

Council of Economic Advisers

Annual Report
2015-16

October 2016

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Chair's Foreword



I am pleased to present this report from the Council of Economic Advisers on the areas we have considered over the past year. This is the Council's first report to the First Minister since its remit and membership were refreshed in 2015.

The Council's role is to be an independent advisory group to the First Minister. We act as a sounding board for ideas, as a 'critical friend' to the Scottish Government, and put forward suggestions we think may make a difference in areas the First Minister has invited us to consider and advise upon.

Following the Government's *Programme for Government for 2014-15*, the Council's remit was refreshed. Previously, we were tasked with advising the then First Minister on the recovery and jobs, economic levers, and internationalisation. As the economy has evolved, so too has the Scottish Government's economic agenda. Our remit is now a wider one: we've been asked to advise on actions to improve the competitiveness of the Scottish economy, and also on actions to tackle inequality – the twin pillars at the heart of *Scotland's Economic Strategy*.

Within this, we have been taking forward a challenging but exciting work programme: advising the Scottish Government on the steps that can be taken to develop and promote inclusive growth, foster a culture of innovation and research, and better measure Scotland's broader economic performance.

Each of these are important facets of the Economic Strategy. They are areas where Scotland faces well-known challenges, but where Scotland also has important strengths, and perhaps the opportunity to be a world-leader.

Take Inclusive Growth, for example. The international evidence is clear – growing inequality is bad for social cohesion and long-term economic growth. Scotland is not alone in facing the inter-related challenges of trying to improve economic performance, broaden economic opportunity, and spread the benefits of growth more equally. However, Scotland is at the forefront of countries building inclusive growth into their economic strategies, with the OECD identifying Scotland as an incubator for an inclusive growth approach.

As a Council, we have been helping the Scottish Government to understand what more can be done to drive inclusive growth. We have drawn on Scottish evidence and international experience to help identify the specific aspects of inclusive growth that are most important for Scotland. We have considered how policy development can be more aligned to achieve inclusive growth ambitions. The Council is

encouraged by the Scottish Government's willingness to explore and develop new ideas in this field, which is a central priority for improving Scotland's economic performance. In this vein, the Council has discussed how policies such as the Business Pledge could be developed and expanded in the future to boost its impact, based on both our academic and business expertise.

On innovation, we have brought an international perspective to bear on Scotland's innovation challenges. We know that Scotland is already an innovative country with a number of enviable strengths, such as world class universities, and a number of highly innovative firms across a range of sectors. However, we also know that Scotland's business innovation performance lags behind international competitors across a range of metrics, from expenditure on research and development, to the proportions of businesses that are active innovators. The Council, along with other groups like the Scotland CAN DO Innovation Forum, has considered the challenges in this area, and where the potential avenues for reform may be.

In each of these areas, the Council has brought a wide range of academic and business expertise to bear, backed by a strong Scottish and international perspective. On this basis, we present our assessment and recommendations for the Scottish Government on the key areas of Inclusive Growth, Innovation and measurement of success.

In this report, we give an overview of the evidence we've considered, and the advice we've provided, in each of the workstreams we've taken forward. We also set out some broad recommendations for the Scottish Government in each of these areas.

In this new parliamentary session, the Scottish Parliament will be taking on a number of new powers and responsibilities. The Scottish Government will also face new challenges following the result of the EU referendum, which could have significant implications for Scotland's economic fortunes in the near future and over the longer term. While it is not the main focus of this report, which reflects our work over the past year, the result has implications that cut across a number of areas of economic policy, including those which the Council has been considering. A major focus of the Council over its future programme of work will therefore be to advise the First Minister and Scottish Government on how Scotland can respond to the economic challenges of Brexit in the months and years to come.

I trust that readers will find this report of interest, and that it provides a helpful insight into the work of the Council.



Crawford W Beveridge CBE
Chair, Council of Economic Advisers
October 2016

1. Introduction

The Role of the Council

The role of the Council of Economic Advisers (CEA) is to be an independent advisory group to the First Minister. In this regard, we act as a critical friend: challenging the policies of the Scottish Government and putting forward suggestions, which members of the Council believe could make a difference.

The Council of Economic Advisers was first established in 2007 to advise Ministers on how to best position Scotland amongst the world's most competitive economies. It was reconvened in 2011, when the Council were tasked with advising the then First Minister on the recovery and jobs, economic levers, and internationalisation.

Following the Scottish Government's *Programme for Government for 2014-15*, the Council's membership and remit were refreshed. The refreshed Council now focuses on advising the First Minister on actions to improve the competitiveness of the Scottish economy, and on actions to tackle inequality. These are the central pillars of [Scotland's Economic Strategy \(SES\)](#).

Membership of the Council

The membership of the Council draws upon a range of knowledge and expertise. The Council consists of leading figures from the private sector and academia, all of whom receive no remuneration for their work or membership of the Council. An overview of our membership is provided in **Annex A**.

The Council's Engagements

The Council aims to have two full meetings a year, where we are joined by the First Minister and the Deputy First Minister. Full meetings were held in March and October 2015, and in February 2016. In our meetings, we have considered and discussed emerging trends in the Scottish economy, and developments in each of the three workstreams we have taken forward in support of *Scotland's Economic Strategy*. These are:

- Inclusive Growth;
- Innovation; and,
- Measures of Scotland's broader economic performance.

Our discussions are recorded in the minutes of our meetings, which are available on the Scottish Government website at:

<http://www.scotland.gov.uk/Topics/Economy/Council-Economic-Advisers/Meetings>.¹

¹ The Scottish Government also publishes details of the expenses associated with Council meetings. These expenses mainly relate to travel and accommodation costs for members. Council members are appointed on a voluntary (personal) basis and do not receive any direct remuneration. More information can be found at: <http://www.scotland.gov.uk/Topics/Economy/Council-Economic-Advisers/disclosures>.

The Council also takes forward a considerable amount of engagement and work in between these meetings. Council members have had regular engagement with the Scottish Government over the past year, in particular through the Office of the Chief Economic Adviser. Council members held conference calls with Scottish Government officials in May, August and December 2015, and in March 2016.

In his capacity as Chair of the Council, Crawford Beveridge also attended the Scotland CAN DO Innovation Forum on 7th October 2015, and met with Naomi Eisenstadt, the First Minister's Independent Adviser on Poverty and Inequality, on 4th February 2016.

Crawford Beveridge, Professor Sara Carter, Jim McColl and Professor Anton Muscatelli also gave evidence to the Scottish Parliament's Economy, Energy and Tourism Committee on the work of the Council on 8th October 2015.

Council members are also advising the Scottish Government through several other forums. Professor Anton Muscatelli is the Chair of the Standing Council on Europe, which is tasked with advising the Scottish Government on securing Scotland's Relationship with the EU. Professor Frances Ruane and Amanda Macmillan are also members of the Standing Council. Crawford Beveridge and Professor Ruane are also members of the Cabinet Secretary for the Economy, Jobs and Fair Work's Ministerial Review Group for the Enterprise and Skills Review.

Structure of the Council's Report

This report brings together the advice that the Council has provided, and sets out in greater detail the areas the Council has focused upon over the last year:

- **Chapter 2** gives an overview of the main economic trends in the Scottish Economy in 2015-16, which formed the backdrop to the Council's discussions;
- **Chapter 3** summarises the evidence around Scotland's performance around inclusive growth, and discusses the strategic frameworks the Council has advised on. It also considers policy aspects of this agenda such as the Business Pledge;
- **Chapter 4** gives an overview of Scotland's recent innovation performance, and the complexity of the innovation landscape in Scotland;
- **Chapter 5** sets out the Council's deliberations around measures of economic progress, particularly related to the ambitions articulated in Scotland's Economic Strategy; and,
- **Chapter 6** summarises the Council's findings and recommendations across the areas within its remit.

2. Overview of Economic Developments in 2015-16²

In each of our meetings we discuss emerging economic trends with the First Minister, supported by an overview of the current state of the Scottish economy provided by the Scottish Government's Chief Economist. This section gives an overview of economic developments in 2015 and 2016, which informed the Council's discussions with the First Minister, and formed the backdrop to the wider work of the Council in the last year.

Recent Economic Developments

The Scottish economy grew by 2.1% in 2015, in line with the historic trend, with growth driven by the Construction and Service sectors. However, the pace of growth slowed across the year, with Production output, particularly in manufacturing, contracting over the period.

In the labour market, the Scottish employment levels reached record highs in 2015. However, moving into 2016 the Scottish unemployment rate picked up slightly, showing a divergence in trends from the UK as a whole, where the unemployment rate had continued to decline.

Throughout 2015 and into 2016, both Scotland and the UK have faced a challenging external backdrop, with muted global conditions impacting exporters and large manufacturing plants. These pressures have been exacerbated in Scotland by the fall in the oil price, which has led to a substantial reduction in activity in the offshore sector and wider on-shore supply chain.

However, the economic climate and outlook for Scotland, the UK and Europe as a whole has fundamentally changed following the UK's vote to leave the EU on 23rd June 2016. The initial response and volatility of the financial markets reflects the heightened uncertainty of investors and fears of a broader economic slowdown. As such, the challenging economic environment will likely persist going forward as new risks and opportunities for the Scottish economy materialise.

² Data correct as of 5th August 2016.

3. Inclusive Growth³

Inclusive growth is one of the four priorities for sustainable economic growth highlighted in *Scotland's Economic Strategy*. It is an area to which the Council has paid particular attention over the past year, as it is a central part of the Scottish Government's economic agenda, and an important link between improving the competitiveness of Scotland's economy and reducing inequalities.

The objectives of reducing inequalities and supporting growth are not new ones. However, there has been a growing recognition in recent years that persistent inequalities can have a deleterious effect on a country's wider economic performance. There has also been a recognition that actions that support the fundamental drivers of economic growth, and that help to reduce inequalities, can be mutually supportive. Developing approaches and ideas for economic and social policies that explicitly support more inclusive growth is a new challenge, not only for the Scottish Government, but for advanced economies more generally.

As inclusive growth is a relatively new policy concept within advanced countries, the Council's role has been to advise the Scottish Government on the development of this new approach to policymaking. The Council has concentrated on placing Scotland's experience in an international context; identifying areas where Scotland performs relatively well, and where it faces more significant challenges; advising on high-level policy actions that support both increasing long term sustainable growth and reducing inequalities; and helping the Scottish Government to develop the tools it needs to make its policies more supportive of growth and more inclusive.

Inclusive Growth – An International Perspective

Inclusive growth is increasingly being recognised as a common challenge internationally, owing to increases in income inequalities across countries, and the emerging picture around the negative effects that increasing inequalities can have on economic performance⁴.

The international evidence suggests that there are a number of global factors driving these trends, such as skill-biased technological change, but that countries' policy choices have also played an important role in reinforcing those trends, particularly through those policies that have an impact on labour and product markets, the financial sector, and tax and welfare systems⁵.

³ All data used in this chapter is correct as of 5th August 2016.

⁴ Useful summaries of the recent literature on this topic can be found in OECD (2015), *In It Together: Why Less Inequality Benefits All*; Dabla-Norris et al (2015), *Causes and Consequences of Income Inequality: A Global Perspective*, IMF Staff Discussion Note, SDN/15/13; and, Corak, M. (2013), "Income Inequality, Equality of Opportunity, and Intergenerational Mobility." *Journal of Economic Perspectives*, 27(3): 79-102. Examples of the recent literature around the wider impacts of inequalities include: Joseph Rowntree Foundation (2011) 'Does income inequality cause health and social problems?' and, Nowatzki NR (2012), "Wealth Inequality and Health". *International Journal of Health Services* 42(3) 403-24.

⁵ Discussions of various factors influencing trends in inequalities can be found in Dabla-Norris et al (2015), *Causes and Consequences of Income Inequality: A Global Perspective*, IMF Staff Discussion Note, SDN/15/13; OECD (2015), *All on Board: Making Inclusive Growth Happen*; Atkinson (2015), *Inequality: What Can Be Done?*; Mueller et al (2015), "Wage Inequality and Firm Growth", LIS

Consequently, a number of international organisations, such as the European Commission, the OECD, the IMF, the World Bank and the World Economic Forum, have focused on Inclusive Growth as a policy objective in recent years. These organisations' views of inclusive growth tend to centre on a vision of inclusive growth as being growth that increases a country's overall prosperity, but with a particular emphasis on who directly benefits from growth⁶. This represents a shift from a previous approach, focusing largely on tackling inequality through redistribution of the proceeds of growth, towards one where inclusive objectives are more central to the policy making process and better integrated with the processes that deliver economic success.

The international organisations have begun to develop evidence around policies that can support growth and inclusion. IMF researchers have suggested that, taking into account their impacts on reducing inequality, redistribution policies seem generally benign in terms of impacts on growth⁷. The OECD⁸ have identified a number of 'win-win' policies that can impact positively on both economic growth and income inequality over the longer term. These include:

- Removing barriers faced by women who wish to participate in the labour force, including barriers resulting from the tax and welfare systems, whilst recognising the wider social impacts on women and families of greater participation;
- Strengthening and improving the effectiveness of Active Labour Market Policies, including those that assist with job search and re-skilling;
- Improving provision and quality of early, primary and secondary education; and,
- Improving outcomes and broadening access to higher education and training.

The OECD also identifies evidence on policy areas and actions where there may be potential for trade-offs between increasing growth and reducing income inequality to occur. These can include changes to welfare benefits related to unemployment, product market reforms that increase competition, and policies around increasing innovation or R&D intensity. While policies in these areas will not automatically result in trade-offs occurring, they highlight the importance of careful policy design to encourage positive effects on both growth and inclusion.

This shift means that inclusive growth policies are focused on the transformation of the economy towards sustainable and productive employment over the longer term,

Working Paper 632 (March 2015); Song et al (2015), "Firming Up Inequality", NBER Working Paper No. 21199, June 2015; Stiglitz et al (2015), *Rewriting the Rules of the American Economy*.

⁶ European Commission: http://ec.europa.eu/europe2020/europe-2020-in-a-nutshell/priorities/inclusive-growth/index_en.htm; OECD (2015), *All on Board: Making Inclusive Growth Happen*, p80-82; United Nations: International Policy Centre for Inclusive Growth (2013), *After All, What is Inclusive Growth?*; World Economic Forum: Samans et al (2015), *The Inclusive Growth and Development Report 2015*, World Economic Forum.

⁷ Ostry et al (2014), *Redistribution, Inequality, and Growth*, IMF Staff Discussion Note, SDN/14/02

⁸ OECD (2012), *Economic Policy Reforms: Going for Growth 2012*: Chapter 5, "Reducing income inequality while boosting economic growth: can it be done?"; OECD (2015), *Going for Growth: Breaking the Vicious Cycle*: Chapter 2, "The effect of pro-growth structural reforms on income inequality".

rather than on short-term income redistribution alone. This is influenced by a recognition that there are a number of causes behind 'exclusion', which may require different policy responses. For instance, addressing the consequences of economic change, particularly disengagement from the labour market, in individual parts of Scotland may require different policies than those for reducing economy-wide barriers to economic participation. It is also underpinned by the recognition that the private sector needs to grow, invest, and innovate in order for good quality jobs, tax-base and opportunities required for inclusivity to be created.

Principles for an Inclusive Growth Policy Approach

From the international literature, and the Council's discussions, there are a number of common principles that should underpin an inclusive growth policy approach in Scotland. These include:

- **Recognising that economic growth and inclusion are mutually interdependent**, rather than being separate concerns;
- **Recognising that inclusive growth has both economic and social dimensions**, and that improving social outcomes, such as educational attainment and health, are an important part of an inclusive growth approach;
- **Understanding the positive links and trade-offs between different policies' effects on inclusion and growth**, and their impact on the different groups across the income distribution and population as a whole;
- **Recognising the importance of place and geography to inclusive growth outcomes**, and the importance of regional and community groups in delivering these. In its discussions, the Council has highlighted the importance of recognising the potential implications of different geographical approaches towards improving inclusive growth.
- **The need for policies to take a long-term approach to inclusive growth.** In many respects, improving Scotland's performance around inclusive growth will involve broadening the economic opportunities available to people across Scotland, and many of the policy levers that the Scottish Government and its partners possess to influence these are long term in nature;
- **The importance of focusing on inequalities in economic opportunities**, rather than focusing solely on inequalities in outcomes and redistribution;
- **Recognising that the emphasis on different facets of inclusive growth should vary across countries, depending on their circumstances:** inclusive growth policies need to be country-specific.⁹
- **The scope for using existing policy tools and levers to support growth and reduce inequality.** This is particularly important given the levers that the Scottish Government possesses in areas strongly associated with inclusive growth, such as early years, education, skills and training, and health.

⁹ This has important implications for development of inclusive growth policies. While consulting international evidence, and learning lessons from other countries' experience, should be a central part of developing new policies, it does not necessarily follow that individual policies that work in other countries will be directly transferable to a Scottish context. Understanding how policy approaches from other countries could operate in a Scottish context is central to their successful adoption.

Inclusive Growth – A Scottish Perspective

Scotland has a reasonable record with regard to inclusive growth in recent years. Scottish GDP is 5.5 per cent higher than its pre-recession peak (2008 Q2) in real terms, and GDP per capita has recovered to 2.0 per cent above its pre-recession level. Productivity (in terms of output per hour worked) has grown by 4.4 per cent since 2007, compared to zero growth in the UK over the same period¹⁰. However, Scotland lags behind a number of international competitors with regard to productivity levels. Scotland would rank 19th of 34 OECD countries in terms of output per hour worked¹¹, just above Iceland and Japan and just below Spain and the UK overall.

Scotland's labour market has improved significantly since the recession, but has shown some signs of weakening in early 2016. The employment rate came close to its pre-recession peak early in 2015, but Scotland has since had lower employment rates and higher unemployment rates than the UK, with similar inactivity rates.

Scotland's gender gaps in employment and inactivity rates have fallen substantially in recent decades, from 14.9 and 19.3 per cent in March-May 1993 to 5.6 and 7.5 per cent in March-May 2016,¹² and Scotland has the second lowest female unemployment rate, fourth highest female employment rate, and eighth lowest female inactivity rate amongst EU 28 countries¹³. Scotland's youth employment rate and level has decreased slightly in recent months, however the youth employment rate is higher than the UK rate.

There have also been improvements in wider dimensions of inclusivity. There have been increases in proportions of school leavers entering 'positive destinations' – that is, entering employment, training or further learning – both overall and from school leavers from the most deprived quintile¹⁴. Life expectancy has continued to increase for both men and women since 1998, while relative poverty before housing costs has fallen over the last decade, with the percentage of individuals living in relative poverty before housing costs lower in 2014/15 (15%) than in 2003/04 (18%)¹⁵. However, after housing costs, poverty has not fallen to the same extent (from 20% in 2003/04 to 18% in 2014/15). This is particularly true for families with children. Housing costs have risen faster than income, combined with changes to housing benefit eligibility, meaning little improvement in living standards for low income families¹⁶.

Scotland is also mid-ranking in terms of income inequality among advanced economies, and would rank 19th of 34 OECD countries in terms of the Palma ratio¹⁷.

¹⁰ <http://www.gov.scot/Topics/Statistics/Browse/Economy/PROD2014>

¹¹ <http://www.gov.scot/About/Performance/scotPerforms/purposetargets/productivity>

¹² Labour Force Survey, March-May 2016, ONS

¹³ Estimates for UK and Scotland from Labour Force Survey, Jan-Mar 2016 and covers those aged 15-64 for employment and inactivity and 15-74 for unemployment. Estimates for the remaining EU countries are from Eurostat, Jan-Mar 2016.

¹⁴ Scottish Government (2016), 'Summary statistics for attainment, leaver destinations and healthy living, No. 6: 2016 Edition', supplementary tables.

¹⁵ Scottish Government (2016), *Poverty and Income Inequality in Scotland: 2014/15*

¹⁶ Scottish Government (2015), 'Poverty Briefing – Sept 2015.'

¹⁷ <http://www.gov.scot/About/Performance/scotPerforms/purposetargets/solidarity>

This places Scotland below the Republic of Ireland, but above France, Canada, Australia, New Zealand and the UK. There also remain significant inequalities across different social and economic indicators within Scotland. These occur both among different groups within Scotland (in areas such as labour market), different parts of the income distribution (for example, in early years), and in terms of geography (which may in part stem from long term changes in patterns of economic activity within Scotland). In a number of areas, such as educational attainment and health outcomes, there are differences in outcomes between income groups, which are spatially-based. Examples of inequalities across these indicators are set out in Table 1.

Table 1: Selected Dimensions of Inequalities in Scotland

<p><u>Labour Market</u></p> <ul style="list-style-type: none"> • There is a persistent gender employment gap in Scotland, with recent employment rates are 76.8% for men and 71.3% for women¹⁸. • Employment rates for those with disabilities (42.0%) and from ethnic minority groups (59.2%) are significantly lower than the Scottish average¹⁹. • The gender pay gap for full-time workers in Scotland is currently 7.3 per cent²⁰. • 19.5 per cent of full-time employees were classed as low paid in 2011²¹, almost 3 percentage points higher than the OECD average. • There are considerable differences in labour market performance across different areas of Scotland. 	<p><u>Early Years</u></p> <ul style="list-style-type: none"> • At entry to primary school, children from the lowest income quintile are twice as likely to have developmental problems than those from the wealthiest income group.²² • On average, children from more advantaged households have better vocabulary and problem solving ability at ages 3 and 5 than children from less advantaged households. • By age 5, the gap in vocabulary between children from low-income and high-income households is 13 months²³.
<p><u>Education</u>²⁴</p> <ul style="list-style-type: none"> • Around four in ten of school leavers from the 20% most deprived SIMD areas gained 1 or more Higher equivalent qualifications or better, compared with around eight in ten of leavers from the least deprived SIMD quintile. • In March 2016, 86.3% of school leavers from the most deprived SIMD quintile were in learning, training or work 9 months after leaving school, compared with 96.3% from the least deprived SIMD quintile. • School leavers from schools in the 10% least deprived SIMD areas are three times more likely to be in Higher Education 9 months after leaving school than those from schools in the 10% most deprived SIMD areas. 	<p><u>Health</u></p> <ul style="list-style-type: none"> • There is a long-standing gap between different areas of Scotland for both life expectancy and healthy life expectancy: men and women in the 10% most deprived areas live in good health for over 20 years less than those in the 10% least deprived areas²⁵. • Significant differences in premature mortality, and in mental health between the most and least deprived areas.

¹⁸ Labour Force Survey, ONS, March-May 2016

¹⁹ Annual Population Survey, ONS, January-December 2015

²⁰ Annual Survey of Hours and Earnings, ONS, 2015

²¹ Annual Survey of Hours and Earnings; OECD Employment and Labour Market Statistics. The OECD define low pay as below two thirds of the median wage.

²² Bradshaw, P. and Tipping, S (2010) *Growing Up In Scotland: Children's social, emotional and behavioural characteristics at entry to primary school*.

²³ Bradshaw, P. (2011) *Growing Up in Scotland: Changes in Child Cognitive Ability in the pre-school years*.

²⁴ Scottish Government (2016), 'Summary statistics for attainment, leaver destinations and healthy living, No. 6: 2016 Edition', supplementary tables.

²⁵ Scottish Government (2015), Long-term Monitoring of Health Inequalities

There are considerable differences in labour market performance across different areas of Scotland. In 2015, while Scotland's overall employment rate was 73.1 per cent, employment rates among Scotland's Local Authority areas varied from 87.3 per cent and 86.8 per cent in Shetland and the Orkney Islands, to 77.1 per cent and 72.2 per cent in Aberdeen City and City of Edinburgh, and 66.6 per cent and 63.3 per cent in Glasgow City and Dundee City respectively²⁶. Significant differences in labour market performance across Scotland are long-standing: between 2004 and 2015, the gap in employment rates between the best and worst performing local authority areas has ranged between 14 percentage points and over 19 percentage points. Glasgow has consistently had one of the 3 worst employment rates in each of these years, with its employment rate not rising above 67 per cent.

There are also persistent geographical concentrations of deprivation within Scotland. For example, in the Scottish Index of Multiple Deprivation (SIMD) 2012, 29.6 per cent of the data-zones²⁷ in the 15 per cent most deprived data-zones in Scotland were found in Glasgow City²⁸. Disparities were evident across a range of outcomes, with the most deprived areas exhibiting substantially lower employment rates, higher economic inactivity rates, lower educational attainment, and worse general health than both the Scottish average and the least deprived areas in Scotland²⁹.

Developing Scotland's Approach to Inclusive Growth

The Scottish Government's vision of Inclusive Growth is of, "growth that combines increases prosperity with greater equity; that creates opportunities for all and distributes the dividends of increased prosperity fairly"³⁰. *Scotland's Economic Strategy* sets out the following broad dimensions of inclusive growth:

- Improving the quality of employment opportunities within the labour market and the quality of work within firms;
- Reducing barriers to labour market opportunities, particularly for disadvantaged and equality groups;
- Reducing cross-generational inequalities, through reducing inequalities in early years and educational outcomes; and,
- More equal growth across Scotland (cities, towns and regions).

The Scottish Government has also been looking to improve its approach to policymaking to support more inclusive growth. Building on the principles set out earlier in this chapter, the Scottish Government has been developing tools for improving government planning and policy across the different dimensions of inclusive growth. These tools are in development, and the Council has yet to fully review their outputs.

²⁶ <http://www.gov.scot/About/Performance/scotPerforms/purposetargets/cohesion>

²⁷ Data-zones are a geographical unit used to measure performance in small areas. There are 6,505 data-zones in Scotland.

²⁸ <http://simd.scotland.gov.uk/publication-2012/>

²⁹ <http://simd.scotland.gov.uk/publication-2012/simd-2012-results/outcomes-of-people-living-in-the-most-deprived-areas/>

³⁰ Scottish Government (2015), *Creating a Fairer Scotland: What Matters to You?*

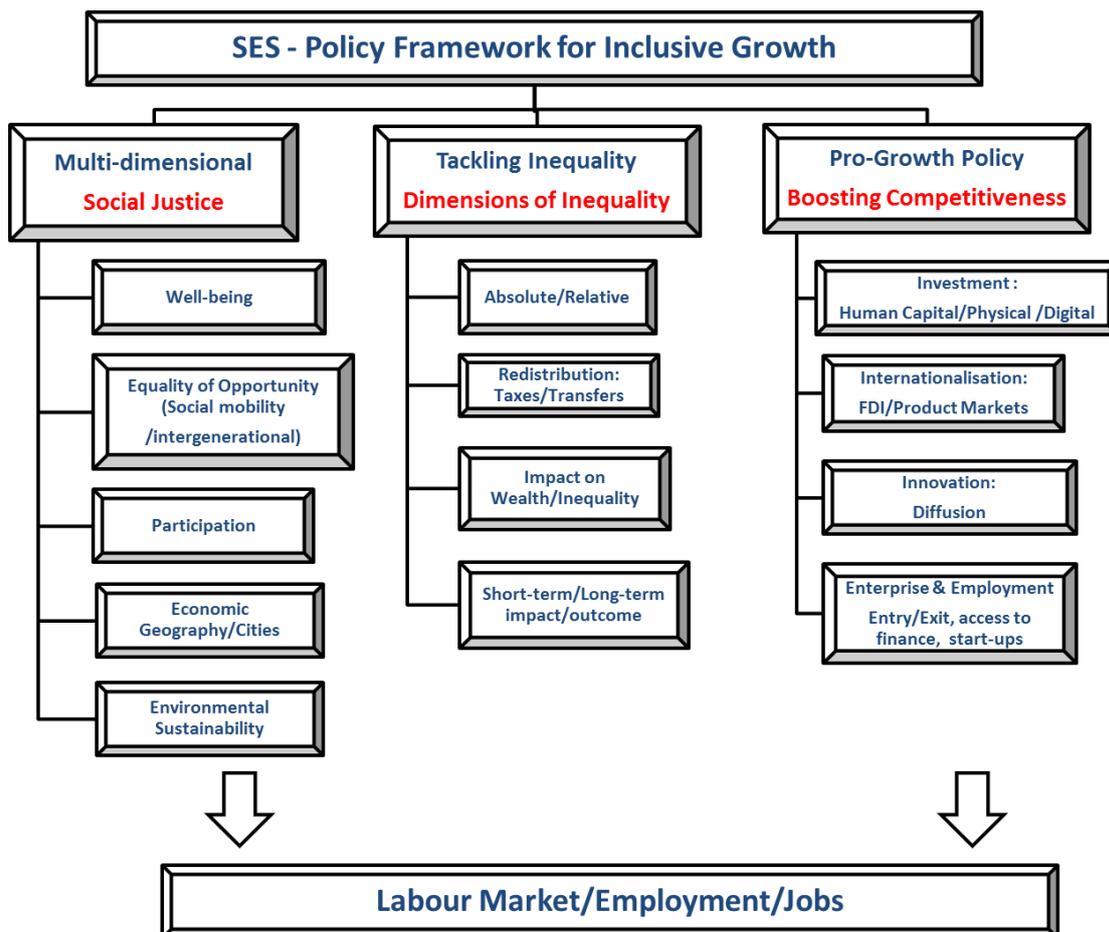
The Inclusive Growth **policy framework**, set out in Figure 1 below, has been designed to take more explicit account of wider economic and social objectives, including such things as well-being, and a greater acknowledgement of the redistributive effects and impacts on households. The framework can help to identify trade-offs and synergies between growth and inclusion in a systematic manner.

The framework assesses impact across three main dimensions:

- i. Multidimensional policies aimed at tackling inclusion such as well-being and equality of opportunities;
- ii. Growth policies aimed at boosting competitiveness such as investment and innovation; and
- iii. The impact of policies, including redistributive impact on wealth or absolute/ relative poverty.

Following Council advice, the policy framework highlights the importance of geography and place in tackling inequalities; interactions of various Scottish Government policies with the labour market; and the need to assess impact differentiating between long-term and short-term impacts.

Figure 1: Scottish Government Inclusive Growth Policy Framework



The framework has been tested in several policy areas. Policy makers have indicated that the tool is useful for improving understanding of the potential impacts of policies. For example, in Housing Policy, synergies identified included the potential to support regional employment and output growth, reducing regional disparities. Trade-offs included disincentives to create new supply and the risk of deadweight loss if new buyers simply force others out of the market.

In addition to this, the Scottish Government is beginning to develop an **Inclusive Growth Diagnostic** for Scotland. Based on a methodology conceived by three Harvard Economists³¹, diagnostics are increasingly used in developing countries to identify the main constraints to growth and prioritise spending actions to unlock them.

The diagnostic's main purpose is to identify constraints and opportunities for driving inclusive growth in Scotland in order to prioritise actions to address them. The value of the diagnostic lies both in its systematic and evidence-informed approach to identifying and prioritising areas of concern and also its comprehensive breadth of coverage – tackling both economic and social drivers. The methodological approach is based mainly on the benchmarking of potential drivers with comparator countries (countries with similar characteristics to Scotland) to identify what the key gaps are.

To ensure that regional issues are taken into account, the Scottish Government is also undertaking analysis of inclusive growth drivers in North Ayrshire. This analysis is taking a person-centred approach to understanding inclusive growth in order to understand how drivers are impacting on real people and to bring the outcomes of the diagnostic to life.

The Council is encouraged by the development of these tools, and believes that if successful, these should be rolled out further. Exercises of this kind would be of value as the Scottish Government develops its inclusive growth approach and priorities, and the Council will look to continue to advise the Scottish Government on its application to Scotland as they develops further. This sort of 'whole systems' approach is important to ensure that policy actions are developed in a holistic, prioritised and complementary way. Ultimately, creating a more inclusive kind of growth in Scotland will depend on the success of actions at the local level.

³¹ For an overview, see Hausmann, R, Rodrik, D, and Velasco, A, (2006) *Getting the Diagnosis Right* <http://www.imf.org/external/pubs/ft/fandd/2006/03/hausmann.htm>

The Scottish Business Pledge

During the course of its deliberations, the Council has been interested in issues relating to corporate governance and behaviour, as these are important influences on facets of inclusive growth such as workplace productivity and opportunity. With this in mind, the Council has paid particular attention to the development of the Scottish Government's Business Pledge initiative, which is potentially an important tool for encouraging private sector engagement in issues around inclusive growth. Overall, whilst the Council feels that the Pledge has potential, uptake to date has been relatively small in scale. In particular, the Scottish Government could do more to incentivise greater participation in this important initiative.

Background on the Business Pledge

The Scottish Business Pledge was launched in 2015. It is an agreement between the Scottish Government and signatory businesses, which aims to boost productivity, competitiveness, employment, fair work, and workforce engagement and development. By signing up to the Business Pledge, companies are committing to a set of shared values, and to delivering them through their actions and future plans.

There are nine components to the Business Pledge. Overall, these are aimed at improving business performance and supporting fair work. Those components aimed at **supporting workforce engagement and fair work opportunities** include:

- Paying the living wage;
- Not using exploitative zero hours contracts;
- Supporting progressive workforce engagement; and,
- Making progress on diversity and gender balance.

Those aimed at **supporting wider social engagement** include:

- Investing in Youth; and,
- Playing an active role in the community.

Those aimed more directly at **improving business performance and competitiveness** include:

- Committing to an innovation programme;
- Committing to prompt payment; and
- Pursuing international business opportunities.

In order to sign up to the Business Pledge, signatory businesses must meet the core commitment of paying the Living Wage, fulfil at least two other components of the Pledge at time of signing, and be committed to delivering all nine elements over the longer term.

Signatories also have flexibility in terms of how and by when they meet different components of the Business Pledge. Some components, such as the living wage, have a clear standard to meet. For other components, such as gender and diversity or investing in youth, there are more flexible parameters. This reflects the Business Pledge's overall approach – stressing business ownership and interpretation to

reflect conditions in different sectors and industries, whilst holding up an aspirational standard.

Early Evidence on Uptake of the Business Pledge

Over 200 businesses have signed up to the Business Pledge. Analysis of early adopters³² revealed the following characteristics of those who had signed up to the Business Pledge:

- **The majority (69%) of signatory businesses were small.** However, as small firms make up 96 per cent of firms within the Scottish economy, proportionately more medium and large firms had signed up to the Pledge than these firms' share of the Scottish business base.³³
- **Nearly half (44%) of all signatory businesses operated in two broad sectors:** 'information and communication' (21%) and 'professional, scientific and technical activities' (23%). In the overall economy, these sectors make up 5% and 19% of firms respectively. This may be linked to the fact that higher quality working conditions already exist in these sectors (e.g. better pay), making it easier to make the pledge.
- **The majority of early signatories were fulfilling the majority of components of the Business Pledge.** While around 11 per cent of signatories had fulfilled all nine components, around 76 per cent of signatories fulfilled at least six of the nine components. This implies that there may be more uptake from those businesses which already meet the conditions of the Pledge.
- **There was variation in the components of the pledge that early signatories had fulfilled.** All signatories fulfilled the components on paying the living wage and not using exploitative zero hours contracts. Over 70 per cent fulfilled the components around pursuing international opportunities, playing an active role in the community, investing in youth and committing to an innovation programme, while only around 37 per cent fulfilled the component on making progress on diversity and gender balance.

Avenues for Increasing Uptake

The Business Pledge is in its early stages of adoption, and its progress has been of interest to international bodies that are taking forward work on inclusive growth, such as the IMF and OECD.

In its discussions, the Council has emphasised the need for the Scottish Government to more proactively encourage greater uptake among businesses. The Council's considerations have therefore focused on understanding possible drivers of change and avenues for influencing greater uptake.

³² The following analysis is based on data for 247 signatory firms, and is correct as of May 2016. Data on business size and sector is based on 228 of these 247 businesses, which were able to be matched to the March 2015 extract from the Inter-Departmental Business Register (IDBR).

³³ Medium firms account for 14% of pledge signatories and large firms 17%; these firms respectively account for 2% and 1% of the Scottish business base overall.

The Council's discussions suggested a number of possible avenues to consider to facilitate greater uptake, including:

- **The importance of business to business interaction** in raising awareness of the Business Pledge, and encouraging greater uptake. Engaging with business representative organisations such as Chambers of Commerce is a potentially important route in this regard.
- **The need for the Business Pledge to have a wide degree of ownership.** This is particularly important if the ambition for the Business Pledge is for it to help influence how business is done in Scotland.
- **The importance of the Business Pledge being voluntary and business led.** While conditionality might seem to offer a route to signatory businesses meeting more Pledge components, it would risk the Pledge being seen as something 'done to' businesses, rather than being a shared view of good business practice and encouraging behaviour change. It was also emphasised that more could be done to identify and encourage business community leaders to drive forward voluntary uptake.
- **The importance of there being flexibility in how businesses can fulfil the components of the Business Pledge.** As the conditions facing individual firms and sectors will differ, having an approach that is flexible and sensitive to business conditions could be more supportive of changing business behaviour.

Ultimately, businesses are likely to change their behaviour, and sign up to initiatives like the Business Pledge, if there is clear evidence around the benefits that adopting such an approach would create. The Council's considerations have therefore emphasised the need to develop the evidence base around the impacts that the Business Pledge, and similar initiatives, can have on business performance.

The Council is encouraged by the Scottish Government's willingness to explore and implement ideas like the Scottish Business Pledge. The Council believes that these have the potential to encourage Scotland's businesses to adopt a range of positive behaviours that benefit both their workforces, and their competitiveness. However, to encourage greater uptake within Scotland's business community, the Council also believes that the Scottish Government should encourage businesses themselves to take the lead in building momentum behind the Business Pledge – making it part of a business-led agenda.

4. Innovation³⁴

An economy's innovation performance has an important bearing on its dynamism, growth, and overall economic performance³⁵. Innovation helps support growth through its contribution to improving the economy's capital stock; via business investment in knowledge-based capital, such as R&D, design, and firm-specific skills; from supporting increased total factor productivity; and, through innovative and more productive firms challenging less-productive rivals. Innovation-led growth can also support more inclusive growth, particularly if it broadens economic opportunities and rests on improved workplace practices.

Innovation itself is a broad concept. It includes research and development activities, but also encompasses the introduction of new products and processes, improvements in marketing, and changes in organisation within firms. These changes might be new to businesses or organisations themselves, with them absorbing new ideas, technology or ways of doing things from others. Innovations can also be new to the markets those organisations operate in, or to the world more generally.

The nature of innovation, and the diffusion and absorption of new innovations across an economy, are complex³⁶. The success of a company or organisation's innovations are inherently uncertain, and associated with risk and the chance of failure. Innovation is cumulative, with previous products, learning and approaches contributing to future innovation. It is also a collective endeavour, involving those developing, financing, introducing, and working with new ideas, products, and ways of doing things. These each have implications for the role of governments and the public sector in this area.

Scotland's innovation heritage is well-known, with Scottish inventors and institutions having been responsible for significant advances in science, engineering and technology throughout recent centuries. It also has a number of strengths, including world-leading academic institutions, innovative companies across a range of sectors, and a skilled workforce. However, Scotland also faces a number of challenges, ranging from the long-standing under-investment in innovation among its business base, to the implications of the EU referendum result for Scotland's academic and business sectors.

Innovation is one of the '4I's' in Scotland's Economic Strategy, and improving Scotland's innovation performance is a challenge that has implications across the public and private sectors in Scotland. The Council is one of several groups advising the Scottish Government on innovation policy, with others including the Scotland CAN DO Innovation Forum. The Council's workstream on innovation has aimed to complement the advice being provided by these other advisory groups, providing an international perspective on Scotland's broader innovation performance and challenges, and to offer insights around how these could inform and shape the Scottish Government's innovation policy.

³⁴ All data in this chapter is correct as of 5th August 2016.

³⁵ OECD (2015), *OECD Innovation Strategy 2015: An Agenda for Policy Action*.

³⁶ Mazzucato, M. and Penna, C (2016), *The Brazilian Innovation System*

Scotland's performance in an international context

Among advanced economies, Scotland is mid-ranking in terms of its innovation performance, with the European Commission classifying Scotland as a 'Strong Innovator'. Scotland's overall performance is stronger than a number of European regions and countries; however, Scotland lags behind a number of the most innovative regions of both the UK and Europe³⁷. Scotland's performance differs across enablers of innovation performance, firm activities, and innovation outputs, with notable areas of relative strength and weakness.

In terms of factors the European Commission identifies as enablers of innovation, Scotland is among the leading EU regions in terms of the share of the population educated to degree level, and in terms of public sector R&D intensity (expenditure on R&D as a share of GDP). Scotland would rank 2nd among EU countries in terms of university graduates as a share of the adult population, while Scotland's expenditure on higher education R&D would be the fifth-highest in the OECD³⁸.

However, Scotland's performance around firm innovation activities is more mixed³⁹. Scotland's firms appear to under-invest in research, as private sector R&D intensity (business expenditure on R&D (BERD) as a share of GDP) is low by international standards, and is substantially below both the UK rate, and the EU and OECD averages⁴⁰. Scotland's firms invest around the EU average on non-R&D innovation. Scotland's rates of patent applications are also lower than the EU average, while Scotland also has a notably lower share of SMEs innovating in-house than the EU average. However, Scotland's innovative SMEs are amongst the most likely to collaborate with others in their innovation activities within the EU⁴¹.

Scotland's investment performance is partly explained by industrial structure – a relatively low proportion of Scotland's private sector jobs are concentrated in R&D intensive sectors – but also by expenditure within those sectors. For instance, R&D expenditure per job within Scotland is lower than high performing countries within R&D intensive sectors. Expenditure is overly reliant on a small number of firms: in 2014 the top 5 firms accounted for almost a third of R&D spending, and the largest companies (400 employees and over) accounted for over 60 per cent of total BERD expenditure⁴².

When it comes to Innovation Outputs, Scotland lags behind the leading regions of the EU, both in terms of introducing innovations, and wider economic effects⁴³. While Scotland's share of SMEs introducing marketing or organisational innovations

³⁷ European Commission (2016), *Regional Innovation Scoreboard 2016*.

³⁸ Scottish Government (2016), Gross Expenditure on Research and Development (GERD) 2014. <http://www.gov.scot/Resource/0049/00498541.pdf>

³⁹ European Commission (2016), *Regional Innovation Scoreboard 2016*.

⁴⁰ Scottish Government (2015), Business Expenditure on Research and Development (BERD) 2014. <http://www.gov.scot/Resource/0049/00491296.pdf>

⁴¹ European Commission (2016), *Regional Innovation Scoreboard 2016*.

⁴² Scottish Government (2015), Business Expenditure on Research and Development (BERD) 2014. <http://www.gov.scot/Resource/0049/00491296.pdf>

⁴³ European Commission (2016), *Regional Innovation Scoreboard 2016*.

is close to the EU average, the share of SMEs introducing product or process innovations is substantially lower than the EU average.

These findings are supported by analysis of the Community Innovation Survey, which shows that Scotland has a lower share of ‘innovation active’ businesses than both the UK and the EU average. It also reveals that, while Scotland’s larger businesses are more likely to be innovative than smaller or medium-sized businesses, Scotland particularly lags behind other European countries in terms of the innovation rates of medium-sized businesses and large-sized businesses, as Table 2 illustrates.

Table 2: Share of Innovation Active by Business Size, 2010-12

	Small	Medium	Large	All
Scotland	46.3%	48.2%	58.8%	47.1%
UK	49.0%	56.8%	56.6%	50.6%
Germany	63.3%	74.3%	92.2%	66.9%
Denmark	47.5%	57.5%	79.7%	51.1%
Austria	48.7%	70.9%	84.0%	54.4%
Sweden	52.8%	65.6%	81.9%	55.9%
Finland	48.1%	65.0%	77.7%	52.6%
EU (28)	45.2%	60.5%	76.4%	48.9%

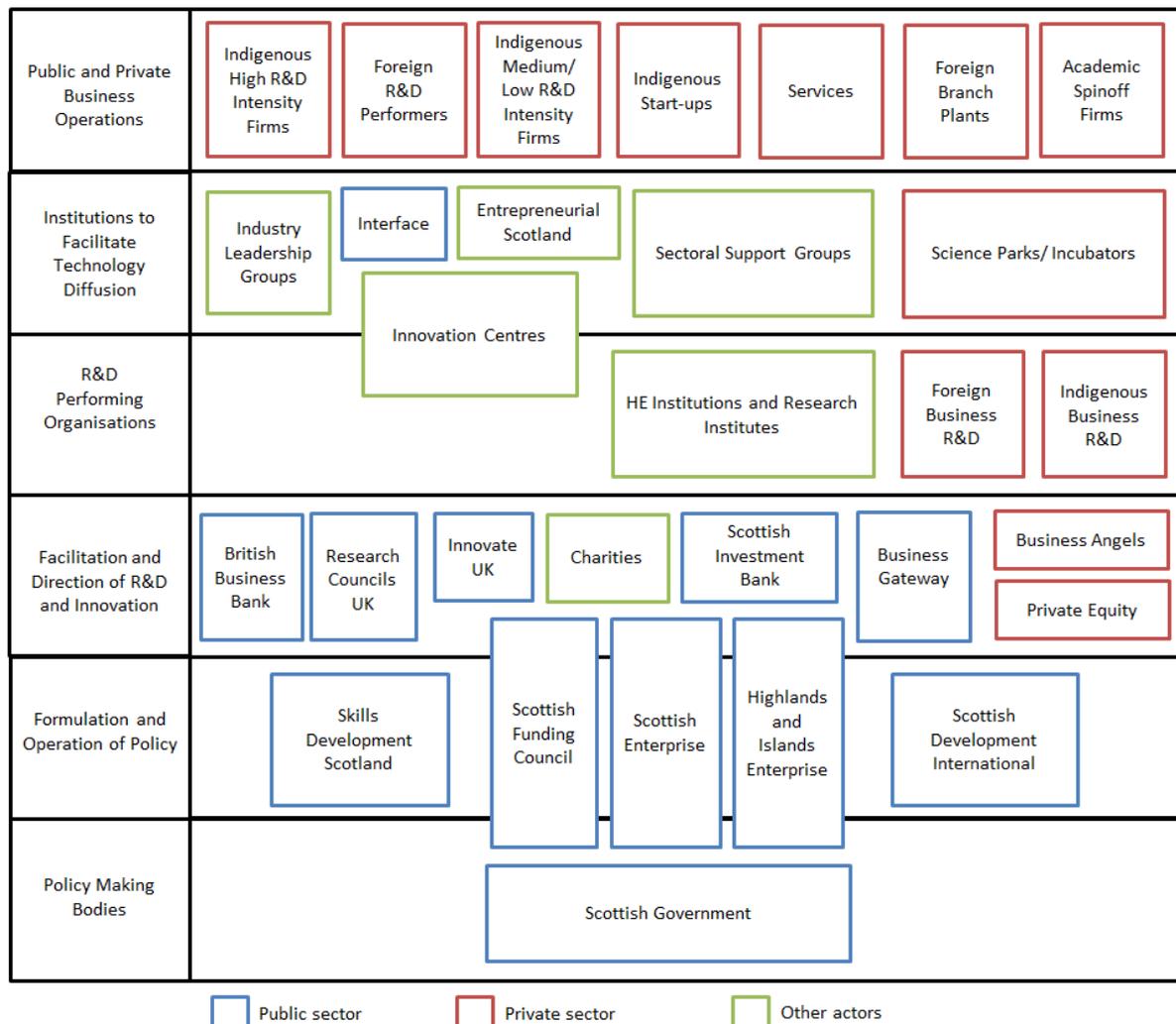
Source: Eurostat and Scottish Government analysis of the UK Community Innovation Survey

Scotland’s Innovation Landscape

There are a substantial number of organisations involved in providing funding and support to innovation in Scotland. These include a variety of private sector, public sector and other actors, such as Higher Education institutions and Innovation Centres. Organisations such as Scottish Enterprise, Highlands and Islands Enterprise, and the Scottish Funding Council, have roles that cut across several aspects of Scotland’s innovation system. Scotland also sits within the broader UK innovation system, and a wider system of European funding and support.

Figure 2 provides a high level illustration of the different actors involved in the system, and their roles.

Figure 2: Participants in the Scottish Innovation System



There are Scottish, UK and European dimensions to support for innovation and research. Support for innovation can also take a variety of forms, from direct grant support, through to equity investment, support for knowledge exchange activities, and advice and support for business development.

Financial support for innovation and research in Scotland is provided from Scottish, UK and European sources. EU and UK funds are usually run on a competitive basis and depend on Scottish Higher Education Institutes and businesses bidding and winning. While funding is not guaranteed, Scotland has traditionally performed well, especially in terms of academic participation in EU programmes (such as Horizon 2020) and funds from Research Council UK. For instance, as of November 2015, Scotland had secured funding of over €158 million from Horizon 2020, over 11 per cent of the funding awarded to the UK. Within this, Higher Education Institutions and research institutes had secured €132 million, while Scottish businesses had secured around €22.5 million.

Funding from Scottish sources (such as the Scottish Funding Council, Scottish Enterprise, or Highlands and Islands Enterprise) is generally disbursed through variety of specific schemes or competitions that require businesses or Higher

Education Institutes to make a case for funding in line with the programme's requirements. In addition, there are financial instruments that can be used to support innovative, business-led projects (such as the Scottish Investment Bank, and the Co-investment Fund). Individual schemes have distinct criteria, and often operate within sectoral or geographical restrictions.

Opportunities and Challenges for Scotland

In his statement to Parliament on the Draft Budget for 2016-17, the Deputy First Minister outlined the broad direction of reforms for Scotland's innovation approach, based around the need to further align approaches to innovation, pool funding, and simplify both the landscape and access to support. This is set against the backdrop of the tightening fiscal environment faced by the Scottish public sector, and reforms to innovation at the UK level, such as the simplification of support offered by bodies like Innovate UK.

The evidence considered by the Council, our experience of Scotland, and discussions both within the Council and with bodies such as the Scotland CAN DO Innovation Forum, all suggest that Scotland has a number of strong foundations that can be built on. Scotland has a number of highly innovative companies with presences in important sectors, such as life sciences and digital industries, and a strong research base underpinned by world class universities and research institutes. Combinations of these factors, in areas like Edinburgh's digital cluster, have helped bring international-level success in these areas.

However, the evidence also points to Scotland having a smaller base of innovation-active companies than both the UK overall, and a number of Scotland's international competitors. There is still scope to encourage and achieve greater collaboration between Scotland's academic institutions and its business base, although there has been progress in recent years on this front.

There are a number of challenges for the Scottish Government and its partners around reform of innovation support. In our discussions, the Council have emphasised the importance of taking a systematic approach to thinking about these challenges, and using a systematic approach when undertaking reform. In order for reforms to be well-targeted and designed, it is important that they rest on a solid understanding of not only how new knowledge and research is undertaken, but also to how innovations spread and are adopted throughout the Scottish economy, and how this is helped by bodies and actors that operate within the system. This would underpin a common understanding of the system's strengths and weaknesses, the assets that can be built upon, and the vulnerabilities that need to be addressed.

Alongside this, our discussions have highlighted the importance of the Scottish Government and its partners having a shared vision of the kind of economy that Scotland should have, the role of innovation within this, and of where Scotland's ambitions are on innovation. Related to this is what the Scottish Government and its partners view their role as being within the innovation economy in Scotland. A traditional view of the public sector's role focuses on addressing market failures, or creating 'level playing fields'. However, the Council believes that this view misses several important dimensions of the position that the public sector occupies.

The US experience shows that Government can play an important role at each stage of the 'innovation chain', not just at the basic research stage⁴⁴. The public sector has an important role as a long term investor, as a provider of patient finance, and setting and supporting 'mission-oriented policies' that can guide and influence others' innovation activity.

Mission-oriented policies can be defined as systemic public policies that draw on frontier knowledge to attain specific goals. It is policy driven by challenges which are not amenable to simple solutions but require simultaneous changes in behaviour and innovation across many different sectors, by both public and private actors. Mission-oriented policies use the positive potential of public organisations to take risks and spur coordinated action to solve these difficult problems. These have the potential to improve a country's innovation performance, with wider economic and social benefits. However, adopting such an approach in Scotland requires assessments of the opportunities open to Scotland, and the areas where its assets and expertise can be best directed.

The Council's discussions have emphasised the importance of the Scottish Government and its partners being prepared to lead by example, in particular through making long term, patient investments. However, underpinning these are the need for a clear view of where Scotland's competitive strengths lie, an ability to flexibly and rapidly appraise and respond to emerging opportunities. It also requires the Scottish Government and its agencies to look to foster collaboration between and within Scotland's institutions, agencies, and business base; to reappraise the range and variety of support they provide, to ensure they are focused on supporting the outcomes that are sought for Scotland's economy; and to move away from areas where investments are not productive. These are challenging, and complicated by the important role played by both EU and UK funding in supporting institutions and research in Scotland.

Underneath this is a broader, and more profound challenge: how to change the culture around innovation in Scotland. In part, this includes moving towards a mission-oriented approach, should Scotland's assets and opportunities permit it. However, it also relates to the wider challenge of Scotland's firms becoming more dynamic. In part, this means taking a broader view of innovation than one that focuses simply on R&D, and on science-based activities; instead, moving towards a position where Scotland's business base continually seeks to improve their products, processes, and ways of doing business are important contributors to every businesses' competitiveness. This will be a profound shift, but one that is necessary to improve Scotland's economic performance.

⁴⁴ Mazzucato, M (2013), *The Entrepreneurial State*.

5. Measures of Economic Progress⁴⁵

Scotland's Economic Strategy sets out ambitions for Scotland to be in the top quartile of OECD countries for productivity, inequality, wellbeing, and sustainability. It also included the commitment towards:

“...a programme of work, to be undertaken in conjunction with the new Council of Economic Advisers, to develop a set of measures of Scotland's performance across a wider range of dimensions of economic prosperity to enable us to achieve a better assessment of progress.”

The Council's workstream on measures of economic progress has concentrated on improving the way in which the Scottish Government measures productivity and inequality, and considering approaches to monitoring wellbeing and sustainability in a relevant and internationally comparable way.

The Council's considerations in this area are informing the on-going work to refresh of Scotland's National Performance Framework, and the online monitoring system Scotland Performs, which will be used to monitor progress against the delivery of Scotland's Economic Strategy.

Productivity

Scotland's Economic Strategy sets out an ambition for Scotland to rank in the top quartile of OECD countries in terms of productivity. The Scottish Government's existing Purpose Target on productivity is to rank in the top quartile of OECD countries in terms of output per hour worked, by 2017. The Council's advice on measurement of productivity has therefore focussed on minor changes to improve the quality of the existing measure.

Progress towards the existing target has traditionally been reported by measuring changes in the gap between productivity levels in Scotland and the closest ranked country in the top quartile of the OECD. A reduction in the gap is considered an improvement in performance, whilst an increase in the gap is considered as a worsening of performance.

This methodology allows a straightforward assessment of how close Scotland is to the top quartile of the OECD in relative terms. However, the focus on the size of the gap means that key changes can be missed. For example, other countries can overtake Scotland in the rankings without the gap between Scotland and the top quartile changing. In addition, changes in Scotland's ranking are not straightforward to interpret, as external factors such as changes in currency markets and Purchasing Power Parities have significant impacts on relative nominal productivity.

The Council has considered how the approach to measuring productivity could be improved. In order to allow a more direct assessment of progress towards the productivity ambition, Council members support a proposal to focus on Scotland's rank in the OECD panel, rather than the relative gap with the top quartile. An

⁴⁵ All data in this chapter is correct as of 5th August 2016.

increase in Scotland's ranking would be considered an improvement in performance, and vice versa.

In addition, Council members support a proposal to include a supplementary indicator that will allow for monitoring of real terms changes in Scottish productivity in the latest year. The additional focus on real productivity growth will help to explain the underlying drivers of changes in Scotland's relative productivity ranking, and to identify whether changes are due to Scotland's productivity performance improving or competitor's performance worsening, for example.⁴⁶

Inequality

To monitor progress towards the inequality ambition in the SES, the Council has considered a range of income inequality measures. The Scottish Government's existing approach to measuring income inequality was captured in the Solidarity Purpose Target, which aimed to: increase overall income and the proportion of income earned by the three lowest income deciles as a group by 2017.

This approach to measuring income inequality is easy to interpret; reflects the resources of the poorest households in society; and the condition of increasing overall household income ensures that decreases in inequality do not arise purely as a result of lower overall income. However, this measure is not internationally comparable, and would not therefore allow for monitoring of Scotland's progress towards ranking in the top-performing quartile of OECD countries in terms of inequality.

In order to monitor progress towards the inequality ambition in the SES, the discussion focussed on alternative measures of income inequality that would allow for international comparisons to be made, including the Gini coefficient and the Palma ratio. A brief summary of the comparisons made between the possible measures is presented in Table 3.

⁴⁶ The changes to the Productivity Purpose Target agreed by the Council were incorporated into Scotland's National Performance Framework on Friday 11th March 2016, and can be seen at: <http://www.gov.scot/About/Performance/scotPerforms/purposetargets/productivity>

Table 3: Comparison of possible measures of income inequality

	Existing Measure	Palma Ratio	Gini Coefficient
Description	Share of total income earned by the bottom three income deciles, and growth in total income.	Ratio of income earned by the top 10% of earners divided by the share earned by the bottom 40%	Distribution of income across the entire population, ranging from 0 (perfect equality) to 1 (complete inequality)
Pros	<ul style="list-style-type: none"> • Straightforward to understand • Reflects the resources that are available to the poorest in society • Compares the income of the poorest to the total income of the populations 	<ul style="list-style-type: none"> • Internationally comparable, with timely annual data for OECD countries. • By focussing on the bottom 40%, Palma has straightforward implications for domestic policy aimed at increasing sustainable employment, improving economic opportunities and improving working conditions etc. • Reflects how the poorest in society compare to the richest 	<ul style="list-style-type: none"> • Internationally comparable, with timely annual data for OECD countries • Widely used and recognised • Includes the entire population
Cons	<ul style="list-style-type: none"> • Not internationally comparable • Does not represent the 'gap' between the richest and poorest households, and whether this has changed • The measure is most sensitive to the income of the top decile. 	<ul style="list-style-type: none"> • Most sensitive to changes in the incomes of the top deciles. • Shifts the focus on to incomes of the top decile, compared to the existing measure. 	<ul style="list-style-type: none"> • Difficult to interpret changes in the Gini, or to see where in the distribution policies are having an impact • More sensitive to incomes in the middle of the distribution, so the Gini can improve due to improvements in the income for those near the median without benefitting the poorest households.

From an assessment of the options, the Palma ratio – the ratio of income earned by the top 10% of earners divided by the bottom 40% of earners in the income distribution – is recommended as the headline measure of income inequality in Scotland.

The Palma ratio is internationally comparable, with annual estimates published in the OECD database⁴⁷, allowing for monitoring of progress towards the SES ambition. Compared to the existing approach in the Solidarity Purpose Target, the Palma ratio clearly shows the scale of the difference in income levels between the top and bottom of the income distribution, whereas the existing approach was focussed only on the bottom 30 per cent.

The Council agree that the focus on the bottom 40 per cent of the income distribution reflects the wider ambitions around tackling inequality contained in the SES. In addition, international commentary has noted that that policymakers ought to be concerned with the bottom 40 per cent of the income distribution more generally, who may be at risk of failing to benefit from the recovery and future growth.⁴⁸

The revised measure of income inequality continues to target increases in overall income, to ensure that reductions in inequality are not just arising through lower overall income.⁴⁹

Wellbeing

The Council's remit around measuring wellbeing has been to advise on a framework that allows for international comparisons of key wellbeing dimensions, whilst also reflecting Scottish-specific priorities for wellbeing.

The measurement of wellbeing has gained growing attention internationally in recent years, with organisations such as the OECD and the ONS taking forward programmes of work to develop wellbeing measurement frameworks. Wellbeing is considered to be a multi-dimensional concept, considering outcomes in people's lives across a number of domains such as health, the environment, work-life balance and quality of life, for example.

Wellbeing in Scotland is portrayed through the National Performance Framework⁵⁰ (NPF), which is made up of a range of indicators and targets covering aspects of the economy, the environment, health, society and other areas, which can be used to give an indication of the successes of policy in Scotland. The indicators in the NPF reflect outcomes relating to the priorities of the Scottish Government. However, many of the indicators are Scotland-specific and cannot be used to show how Scotland compares directly with OECD countries against factors influencing wellbeing.

The Council has considered how the Scottish Government's approach to measuring wellbeing might be adapted to allow for international comparisons, with a focus on the OECD's framework for wellbeing, the Better Life Initiative⁵¹ (BLI). The BLI is a

⁴⁷ <https://stats.oecd.org/Index.aspx?DataSetCode=IDD>

⁴⁸ OECD (2014). *Focus on Inequality and Growth*: <http://www.oecd.org/els/soc/Focus-Inequality-and-Growth-2014.pdf>

⁴⁹ The changes to the Solidarity Purpose target agreed by the Council were incorporated into Scotland's National Framework on 11th March 2016, and can be seen at: <http://www.gov.scot/About/Performance/scotPerforms/purposetargets/solidarity>

⁵⁰ <http://www.gov.scot/About/Performance/scotPerforms>

⁵¹ <http://www.oecd.org/statistics/better-life-initiative.htm>

multi-dimensional measurement framework comprising twenty-three indicators, which span eleven dimensions across two domains:

- **Material living conditions** (income and wealth; jobs and earnings; and housing conditions); and
- **Quality of life** (health status; work-life balance; education and skills; Social connections; civic engagement and governance; environmental quality; personal security; and subjective wellbeing)

The OECD publish comparisons between member countries for each of the wellbeing indicators in the *How's Life?* report⁵². A summary of Scotland's performance against these indicators and an indication of where Scotland would rank in the OECD panel for a selection of the BLI indicators is presented in Table 4.

Following the OECD methodology and definitions, this analysis finds that Scotland performs better than the OECD average for the majority of indicators for which directly comparable data is available, including in employment and unemployment rates, educational attainment of the adult population, and perceived health status, for example. Scotland would rank in the best-performing quartile of OECD countries in terms of annual exposure to air pollution, but performs worse than the OECD average on life expectancy.

⁵² OECD (2015), *How's Life? 2015*. <http://www.oecd.org/std/how-s-life-23089679.htm>

Table 4: Scotland's performance against OECD Better Life Initiative indicators⁵³

Theme	Indicator	Scotland's performance and ranking		Theme	Indicator	Scotland's performance and ranking	
Jobs & earnings	Employment rate (15-64)	71.4% (2014)	11 th (out of 35)	Health status	Perceived health status [Share of population reporting general health as 'good' or 'very good']	74% (2013)	13 th (out of 35)
					Life expectancy at birth (years)	79.3 (2013)	25 th (out of 35)
	Long-term unemployment rate (12 months+)	2.2% (2014)	18 th (out of 34)	Education and skills	Educational attainment of the adult population Share of 25-64 population with at least upper secondary education	83.5% (2013)	14 th (out of 35)
					Cognitive skills of 15 year old students Mean score from OECD PISA	506 (2012)	14 th (out of 35)
Probability of becoming unemployed (Annual inflow into unemployment as a share of employment in the previous year)	4.39% (2014)	13 th (out of 34)					
Housing	Average number of rooms per person	1.9 (2011)	10 th (out of 35)	Safety	Deaths due to assault Rate per 100,000 people	1.4 (2012)	27 th (out of 35)
Environment	Annual exposure to PM _{2.5} air pollution (µg/m ³)	7.0 µg/m ³ (2010 – 12)	8 th (out of 35)	Civic engagement	Voter turnout Share of registered voters voting in the most recent general election	71.09% (2015)	16 th (out of 35)

⁵³ The information presented in Table 4 uses the data contained in the OECD's *How's Life? 2015* report in order to rank Scotland against the OECD panel. For consistency, data for Scotland used in the comparisons refers to the same time periods as the data for OECD member countries used in *How's Life? 2015*.

Noting this analysis, the Council considered the indicators reported on in the OECD wellbeing framework to be sensible headline measures for comparing countries internationally across a number of dimensions of wellbeing. However, as wellbeing has country-specific dimensions, the Council agree that the OECD indicator set is not largely representative of the main priorities in Scotland for the wellbeing of individuals.

Sustainability

The Council has considered how the Scottish Government's approach to measuring sustainability could be improved to allow a wider view of sustainability whilst maintaining international comparability to monitor progress towards the SES ambition.

The Scottish Government's existing Sustainability Purpose Target⁵⁴ aims to reduce greenhouse gas emissions in Scotland by 80% by 2050, relative to a 1990 baseline.

The Council's discussions have considered how the measurement of sustainability in Scotland could be broadened out beyond emissions to assess the Scotland's ability to maintain its productive capacity across the longer term, in line with international approaches such as that advocated by the joint UNECE/OECD/Eurostat Taskforce on Measuring Sustainable Development (TFSD).⁵⁵

The TFSD propose a capital approach to monitoring sustainability, based on a dashboard of physical and monetary measures of economic, natural, human and social capital. Measuring sustainability using this approach would include monitoring the stocks and flows of the assets which underpin long-term development, and the risk factors which threaten them.

However, frameworks for monitoring sustainability using a capital-based approach are in the early stages of development, and indicators for monitoring stocks and flows of these resources, particularly in social and natural capital, are yet to be defined. In addition, country coverage, international comparability and data quality act as a limitation to making assessments of sustainability between countries⁵⁶.

As part of the March 2016 update to the National Performance Framework, a Natural Capital Asset Index for Scotland (NCAI)⁵⁷ has been added to the indicator set. The NCAI analyses changes in the quality and quantity of natural habitats, according to their potential to deliver ecosystem services and health benefits, which are important for wealth creation and wellbeing in the future.

⁵⁴ <http://www.gov.scot/About/Performance/scotPerforms/purposetargets/sustainability>

⁵⁵ TSFD (2013), *Framework and suggested indicators to measure sustainable development* http://www.unece.org/fileadmin/DAM/stats/documents/ece/ces/2013/SD_framework_and_indicators_final.pdf

⁵⁶ OECD (2015), *How's Life? 2015*.

⁵⁷ <http://www.gov.scot/About/Performance/scotPerforms/indicator/naturalcapital>

The Scottish Government is also defining its approach to monitoring delivery of the United Nations Sustainable Development Goals⁵⁸ (SDGs), an international action plan to tackle poverty and inequality and promote sustainable development across the world by 2030. The SDGs provide a broad framework for sustainable development, and individual countries are invited to embrace and focus on what is most relevant to them.

⁵⁸ <https://sustainabledevelopment.un.org/sdgs>

6. Summary of Council Advice

In its considerations thus far, the Council has put forward a range of advice to the Scottish Government in each of its workstreams. These are broad, so as to help guide the Scottish Government's thinking in each of these areas, and support the development of the evidence base Scotland needs to progress in these areas.

The Council's advice is grouped under the Council's three workstream themes: Inclusive Growth; Innovation; and Measures of Economic Progress.

Inclusive Growth

The Council welcomes the emphasis that the Scottish Government's Economic Strategy places on Inclusive Growth, and the Scottish Government's ambition to more closely align and integrate its approach to economic and social policymaking.

Moving forward, **we recommend that the Scottish Government reaffirm its position on inclusive growth as a commitment to long-term transformational change for Scotland's economy and its people.** This means that the Government should focus on supporting creation of more and better quality jobs, and ensuring that everyone has the opportunity to fulfil their potential and contribute to society.

The Council also notes the initial steps the Scottish Government has been taking to develop policy tools such as the Inclusive Growth policy framework, which are intended to identify how individual policies might support both inclusion and growth, and where trade-offs might arise, as well as early work around developing an inclusive growth diagnostic for Scotland. The Council is interested in this work, which has the potential to help identify the barriers and constraints to inclusive growth across Scotland, and assist with policy prioritisation. **We would encourage the Scottish Government to continue to take forward the development of its proposals for an inclusive growth diagnostic, and to look to reflect the importance of geography and place within it.**

Inclusive Growth is an important emerging policy area within Scotland, but also across the UK and internationally. Scotland has begun to be recognised as a leading nation with regard to this agenda. This opportunity should be harnessed, and **we would encourage the Scottish Government to continue to engage within Scotland and beyond, including with international organisations,** to build on this progress.

In terms of specific policies, the Council has been interested in the development of the Business Pledge, which has the potential to encourage valuable corporate behaviours among Scotland's business base. To date, business sign-up to this policy has been relatively small-scale. To build on its initial roll-out and early uptake, the Council believes that **the Scottish Government should pro-actively engage with a wide range of business stakeholder organisations, particularly Chambers of Commerce, to understand the challenges businesses may face, and encourage business-led approaches for driving increased uptake and behaviour change.**

An important factor in supporting further uptake of the Business Pledge will be the evidence of what benefits it will bring to participating businesses. Building a credible evidence base around the effects of the Business Pledge (or similar initiatives elsewhere) on business performance, staff retention and productivity is an essential part of convincing the wider business community of the value in adopting the progressive corporate behaviours that it emphasises. **We recommend that the Scottish Government seek to develop the Scottish evidence base, with a particular focus on case studies of impacts on individual businesses.**

Innovation

The Council agrees with the priority that the Scottish Government has placed on improving Scotland's innovation performance. The evidence we have considered to date shows that Scotland has a number of significant strengths, but that there is substantial room for improvement in the innovation performance of Scotland's business base.

We recognise that there is a limit to what the Scottish Government and its agencies can do themselves to improve the innovation performance of Scotland's businesses. This will require sustained changes from within the business base itself, and will be shaped by the sectors and markets they operate within. However, the Scottish Government and its partners have a vital role in articulating a vision and ambition for innovation in Scotland; in identifying and communicating a broader mission for public and private sector innovation activities in Scotland; and encouraging public and private sector activity to address these challenges.

Given the complexity of the innovation landscape that Scottish firms operate in, it is essential that support offered by the Scottish Government and its partners supports and builds on Scotland's strengths, and avoids duplication and creating additional complexity. **We therefore support the Scottish Government's intention to simplify the innovation landscape in Scotland and better align the innovation efforts of the partners working within it.** However, to guide and support this, **we would encourage the Scottish Government to develop a clear ambition for innovation in Scotland, and to identify a set of missions for innovation in Scotland, based on an assessment of Scotland's assets and areas of expertise.**

It is vital that reforms to Scotland's innovation ecosystem are based on robust evidence. **The Council believes that the Scottish Government and its partners should continue to improve the evidence base on Scotland's innovation performance. In particular, we would strongly support undertaking an assessment of the operation of Scotland's innovation system.** Although recognising that an assessment was undertaken within the last ten years, the Council believes that a further assessment would be useful at this stage, in order to identify potential bottlenecks or missing links in the system, and to identify any significant vulnerabilities or areas for strengthening.

The Council also supports further development of the data available on innovation for Scotland. We are encouraged by the on-going development of the data available on Scotland's innovation performance through the boosted

Community Innovation Survey. We would support greater analysis of the innovation performance of Scotland's medium-sized companies, and encourage the Scottish Government to investigate how to develop Scottish data on total factor productivity, and on capital stocks and investment. We would also encourage further work to increase the evidence base around the effectiveness and impact of existing innovation policies.

One area of particular interest to the Council is how Scotland encourages young people to engage with and study Science, Technology, Engineering and Maths (STEM). We have been impressed by the work being taken forward by Scotland's academic institutions, and recognise that efforts are being undertaken within Scotland's wider education system to encourage participation in STEM subjects. However, given the fast-moving nature of the digital economy, and the importance of people having STEM skills and knowledge to business's ability to make the most of the opportunities it presents, it is vital that education in these areas is attractive, flexible, and responsive to technological developments. **We would encourage the Scottish Government to review the initiatives being undertaken other countries encouraging young people to participate in STEM and digital activities and gain knowledge, skills and confidence in their use**, to ensure that Scotland's efforts in this area are comparable with the best in the world.

Measures of Economic Progress

The Council's third workstream has centred on measurement of economic progress, particularly around the Ambitions set out in the Economic Strategy: for Scotland to rank in the top quartile of the OECD in terms of productivity, inequality, wellbeing and sustainability.

We welcome the recent refresh of the National Performance Framework, which has incorporated the proposals we supported regarding the measurement of productivity and inequality. The measure used for the Scottish Government's Solidarity target now allow for direct comparisons between Scotland and other OECD countries, which helps to measure progress towards achieving the inequality pillar of the Economic Strategy.

There has also been progress with regard to measurement of the Economic Strategy's wellbeing ambition. We support the continued use of the National Performance Framework as a broad framework for measuring wellbeing in Scotland, as its 'dashboard' approach is in line with international good practice, and the indicators it contains are likely to be more closely aligned to priorities in Scotland than those used in international comparators of wellbeing. However, there is substantial value from placing wellbeing in Scotland in an international context, through use of measures comparable to those in the OECD's Better Life Index. **The Council advises that the Scottish Government uses a 'twin track' approach to measuring Scotland's wellbeing, based around on-going measurement through the National Performance Framework, and an annual assessment of Scotland's position through the OECD Better Life Index indicators.**

As we note in Chapter 4, frameworks for measuring Sustainability, along the lines of a capitals-based approach, are currently under development internationally. The

Council believes that moving to a broader measurement approach for Sustainability would be of value to Scotland. **We would support the establishment of a programme of work to develop appropriate measures of sustainability for Scotland, and to undertake international comparisons once appropriate frameworks become available.**

Future Work of the Council

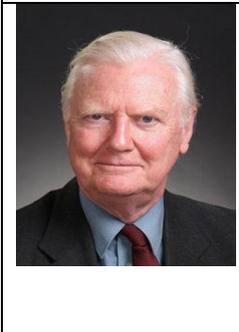
The Council will continue to act as an independent advisory council to the First Minister, on actions to improve the competitiveness of Scotland's economy, and tackle inequality. We will continue to advise the First Minister on issues related to inclusive growth and innovation, and will look to respond to the First Minister's request for our advice around aspects of the Additional Rate of income tax.

It is widely recognised that the result of the EU referendum, and the potential for changes to Scotland's position in the EU, could have significant implications for Scotland's economic fortunes in the short term, and its economic competitiveness in future years. Membership of the European Union has been a fundamental feature of Scotland's economy for several decades; changes to this relationship could therefore by their nature have profound consequences for a number of areas of economic policy in Scotland.

The Council will look to advise the Scottish Government on the economic challenges arising from Brexit, with the specific issues we focus on being guided by the priorities of the First Minister and Scottish Government.

Annex A: Membership of the Council

	<p>Crawford Beveridge (Chair) – Crawford Beveridge is a technology industry veteran with more than 35 years of experience. This included working as an Executive at Sun Microsystems for over 15 years. In 1991, Beveridge left Sun to become Chief Executive of Scottish Enterprise. Beveridge returned to Sun in April 2000 as Executive Vice President of People and Places and Chief Human Resources Officer. In addition to being the Non-Executive Chairman of the Board of Autodesk, Beveridge is Chairman of Scottish Equity Partners Ltd, and a Non-executive board member of eSilicon and iomart Group PLC. He was awarded a C.B.E. in the New Years Honours list in 1995.</p>
	<p>Sir Harry Burns – Professor of Global Public Health at the University of Strathclyde and former Chief Medical Officer for Scotland. Sir Harry holds a leadership position within the International Prevention Research Institute. He was previously appointed as Honorary Consultant Surgeon and Senior Lecturer in Surgery at the Royal Infirmary in Glasgow and was also Greater Glasgow’s Public Health Director. Sir Harry has been a key figure in tackling Scotland’s health inequalities. He was knighted in 2011.</p>
	<p>Professor Sara Carter – Professor of Entrepreneurship and Associate Deputy Principal of the University of Strathclyde. Sara Carter is a member of the UK Enterprise Research Centre, the Scottish Government’s Strategic Group on Women and Work, co-Chair of the British Bankers’ Association Diversity & Inclusion Business Council, and Non-Executive Director of Women’s Enterprise Scotland. She has also served on the UK Government’s Women’s Enterprise Task Force and received an OBE for her services to women entrepreneurs.</p>
	<p>Professor Mariana Mazzucato – RM Philips Professor in the Economics of Innovation, SPRU, University of Sussex. Professor Mazzucato advises the UK government and the European Commission on innovation-led growth and she is currently a member of the Global Agenda Council on the Economics of Innovation for the World Economic Forum. Her research focuses on the relationship between financial markets, innovation and economic growth. Her recent book, <i>The Entrepreneurial State: debunking private vs. public sector myths</i>, focuses on the need to develop new frameworks to understand the role of the state in economic growth – and how to enable the rewards from innovation to be just as ‘social’ as the risks taken. She is winner of the 2014 New Statesman SPERI Prize in Political Economy and in 2013 the New Republic called her one of the ‘three most important thinkers about innovation’.</p>

	<p>Jim McColl - Chairman and Chief Executive of Clyde Blowers - a company transformed under his leadership into a portfolio of global engineering companies. He also serves as Chairman of the Welfare to Work Forum which has seen 15,000 Scots enter employment.</p>
	<p>Amanda McMillan - Managing Director at Glasgow Airport and Chief Executive of AGS Airports Limited. Amanda McMillan is a qualified Chartered Accountant and has spent time in manufacturing, professional practice and lecturing. In addition to being a Non-Executive Director of Business Stream, she currently serves as a Board member of the Glasgow Chamber of Commerce, the Adam Smith Business School Strategic Advisory Board, University of Glasgow, and Glasgow Life. In 2013, Amanda McMillan received an OBE in recognition of services to business and tourism.</p>
	<p>Professor Sir James Mirrlees - Professor Emeritus at Cambridge University and distinguished professor-at-large at the Chinese University of Hong Kong. In 1996 Sir James was awarded the Nobel Prize for his work on economic models and equations about situations where information is asymmetrical or incomplete. In 2010, he led the Mirrlees Review of taxation which examined the principles and characteristics of a good tax system for open developed economies in the 21st century.</p>
	<p>Professor Anton Muscatelli - Principal and Vice Chancellor of the University of Glasgow since 2009. Former Principal and Vice Chancellor of Heriot-Watt University. Professor Muscatelli has been a consultant to the World Bank and the European Commission, and chaired an independent expert group for the future financing of devolution for the Calman Commission. In 2007-10 he was an advisor on monetary policy to the House of Commons Treasury Select Committee and he has recently been appointed to Chair the Commission of Urban Economic Growth for the new Glasgow City Region. He is a Fellow of the Royal Society of Edinburgh, an Academician in the Learned Societies of the Social Sciences, and President of the David Hume Institute.</p>
	<p>Professor Frances Ruane - Honorary Professor of Economics at Trinity College Dublin and former Director of Ireland's Economic and Social Research Institute. She is currently a Member of the European Statistical Advisory Committee and the Economic Advisory Group in Northern Ireland. She is widely published in the area of international economic and industrial development</p>



Professor Joseph Stiglitz - Professor Stiglitz is Professor of Economics at Columbia University. He won the Nobel Prize for Economics in 2001 and was a member of the US Council of Economic Advisers from 1993-95, serving as CEA Chair from 1995-97. He was Chief Economist and Senior Vice-President of the World Bank from 1997-2000. In 2009 he was appointed by the President of the United Nations General Assembly as Chair of the Commission of Experts on Reform of the International Financial and Monetary System.

Glossary

Active Labour Market Policies – government programmes that intervene in the labour market to help the unemployed find work, such as training schemes, employment subsidies and public employment services.

Capital Stock – Refers to the level of assets with productive capacity in an economy.

Conditionality – The use of conditions attached to the provision of benefits.

Employment Level - The number of people in an economy who are in work.

Employment Rate – the proportion of the working-age population who are in work.

Gross Domestic Product (GDP) – The value of goods and services produced by all sectors of the economy. It is equal to Gross Value Added at basic prices plus taxes (less subsidies) on products. Alternatively, it is equal to the sum of total final domestic consumption expenditures less imports of goods and services.

Gross Value Added (GVA) – The contribution to the economy of each individual producer, industry or sector. It is a measure of GDP in basic prices.

Gini Coefficient – A measure of income equality that measures the extent to which the distribution of income among individuals or households within an economy deviates from a perfectly equal distribution. A Gini index of zero represents perfect equality, and an index of 1 represents perfect inequality.

Gender Pay Gap – A measure of the relative difference in earnings of women and men within the economy as a whole. In the UK it is measured as the difference in full-time median earnings, excluding overtime, between men and women.

Inactivity Rate – the proportion of the working-age population who are not in work and are not actively seeking a job.

Innovation Active – Refers to whether an enterprise is engaging in innovative activities, such as: introducing new or improved products or processes; engaging in innovation projects; and improving or introducing forms of organisation, business structures or practices and marketing concepts or strategies.

Knowledge-Based Capital – Refers to a range of intangible assets including computerised information, intellectual property, and economic competencies such as brand equity and people networks.

Living Wage – A voluntary hourly rate of pay calculated according to the basic cost of living in the UK. The current UK living wage is £8.25 an hour (outside London).

Mission-Oriented Policies – Refers to systemic public policies that draw on knowledge from particular areas or fields to attain specific goals.

National Performance Framework – The Scottish Government’s framework for measuring progress towards its purpose, including targets, indicators and outcomes across a range of economic, health, social and environmental dimensions.

Natural Capital – The stock of natural assets (such as geology, soil, air, water and species) and the services derived from those assets (such as provisioning of food and water).

Palma Ratio – A measure of income inequality that measures the ratio of income earned by the top 10% of the income distribution to the income earned by the bottom 40% of the income distribution.

Patient Capital – Refers to capital that is invested over the longer term without the expectation of an immediate return.

Positive Destinations – Refers to whether a school leaver is in further learning, training or work approximately nine months after leaving school.

Productivity – A measure of how efficiently an economy can convert its inputs in the production process (e.g. labour and capital) into outputs. It is typically measured using labour productivity, defined as output per hour worked or output per job.

Purchasing Power Parities (PPPs) – Rates of currency conversion that equalise the purchasing power of different currencies by eliminating the differences in price levels between countries. PPPs can be used to convert the GDP level of countries, expressed in national currencies, into a common currency to allow international comparisons to be made.

Real terms change – Changes in a variable measured in constant price terms, excluding the effect of inflation.

Relative poverty – Refers to individuals living in private households with an equivalised income of less than 60% of the UK median before housing costs.

Scottish Index of Multiple Deprivation (SIMD) – A Scottish Government tool used to identify small area concentrations of multiple deprivation across Scotland. The SIMD ranks small areas (datazones) from most deprived to least deprived based on measures of employment, income, health, education, access to services, crime, and housing.

Skill-biased technological change – A shift in production technology that leads to increased relative demand for skilled labour over unskilled labour, as skilled labour becomes relatively more productive.

Total Factor Productivity (TFP) – Reflects the overall efficiency with which labour and capital inputs are used together in the production process. TFP is measured as the residual component of GDP growth that cannot be explained by changes in production inputs.

Unemployment Rate – The proportion of the population who are not in work and are actively seeking a job.



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