4.0	1.7
Financial and insurance activities	12.2	-8.7	0.0	-0.4
Real estate activities	9.0	0.1	3.8	3.5
Professional, scientific and technical activities	14.7	-1.9	9.2	7.8
Administrative and support service activities	22.6	7.4	17.1	13.7
Public administration and defence	8.8	-10.0	-8.6	-0.2
Education	9.9	-9.6	-3.4	0.3
Human health and social work activities	44.1	-4.5	-2.4	8.4
Arts, entertainment and recreation	5.7	-2.6	3.0	2.2
Other service activities	6.9	-4.4	2.8	2.3
Total	120.0	-82.6	31.8	29.6

Source: BRES, Oxford Economics

The construction sector is also likely to see increasing employment through the period to 2038. However, the projected growth of 8,000 in the ten years to 2013 only claws back half of the job losses in the 2008-13 period and, even further job growth of 9,000 in the fifteen years to 2038 would leave total employment a little below its peak level in 2008.

Arts, entertainment and recreation and accommodation and food service are two other sectors where employment growth is projected through the period to 2038, each adding around 5,000 jobs or 23% and 10% respectively of employment levels in 2013. However, in the case of accommodation and food services this means that the sector remains smaller than in 2008 throughout the forecast horizon.

Wholesale and retail employment is forecast to stabilise over the next decade but to decline slightly in the fifteen years to 2038. In 2008 Wholesale and retail employment accounted for 15% of total employment in Glasgow and the Clyde Valley city region, but 2023 this share is projected to be 14%, falling to 13% by 2038. The sector continues to be challenged by online competitors and reduced consumer spending. Indeed, we think that the pace of the consumer recovery is likely to be cooling. After a sharp drop in the savings ratio last year, the scope to reduce savings further is limited, and while the prospects for household incomes are brighter, it will take some time before spending power is sufficiently strong to support the rates of consumption growth seen recently.

The long-term decline in employment in manufacturing is projected to continue, with employment dropping at an annual average rate of 1.5% over the twenty-five years to 2038, a loss of over 20,000 jobs. This does not mean that manufacturing in Glasgow and the Clyde Valley city region will be unsuccessful, rather it reflects

continuing technologically-driven productivity growth in the sector and the migration of the classification of many previously manufacturing-type functions into the expanding business services sector.

The public sector is forecast to lose 15,000 jobs in the decade to 2023. This comes on top of the 24,000 jobs lost in the 2008-13 period. More than half of these jobs will be lost from Public administration and defence, with Education losing 3,500 jobs and Health 2,500. In the fifteen years from 2023 employment in Health is projected to rise by over 8,000, while that in Education and Public Administration is broadly flat. This means that the share of Glasgow and the Clyde Valley city region employment in the public sector is projected to fall from 6% in 2013 to 5% in 2023 and 4% in 2038.

4.6.2 Key growth sectors

This section focuses on the outlook for the key growth sectors as defined by the Scottish Government. As part of this project, Oxford Economics developed a model to produce employment forecasts of these sectors. The forecasts set out below are consistent with the conditions and assumptions set out in the previous section of this report. Please note: these are based upon different definitions to those set out above and cannot be directly compared.

Notably, the financial services sector which was an important generator of employment growth in the decade to 2008 is projected to show no growth in jobs over the next twenty five years. The financial services industry plays a significant role in the areas economy, currently accounting for 4% of all employment and generating 7% of economic output. Financial services will continue to contribute positively towards economic growth, but this is likely to be achieved without a substantial increase in financial services employment as a result of increases in productivity. Thus all the projected employment growth in the Financial and Business services 'growth' sector of 9,000 in the ten years from 2013 and of 7,000 in the fifteen years from 2023 is down to the business services segments of this key sector. Such growth is underpinned by growth within the professional services sub-sectors such as legal and accounting services also other business support activities such as call centres and office administration. The sector is a key employer of graduates and such opportunities should help to retain some of the young talented people within the area. Employment growth within financial and business services is expected to average 1% per annum over the decade ahead, significantly above the average of 0.4% for overall employment.

Table 4.5: Sectoral employment change by key growth sector in Glasgow and the Clyde Valley city region

	1998-2008 (000s)	2008-2013 (000s)	2013-2023 (000s)	2023-2038 (000s)
Creative Industries	6.7	-6.4	4.0	1.9
Energy (including renewables)	0.7	2.5	-0.8	-1.1
Financial and Business Services	29.0	-2.6	8.9	6.6
Food and Drink	-5.7	0.1	-1.4	-3.2
Life Sciences	-2.0	-1.0	0.3	-0.2
Tourism	5.8	-7.7	4.7	1.7
Universities	2.4	-4.3	-0.9	0.0
Total employment	120.0	-82.6	31.8	29.6

Source: BRES, Oxford Economics

The numbers of jobs within the tourism sector are projected to increase in both the medium and longer term, with nearly 5,000 (0.9% per annum) additional jobs in the next decade and further growth of nearly 2,000 in the fifteen years thereafter. Growth within this sector is also expected to outstrip the overall average. The area plays host to the 2014 Commonwealth Games, MTV Music Awards and International Festival of Visual

Art which are all expected to attract a significant amount of tourists to the area. Also as the recovery gathers pace and incomes begin to rise, the area's attractions including the country parks, M&D's Theme Park and Xscape should also attract visitors to the region.

A similar pattern is expected in the creative industries, with an increase of 4,000 jobs in the ten years to 2023 followed by an increase of 2,000 in the period to 2038. Growth in within the creative industries (1.1% per annum) is also expected to outperform the overall average (0.4% per annum). As the recovery gathers pace, demand for creative industries will rise given the diverse nature of the sector. Growth within television and music production, software development and professional services sectors such as advertising, marketing and architecture are all expected to be key contributors to growth. Creative industries is one of the most highly qualified sectors and the sectors links with the education institutions will help to provide the talent required to drive such growth.

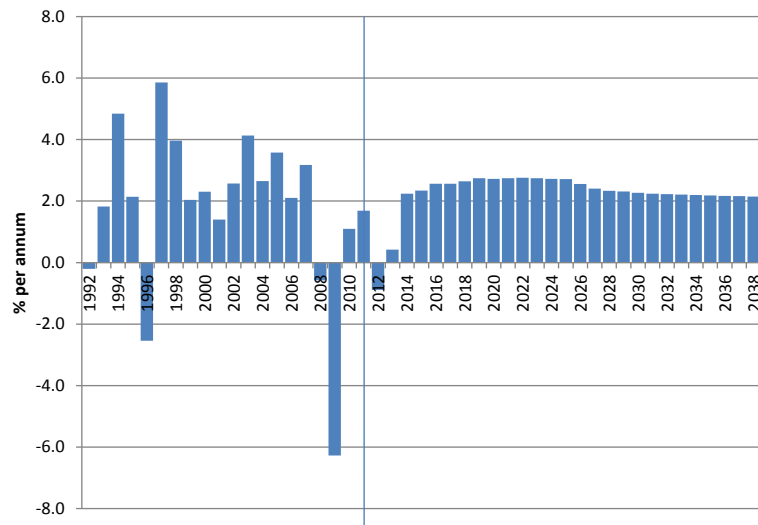
Life Sciences currently accounts for just over 4,000 jobs within the area (1% of total employment). The outlook suggests that employment within the sector is forecast to change little from current levels, rising marginally to 2023 but then falling marginally over the next fifteen years. This outlook is driven by the forecast by parts of the manufacturing and professional services subsectors. Increases in productivity suggest that economic growth within the sector is likely to be achieved without substantial increases in employment.

The other key growth sectors – Energy (including renewables), Food and Drink and Universities are all projected to see employment falls, though these are marginal in the case of Universities. Our forecasts for job losses in these sectors are significantly less than we have seen over the past 10-20 years, and this partly reflects restructuring in the industry, but is also consistent with efforts by governments and others to support the industry. It is worth noting that despite the relatively weak employment forecasts, these sectors are likely to continue to play a key role contributing to the economic growth of the area.

4.6.3 GVA

Following the pattern of GVA growth for the UK and Scotland as a whole, the forecast sees sustainable growth for Glasgow and the Clyde Valley city region over the forecast horizon. The fastest growth is over the next ten years as the economy makes up some of the lost ground caused by the financial crisis and subsequent recession. Between 2014 and 2023 the GVA growth rate (average per annum) for Glasgow and the Clyde Valley city region stands at 2.6%. This subsides to 2.3% over the 2023 to 2038 period. These growth rates are similar to those for Scotland as a whole and with 3.0% and 2.5% for the UK over the same period. Thus in GVA terms Glasgow and the Clyde Valley city region is expected to grow at a similar rate as Scotland but lagging behind the UK.

Figure 4.11: GVA growth in Glasgow and the Clyde Valley city region, 1971-2038



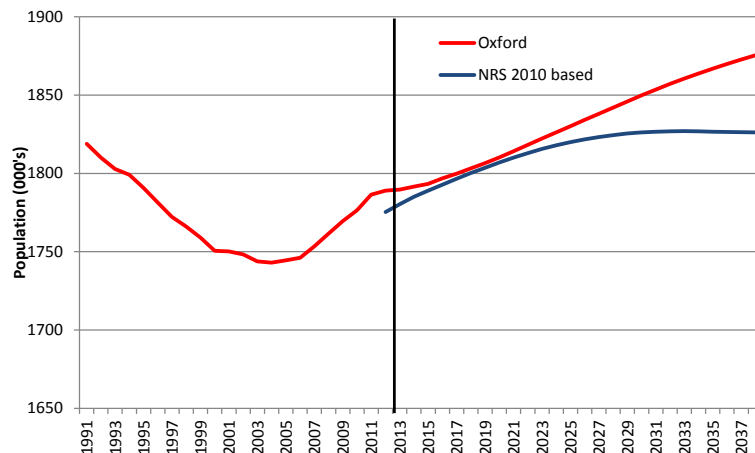
Source: Regional Accounts, Oxford Economics

4.6.4 Population

Oxford Economics produce their own forecasts of population which are economically driven and thus differ from the official population projections. Our population forecasts are derived from an economically driven model whereas official projections are trend based and do not consider how demand in the economy (and the likely impact on employment rates) affects migration.

The Oxford Economics forecast sees continuing population growth in the Glasgow and the Clyde Valley City Region, with total population rising from 1.79 million in 2013 to 1.82 million in 2023 and 1.88 million in 2038. This represents an annual average growth rate of 0.2%, somewhat faster than the National Records of Scotland 2010 based projection. While there is little difference in total population numbers by 2023 between the Oxford Economics' forecast and the National Records of Scotland principal projection, but by 2038 the Oxford Economics' projection is higher.

Figure 4.12: Total population, Glasgow and the Clyde Valley city region – Oxford v official

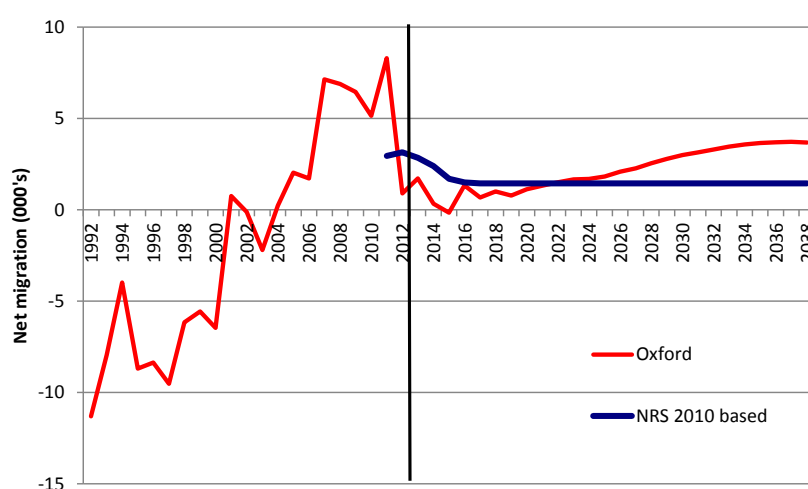


Source: National Records of Scotland, Oxford Economics

Net migration is the key contributor to this difference in population projections. Oxford Economics forecasts show lower net migration flows into Glasgow and the Clyde Valley city region than National Records of Scotland Principal projection in the period to 2023 (figure 3.13), but larger net inflows thereafter. Over the next decade Oxford Economics projects net inflows averaging 1,000 per annum. In the 2023–2038 period the inflow is projected to rise steadily from 1,700 to 3,700 per annum. Our baseline forecast is linked to the employment rate forecast. A lower migration forecast would suggest a rapidly increasing employment rate – a trend which is at odds to the other areas across Scotland.

Based upon the economic outlook, the results suggest that the population outlook is likely to be somewhere between the principal and the high migration variants from the official projections. In household terms, there is little difference between the principal variant and the high migration scenarios.

Figure 4.13: Migration, Glasgow and the Clyde Valley city region – Oxford v official



Source: National Records of Scotland, Oxford Economics

Table 4.6: Population change, Glasgow and the Clyde Valley city region – Oxford v official

	Change 2010-2035 (000's)
Principal	60.7
Low migration	-6.2
High migration	125.3
Oxford Economics	88.2

Source: National Records of Scotland, Oxford Economics

Table 4.7: Household change, Glasgow and the Clyde Valley city region – Oxford v official

	Change 2010-2035 (000's)
Principal	138.9
Low migration	106.7
High migration	137.5
Alternative headship	108.5
Alternative headship with low migration	78.3
Alternative headship with high migration	137.5
Constrained housing	120.2

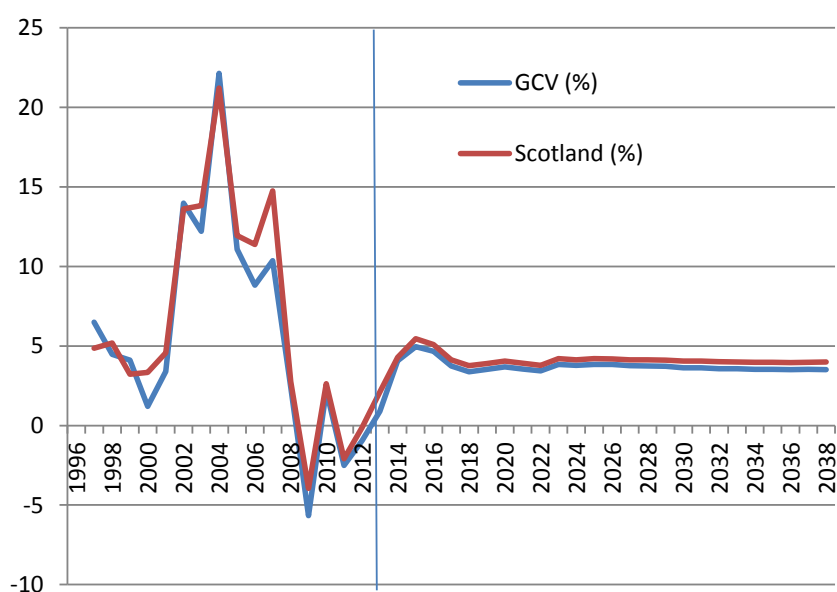
Source: National Records of Scotland, Oxford Economics

4.6.5 House prices

House prices within Scotland increased consistently until 2009, before a fall of 3.4% was recorded – the result of the financial crisis. Growth returned in 2010 and 2011 before a slight contraction in both 2012 and 2013. Glasgow and the Clyde Valley's housing market followed a similar pattern.

Looking forward, Oxford Economics forecast that average house prices within the Glasgow and the Clyde Valley City region will rise by 4.1% in 2014, 5.0% in 2015 and to trend at an annual average rate of 3.7% over the medium term. The forecasts suggest that house prices (in nominal terms) will increase by £225,000 (150%) to £375,000 by 2038. Whilst Scotland will follow a similar growth trend, its prices are forecast to increase at a slightly faster rate. Over the longer run, house price growth within Glasgow and the Clyde Valley is expected to slow slightly relative to Scotland. This is driven by the unemployment and earnings forecasts.

Figure 4.14: House prices (%), Glasgow and the Clyde Valley City region and Scotland, 2000-2038



Source: Registers of Scotland, Oxford Economics

Within the Glasgow and the Clyde Valley City region, West Dunbartonshire is forecast to experience the fastest rate of increase with growth expected to average 4.8% per annum. This is underpinned by the relatively fast increases in residence based earnings and also a falling unemployment rate. House price growth within Inverclyde is expected to average 4.0% per annum. East Renfrewshire is estimated to experience the slowest rate of increase, with house prices expected to increase by 3.3% per annum, which is underpinned by a slightly slower rate of earnings growth. As disposable income rises in the next decade, this will begin to boost household spending power and will underpin rising house prices even in the face of rising interest rates.

In terms of the scenarios identified within the Scottish Government's Housing Need and Demand Assessment Tool, the assumption of modest increases in house prices would be closest to the Oxford Economics baseline forecast for the area. No real growth (inflation target), would be next likely outcome. Given that we expect the recovery to gather pace with an accompanying rise in confidence, it would be unlikely to expect house prices to remain flat or even fall over the forecast. Furthermore, a strong recovery would be unlikely given the wider economic outlook and the likelihood that the Bank of England will begin to increase interest rates over the next year or two.

4.6.6 Incomes and affordability

The ratio of house prices to earnings is a common measure of affordability. Across the Glasgow and the Clyde Valley City region area, the ratio has risen steadily since 2000 until 2007. The onset of the financial crisis resulted in a slight fall in this ratio. At present within Glasgow and the Clyde Valley City region house prices are 6.2 times average earnings. This compares to 6.3 times earnings within Scotland.

Looking forward within Glasgow and the Clyde Valley City region, we expect this ratio to rise within the short run before falling steadily over the medium to longer run. This is the result of slower earnings growth compared to Scotland based upon the sectoral forecasts for the area.

The table below sets out the per annum growth rates from the Oxford baseline for earnings and house prices. Earnings are estimated to increase on average by 4% per annum over the forecast. Earnings (residence based) within Inverclyde are expected to increase at a slightly faster rate than the rest of the Glasgow and the Clyde Valley City region area.

Table 4.8: Change in key forecast metrics (2013-2038), % per annum

	House prices	Workplace based earnings	Residence based earnings
East Dunbartonshire	3.8	4.0	4.0
East Renfrewshire	3.3	4.0	4.0
Glasgow	3.8	4.1	4.0
Inverclyde	4.0	4.1	4.1
North Lanarkshire	3.4	3.9	4.0
Renfrewshire	3.7	4.0	4.0
South Lanarkshire	3.7	4.0	4.0
West Dunbartonshire	4.8	3.9	4.0
Glasgow and the Clyde Valley	3.7	4.0	4.0
Scotland	4.1	4.0	4.0

Source: Oxford Economics

In terms of the scenarios identified within the Scottish Government's Housing Need and Demand Assessment Tool, the assumptions of modest increases and reasonable growth in incomes would be closest assumption to the Oxford Economics baseline. Lower inflation has meant that the squeeze on real wages has lessened considerably over the recent months and we expect households to see real wages increasing again during 2014. Falling unemployment should put upward pressure on wage growth. At the same time, we expect inflation to cool to below 2%, reflecting weaker pressures from energy and food prices as well as a large amount of spare capacity, which will continue to squeeze margins. These factors will boost households' spending power; though this process will be gradual.

4.7 Risks to the forecasts

There remain several sources of vulnerability that could lead to weaker outturns than our current forecast. The UK consumer is a key area of risk, with more aggressive retrenchment a possibility. There is also uncertainty around the labour market, where the recent slump in productivity (employment has remained remarkably resilient through the recession) could mean the recovery sees weaker job creation than forecast. But it could also reflect a structural change that implies poorer medium-term growth prospects.

There are also a number of risks to the international economy which would have a detrimental effect on the outlook for the UK economy. These include:-

- The Eurozone slides into deflation
- US consumer disappoints
- Capital flows from emerging markets

The probability of each of these shocks is relatively low. Nonetheless, they illustrate how the UK's economic recovery could be put at risk. Under such conditions, Scotland and the Clyde Valley economies would be detrimentally affected by these developments.

5 Alternate futures for Glasgow and the Clyde Valley city region

5.1 Could the outlooks be different?

Given the economic uncertainties at present, not least with respect to migration sensitivity in more challenging economic times, it is important to consider alternate future paths for the economy. This section looks at three possible outlooks for the Clyde Valley economy over the medium – long term.

5.2 Scenarios- inputs

We consider three potential outcomes in this section and model two of them (including two variations of the migration scenario), as follows:

- 1) A re-balanced economy
- 2) Alternative migration outcomes

5.2.7 A re-balanced economy

In the previous Clyde Valley work (The Economic Case for the Sustained Growth Scenario in the Glasgow/Clyde Valley Area 2011) the alternate sectoral outlooks were viewed in the light of a faster population growth scenario and the possible jobs that might sit alongside such a higher population outturn.

In this new analysis the starting point is the alternative sectoral outlooks that are plausible for the UK and consequently Scotland and the Clyde Valley. In modelling this scenario past performance in key growth determines where the impact of faster future growth would be felt. So for example faster pharmaceutical growth will bring jobs to areas with pharmaceutical experience and track record. Though areas, including Clyde Valley, would have the aspiration to develop new specialisms, this approach of building on existing strengths provides a useful point of departure for examining how a different sectoral outlook for the UK would affect the region.

The sectoral composition of the re-balanced economy scenario is based on the assumption of increased investment and exports potential for the UK providing a significant boost to high tech manufacturing and agriculture. UK becomes a more attractive tourism destination thus providing a boost to the accommodation, leisure and cultural sectors. The key elements underpinning the scenario are as follows:

- Job growth in high tech manufacturing sectors (bio / electronics / chemicals).
- Agricultural employment stabilising.
- Recycling, waste and environmental sector expanding more rapidly.
- Extraction and utilities stabilising.
- Stronger tourism growth.
- Growth in leisure, film and cultural sectors.
- Modestly less growth in financial and professional services – reflecting transferring of skills to other sectors.

The UK jobs impact is as follows:

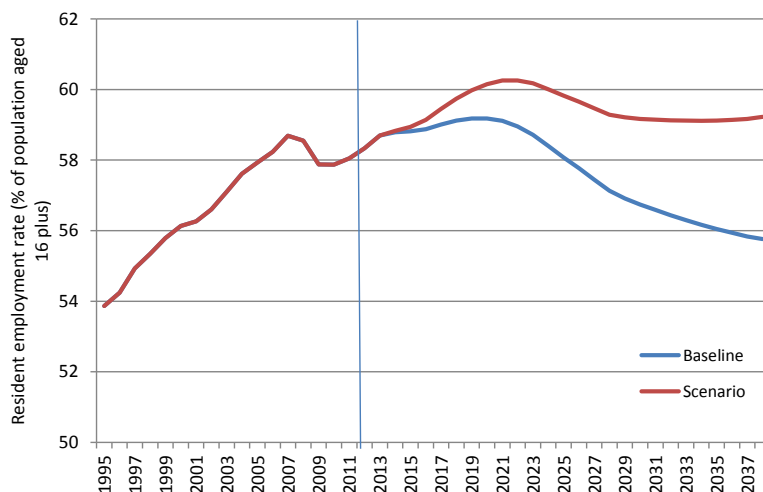
Table 5.1: Scenario sectoral employment, UK

(000's)	Baseline	Rebalancing scenario
Agriculture, forestry and fishing	-68	92
Mining and quarrying	-36	-6
Manufacturing	-779	195
Electricity, gas, & steam	-30	-3
Water supply; sewerage, waste management	-30	-3
Construction	613	684
Wholesale and retail trade	323	435
Transportation and storage	156	249
Accommodation and food service activities	257	675
Information and communication	392	392
Financial and insurance activities	22	22
Real estate activities	283	283
Professional, scientific and technical activities	984	984
Administrative and support service activities	869	869
Public administration and defence	-219	-219
Education	54	195
Human health and social work activities	367	507
Arts, entertainment and recreation	306	644
Other service activities	190	322
Total	3655	6319

Source: Oxford Economics

This outlook appears significantly different to the baseline. This scenario is akin to a 'rebalancing of the UK' away from a purely financial and professional services led growth trajectory.

Figure 5.1: UK employment rate (% of population aged 16 plus)



Source: Oxford Economics

5.2.8 Alternative house prices

House price levels are a key factor in economic forecasts – not least due to their impact upon migration, but also in terms of the impact on spending levels and upon housing occupancy rates. Traditional forecasting methods have assumed a continued steady decline in occupancy rates as the incidence of single living increases (with aging population, higher divorce rates etc.) but recent events have given cause to pause over this assumption. Increased migration flows have already arrested the steady downward trend in many areas and the cost pressures and risks with purchasing housing has also had a marked impact on attitudes and could push up occupancy rates and hence influence housing demand. As yet it is unclear whether these factors will have a temporary or permanent impact on the economy.

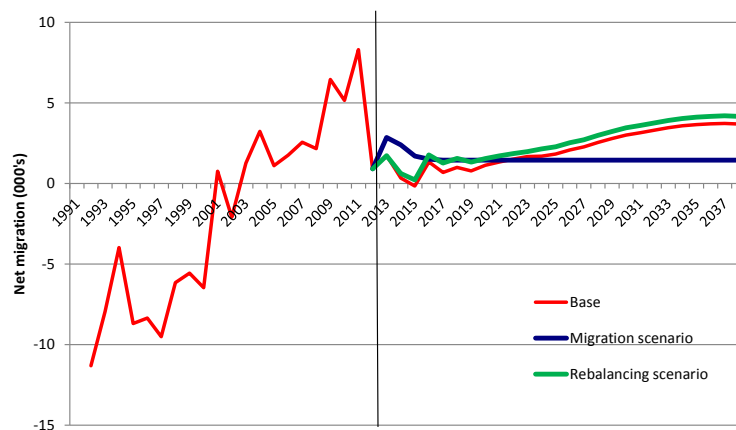
Looking at a housing scenario can be problematic, as often observed prices are merely an output of the wider economic conditions, and thus is not an ‘input’ to economic performance. Equally a scenario with adjusted house prices may be better specified by an alternate migration scenario (considered below). With is in mind we have not explicitly modelled an alternative house price scenario. At present the Scottish house price differential with the UK remains largely in place – there has been no consistent sign of any erosion of the price differential which helps support housing demand in Scotland. Indeed if anything prices drifted further from the UK average during the recession before sharp falls elsewhere have begun to return the differential to longer term ‘norms’.

The economic conditions may respond to the rising population resulting from a house price effect (which in turn is likely to have resulted from an increased housing supply). It is important to bear in mind the validity of the assumptions implicit in this type of scenario that additional people will deliver additional economic growth; this is far from certain. The possibility of higher unemployment, or vacant property (and hence lower prices even with a larger population) cannot be discounted. Baseline forecasts set out what the ‘market’ demand from property and the equilibrium price at any point in time is – thus caution needs to be applied when using ‘supply led’ outputs such as this type of scenario would produce if modelled.

5.2.9 Alternative migration flows

Migration, as discussed previously, is highly sensitive to economic outcomes and given recent published UK data could well differ markedly from the Oxford baselines (or official projections for that matter). In this scenario a lower net migration is assumed than in the Oxford base case.

Figure 5.2: Migration – alternative scenarios, 1992-2038



Source: Oxford Economics

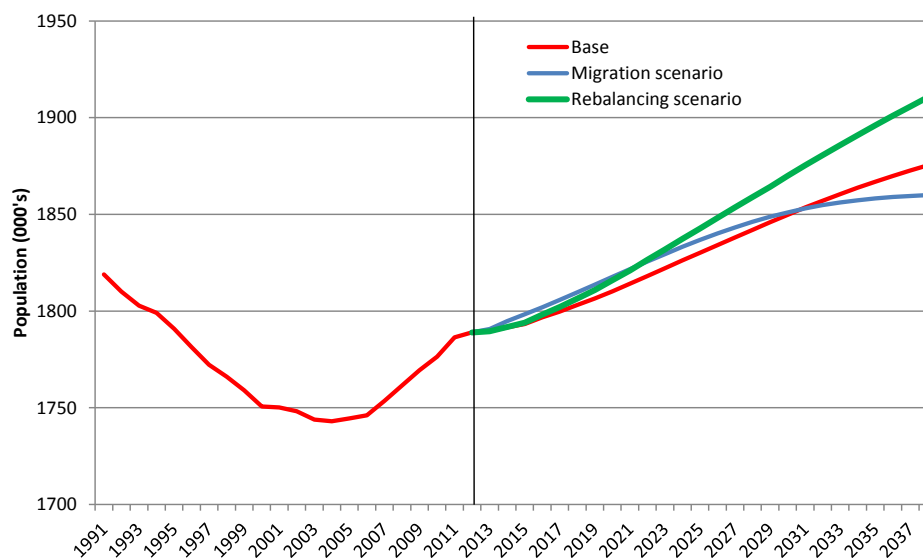
To complement the lower population lower employment is built in to broadly maintain employment rate levels. This needs to be treated with caution as discussed under the housing scenario.

5.3 Scenarios- outputs

In population terms the rebalancing scenario makes only a modest addition in the short term as existing labour takes up the employment opportunities and thus only limited in-migration is attracted. In the longer term population growth diverges slightly more as additional migrants are required to fill the extra jobs as local supply is exhausted. Migrants take up approximately 8% of new jobs in the short term, rising to close to 15% by 2038.

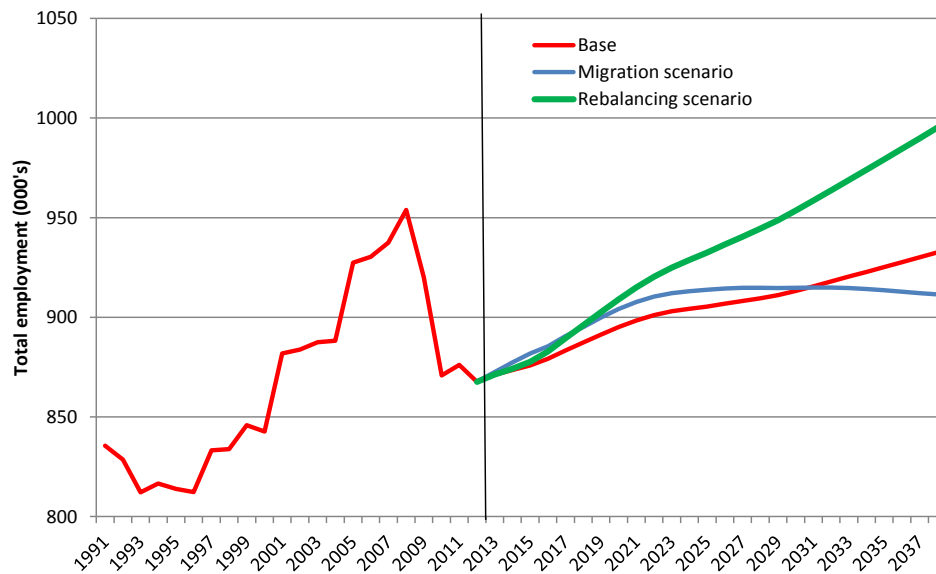
The migration scenario also only makes a modest addition in the short run but in the longer run the population falls below the base.

Figure 5.3: Comparison of scenario results - population in Glasgow and the Clyde Valley city region



Source: Oxford Economics

Figure 5.4: Comparison of scenario results - employment in Glasgow and the Clyde Valley city region



Source: Oxford Economics

In labour market terms, the scenario results diverge more markedly from the base line. Under the re-balancing scenario, employment almost hits 1m by 2038, creating around 127,000 jobs within Clyde Valley. Compared with the baseline forecast, growth within accommodation and food services and arts, entertainment and leisure is significantly faster under the scenario. Also the results suggest that manufacturing employment within Glasgow and Clyde Valley city region would remain relatively flat (compared with over 20,000 job losses in the baseline). Employment growth stalls under the migration scenario, with a slight decline in the long run.

As the re-balanced scenario does not attract significant additional migrants, this has the impact of raising employment rates in the Clyde Valley region, whereas in the migration scenario they remain at an identical rate to the baseline (as this is the way in which the scenario is parameterised) of just under 70% in the long term. In the re-balanced scenario the rate will be approximately 8 percentage points higher by 2038.

By way of additional summary, the following differences in 2038 result from running the scenarios. The re-balancing scenario produces a faster GVA outturn of close to 2.9% compared to 2.3% in the migration scenario and 2.4% in the base.

Table 5.2: Summary of scenario outputs, 2038

	Base	Rebalancing scenario	Migration scenario
Population (000's)	1875	1911	1860
Total employment (000's)	933	995	912
GVA (£m2010)	67639	75141	65245
	Base	Rebalancing scenario	Migration scenario
% per annum (13-38)			
Population	0.2	0.3	0.2
Total employment	0.3	0.5	0.2
GVA	2.4	2.9	2.3

Source: Oxford Economics

Sectorally the migration scenario continues to assume concentration of additional 'export orientated' employment in the business services sectors, with associated indirect and supply chain employment following this pattern, thus the job losses it implies relative to the baseline are more widespread. In contrast the re-balancing scenario moves employment away from business services and into other potential export markets such as tourism, high tech manufacturing and leisure. The relationship with downstream consumer activities is slightly different under this scenario as the UK structure changes - as such the additional jobs in retailing and construction are more modest. There some uncertainty inherent in calibrating this structural shift and additional construction employment may be required for example to create sites appropriate to the new employment.

Table 5.3: Additional jobs by 2038

(000's)	Rebalancing scenario	Migration scenario
Agriculture, forestry and fishing	2.0	0.0
Mining and quarrying	0.5	0.0
Manufacturing	22.8	-1.9
Electricity, gas, & steam	1.8	0.0
Water supply; sewerage, waste management	0.8	0.0
Construction	1.4	-0.6
Wholesale and retail trade	3.3	-1.3
Transportation and storage	2.4	-1.0
Accommodation and food service activities	10.2	-1.3
Information and communication	0.0	-1.0
Financial and insurance activities	0.0	-1.0
Real estate activities	0.0	-2.9
Professional, scientific and technical activities	0.0	-3.8
Administrative and support service activities	-0.3	-3.8
Public administration and defence	-0.2	0.0
Education	2.5	-0.6
Human health and social work activities	3.9	-0.6
Arts, entertainment and recreation	8.1	-0.6
Other service activities	3.3	-0.6
Total	62.6	-21.1

Source: Oxford Economics

There are a range of possible outcomes, and the alternate scenarios set out a selection of these and their implications for Clyde Valley. It is worth remembering there are a range of risks which abound that could alter the outlook significantly. At present we attach a 50% probability to our baseline forecast.

6 Summary and strategic remarks

6.1 Summary – growth needs to find deeper roots

The last year has seen a welcome return to growth, with all parts of the private sector in Glasgow and the Clyde Valley city region and Scotland participating. In particular the labour market has been stronger than past relationships between output growth and employment would have suggested. Better job prospects and an improved availability of housing finance have given the household sector enough confidence to reduce precautionary saving, so boosting consumption spending. However, there are limits to how far this process can go and **sustained growth from here will require companies to up their spending on investment and an upturn in export sales.** We are optimistic that the return of consumer confidence is spilling over into the corporate sector, while a return to, albeit modest, growth in the Eurozone and a strengthening in world trade should feed through to export growth. This should allow the recovery to build in a way that feeds through to wages and living standards so sustaining growth in the medium term.

The financial crisis and subsequent recession have caused considerable damage to the Glasgow and the Clyde Valley city region, Scottish and indeed developed-world economy. Business investment has been very weak – down by perhaps as much as a quarter in real terms – while elevated levels of unemployment, temporary, part-time and ‘under’ employment will have eroded skills and harmed skills development, particularly for young labour market entrants. Even with a sustained recovery from here, the base projection suggest that, despite a growing population, **Glasgow and the Clyde Valley city region will not regain pre-crisis peak levels of employment until after the end of the forecast horizon to 2038.** Over the course of the next decade (2013-23) the base employment forecast projects an increase of 32,000 jobs, recovering around only 40% of the post-crisis employment loss. In GVA terms the Glasgow and the Clyde Valley city region is forecast to grow by 2.6% in the 2013-23 period, the same pace as the Scottish economy as a whole. Some of this growth represents a catching up from the crisis and the projection for the fifteen years from 2023 sees annual GVA growth averaging 2.5%, again in line with the Scottish average.

Economic forecasts are uncertain. The current economic environment remains fragile; economic policy settings are experimental; and the Scottish and potential EU referendums add elements of constitutional change whose economic consequences are hard to quantify. **Exploring differing scenarios for future growth provides one approach to gaining a better understanding of the potential future paths of the Glasgow and the Clyde Valley city region and the challenges facing local policy makers.** One possible scenario is a more marked re-balancing of the UK, Scottish and Glasgow and the Clyde Valley city region economies involving, among other influences, more jobs growth in high-tech manufacturing, faster adoption of the recycling / environmental sector, stronger tourism growth, expansion of the leisure and cultural sectors, but modestly lower expansion in financial and professional services. Such an outcome would lead to faster job growth, with the region adding 22,000 jobs over the next decade, with higher associated migration flows boosting the population growth. Though presenting alternative outcomes is useful, care must be taken when interpreting the upper results – the baseline assumes a lack of demand for the jobs in re-balanced scenario (at current UK competitiveness levels).

The likelihood of a faster growth trajectory (broadly consistent with an upper scenario) may be modest but it is well within the realms of possibility. In practice it **would require the Glasgow and the Clyde Valley city region to attract a greater share of world demand in a range of exporting sectors, or offer housing quality and living standards which make the area relatively more attractive** than other locations and thus economic activity is displaced to Glasgow and the Clyde Valley city region. However, the past linkages between changes in output and employment appear to have broken since the onset of the crisis with employment trends much better, and therefore productivity performance much poorer than previous

experience would have suggested. If sustained growth allows businesses to rebuild their labour productivity performance there is the risk that future growth will not be as job rich as suggested by the scenario.

The analysis also explores the outlook under an alternative migration scenario (Official principal projections). The results suggest that in the long run employment within Glasgow and the Clyde Valley city region would be lower under such a scenario.

6.2 Strategic remarks

While the updated forecasts presented in this paper are necessarily uncertain, they show the broad outlines of the economic background against which planning and spatial policy decisions will be taken. We believe that there are a number of strategic considerations that flow from the analysis presented above.

- Employment growth **drivers are likely to remain city-centric**, since the fastest growing sectors in employment terms, such as business services, are those for which close proximity with other specialist, knowledge-intensive businesses provides a more stimulating environment, with particular benefits flowing from the development of inter-related networks of firms. Understanding Glasgow and the Clyde Valley city region's underperformance relative to Scotland as a whole in high level business services in the post-crisis period would provide a basis for adjusting planning and economic development policies to maximise the potential of this sub-sector to the Glasgow economy.
- City-centric employment growth emphasises the need to
 - address **transportation challenges** to maximise access to key city centre locations, while minimising costs to commuters and to the environment;
 - encourage **city-centre living**;
 - facilitate **business start-ups and growth** in high-value service activities.
- **Future growth will depend more on external demand.** Maintaining and increasing the region's connectivity with the rest of the UK, Europe and further afield is an important potential ingredient in this growth, with important feedback loops in that economic success is likely to provide the demand that increase the degree of connectivity with external markets. The quality of Glasgow's rail links with the rest of Scotland and the UK, and the range, frequency and affordability of flights from Glasgow's airports are critical inputs to both the development of export opportunities and on increasing the regions draw as a tourist destination.
- **The changing face of retailing offers both challenges and opportunities.** The likelihood that most vacant shop units outside the central areas of towns/cities will be re-occupied by retail operations is low. Finding new uses for these vacant sites would have a significant pay-off in terms of vibrancy and amenity, while the increasing use of 'internet' shopping opens up opportunities for new logistical structures and channels.
- A growing but also an ageing population is likely to **change the ideal mix of housing provision**. Developments which allow older house owners to downsize can have multiple benefits. These include releasing housing stock suitable for family occupation, providing capital to fund higher living standards in retirement and more suitable accommodation for older people that reduces the burdens on the care system. Increased availability of affordable family-sized accommodation is likely to

provide one of the key attractions to potential migrants to the Glasgow and the Clyde Valley city region.

7 Annex A – Data sources and assumptions

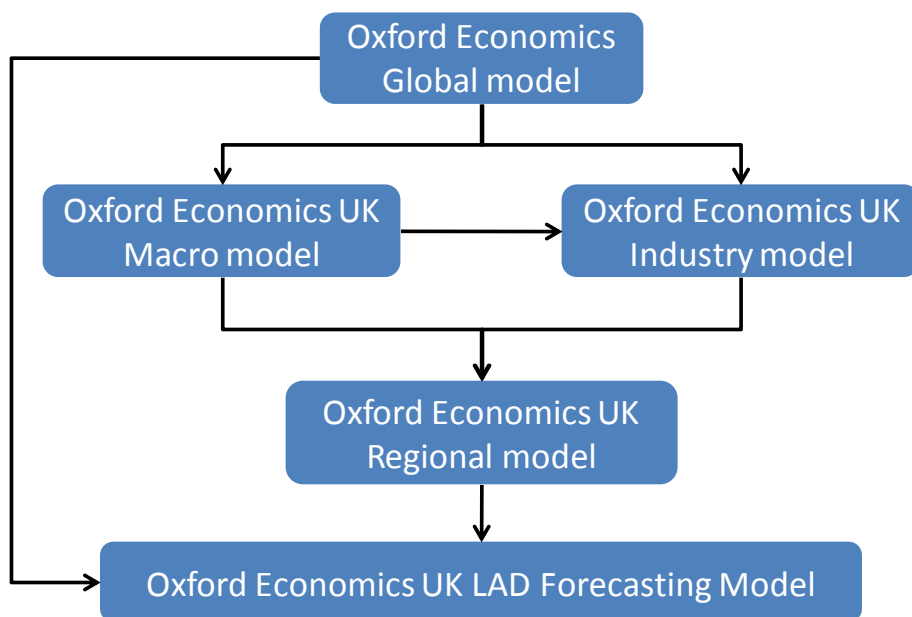
7.1 Model overview

This note provides technical information on the structure of Oxford Economics Local Authority District Forecasting Model and details of the data sources and definitions of variables within the model. The model should be viewed as one piece of evidence in making policy decisions and tracking economic and demographic change. It is not intended to be used on its own to set employment targets for local authority areas. Such targets will need to take account of local opportunities, constraints and community aspirations. As with all models it is subject to margins of error which increase as the level of geographical detail becomes smaller, and relies heavily upon published data.

Models, though predominantly quantitative, also require a degree of local knowledge and past experience, or more generally forecasting art, to make plausible long term projections. To this end the Oxford model has been developed by a team of senior staff who have a long history in model building and forecasting at both local and regional levels.

The Local Authority District Forecasting Model sits within the Oxford suite of forecasting models. This structure ensures that global and national factors (such as developments in the Eurozone and UK Government fiscal policy) have an appropriate impact on the forecasts at a local authority level. This empirical framework (or set of 'controls') is critical in ensuring that the forecasts are much more than just an extrapolation of historical trends. Rather, the trends in our global, national and sectoral forecasts have an impact on the local area forecasts. In the current economic climate this means most, if not all, local areas will face challenges in the short-term, irrespective of how they have performed over the past 15 years.

Figure 7.1: Hierarchal structure of Oxford Economics' suite of models



The Local Authority District Forecasting Model produces base forecasts, which can be compared with other published forecasts (though care should be taken over data definition issues), and as a guide to aid commentary or analysis of Glasgow and the Clyde Valley City region. These forecasts can in one sense be considered to provide baseline 'policy off' projections with which the actual outturn under policy initiatives could be compared. However it must be realised that there are inherent difficulties in using the forecasts as a 'policy-off' baseline. In particular the base projections are 'unconstrained' in the sense that they make no allowance for constraints on development which may be greater than in the past.

Our local forecasting model depends essentially upon three factors:

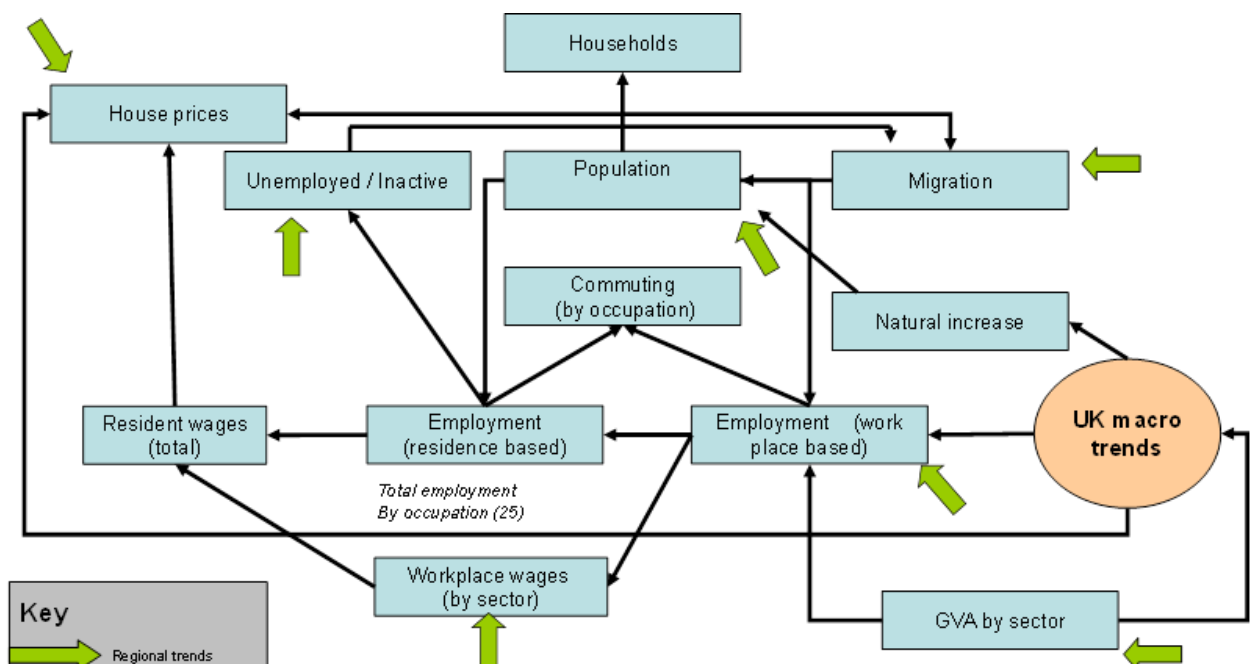
- National/regional outlooks – all the forecasting models we operate are fully consistent with the broader global and national forecasts which are updated on a monthly basis.
- Historical trends in an area (which implicitly factor in supply side factors impinging on demand), augmented where appropriate by local knowledge and understanding of patterns of economic development built up over decades of expertise, and
- Fundamental economic relationships which interlink the various elements of the outlook.

As per you requirements, this report focuses on the outlook between 2013 and 2038. Though it is worth bearing in mind that forecasting becomes more 'trend' based in the long run as there is a greater degree of uncertainty with producing forecasts over a long period. Thus the forecasts post 2023 should be interpreted with caution.

7.2 Model structure

The main internal relationships between variables are summarised in Figure 7.2. Each variable is related to others within the models. Key variables are also related to variables in the other Oxford Economics models.

Figure 7.2: Main Relationships between variables in the LAD Forecasting Model

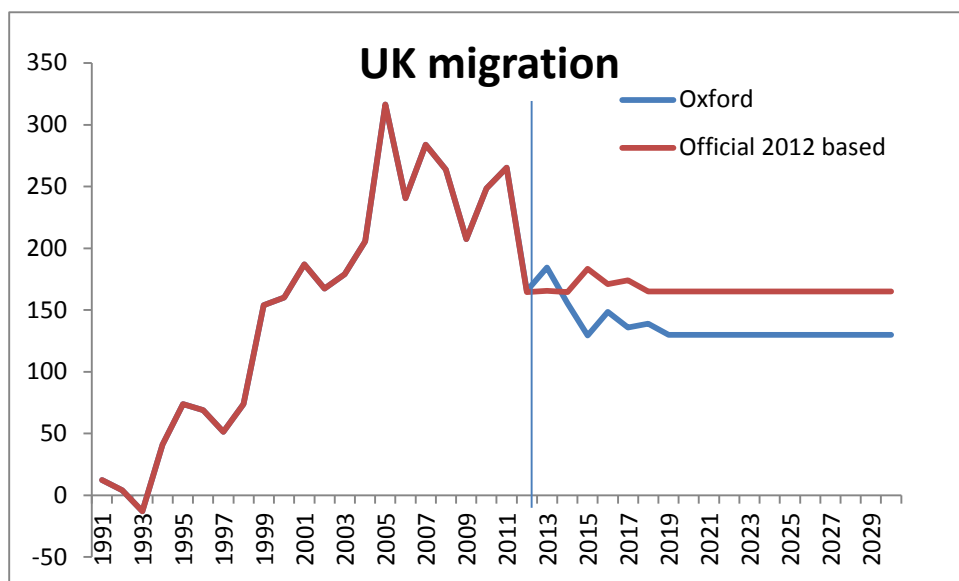


7.3 Data sources and assumptions

Population and migration

Population and migration data are collected from the National Mid-Year estimates (MYE) for each area. These have been revised in line with the 2011 Census results. The latest data available is for 2012.

Oxford Economics produce their own forecasts of population which are economically driven and thus differ from the official population projections. Official births and deaths projections from 2012-based population projections are used but we have our own view on UK migration. The chart below sets out the Oxford migration forecast for the UK compared with the 2012-based population projection. Oxford Economics expect UK net migration to average 130,000 per annum compared to 165,000 in the official projections.



The divergence reflects the removal of one-off effects from EU enlargement and weaker economic prospects. Oxford Economics' population forecasts are derived from an economically driven model whereas official projections are trend based and do not consider how demand in the economy (and the likely impact on employment rates) affects migration.

At the local level, migration is linked to the employment rate forecast. If the employment rate within an area is falling too fast, migration reacts as the model assumes that people would not be attracted into this area to live, given that the employment prospects are weak. This approach ensures that the relationship between the labour market outlook and the demographic forecasts is sensible. This series is scaled to be consistent with the migration forecast for Scotland from the UK Regional Model.

The total population forecast is then constructed using the forecast of migration and the natural increase assumptions. Natural increase for local areas is forecast based upon recent trends in both the historical data and the official projections.

Working age population

Working age population data is also collected from the Mid-Year estimates (MYE) for each area up to 2012. It is defined as all people aged 16 to 64.

The share of working age to total population is forecast using both trends in the official projections and trends in the Scotland forecast from our UK Regional Model. This is applied to the total population forecast and scaled to be consistent with the working age population for Scotland.

Employees in employment

There are two key sources for the employee jobs data – ONS Workforce Jobs (WFJ) and the Business Register and Employment Survey (BRES):

- The WFJ series is reported on a quarterly basis, providing estimates of employee jobs by sector (based on the 2007 Standard Industrial Classification – SIC 2007) for the UK and its constituent government office regions, over the period 1981 Q3 to 2013 Q1.
- The BRES is an employment survey which has replaced the Annual Business Inquiry (ABI). Similar to WFJ, BRES data is based upon SIC 2007, but it is only published for the years 2008-12. Prior to this, ABI and Annual Employment Survey (AES) data is available for employee jobs data, however this is based on an older industrial classification (SIC 2003). Data is available at local authority level and more detailed sector definitions. It is worth noting that the BRES is first and foremost a survey and is therefore subject to volatility, particularly when the level of detail becomes more refined. The survey is collected in September of each year and not seasonally adjusted.

There are a number of steps in constructing regional employee jobs, due to changes in sectoral classifications across the various sources, and restrictions on data availability over particular periods of time. Initially, we take employee jobs data for each sector directly from the BRES over the years 2009-12, which reflects recent methodological changes to the BRES in accounting for working proprietors. This relates to September figures and is based upon SIC 2007 sectors. In 2008, levels of employee jobs are constructed by extrapolating back the trend in the old BRES. Data from the ABI and AES is used to construct the data back to 1991.

This constructed local dataset is then scaled to be consistent with the UK employee jobs series from WFJ, by applying an adjustment factor to all sectors which converts the data to annual average values (seasonally adjusted). This is measured on a workplace basis.

The starting point in producing employment forecasts is the determination of workplace-based employees in employment in each of broad 19 SIC2007 based sectors consistent with the Scotland and UK outlooks. At local authority level some of the sectors are driven predominantly by population estimates, others by total employment in the area and the remainder relative to the regional performance (largely exporting sectors). All sectors are also influenced by past trends in the local area. Taken in totality, employment is cross referenced with a number of variables (including population, relative performance across similar areas, historical cyclical performance and known policy) for checking and validation purposes. Where necessary, manual adjustments are made to the projected trends to reflect this validation process. The methods of sectoral projection are as follows, each of which are forecast based upon recent trends:

- Agriculture - share of the Scotland

- Mining and quarrying - share of the Scotland
- Manufacturing - share of the Scotland
- Electricity, gas, & steam - share of the Scotland
- Water supply; sewerage, waste management - share of the Scotland
- Construction - location quotient based upon total employment
- Wholesale and retail trade - location quotient based upon consumer spending
- Transportation and storage - location quotient based upon consumer spending
- Accommodation and food service activities - location quotient based upon consumer spending
- Information and communication - share of the Scotland
- Financial and insurance activities - share of the Scotland
- Real estate activities - location quotient based upon total employment
- Professional, scientific and technical activities - location quotient based upon total employment
- Administrative and support service activities - location quotient based upon total employment
- Public administration and defence - location quotient based upon population
- Education - location quotient based upon population
- Human health and social work activities - location quotient based upon population
- Arts, entertainment and recreation - location quotient based upon consumer spending
- Other service activities - location quotient based upon consumer spending

Self-employment

Self-employment data for the Scotland is taken from Workforce jobs (19 sector detail). The data is broken down into detailed sectors using both employee trends and the UK data for self-employment by 2 digit SIC2007 sector. Data for the local authorities is Census based (and scaled to the Scotland self-employed jobs estimates) and is broken down using the employees in employment sectoral structure. The sectors are forecast using the growth in the sectoral employees in employment data and the estimates are scaled to the regional estimate of self-employment by sector.

Total employment (jobs)

Total employment includes employees in employment, the self-employed and Her Majesty's Forces. This is measured on a workplace basis. No specific forecasting for this measure is required - it is calculated from the forecasted elements discussed above.

Note that this estimate is a jobs and not people measure (i.e. one person can have more than one job and would be counted more than once in this indicator).

Unemployment

Claimant count unemployment data is taken from ONS, via NOMIS. Annual average values are calculated from the monthly data. The latest data available is October 2013.

Unemployment (claimant count) is projected based on regional trends and a measure of overall labour market tightness (relative employment rate) in the local area. It is not at present directly affected by migration though they do impact indirectly through the employment rate (which has working age population as its denominator).

Unemployment rate is defined as claimant count unemployment as a percentage of the working age population. No specific forecasting of this measure is required.

Resident employment

This is a measure of the number of people living in an area who are in work. Resident employment data is taken from the Annual Population Survey. The latest year of available data is 2011. Given that this data is survey based and tends to be very volatile, data is 'smoothed' by taking a 3 year average.

Residence employment is based on a commuting matrix taken from the 2001 Census. This matrix tells us where employed residents of an area work. Using this information each available job (see workplace employment people based above) is allocated to a resident of a given authority. This method assumes the proportions of commuting do not change over time.

Employment rate is defined as residence employment as a percentage of the population aged 16 plus. No specific forecasting of this measure is required.

Labour force

Labour force is the sum of resident employment and unemployment (claimant count). No specific forecasting for this measure is required - it is calculated from the forecasted elements discussed above.

Gross Value Added

GVA forecasts are available for detailed sectors for the Scotland region from our UK Regional Model. For areas within the region, data on total GVA is available at NUTS 3 level. This includes counties and former Metropolitan counties. Our forecasts at local authority level are obtained firstly by calculating an 'expected' GVA in each area. This is calculated by multiplying the Scotland region's GVA per employee in each sector by workplace employment in each sector within each local authority area. An adjustment factor based upon relative earnings is also applied as areas with higher wages should produce higher levels of GVA. Expected GVA is then scaled to add the GVA at NUTS 3 level and the Scotland sectoral forecasts from the UK Regional Model.

Workplace based wages

Scotland data on average wages by sector is available from the Annual Survey of Hours and Earnings (ASHE), the latest year of data is 2012. At the level of individual local authorities estimates of total wages on a workplace basis and a residence basis are also available from the NES and now ASHE.

The growth in UK wages by sector is applied to the local area sectoral wage series (constructed using ASHE totals for authorities and regional industry totals) to give an estimate of wages within each sector. An adjustment factor is applied to reflect the relative occupation structure of each area. Hence areas where higher paying occupations are growing faster than the regional average will have higher wages. These wages estimates are then scaled to be consistent with regional wage totals.

Residence based wages

Residence based wages are constructed within the model by adjusting the workplace based wages for local areas. An adjustment factor, which is based upon ASHE workplace based and residence based data, is applied to ensure consistency with the published data. This factor is held constant but can be adjusted for scenario purposes.

House prices

Local Authority house price data is taken from the Registers of Scotland and are forecast based upon the unemployment and earnings forecasts within each local area. The forecasts are controlled to the regional and national house price forecasts which take into account macro factors such as interest rates. Data for Glasgow and the Clyde Valley City region are constructed as a weighted average based upon population.

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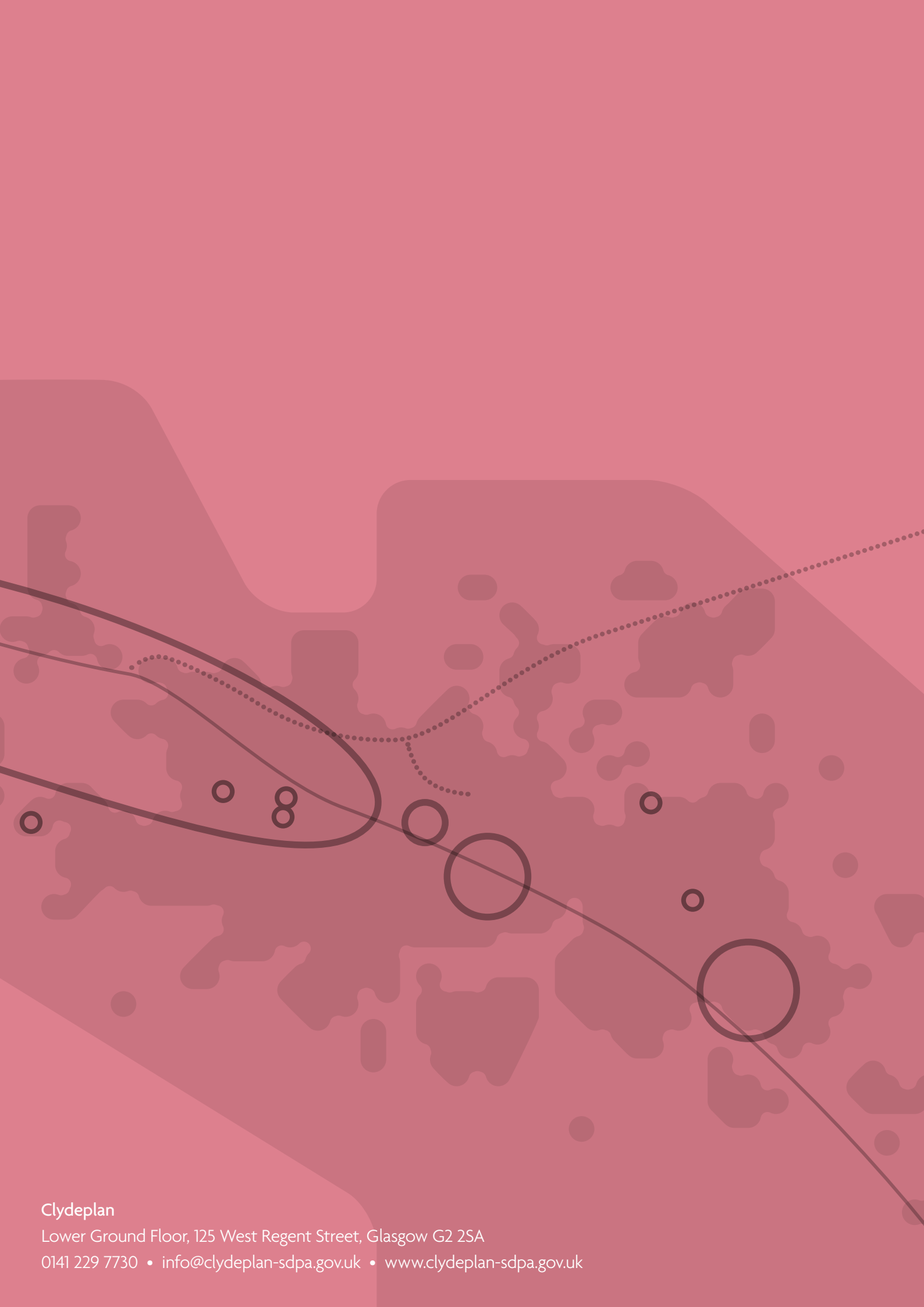
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