Edinburgh City Region Benchmarks

A Report for City of Edinburgh Council
November 2009

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Introduction

The purpose of this report is to update the previous autumn 2008 benchmarking study with new economic data for the same six headline indicators and to draw comparisons with the baselines from the previous report where possible. The Edinburgh City Region has been compared with the same 15 identified benchmark city regions as in the previous study and the forecasts for the future have been updated with Experian's September 2009 forecasts.

This report will help the Economic Development Unit at City of Edinburgh Council provide a context of how the Edinburgh City Region is performing in relation to its competitors, and give some early indication of how its recent intervention through its new Unit Plan has benefited the City Region.

The structure of the report is as follows:

- Explanation of the selection of indicators;

- Explanation of the selection of benchmark city region economies;

- Baseline review of Edinburgh City Region's economic performance; and

- A review of the Edinburgh City Region sub-regional performance.

For the purposes of this work and for the Regional Economic Framework, Edinburgh City Region is defined as the following nine Local Authority areas; City of Edinburgh, Clackmannanshire, East Lothian, Falkirk, Fife, Midlothian, Scottish Borders, Stirling and West Lothian.

1 Performance Indicators

1.1 Indicator Selection

The objective in selecting indicators for the Regional Economic Framework was to identify a small number of headline economic measures.

Specifically, City of Edinburgh Council required measures for:

- Headline economic performance;
- Environmental impact; and
- Quality of life and economic equity.

In selecting indicators it was also important that the measures were available for as many of the benchmark city regions as possible and also for the Local Authorities comprising Edinburgh City Region (in order that intra-regional variations can be tracked). Figure 1.1 summarises the indicators chosen under each of these headings, the measurement basis, rationale for that indicator's selection and any notes or availability issues. As far as we are aware these are the most robust indicators available for these levels of geography.

Figure 1.1: Indicators

Theme	Indicator	Measurement	Rationale for selection	Notes and availability issues
Headline performance	**1. Economic output growth**	Average annual growth in Gross Domestic Product between 1998 and 2008	Overall indicator of economic expansion	-
	2. Productivity	Gross Domestic Product divided by full-time equivalent jobs is used to measure labour productivity	Measure of value added and knowledge intensity of economy	Non-EU city regions are in domestic currencies (others are in €s)
	3. Jobs density	Full-time equivalent jobs divided by total working age population	Measure of jobs density	Not available for some benchmark city regions
Environmental impact	**4. Carbon dioxide emissions per person[1]**	Carbon dioxide emissions divided by total population	Summary measure of carbon emissions generated by economic activity and households	Only available for UK Local Authority areas (from DECC[1]) and for OECD countries (OECD)
Quality of life and economic equity	**5. GDP per head**	Gross Domestic Product divided by total population	Standard measure of average economic wealth	Non-EU city regions are in domestic currencies (others are in €s)
	6. Population growth	Average annual growth in population between 1998 and 2008	Indicator of perceived quality of life	-

[1] This data was provided to City of Edinburgh Council separately as part of a dataset to support this report. However, the data is not analysed in this report.

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[1] DEFRA has given responsibility of producing UK local authority level carbon dioxide per person emissions to the Department of Energy and Climate Change (DECC).

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2   Benchmarks

2.1   Background

Although city regions are complex systems, with each being the product of its own economic history and macroeconomic environment, international comparisons can be helpful for policymakers. It is often cities and city regions rather than countries that compete with each other; as they compete for investment by companies, for skilled migrant workers and for tourists. The concept of benchmarking the economic performance of a city region with other city regions is based on the following principles:

- Comparing a city region's performance with its national average (Scotland and / or UK) is useful but may be misleading in isolation;

- City regions compete with each other globally for resources (e.g. talent, inward investment, visitors and events) and therefore it makes some sense to compare a city region's performance with its competitors; and

- City regions are specific types of functional economic geographies, defined in terms of travel to work areas, housing markets and retail flows. Comparing with other city regions therefore offers a 'like for like' comparison.

There have been a number of previous exercises to identify benchmarks for the Edinburgh City Region. These have included:

- Benchmarking for the former Local Enterprise Company area of Edinburgh and the Lothians;

- Work for the Metropolitan Edinburgh Economic Audit (2005-6);

- Economic review of the city region (2007); and

- Work by BAK Basel (e.g. 2006 benchmarking report).

Although the definition of Edinburgh City Region has varied between some of these studies, the set of international benchmarks selected has retained some degree of consistency. In choosing benchmarks for the Regional Economic Framework, we have tried to maintain this consistency.

In principle selecting international benchmarks is quite straightforward and, on a subjective level at least, can be done quite quickly. However, most formal methods for benchmarking have a quantitative evidence basis to their approach to selection, which relies on there being comparable data available. Economic and social statistics have generally been developed in the post-WWII period at the level of sovereign countries as an aid to national macroeconomic management. Efforts to establish internationally comparable data is a more recent development, for example the development of a statistical infrastructure (Eurostat) to aid the European Union's political and financial activities or the OECD's statistical assets. At present there is not a global resource which provides economic and social indicators for geographies below national level. However, Eurostat has developed into a useful tool for sub-national benchmarking as a number of European funding programmes are aimed at narrowing *regional* differentials and therefore indicators which measure regional outcomes are required. Reflecting the current stage of international sub-national statistics development, this report is informed by Eurostat data for the European comparators and official government sources for the North American benchmarks.

The other challenge with benchmarking a city region is that, for the reasons outlined above, indicators are usually available for administrative areas (e.g. NUTS geography) rather than functional economic geographies (e.g. travel to work areas, housing market areas or retail catchment areas). The best practice approach to addressing this challenge is to try and achieve a best approximation for functional

areas, using data organised at administrative levels. For example, we know that only parts of the Scottish Borders, Fife and Forth Valley are fully integrated in the Edinburgh City Region economy (and even then some relationships – say, housing market behaviour - may be stronger than others, such as retail flows) but it is generally not misleading to use data for the *whole* of these Local Authority areas in approximating the city region's functional boundary. In this study we have used the administrative units that are available which best approximate functional areas.

2.2   Selection

In selecting areas to benchmark the Edinburgh City Region against, we have considered the need for regions that are economically comparable (in terms of size and structure), with other considerations such as high growth and innovation-orientated regions. No two economies are directly comparable such that economic performance differences can be accurately attributed to the fine detail of infrastructure or policy approaches, but clearly some economies are more appropriate benchmarks than others (e.g. other centres of financial services).

The first stage of selecting appropriate benchmarks was to identify the areas that are statistically and economically similar. The selection process used the following criteria and weightings:[2]

- 50% based on size (12.5% GDP, 12.5% employment, 25% population); and

- 50% based on industrial structure (split between manufacturing and services and the significance of business services and financial services to local employment).

The final selection of benchmarks considered other relevant factors like the inclusion of some of Europe's leading cities as aspirational benchmarks. As mentioned above, previous research on suitable benchmarks for Edinburgh City Region was also considered in the final selection. The final fifteen benchmarks chosen for monitoring progress against the objectives of the new Regional Economic Framework, including a brief description of the benchmark areas along with an explanation for the selection of each benchmark, is provided below. The final benchmarks are:

- Amsterdam;
- Boston;
- Bristol;
- Cambridge;
- Dublin;
- Frankfurt;
- Glasgow;
- Helsinki;
- London;
- Lyon;
- Oresund;
- Oslo;
- Stockholm;

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[2] This process uses Experian's database of over 1,000 NUTS 3 regions in Europe to select economically similar areas. The process means that 50% of the decision to include a benchmark area is based on scale and 50% is based on industrial structure.

- Stuttgart; and

- Vancouver.

Amsterdam is the capital and largest city of the Netherlands. Amsterdam City Region has a population of 7,340,000 in 2009 and includes the cities of Amsterdam, The Hague, Utrecht and Rotterdam (the area is collectively known as the Randstad). It is the financial and cultural capital of the Netherlands and the economy has expanded robustly over the last decade. It has been included as a benchmark because of its status as a financial and cultural centre, its status as being a top European business and tourist location, the strong economic growth in recent years, its port location and the university collaborations with industry which are similar to the aspiration for Edinburgh City Region.

Boston city region is the eleventh largest city region in the U.S. states of Massachusetts and New Hampshire, located in the north east of the country. With a population of 4,523,000 in 2008, the Boston city region is considerably larger than Edinburgh City Region and includes the metropolitan area of Boston-Quincy-Cambridge. Boston's universities and colleges are extremely important to the economy in terms of both total employment and links with business. Financial and business services, high-tech industries, education and defence are all important industries to the Boston economy. Boston has been included as a benchmark as it is the most appropriate U.S. city benchmark, is recognised as being a top business location, has close university/industry business linkages and is a port city.

Bristol city region is located in south west England, has a population of 1,077,000 in 2009 and includes both Bristol and Bath, both university cities. Over the last decade the economy has grown robustly with financial and business services, aviation and education industries driving this growth. The former industrial port area of Bristol has seen significant regeneration efforts over the last decade, which has added to the city's attractiveness. Bristol City Region has been selected as a benchmark for Edinburgh City Region because of its recent success, its comparable size, the importance of the financial sector and its status as one of the most affluent cities in the UK.

Cambridge city region has a population of 616,000 in 2009 which makes it the smallest of the selected benchmarks. Lying only 50 miles north of London, Cambridge has very strong linkages with the capital in terms of both commuting and business supply chains. Cambridge is best known as a university city and the university and colleges remain central to the success of the economy. The economy has grown strongly in recent years, outperforming the other UK benchmark cities in terms of economic growth. The city has been selected as a benchmark mainly because of the successful knowledge-intensive economy with a strong role played by universities, particularly in the life science and business service sectors.

Dublin city region is the urban hub of Ireland and has a population of 1,749,000 in 2009. Dublin is the economic, administrative and cultural centre of Ireland and the economy has grown rapidly since 1998, quicker than any of the selected benchmark cities. Key industries of the city include financial and business services, construction, pharmaceuticals and ICT. The universities and tourism are also important to the city. Dublin has also had a tram network installed which opened in 2004. The city has been chosen because of its waterfront location, the importance of financial and business services to the economy and its success over the last decade.

Frankfurt is the fifth biggest city region in Germany and a centre of financial services and transport. With a population of 657,000 in 2009, Frankfurt is the second smallest of the selected benchmark cities. Frankfurt International Airport is one of Europe's busiest airports behind London Heathrow and Paris Charles De Gaulle. Financial services are also very important to the economy and it is home to some of Europe's largest financial institutions and also the Frankfurt Stock Exchange. The city has the highest GDP per head of all the benchmark cities. Frankfurt has been selected as a benchmark due to

its status as one of Europe's leading financial centres, its importance as a transport hub and its levels of prosperity.

Glasgow city region has a population of 1,573,000 in 2009 and is therefore almost the same size as Edinburgh City Region. Glasgow City Region is the only benchmark city to experience a de-population between 1998 and 2008. Glasgow has been selected because of its proximity and linkages with Edinburgh City Region and the fact that it is Scotland's other large city.

Helsinki is the capital city of Finland and the largest city region, located in the south of the country on the Baltic Sea. With a population of 1,404,000 in 2009 it was a comparable size to Edinburgh City Region. Helsinki is Finland's centre for government, finance and culture. The Helsinki economy is the fourth fastest growing of the benchmark city regions behind Oslo. The economy is largely service based with high-tech research and development sectors being particularly important. The city region has eight universities and six research parks. Helsinki has been selected as a benchmark because of its waterfront location, the role of research and development and universities in driving economic growth and its success over the last decade.

London is the capital and largest city[3] in the UK and has a population of 7,732,000 in 2009. London is a leading global financial, business, tourism and cultural centre. The economy has grown robustly since 1998, driven by finance and business services. London has been chosen as a benchmark city because it is the UK's largest and most productive city, and has close linkages with Edinburgh City Region due to the financial services, business services and tourism industry.

Lyon forms the second largest city region in France behind Paris and is located in the east of the country. Lyon is a similar size to Edinburgh City Region with a population of 1,700,000 in 2009. Key industries in Lyon include pharmaceuticals, chemicals and life sciences. The economy has grown strongly since 1998 outperforming Edinburgh City Region in terms of GDP growth. Lyon has been selected partly because of its strengths in life sciences. It was also felt that it was important to include a French City because of the country's significance to the EU and to choose Lyon because of its strong links with Paris and the success of the economy over the last decade.

Oresund city region consist of the Danish capital city of Copenhagen and the Swedish city of Malmo. The two cities are linked by the Oresund Bridge which was completed in 2000 and is the longest combined road and rail bridge in Europe. The Oresund region had a total population of 2,522,000 in 2009. The construction of the bridge has led to closer collaboration between the two cities and around 14,000 people commute over the bridge every day. The Oresund region is a major administrative, science, financial and business centre for Scandinavia and GDP has grown strongly each year since 1998. The region has been selected because of its importance in Scandinavia, the role of both cities collaborating to enhance economic growth, the similarities in city region geographies (Glasgow-Edinburgh collaboration project and Oresund Bridge), the success of the city region and the importance of finance and science to the economy.

Oslo is the largest city and capital of Norway. The city region had a population of 1,100,000 in 2009. Norway's emergence as a major oil and gas producer in the mid-1970s transformed its economy. Norway is the third-biggest oil exporter, behind Saudi Arabia and Russia. As the capital city Oslo has benefited from this and economic growth has been consistently high. The oil, maritime and financial and business services sector are all important to the Oslo economy. The cost of living in Oslo is high and it recognised as being one of the most expensive cities in the world. Oslo was selected as a benchmark because of its prosperity and strong economic growth.

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[3] We have used the city definition for London rather than city region as the London city region is a completely different scale of economy from Edinburgh city region and therefore not an appropriate benchmark.

Stockholm is the largest and capital city of Sweden. The city region had a population of 1,958,000 in 2009. Stockholm is the main political and economic centre of Sweden and between 1998 and 2008 the economy grew at over 3.5% on average each year. The service sector dominates employment in Stockholm with the high technology and business services jobs being particularly important. Stockholm has been selected because of the success of the economy over recent years, its status as the capital city of Sweden, the strong innovation system and the role of high technology companies in the economy.

Stuttgart is located in the south west of Germany and the city region encompasses a number of smaller towns which when combined constitute the third largest city region in Germany. The city region had a population of 2,702,000 in 2009. Key industries in Stuttgart include the automotive sector, financial services (Stuttgart Stock Exchange) and research and development activity. There is a high degree of collaboration between academia and industry in the city. Stuttgart has been selected as a benchmark because of the important role of research and development in the economy and also the importance of financial services.

Vancouver is located in the south west corner of Canada and the city region had a population of 2,271,000 in 2008. The economy has grown strongly in recent years with GDP expanding at an average annual rate of 2.9% between 2004 and 2008. The port of Vancouver is very important to the economy and other key industries include primary industries (forestry and mining), business services, the film industry, software and high-tech business, tourism and life sciences. Vancouver is consistently ranked as offering a very high quality of life. Vancouver was selected as a benchmark because it was felt it was important to include a second North American city region, it has a very successful economy, is a port town and offers a very high quality of life.

3   Performance baseline

3.1   Overview – Key Indicators

Since the last benchmarking report was produced last year, the UK has fallen into recession, sparked by the global financial crisis. In common with all the comparator benchmark areas, Edinburgh has been hit hard by the recession, with GDP estimated to have contracted by 4.1% between 2008 and 2009. Similarly employment has contracted by an estimated 3.1%. The result of the downturn is a decline in wealth in the Edinburgh City Region, with GDP per head estimated to have declined by 4.7% between 2008 and 2009.

Figure 3.1: Key indicators, 2008 & 2009

	Edinburgh City Region, thousands		
	2008	**2009**	**Annual % change**
Population	1,574	1,585	0.7
Employment	681	660	-3.1
GDP	43,505	41,737	-4.1
GDP per head	27.6	26.3	-4.7
Source: Experian 2009			

3.1.1.1 Changes to the rankings

In terms of total population, Edinburgh City Region is ranked 10th out of 16 benchmarks with a population of almost 1.6 million (figure 3.2) up one place in the rankings thanks to a slight increase in population in 2009. The population of the city region remains well below the larger city regions such as London, Amsterdam and Boston but is similar to the median value for this set of benchmark city regions (1.7 million people). Generally the ranking is similar for employment, with the exception of regions such as Frankfurt where employment is high relative to the population (due to the tight drawing of the city region boundary in this instance). In contrast to the previous benchmarking report, Edinburgh City Region now boasts a population which is 12,000 greater than Glasgow, and as a result, Edinburgh's population ranking has moved from 11th to 10th out of 16 benchmarks.

Figure 3.2: Population and employment[4] - 2009

Source: Experian, National Statistics
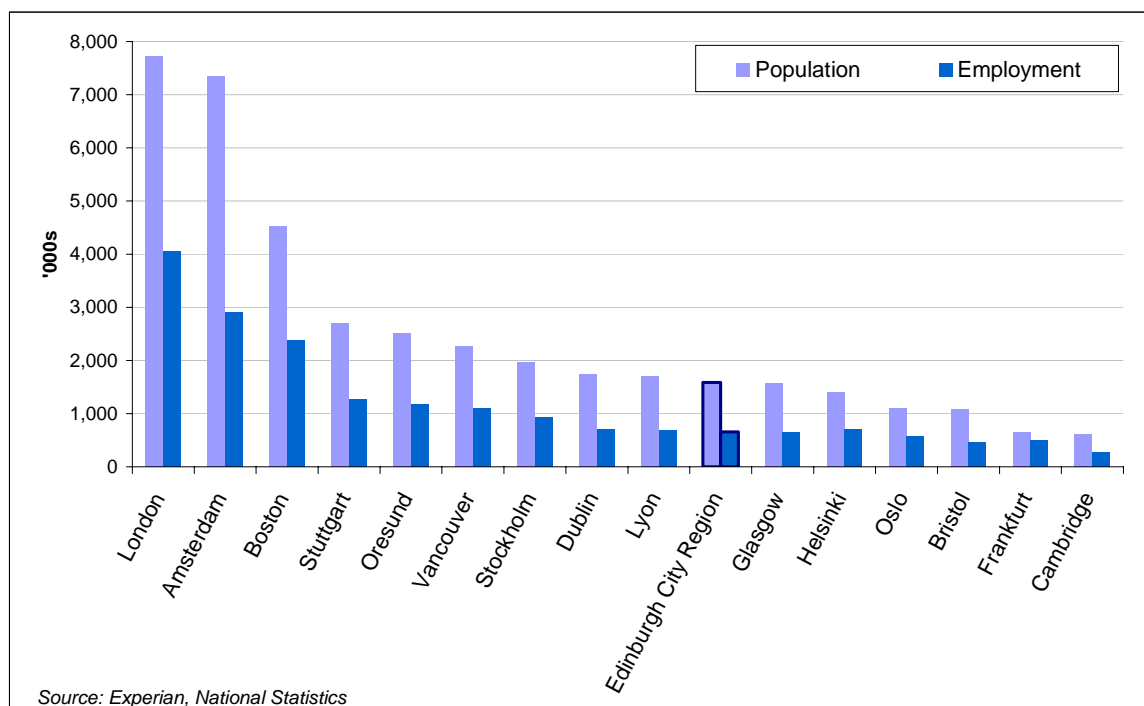
In terms of total GDP, Edinburgh City Region is ranked 11th of 14 benchmarks, the same as in the 2008 benchmarking report.[5] Only Glasgow, Cambridge and Bristol have smaller economies than the Edinburgh City Region in this selection of city region benchmarks.

These indicators of scale are important in setting the context for analysis of Edinburgh City Region's economic performance. It is important to note that the largest city regions, such as London and Boston, benefit from considerable agglomeration economies which are much weaker for city regions of Edinburgh's scale. For example, the financial services industry in London and the science-based industries in Boston benefit from a level of critical mass that is more difficult to achieve for smaller economies. Larger city regions also benefit from increasing returns to scale, whereby they attract and retain firms and investment on account of their scale and critical mass. However, as the data below shows size is not the only factor in a successful city region as it is in some of the smaller city regions that have performed most impressively since 1998.

3.2 Benchmarking Performance across the indicators

3.2.1 Economic Output Growth

Gross Domestic Product (GDP) measures the value added in an economy and is the standard measure of economic output. GDP growth is a key measure of economic development, reflecting employment and productivity growth and driving growth in household incomes.

#### 3.2.1.1 Recent trends and the recession

Whilst the size of an economy is an important factor determining the rate of future economic growth, other factors are also important such as local and global demand, industrial profile, skills and labour supply and investment. Particularly important over the next decade will be the resilience of each of the economies to the global economic downturn. The depth of the recession within each of the cities will of

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[4] Full-time equivalents.
[5] Boston and Vancouver are excluded from this analysis as they dominated in domestic currencies rather than euros.

course impact upon long-term growth. The decline in GDP between 2008 and 2009 is largest in Dublin, Frankfurt and Stuttgart. GDP growth in these city regions is expected to remain negative over the entire 2009 to 2010 period. All other city regions including the Edinburgh City Region are expected to experience an improvement in GDP between 2009 and 2010, with Oslo and Stockholm growing at the fastest rate out of the recession.

Figure 3.3: GDP % growth between 2008/09 and 2009/10.

Source: Experian 2009
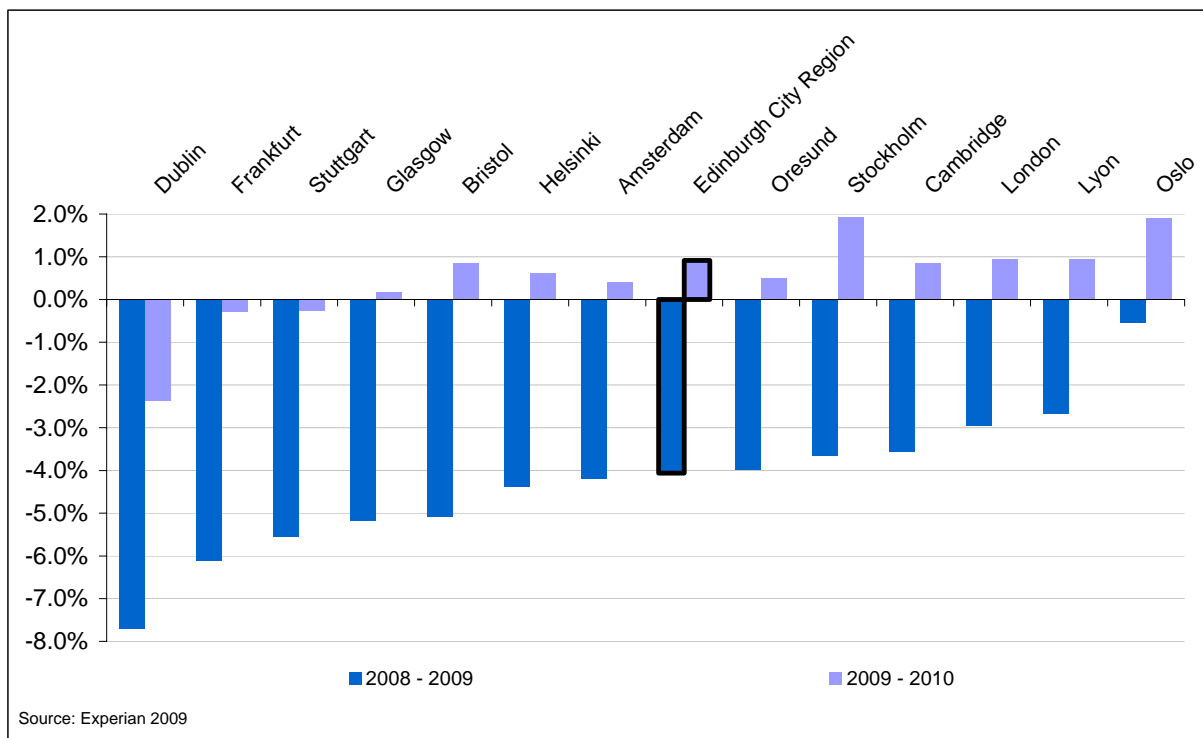
3.2.1.2 Past economic growth

Edinburgh City Region's average annual GDP growth between 1998 and 2008 places it towards the bottom of the rankings, standing at 13th out of 16 areas, a slight drop on last year's ranking. Average annual growth was 2.2% over the period - faster than Glasgow at 1.9% but behind the other UK city regions and considerably behind Dublin, Helsinki, Oslo and Oresund.

3.2.1.3 GDP Growth Forecasts

Experian's forecasts for the Edinburgh City Region suggest an improvement in the level of annual growth between 2009 and 2020. GDP of the Edinburgh City Region is expected to grow at an annual average rate of 2.4% which will still lag the rates expected in the city regions of Helsinki 2.6% and Oslo 3.2%. It is the northern European city regions of Oslo, Stockholm, Helsinki, along with London and the Edinburgh City Region which are expected to experience the fastest average GDP growth between 2009 and 2020 largely due to a more productive industrial structure in these city regions. Strong long-term growth in these economies is due to a range of factors, most notably the industrial profile allowing these economies to recover more quickly from the recession. In these northern European city regions recovery of the services sector will be important alongside the growth of high-technology manufacturing in the Nordic city regions.

Although expected future annual average growth is 0.5% p.a. lower compared to the last benchmarking report due to the deepening recession, the Edinburgh City Region still remains the 5th fastest growing of the city region benchmarks between 2009 and 2020 as growth forecasts for other city regions were

also downgraded, with Dublin the most significantly revised down due to the substantial challenges now facing the city region's economy.[6]

Figure 3.4: GDP Average Annual Growth (1998 to 2008 and forecast growth 2009 to 2020) and relative city region size (total GDP, 2009).

Source: Experian 2009
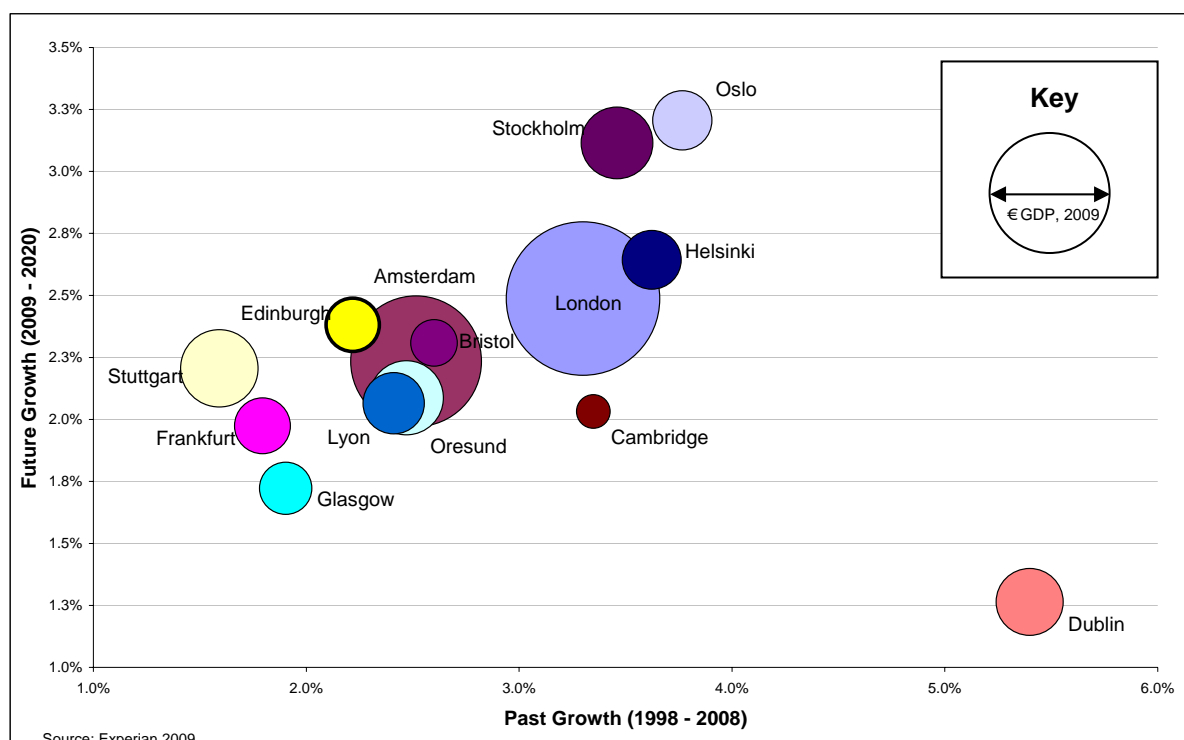
3.2.2 Productivity

In the long-run, productivity is the central driver of sustained increases in output. Productivity refers to how well an economy uses the resources it has available by relating the quantity of labour used to the quantity of economic output.

3.2.2.1 Recent trends

Across the majority of the comparator city regions Experian estimates productivity levels have fallen between 2008 and 2009. This is true for Edinburgh where productivity levels in 2009 (measured as GDP per full-time equivalent worker) were €63,300 (down 1% on 2008), ranking Edinburgh City Region towards the bottom of the comparator City Regions in 12th position. Glasgow City Region was in 14th position with productivity of €61,600 whereas the most productive city region in 2009 was Dublin (€93,200), followed by Frankfurt (€91,500), and Oslo (€89,800). Despite the decline, the city region's 2009 position is improved slightly from that held in the previous benchmarking report, moving from 13th position to 12th.

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[6] Vancouver and Boston are not included in this analysis as Experian do not produce forecasts for North American cities.

Figure 3.5: Labour Productivity (GDP/FTE) 2008 and 2009, €

Source: Experian 2009
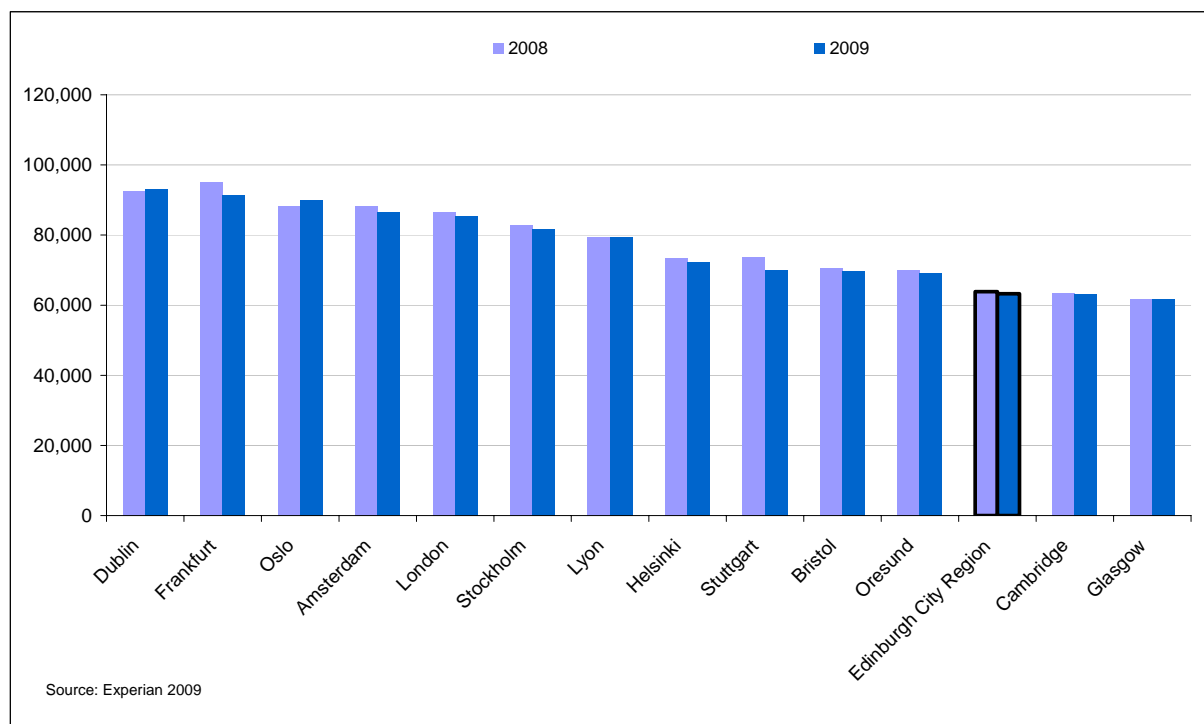
It is worth noting that there are a few data issues that may affect the comparability of productivity levels between the city regions. The geographical boundaries used for the city region areas may differ between regions.[7] For example, some may exclude much of the regional hinterland (such as for the Frankfurt City Region) which is included in other city region definitions (such as for the Edinburgh City Region) meaning that productivity levels will be overstated (in the Frankfurt City Region). GDP from the financial services sector is also accounted for differently between countries again affecting productivity comparisons. This will affect some city regions more than others.[8] However, these interpretation issues should not detract from what the data is telling us in terms of Edinburgh City Region's overall direction of travel (i.e. increasing or decreasing in relative terms) and the broad overall result, which is that the Edinburgh City Region sits in the lower half of its comparator rankings on this measure.

3.2.2.2 Productivity growth forecasts

Despite stronger GDP growth over the period 2009 to 2020, Experian's forecasts suggest that Cambridge edges ahead of the Edinburgh City Region on the labour productivity benchmark. This is largely because we expect employment to continue to expand at a reasonably robust rate (1.0% per year between 2009 and 2020) in the Edinburgh City Region relative to Cambridge. The difference in expected growth rates between these two areas is largely explained by the sectoral make-up. Edinburgh has a greater proportion of business service sectors (both high and low value) expected to recover more robustly than the high-technology sectors that have a greater representation in Cambridge.

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[7] The definitions used here are in line with those set out in the original BAK Basel Economics benchmarking work and are a combination of NUTS2 and NUTS3 regions.
[8] The boundaries have been drawn to reflect the city region within each area. However, the composition of the city regions is more difficult to control for. For example, the London definition is for Greater London which accounts for a wide geographic area but also one which has undoubtedly less rural hinterland than for example the Edinburgh City Region.

Figure 3.6: Labour Productivity (GDP/FTE) 2009 and 2020, €

Source: Experian 2009
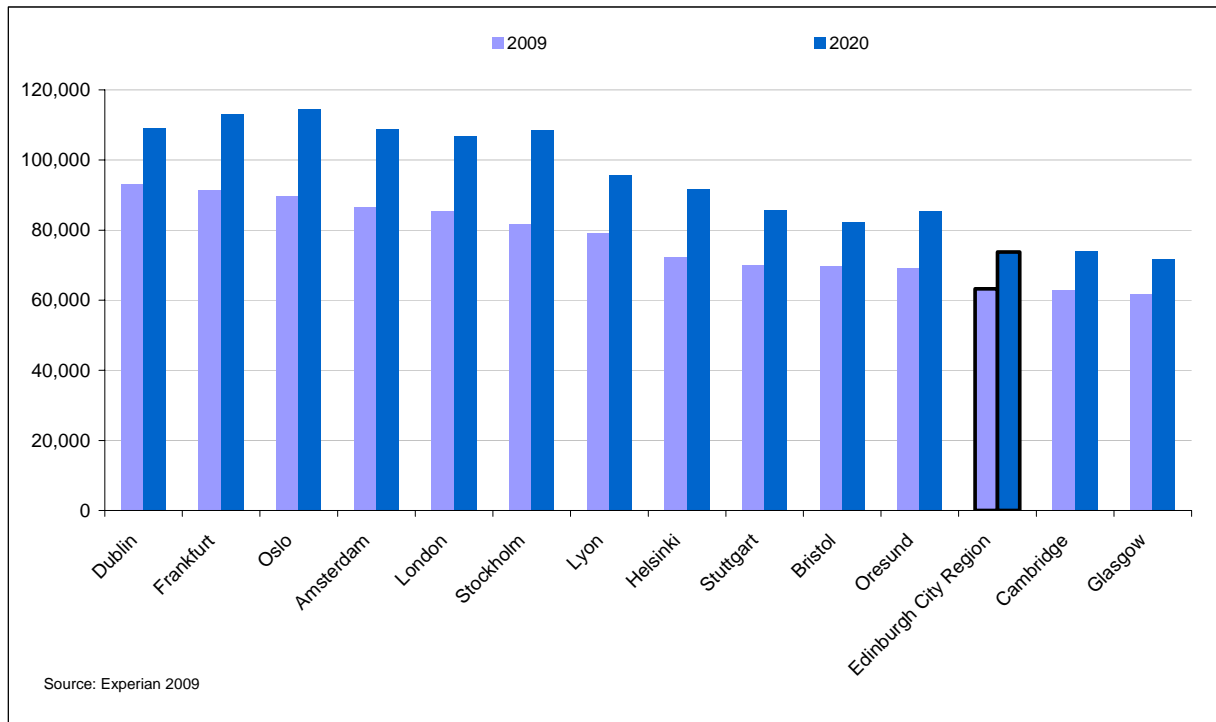
3.2.2.3 Disaggregating GDP growth

Growth in GDP is achieved through growth in the labour force in addition to growth in the productivity of the labour force. The table below shows that GDP growth over the next decade for most of the 14 city regions is expected largely due to productivity growth as opposed to employment growth as labour markets in these areas remain relatively tight. Of all the 14 city regions, the size of Edinburgh City Region's labour force is expected to grow at the fastest average annual rate, boosting the city region's ranking in terms of GDP growth to 5th place. However, it is the city regions with the highest levels of productivity growth (Oslo and Stockholm) which are expected to achieve the top levels of GDP growth between 2009 and 2020, despite lower expected levels of employment growth. This reflects the growth in high-value manufacturing sectors in these areas which are highly productive.

Figure 3.7: Average annual growth rate (2009 – 2020) for output disaggregated by productivity and employment[9]

	Average annual growth rate % (2009 - 2020)		
	Employment	**Productivity**	**GDP**
Oslo	0.9%	2.2%	3.2%
Stockholm	0.5%	2.6%	3.1%
Helsinki	0.4%	2.2%	2.6%
London	0.4%	2.1%	2.5%
Edinburgh City Region	**1.0%**	**1.4%**	**2.4%**
Bristol	0.8%	1.5%	2.3%
Amsterdam	0.1%	2.1%	2.2%
Stuttgart	0.3%	1.9%	2.2%
Oresund	0.1%	2.0%	2.1%
Lyon	0.3%	1.7%	2.1%
Cambridge	0.6%	1.5%	2.0%
Frankfurt	0.0%	2.0%	2.0%
Glasgow	0.3%	1.4%	1.7%
Dublin	-0.2%	1.4%	1.3%
Source: Experian 2009			

3.2.3 Jobs density

Increasing the amount of labour inputs used in production will generally boost output and measuring the extent to which an economy's available labour is being actively engaged is a proxy for how efficiently the labour force is being used. This can be measured by an employment density rate (the number of FTE[10] jobs in the economy as a proportion of the working-age population).

3.2.3.1 Recent trends

The employment density measure[11] in the Edinburgh City Region in 2009 was 65.3% which ranked the city region 10th out of the 14 European City Region benchmarks. This is lower than the prior job density ranking of 7th in the September 2008 benchmarking report in part as Experian estimate the population continued to increase in 2009 despite a fall in employment, reversing the rising trend in jobs density to 2008. This scenario is also playing out in other cities as there is a lag between employment decline and population change.

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[9] Figures may not always sum due to rounding.
[10] Full time equivalent.
[11] Measured here by total number of full-time equivalent jobs divided by the total working age population.

Figure 3.8: Employment density measure 2008 and 2009

Source: Experian 2009
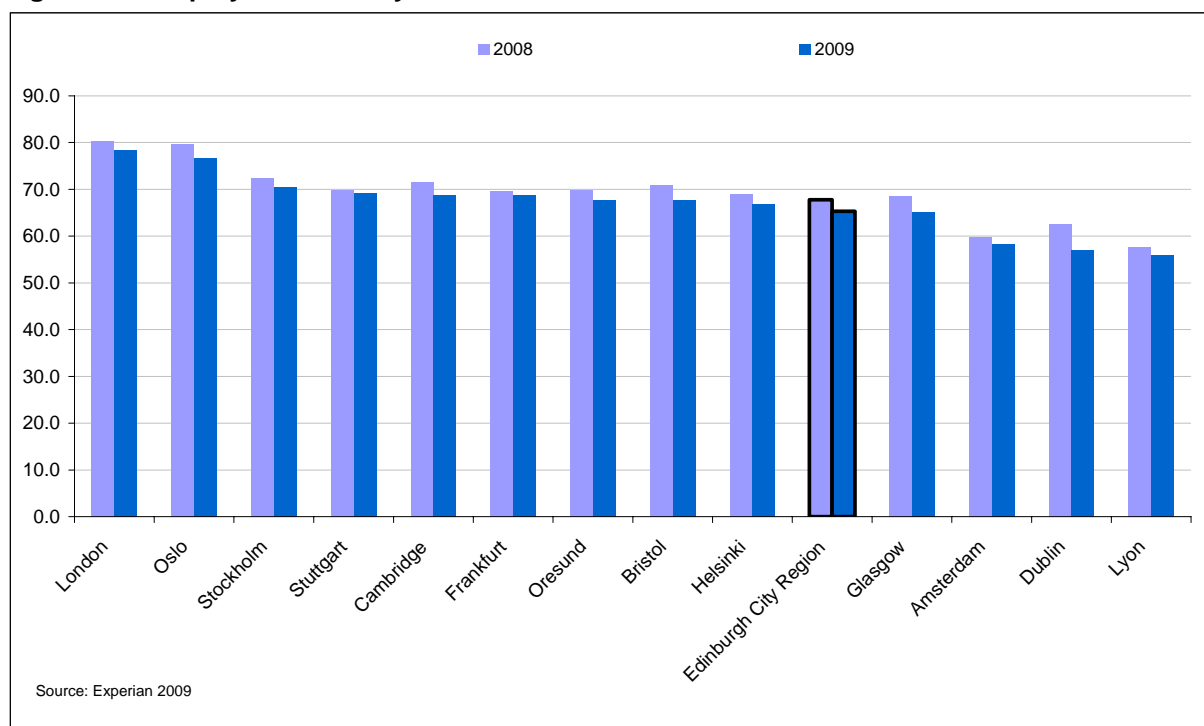
3.2.3.2 Job density forecasts

Experian's forecasts indicate that employment density will significantly increase again in coming years and is expected to reach 72.6% in 2020 which will rank Edinburgh City Region 4th out of the 14 benchmarks (compared to the 9th place expected in the 2008 report). This is due to an expected moderation in the rate of population growth relative to jobs growth. The Experian population projections are based on GROS projections but are subject to adjustments based on planned housing developments and migration due to relative economic performance at the regional and country level. In the model employment prospects in Scotland are relatively weak when compared with some other faster growing UK regions leading to some out-migration of working-age people.

**Figure 3.9: Employment density measure 2009 and 2020**

Source: Experian 2009
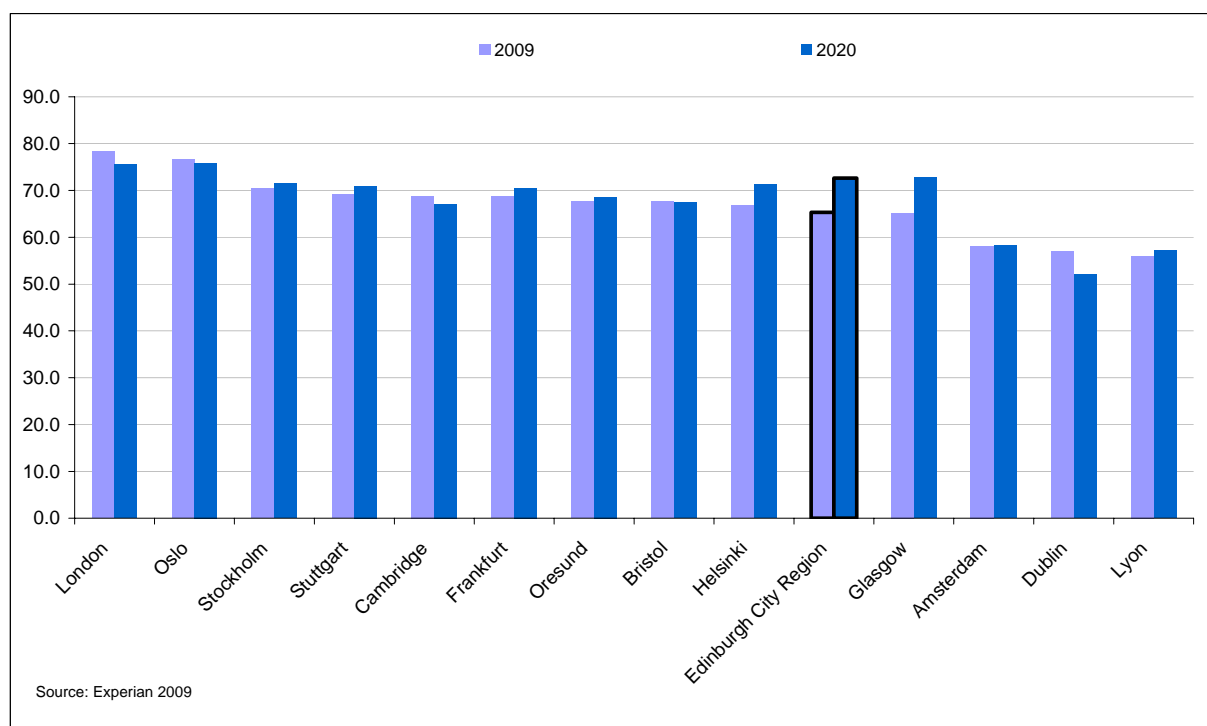
3.2.4 GDP per head

3.2.4.1 Current trends

GDP per head, is the best available proxy for prosperity levels between the city regions and shows that with an estimated GDP per head of €26,300 in 2009, Edinburgh City Region was ranked 13th out of the 14 city regions ahead of Glasgow on this measure. However, the recession has had a marked impact on wealth in the Edinburgh City Region, falling by almost 5% on the 2008 level. However this decline is about average for the comparator areas. Frankfurt had the highest GDP per head of the comparator regions at €70,600 but suffered a decline of almost 7% between 2008 and 2009. Oslo remains in second place in 2009 (€47,300) and London, third (€44,800), as both city regions' wealth declined at a rate which was well below average. The rankings have changed little since the previous benchmarking report, with Edinburgh City Region retaining 13th place out of the 14 areas.

London in particular benefits from the 'wealth generation' effects of a wide commuting catchment which may explain some of this higher prosperity. However, it is also true that financial services (even after the fall-out from the recent banking crisis) accounts for a larger share of the London economy (than in the Edinburgh City Region) and that the functions that make up the financial services sector in London, such as investment banking, are skewed towards the very highly productive end of the industry, underpinning higher overall prosperity levels. However, wealth generation is not limited to the financial services sector, alongside the relative size of commuting catchments, the incidence of other high value sectors such as professional and business services and high-tech manufacturing is also important.

Figure 3.10: GDP per head 2008 and 2009, €

Source: Experian 2009
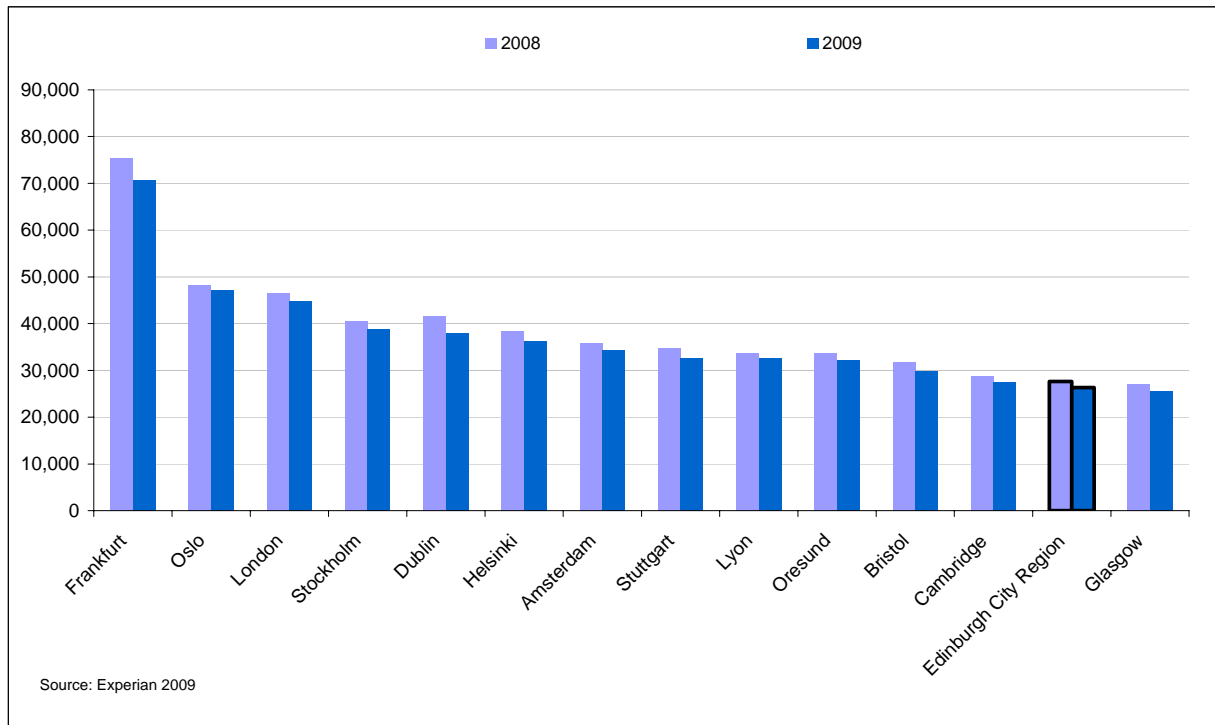
3.2.4.2 GDP per head forecasts

GDP per head in the Edinburgh City Region is forecast to increase to €32,600 by 2020. Slightly weaker GDP growth now expected in Edinburgh City Region between 2009 and 2020 when compared with the September 2008 forecast. This is expected to be accompanied by weaker population growth of 0.4%, thus marginally narrowing the gap in GDP per head between Edinburgh City Region and other areas. Edinburgh City Region will move ahead of Cambridge in the rankings, marking an improvement on this measure when compared with the previous report.

Figure 3.11: GDP per head 2009 and 2020, €


Source: Experian 2009
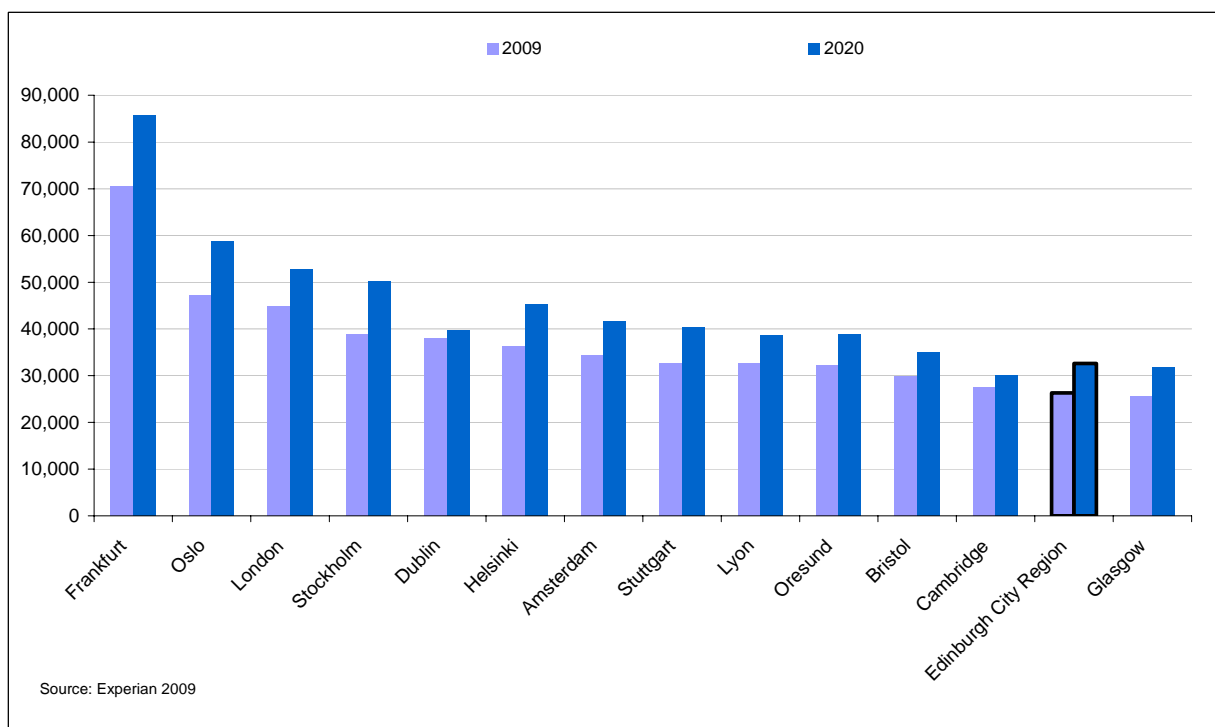
3.2.5 Population Growth

Population growth is one measure of the attractiveness or quality of life of a city region in developed economies. If population growth is high then the city can be considered successful in attracting in-migrants and retaining the residents it has. Population growth can also be created by natural change (i.e. birth rate exceeding death rate) but this is generally a much less significant contributor to population growth in developed economies than net inward migration.

3.2.5.1 Current trends

Population and migration change tends to lag behind economic shocks. Across the comparator city regions population has either continued to grow or at worst levelled off, despite the economic downturn. In the Edinburgh City Region, growth of 0.7% between 2008 and 2009 is in line with the average for the other city regions.

Figure 3.12: City region population growth, 2008 - 2009

Source: Experian 2009
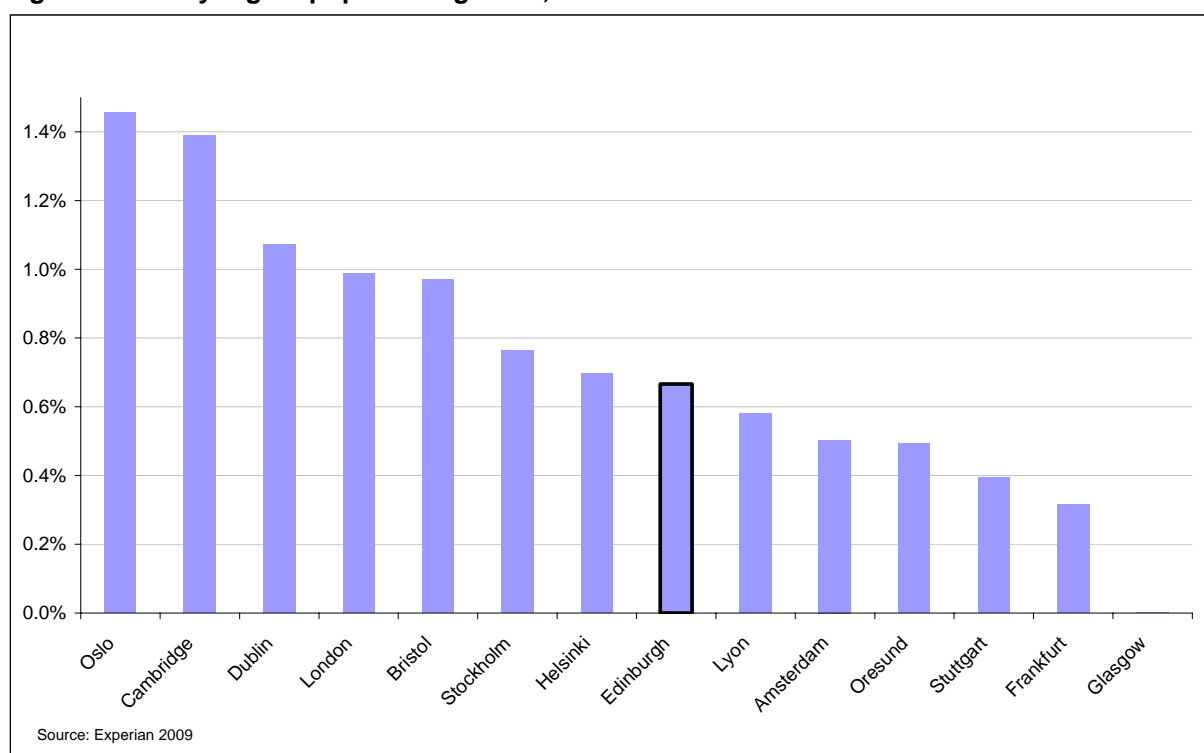
3.2.5.2 Past population growth

Over the past decade Edinburgh City Region was ranked 11th out of the 16 city regions ahead of Amsterdam, Stuttgart, Boston, Frankfurt and Glasgow on this measure. Edinburgh's population expanded at an average annual rate of 0.5% between 1998 and 2008, growing by a total of 76,000 people leaving its ranking on this basis unchanged from the 2008 report. Dublin had the fastest expanding population within the European City Region benchmarks, growing at an average annual rate of 1.7% over the same period.

Figure 3.13: Population Average Annual Growth, 1998-2008 and 2009 to 2020
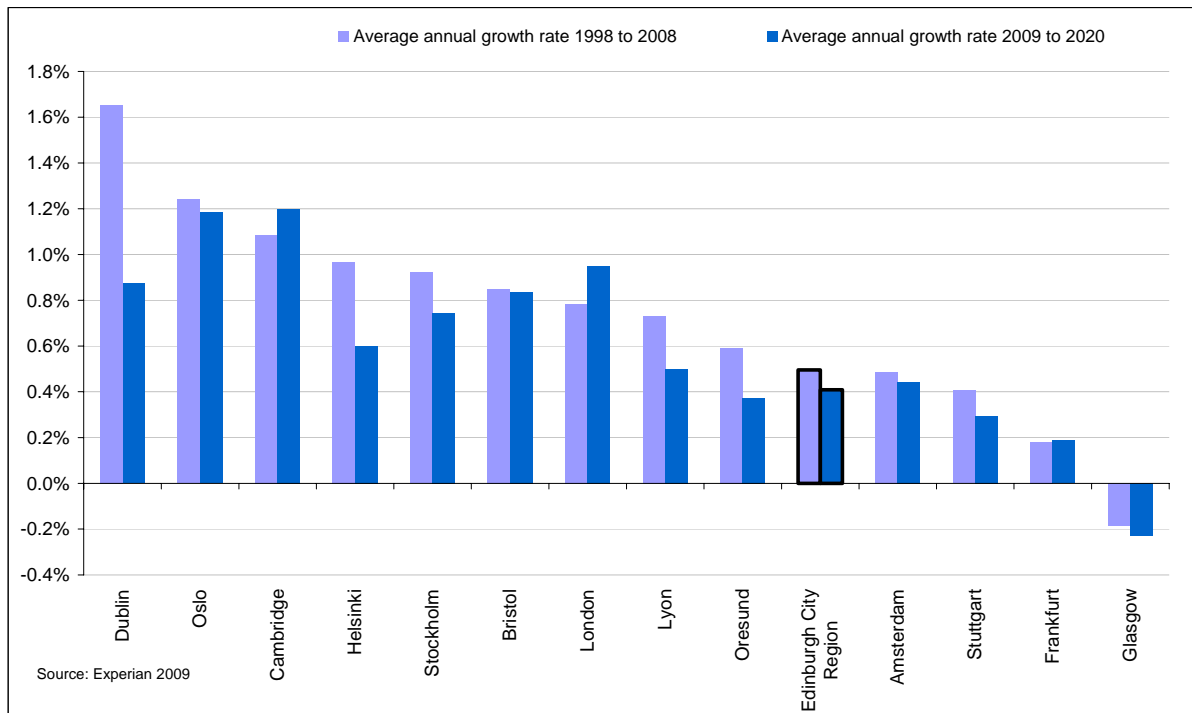
3.2.5.3 Forecast population growth

Experian forecasts that the Edinburgh City Region's population will expand at a lower average annual rate of 0.4% between 2009 and 2020 increasing by 72,700 people to 1,657,000 by 2020 and leaving the Edinburgh City Region's ranking in terms of population growth unchanged. This does represent a substantial downwards revision which is part of the trend expected in Scotland, as predicted slower economic growth (relative to other UK regions) moderates the flow of migrants to Scotland in search of work.

3.3   International Benchmarking Summary

3.3.1.1 Past performance and the current position

Edinburgh City Region's performance is summarised in figure 3.14 and figure 3.15 then converts this relative performance into a ranking. Generally Edinburgh City Region is ranked towards the lower end of the rankings of the measures of performance. This is most notable for GDP per head and productivity, partly reflecting the fact that the Edinburgh City Region geography is quite expansive (compared to Frankfurt for example), reflecting the critical mass and increasing returns to scale arguments mentioned above and partly reflecting industry mix.

Benchmarking Edinburgh City Region against some of Europe's most successful and fastest growing city regions clearly highlights the city region's strengths and weaknesses. The Edinburgh City Region's economy has grown robustly but unspectacularly relative to the leading comparator regions. Respectable economic growth has been accompanied by fairly strong population growth. However, Edinburgh City Region performs less well on measures of prosperity and productivity, falling towards the lower end of the rankings.

In comparison to the 2008 benchmarking report the Edinburgh City Region shows both signs of improvement and deterioration relative to other leading city regions. In terms of GDP per head and population growth, the relative position of the Edinburgh City Region has remained unchanged. For GDP growth and employment density the Edinburgh City Region has weakened relative to other benchmarked city regions, although the latter is expected to recover strongly in the coming decade. Labour productivity is the only indicator which the Edinburgh City Region shows signs of relative improvement moving from 13th to 12th place.

Figure 3.14: Past performance and current position across indicators (ranked by GDP growth)

	GDP per head (€, 2009)	GDP growth (1998 to 2008)	Employment density (%), 2009	Labour Productivity (€, 2009)	Population growth (1998 to 2008)
Dublin	38,000	5.4%	57.0	93,200	1.7%
Oslo	47,300	3.8%	76.6	89,800	1.2%
Helsinki	36,400	3.6%	66.8	72,300	1.0%
Stockholm	38,800	3.5%	70.4	81,700	0.9%
Cambridge	27,400	3.3%	68.9	63,100	1.1%
London	44,800	3.3%	78.3	85,400	0.8%
Vancouver [1]	-	2.9%	-	-	1.8%
Boston	-	2.8%	-	-	0.3%
Bristol	29,900	2.6%	67.6	69,700	0.8%
Amsterdam	34,300	2.5%	58.2	86,600	0.5%
Oresund	32,200	2.5%	67.7	69,100	0.6%
Lyon	32,600	2.4%	56.0	79,300	0.7%
Edinburgh City Region	**26,300**	**2.2%**	**65.3**	**63,300**	**0.5%**
Glasgow	25,600	1.9%	65.2	61,600	-0.2%
Frankfurt	70,600	1.8%	68.7	91,500	0.2%
Stuttgart	32,700	1.6%	69.1	70,100	0.4%
Source: Experian 2009					

Figure 3.15: Ranks (ordered by GDP growth)

	GDP per head (€)	GDP growth (1998 to 2008)	Employment density (%)	Labour Productivity (€)	Population growth (1998 to 2008)
Dublin	5	1	13	1	2
Oslo	2	2	2	3	3
Helsinki	6	3	9	8	5
Stockholm	4	4	3	6	6
Cambridge	12	5	5	13	4
London	3	6	1	5	8
Vancouver [1]	-	7	-	-	1
Boston	-	8	-	-	14
Bristol	11	9	8	10	7
Amsterdam	7	10	12	4	12
Oresund	10	11	7	11	10
Lyon	9	12	14	7	9
Edinburgh City Region	**13**	**13**	**10**	**12**	**11**
Glasgow	14	14	11	14	16
Frankfurt	1	15	6	2	15
Stuttgart	8	16	4	9	13
Source: Experian 2009					

3.3.1.2 Current trends and future performance

The recession has been felt unequally across the city regions. Whilst a 4% contraction of GDP in 2009 is unprecedented, Edinburgh City Region is expected to return to growth in 2010 - unlike many of the comparator city regions where we expect prolonged decline. Edinburgh City Region is forecast to recover relatively quickly, largely because of the upturn of the financial services sector and the associated business services that support this sector. This is true of many of the other large cities which are forecast to return to growth in 2010.

Looking to the longer-term out to 2020, post-recession we expect the fortunes of Edinburgh City Region to improve with strong employment and GDP growth. Much of this GDP growth is forecast to be driven by employment growth together with modest productivity gains. Productivity is expected to improve considerably but not as rapidly as some of the city regions, which is mainly a result of differing industrial profiles. Employment growth of 1% per annum in Edinburgh between 2009 and 2020 is the highest rate of any the city regions included in this analysis. Annual average GDP growth of 2.4% will place the City Region 5th out of 14 areas on this measure. Overall, Edinburgh is forecast to improve its ranking on all but one of the indicators over the next decade when compared with the past 10 years.

Figure 3.16: Forecast performance and 2020 rank across indicators (ranked by GDP growth)

	GDP per head (€, 2020)	GDP growth (2009 to 2020)	Employment density (%), 2020	Labour Productivity (€, 2020)	Population growth (2009 to 2020)
Oslo	58,800	3.2%	75.9	114,700	1.2%
Stockholm	50,100	3.1%	71.5	108,500	0.7%
Helsinki	45,400	2.6%	71.3	91,800	0.6%
London	52,900	2.5%	75.5	106,900	0.9%
Edinburgh City Region	**32,600**	**2.4%**	**72.6**	**73,800**	**0.4%**
Bristol	35,100	2.3%	67.4	82,300	0.8%
Amsterdam	41,600	2.2%	58.2	108,900	0.4%
Stuttgart	40,300	2.2%	70.9	85,800	0.3%
Oresund	38,800	2.1%	68.6	85,600	0.4%
Lyon	38,600	2.1%	57.2	95,800	0.5%
Cambridge	30,000	2.0%	67.1	73,900	1.2%
Frankfurt	85,700	2.0%	70.6	113,100	0.2%
Glasgow	31,700	1.7%	72.7	71,900	-0.2%
Dublin	39,700	1.3%	52.0	109,000	0.9%
Source: Experian 2009					

Figure 3.17: Ranks (ordered by GDP growth)

	GDP per head (€, 2020)	GDP growth (2009 to 2020)	Employment density (%), 2020	Labour Productivity (€, 2020)	Population growth (2009 to 2020)
Oslo	2	1	1	1	2
Stockholm	4	2	5	5	6
Helsinki	5	3	6	8	7
London	3	4	2	6	3
Edinburgh City Region	**12**	**5**	**4**	**13**	**10**
Bristol	11	6	10	11	5
Amsterdam	6	7	12	4	9
Stuttgart	7	8	7	9	12
Oresund	9	9	9	10	11
Lyon	10	10	13	7	8
Cambridge	14	11	11	12	1
Frankfurt	1	12	8	2	13
Glasgow	13	13	3	14	14
Dublin	8	14	14	3	4
Source: Experian 2009					

4 Edinburgh City Region – sub-regional analysis

4.1 Indicators

This section reviews the sub-regional performance of Edinburgh City Region across a key range of indicators. Edinburgh City Region is made up of the following local authority areas:

- Clackmannanshire;

- East Lothian;

- City of Edinburgh Council;

- Falkirk;

- Fife;

- Midlothian;

- Scottish Borders;

- Stirling; and

- West Lothian.

Figure 4.1: Percentage share of Population, GDP and employment in Edinburgh City Region - 2009

Figure 4.1 shows the percentage shares of the total Edinburgh City Region population, employment and GDP in 2009. The City of Edinburgh accounts for 30% of the city region's population, 40% of the employment and 45% of GDP.

This data gives some idea of the functionality of the city region. City of Edinburgh and the Lothians is a key employment centre. Its employment and GDP shares are higher than its population share as it draws in labour from other parts of the city region including Fife, Falkirk, Stirling and the Scottish Borders. The size of the City of Edinburgh economy means it may also benefit from increasing returns to scale, knowledge transfer and competition. As a result of these agglomeration economies, productivity levels (GDP per worker) and prosperity levels (GDP per head) are higher in Edinburgh than elsewhere in the city region. Thus the 'wealth creation' of residents of the wider city region is not reflected in a simple per head of population estimate. However, it is not only commuting having an effect here as productivity in Edinburgh is also higher than the national average reflecting the relative mix of industries in the city, and in particular the concentration of high value-added jobs in financial and business services.

Between 1998 and 2008, GDP growth in West Lothian and Stirling has been particularly high averaging over 3% each year (figure 4.2). The economies of Falkirk, East Lothian and Clackmannanshire have all grown at less than 1% each year on average. Significant restructuring of these economies away from a dependence on manufacturing has impacted levels of growth. However, forecasts for 2009 to 2020 suggest a significant improvement in growth levels for Falkirk, East Lothian and Clackmannanshire. Edinburgh continues to lead but with a smaller overall margin than in the 2008 forecast as the city recovers from the impacts of the recession and in particular the financial services downturn.

Figure 4.2: GDP Average Annual Growth - 1998 to 2008 and forecasts between 2009 and 2020
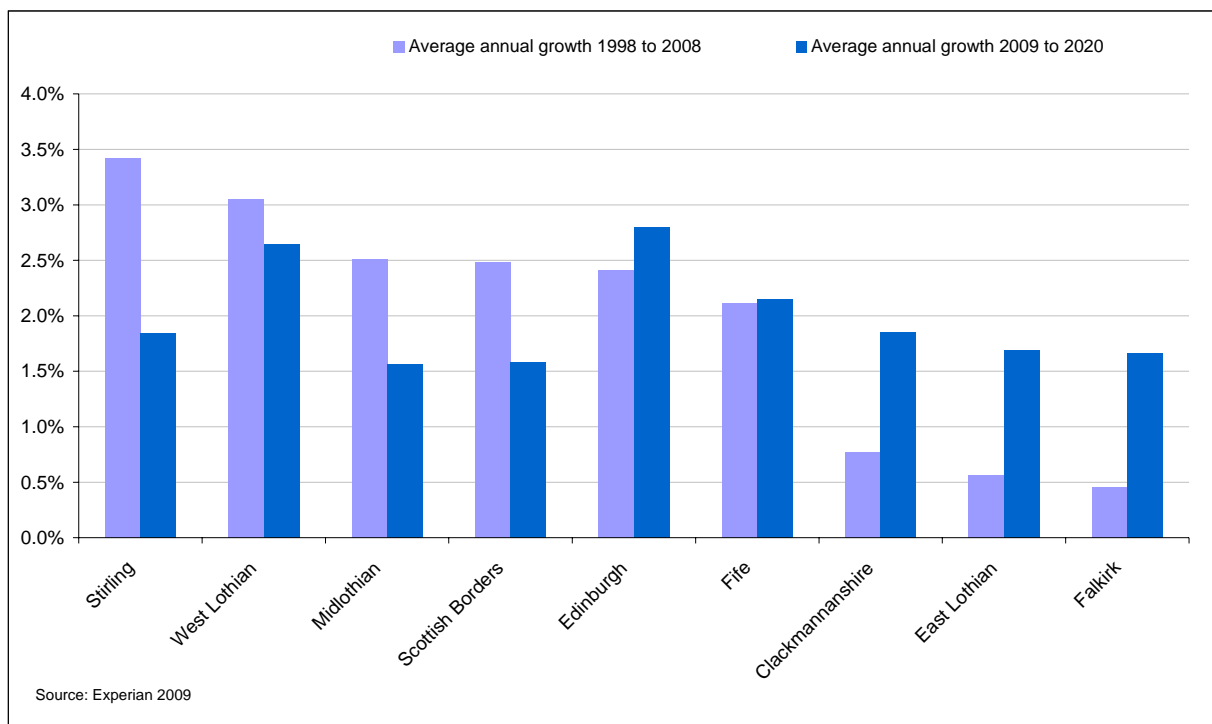

Source: Experian 2009

Figure 4.3 shows the levels of labour productivity for each of the local authority areas. City of Edinburgh, East Lothian and West Lothian had the highest levels of productivity in 2008 and are expected to have the highest levels of productivity in 2009. Future productivity growth is expected to be most rapid in Edinburgh, with 1.5% average annual growth expected between 2009 and 2020 compared with around 1.2% in most other Local Authority areas (although these increases are on balance weaker than those predicted in the 2008 benchmark report due to weaker expectations for GDP growth).

Figure 4.3: Labour Productivity (GDP/FTE), 2009 and 2020 (€)
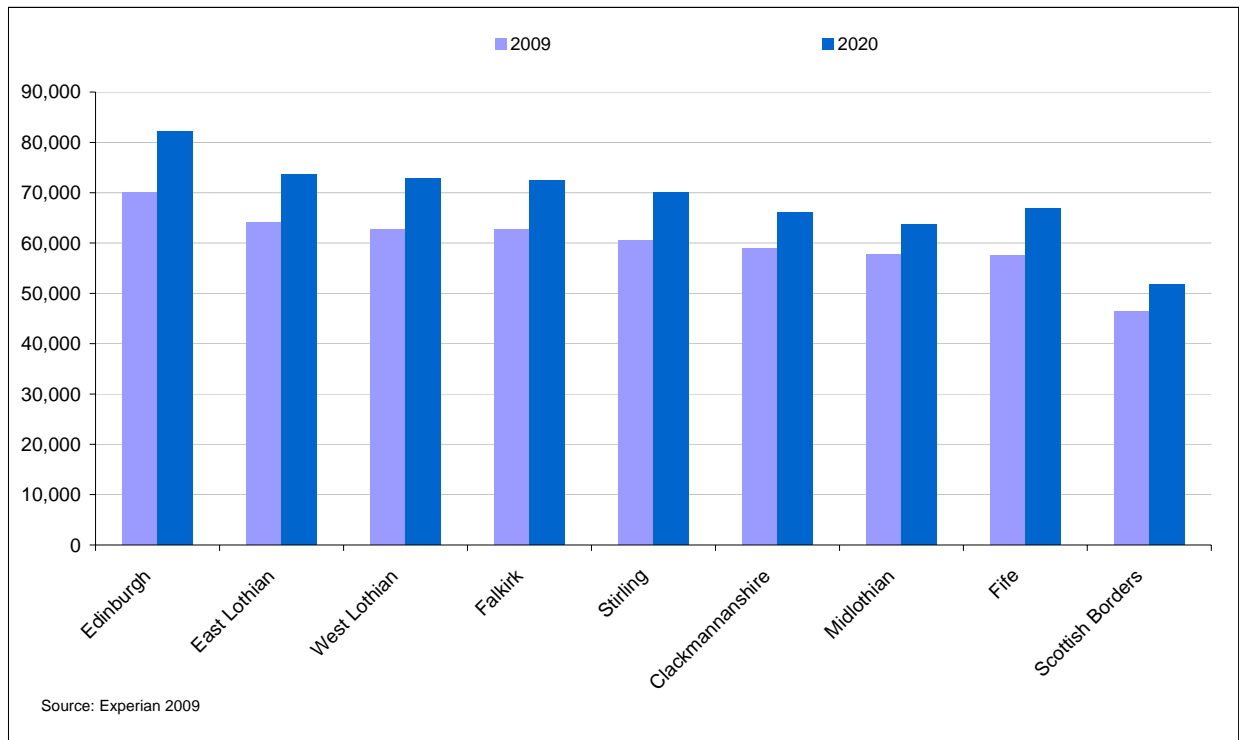

Source: Experian 2009

Figure 4.4 shows the levels of prosperity across the city region measured by GDP per head. City of Edinburgh has by far the highest GDP per head. Generally speaking a high GDP per head figure indicates that an economy generates a lot of economic output relative to its resident population. Cities have higher GDP per head than non-city areas for two reasons. Firstly, higher value added economic activity - such as financial services in the case of Edinburgh City Region - tends to be concentrated in cities. Secondly cities draw in larger workforces from beyond the city boundaries, enabling higher economic output than would be possible from the city's resident population. The benefits of agglomeration as discussed in Section 4.1 such as greater economies of scale, collaboration and knowledge transfer also contribute to the city's higher average GDP per head.

The lowest GDP per head estimates in the city region are in Clackmannanshire and the Scottish Borders. Between 2009 and 2020 the fastest growth in GDP per head is expected to be in Edinburgh, Stirling and West Lothian.

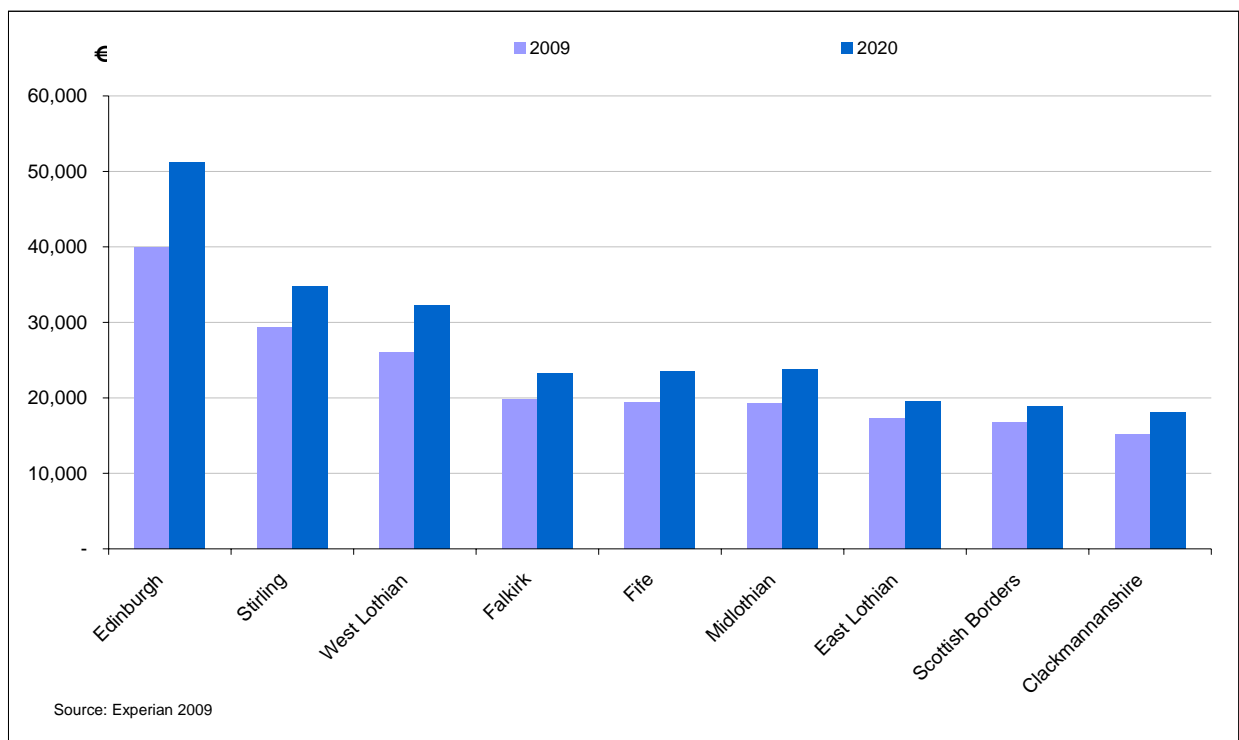**Figure 4.4: GDP per head, 2009 and 2020**

Source: Experian 2009

Figure 4.5 shows the level of population growth between 1998 and 2008 and forecast growth between 2009 and 2020. Population growth is an important indicator, reflecting relative economic growth differences, housing availability and perceptions of quality of life. Between 1998 and 2008 growth was fairly pronounced across most areas of the city region and in particular West Lothian (driven by housing and employment expansion) and in East Lothian and the Scottish Borders (driven by perceptions of quality of life as well as the growth of the wider city region economy). Population growth was muted in Clackmannanshire and Midlothian, with both areas held back by a lack of expansion in housing supply. Looking ahead to 2020 these patterns are expected to continue with the most rapid growth expected in Edinburgh, West and East Lothian, the Scottish Borders and Fife, although expected rates of growth are slower than in the 2008 benchmark report and in Midlothian a further decline in population is expected.

Figure 4.5: Population Growth, Average annual growth rates 1998-2008 and 2009-2020

Source: Experian 2009
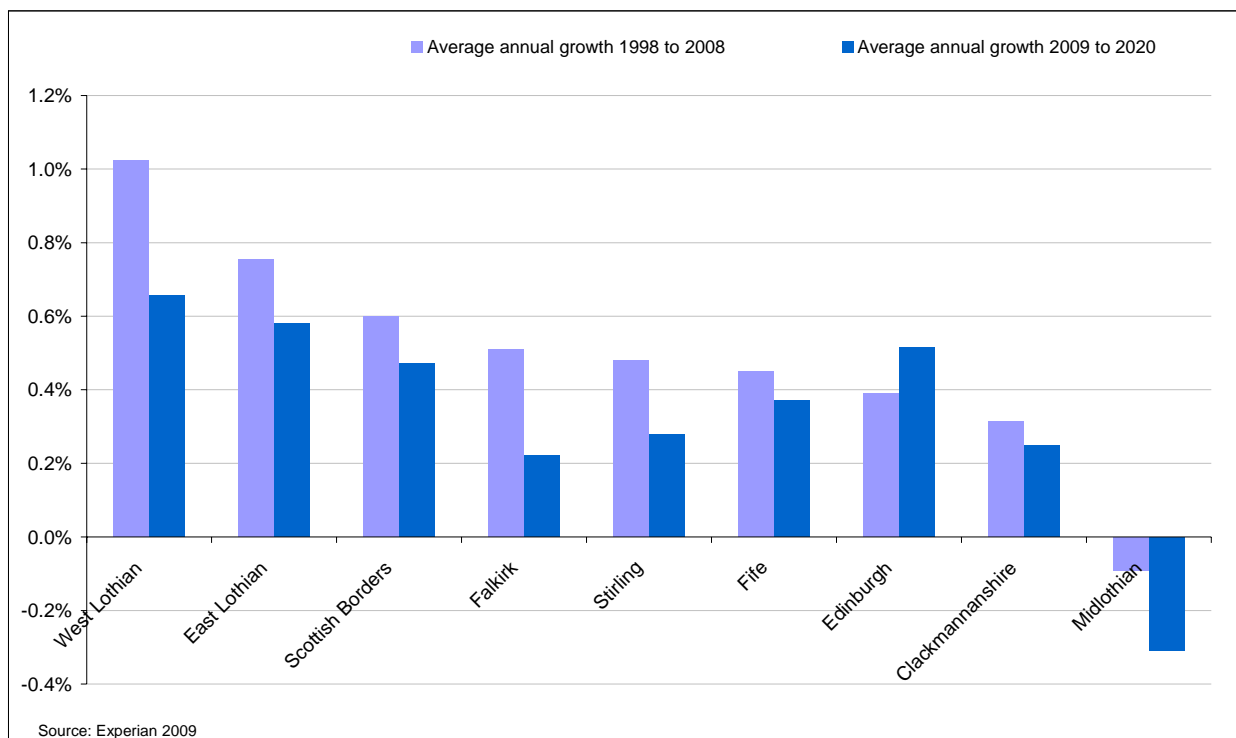
However a large of proportion of population growth in rural areas is due to migration of people of pensionable age. Figure 4.6 shows the age dependency ratios (calculated as the proportion of population of pensionable age relative to the working-age population). In 2009, Fife has an age dependency ratio of 0.4, rising to over 0.5 by 2020. The age dependency ratio is expected to rise across all areas, but the change is less marked in City of Edinburgh where population change is driven by the migration of working-age people. The growth of the working age population through migration is an important factor determining the supply of labour and facilitates stronger economic growth.

Figure 4.6: Old age dependency ratios, 2009 and 2020
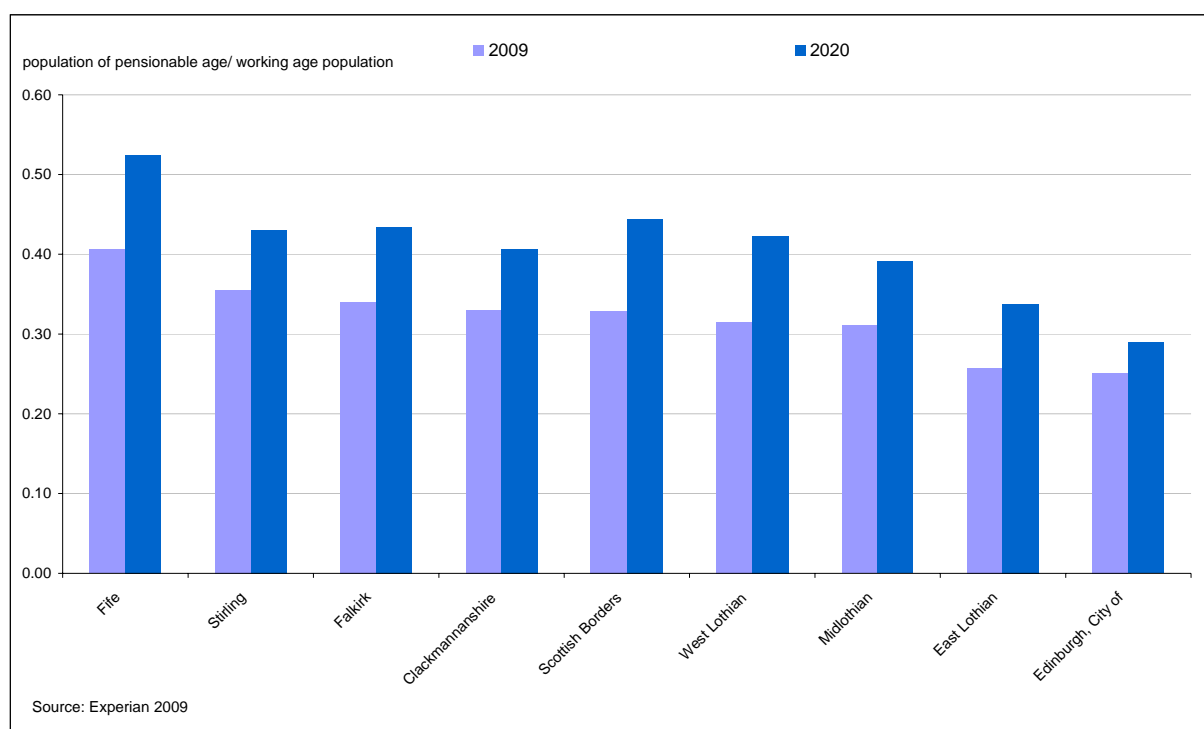
4.2   Sub-Regional Analysis Summary

In Edinburgh City Region, as with city regions generally, the city is unique. City of Edinburgh contains concentrations of key industries not found elsewhere and generally contains the density of employment and economic activity that defines 'the city' in economic terms. However, the surrounding Lothians, Scottish Borders, Fife and Forth Valley region is also important in making important contributions to the diversification of the region's economy, providing labour for the city region economy and providing business and housing accommodation.

City of Edinburgh continues to be a major driver of growth in the city region. However, as the city recovers from recession the rate at which it is expected to drive growth is expected to be slower than previously predicted. West Lothian and Midlothian remain important employment centres and Stirling has performed well. East Lothian and the Scottish Borders perform strongly in terms of population growth despite weak employment growth, reflecting the quality of life in these areas.

Clackmannanshire, Fife and Falkirk to some extent lag behind the rest of Edinburgh City Region in terms of economic performance. However, this under performance is relative to one of the UK's most successful economic city regions so should be viewed in this context. Moreover Fife and Falkirk in particular assist the economic diversification of the region.