

# **PSA Delivery Agreement I:** Raise the productivity of the UK economy

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# VISION

**1.1** Higher rates of productivity growth in the UK are essential to sustaining high and rising rates of economic growth, improving the standard of living of UK citizens and maintaining the UK's position as a dynamic, open and thriving economy.

**1.2** There are two ways to achieve higher economic growth and higher standards of living. The first is to increase the overall amount of hours worked in the economy, either by increasing the number of people in employment, or by increasing the number of hours worked. The second is to raise overall productivity levels, increasing the amount produced for every hour worked.

**1.3** The UK has experienced strong employment performance over recent years, but there is a limit to the number of workers the economy can supply and the number of hours that can be worked. This represents a constraint to the amount that labour can contribute to raising economic growth. Therefore, improving productivity is the primary route to improving long-term standards of living.

**1.4** Furthermore, the UK's productivity performance has historically lagged that of other major industrial countries. Good progress has been made in recent years and the UK has narrowed the gap with its main industrialised competitors. Despite this good progress, a gap still remains and more can be done to raise UK performance.

**1.5** As such, the Government's primary aim for the 2007 Comprehensive Spending Review (CSR07) period is to demonstrate further progress on its long-term objectives to:

- **raise the rate of the UK's productivity growth over the economic cycle; and**
- **narrow the productivity gap with our major industrial competitors.**

**1.6** To demonstrate further progress against these long term objectives, action over the CSR07 period and beyond will be underpinned by the following drivers of productivity, which form the basis of the Government's overarching productivity framework:

- **Investment** - ensuring an efficient level of investment in the economy and supporting productivity growth through increasing the quantity and quality of capital used in the production process (including public infrastructure);
- **Innovation** - achieving world class levels of innovation in the UK economy and encouraging the development of new products and processes which are essential for the UK's long-run economic success;
- **Skills** - transforming the UK into a high skill economy by creating a more flexible and productive workforce that can rapidly take advantage of new technologies and organisational structures;
- **Enterprise** - encouraging the creation and growth of new firms and ensuring anybody with the potential to succeed in business has the chance to do so, by providing a more flexible business environment capable of adjusting to the opportunities and challenges of a more competitive global economy; and

- **Competition** - ensuring there is strong competition in every market in the UK to create incentives to seek increased efficiency and innovation, including the adoption of new technologies and business practices and improved business efficiency.

**1.7** The Government will develop and identify policies and levers that can influence these drivers and address market failures so as to contribute to improving the productivity performance of the economy overall.

**1.8** Delivering a stable macroeconomic environment, well-functioning markets, and an efficient public sector are vital to achieving this PSA vision. Improving public sector productivity plays an important role in improving overall economy productivity. However, a range of other factors also have an impact on productivity, for example, energy efficiency and resource productivity.<sup>1</sup> The Government will continue to take account of these, developing the overarching framework and policy responses as appropriate.

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<sup>1</sup> Analysis from the former DTI (2006) ('Energy Efficiency and productivity of UK businesses: Evidence from a new matched database') suggests there is a positive correlation between energy efficiency and labour productivity, implying that measures to increase resource productivity could contribute to improving UK productivity.

# 2

## MEASUREMENT

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**2.1** There are a number of different measures of productivity, of which the most reliable and commonly used is labour productivity (whole economy output divided by the total number of workers in the economy or number of hours worked). This is currently the most robust, reliable and internationally comparable measure, and a good indicator of standards of living. For these reasons, this PSA will use labour productivity to measure and assess the UK's productivity performance. It will provide a clear indication of progress and the availability of international data available on these measures will allow robust comparisons to be made across countries<sup>1</sup> (See Annex A for detailed measurement information).

### **Indicator 1: Labour productivity (output per hour worked) over the economic cycle**

- This indicator compares the UK's trend productivity growth performance over the current economic cycle with its historical performance over previous cycles. Labour productivity is the primary way to increase economic output (and therefore standards of living) in the long run. To remove any cyclical distortions (given that productivity growth is influenced by the economic cycle via changes in output growth) assessments must be made over the whole economic cycle. Progress can also be measured at half cycles when the economy is deemed to have reached an 'on trend' point. This indicator relates to the part of the PSA focusing on raising the UK's absolute productivity growth and is reported biannually by HM Treasury (HMT) alongside the Budget and Pre-Budget Reports.

### **Indicator 2: International comparisons of labour productivity (per worker, per hour worked)**

- This indicator compares the UK's performance to that of other major advanced economies,<sup>2</sup> in particular assessing the progress on narrowing the UK's productivity gap with these countries, and hence directly relates to the second part of the PSA (raising relative productivity growth). International comparisons of productivity (ICP) are also driven by different positioning of countries in their economic cycles and by ongoing structural changes in their economies. Comparing countries when they appear to be at the most similar points in their cycle (which is assessed on an ongoing basis) increases the robustness of the assessment by removing cyclical distortions. It is also important to ensure that any quoted changes in the productivity gap between countries are substantial enough so that they are not the result of underlying inconsistencies in the data, but the result of real productivity changes.

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<sup>1</sup> Total-or multi-factor productivity (TFP or MFP), which attempts to measure output per unit of resource input, (both labour and capital), may provide a more comprehensive assessment of productivity, but difficulties in obtaining robust data (for example comparable measure of capital stocks and quality adjusted labour inputs) impede the calculation of useful growth estimates, particularly for international comparisons. There is ongoing work by organisations such as the OECD, and supported by the Department for Business, Enterprise and Regulatory Reform (BERR), to improve the methodology and data for TFP calculations.

<sup>2</sup> For the purposes of this target these are defined as the US, France and Germany.

**Set of supplementary data looking at each driver of productivity**

- Structural economic reforms take time to have an effect on productivity growth, and full assessments of performance under the two main indicators above can only be undertaken when the economic cycle has finished. Therefore the Government also monitors a selection of supplementary data, which provides an intermediate assessment of progress. This data, published by BERR in conjunction with HMT, provides an assessment of performance under each driver of productivity and is updated annually. The data is not intended to be an exhaustive list of all aspects of the drivers, but provides a high-level picture of performance. The data compares the UK's performance against other advanced economies under each of the drivers of productivity (competition, innovation, investment, enterprise and skills).

# 3

## DELIVERY STRATEGY

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**3.1** Delivery of this PSA focuses on setting the wider overarching productivity framework, which helps to identify the drivers that underline long-term productivity and provide a structure for developing interventions that can ultimately raise growth and living standards. By looking more specifically across the key policy areas of the UK business environment, employment, adult skills, transport, science and innovation, regional economic performance, and the environment, this PSA will provide a clear picture of progress towards the Government's long-term productivity goals and ensure that the development of Government policy takes into account the overarching target of improving productivity.<sup>1</sup>

**3.2** This delivery strategy sets out some of the main activities that will be undertaken under the drivers of productivity.

### INVESTMENT

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**3.3** Private and public sector investment both influence productivity performance through directly affecting how much a unit of labour can produce by expanding the physical capacity of the economy. Ensuring continued macroeconomic stability allows businesses, individuals and the Government to plan more effectively for the long term, improving the quality and quantity of investment in physical and human capital and helping to raise productivity.

#### Macroeconomic stability

**3.4** HMT is responsible for maintaining a stable macroeconomic environment with low inflation and sound public finances in accordance with the Code of Fiscal Stability. The monetary policy framework seeks to ensure low and stable inflation, while fiscal policy ensures sound public finances over the medium-term. The monetary policy framework ensures full operational independence for the Bank of England's Monetary Policy Committee (MPC) in setting interest rates to meet the Government's inflation target. The decision-making process ensures openness, transparency and accountability.

**3.5** Within this framework, HMT and HM Revenue and Customs (HMRC) aim to ensure, alongside other objectives, that changes to the tax system contribute to increased productivity and the expansion of economic and employment opportunities. With respect to investment, changes to the tax system are intended to provide a direct incentive for firms to increase the quantity and quality of investment.

#### Planning system

**3.6** The implementation of proposals for land planning<sup>2</sup> will be a key activity for the 2007 Comprehensive Spending Review (CSR07) period, led by the Department for Communities and Local Government (CLG) with Department for Business, Enterprise and Regulatory Reform (BERR), HM Treasury (HMT) and the Department for Environment, Food and Rural Affairs (Defra) contributing. The UK requires a planning system that can facilitate productivity growth within the context of sustainable development. Where necessary and appropriate, Government will promote labour market flexibility, clusters and networks, and allow businesses to take advantage of economies of scale and shared inputs.

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<sup>1</sup> Supplementary data collected for this PSA will also highlight progress against the drivers and allow Government to prioritise actions effectively across the drivers.

<sup>2</sup> Recommendations from the *Barker Review of Land Use Planning*, Kate Barker, December 2006 and the subsequent proposals to give effect to them set out in *Planning for a Sustainable Future: White Paper*, CLG, (May 2007).

**Public sector investment** **3.7** Finally, the provision of better public services including health, education, and infrastructure through increased public sector investment has an impact on the productivity of individuals and on the attractiveness of the UK as a location to live, work and invest. In the absence of public sector investment, these areas would be underprovided by the market, and may have a detrimental effect on UK productivity. HMT and a number of other government departments are responsible for this investment, for example the Department for Transport (DfT) has responsibility for the delivery of an efficient transport network.<sup>3</sup> A key activity for the CSR07 period will be to implement the recommendations from the Eddington Transport Study<sup>4</sup> which looked at the long-term links between transport and the UK's productivity in the context of the Government's broader sustainable development and environmental objectives.

## INNOVATION

**Maximising the benefits of innovation** **3.8** Innovation drives productivity growth in the long run through the development of new technologies, goods and services and new methods of working. Innovation policy<sup>5</sup> in the UK is primarily delivered by the Department for Innovation, Universities and Skills (DIUS) with other government departments contributing as required, including HMT and BERR. There are two main complementary strategies over the CSR07 period that seek to ensure the maximum benefits are appropriated from innovative activity. The 10-year Science and Innovation Framework encourages investment in Research and Development (R&D) and innovative activity more widely between 2004 and 2014. The Technology Strategy seeks to take advantage of knowledge derived under the Science and Innovation Framework and other sources, and to ensure that the UK gains the maximum benefit from research undertaken through knowledge and innovation diffusion.

**3.9** Both strategies have a number of objectives and support the ambition to increase whole economy investment in R&D (both public and private sector) to 2.5 per cent of GDP by 2014. The Science and Innovation Framework also has a number of other objectives, for example, including goals for improving science, technology, engineering and mathematics (STEM) skills. The UK has a strong research base, but it is important that knowledge can be transferred into innovations to produce either new products or processes.

**3.10** An additional element of UK innovation policy is the R&D tax credit regime, for which HMT and HMRC are primarily responsible. The aim of this regime is to improve levels of R&D by reducing some of the perceived risks associated with that type of investment.

## SKILLS

**3.11** Workers with higher skill levels contribute to higher productivity levels through a better ability to utilise capital, greater capacity to innovate and greater ability to adopt and disseminate new technologies and business practices. Skills policy in the UK is primarily delivered by DIUS and the Department of Children, Schools and Families (DCSF), whose responsibilities are broadly split into education and training post- and pre-19 years of age respectively. Skills policy in the UK is devolved, so accountability in also rests with the devolved administrations.

<sup>3</sup> See also PSA 5.

<sup>4</sup> *The Eddington Transport Study. The case for action: Sir Rod Eddington's advice to Government*, Sir Rod Eddington, December 2006.

<sup>5</sup> See also PSA 4.

**3.12** There are a number of initiatives in place to increase skills. The Government has committed to raising UK education spending as a proportion GDP. The recent Green Paper *Raising Expectations – staying in education and training post-16* published by the former Department for Education and Skills (DfES) in March 2007 also makes a commitment to require young people between the ages of 16 and 19 to engage in some form of education or training.

### Increasing adult skills

**3.13** The Leitch Review on the Skills Profile of the UK<sup>6</sup> made a number of recommendations for future skills policies. Examples of specific ongoing skills policies and programmes are the roll-out of Train to Gain,<sup>7</sup> a demand-led system which is designed to meet the needs of employers and employees, and Enterprise Education, delivered by DCFS and BERR, which seeks to encourage enterprising skills and behaviour in young people. As part of the overall aims to improve the skills base over the CSR07 period<sup>8</sup> the Government will build on the success of the 14-19, Skills and Higher Education strategies and reform the further and higher education systems to respond to demand.

**3.14** Responsibility for delivery of the Government's skills agenda lies primarily with DIUS and DCSF, with other government departments contributing as required. The Government will ensure that subsequent policy decisions on the UK's skills base meets the demands of the economy over future years, so that it does not hinder the ability of the UK to adapt to an increasingly competitive global market.

## COMPETITION

**3.15** Competition increases both the allocative and productive efficiency of an economy by putting firms under pressure to allocate resources effectively and to seek new technologies or methods of working (innovation) in order to maintain a competitive position in the marketplace. Considerable improvements have already been made in improving the competition regime in the UK, primarily through the Competition Act 1998 and the Enterprise Act 2002.

**3.16** Over the CSR07 period, the Government will focus on enhancing the speed, effectiveness and efficiency of the public competition regime, and on improving the framework for private actions in competition law. The Government will continue to work with the independent competition authorities (the Office of Fair Trading (OFT) and the Competition Commission (CC)) to ensure the effective functioning of the regime. Responsibility for improving the competition regime lies with BERR.

## ENTERPRISE

**3.17** Enterprise activity refers to the seizing of new business opportunities by both existing firms and start-ups. Policy in this area focuses on two key areas – business support and reducing burdens on business through the Better Regulation agenda.

### Access to finance

**3.18** One key aspect of future policy on business support is to ensure that policies that facilitate access to finance are robust and fit for purpose. Failures in the capital markets mean that small and medium sized firms may find it difficult to access finance. The inability of lenders to assess the viability and riskiness of a venture means that

<sup>6</sup> *Prosperity for all in the global economy*, Leitch Review of Skills, December 2006.

<sup>7</sup> DIUS, the Department for Work and Pensions (DWP) and the Learning and Skills Council (LSC) are primarily responsible for delivery.

<sup>8</sup> See also PSA 2.

lenders are either unwilling to lend funds or attach particularly high risk premiums increasing the cost of the loan. BERR, alongside other government departments, is responsible for the delivery and monitoring of these types of products.

### Business Support Simplification Programme

**3.19** The ongoing work on Business Support Simplification (led by BERR, but in partnership with a number of other government departments) and other national and sub-national bodies) is a key part of ensuring that all publicly funded business support packages are fit for purpose. The Simplification Programme aims to move to no more than 100 schemes by 2010. Provision of a less complex business support system allows better targeting of schemes and greater efficiencies in the use of resources.

### Better regulation

**3.20** This programme of work sits alongside the Government's Better Regulation agenda, which aims to improve the competitiveness of businesses in the UK by providing a less complex and more transparent system for firms to operate within. The agenda seeks to reduce Government's regulatory burdens by improving policy design, making enforcement fit-for-purpose, and monitoring administrative and policy burdens. In order to deliver the objectives of its Better Regulation agenda, the Government has committed to take forward the principles and recommendations of the Hampton Review.<sup>9</sup> For example, the merger of 29 regulatory bodies into seven will provide consistency, greater efficiency and credibility through providing a more simple and transparent regulatory system. In addition, government departments have committed to a series of targets to reduce administrative burdens by 2010. The Better Regulation Executive (now part of BERR), alongside OFT and CC, is responsible for the delivery of the Better Regulation agenda. The establishment of the Local Better Regulation Office in 2007 will also seek to deliver this agenda at the Local Authority level.

## PUBLIC SECTOR PRODUCTIVITY

### Ensuring Value for Money (vfm)

**3.21** Although the private sector will deliver the majority of productivity growth improvement, the productivity of the public sector has an important role to play in delivering this PSA outcome. The Government has embarked on several policy initiatives aimed at improving the efficiency, value for money (vfm) and cost effectiveness of the public sector. The 2004 Gershon Review<sup>10</sup> set out how the Government could achieve over £20 billion worth of efficiency gains by improving its corporate services, procurement practice, use of staff productive time, transactions with the public and through better policy, funding and regulatory structures. The Government endorsed the Review's recommendations at the 2004 Spending Review, and departments have agreed to deliver £21.5 billion worth of efficiency gains alongside significant workforce reductions while maintaining service quality.

**3.22** The 2007 CSR announces an even greater ambition for vfm savings across the public sector by the end of 2010-11. Departments and Local Authorities have agreed to generate £30 billion of annual net cash-releasing savings by the end of the CSR07 period, and for these savings to be reinvested into high-value public services that will help the UK meet the long-term challenges ahead. Departments will set out how they plan to generate their net cash releasing savings in vfm Delivery Agreements by the end of 2007, and will publish progress against these plans in their regular departmental reporting cycles.

<sup>9</sup> Reducing administrative burdens: effective inspection and enforcement, HM Treasury, March 2005. Update on progress: *Implementing Hampton: from enforcement to compliance*, HMT, Cabinet Office, November 2006.

<sup>10</sup> *The Efficiency programme: A Second Review of Progress*, NAO, February 2007.

## MEASUREMENT AND POLICY DEVELOPMENT

**3.23** There is a range of issues associated with productivity measurement, in particular the ongoing work to better measure public sector productivity. BERR and HMT are committed to improving the accuracy and relevance of productivity information over the longer term. For example, the development of better measures to understand the scale and cost of resource depletion and environmental damage is an area of work that will ultimately improve policy making by quantifying costs and benefits where it was previously not possible to do so. BERR will lead a project to examine the feasibility of developing practical indicators to measure resource depletion and environmental damage.

**3.24** It is also recognised that improved productivity growth, and its drivers, can help contribute to the attainment of other policy goals, such as efforts led by Defra to protect the natural environment<sup>11</sup> and avoid dangerous climate change.<sup>12</sup> Furthermore, businesses that increase their efficiency of resource use by, for example, using less materials or energy, will tend to increase their productivity. As such, there are a number of Government initiatives targeted at resource efficiency, which are also designed to help firms increase their productivity.<sup>13</sup>

## INFLUENCING LEVERS

**3.25** A wide range of stakeholders (both across central government and at a sub-national level) have a role in delivering improvements in productivity in the UK, and the nature of the relationships between institutions are numerous and vary considerably. BERR and HMT use their influence in these relationships to promote a focus on improving productivity in the development of new programmes and policies.

**National level 3.26** However, government is often not in a position to directly deliver productivity improvements, as most improvements require changes in the behaviour of the private sector. Therefore there is a significant role for business to play in the productivity challenge. As such, delivering improvements requires the use of a mix of policy levers. BERR, HMT and DIUS have direct control over some policy areas through, for example, regulation and deregulation, grants to businesses and individuals, public-sector procurement, information provision, fiscal and monetary policy, education and skills policy, and measures to encourage public-sector efficiency. However, how influential these levers are in delivering productivity changes varies, depending on the policy area.

**3.27** There are a number of official channels for communication between HMT, BERR and other government stakeholders, and links to external stakeholders, such as the Confederation of British Industry (CBI) and the Trade Union Congress (TUC). Over and above these, BERR and HMT also influence through:

- monitoring performance on productivity, the drivers of productivity,<sup>14</sup> and publishing these findings;

<sup>11</sup> See also PSA 28.

<sup>12</sup> See also PSA 27.

<sup>13</sup> For example, the Business Resource Efficiency and Waste Programme was set up to run for 3 years until 2008, its principal aim is to return £284m raised from landfill taxes to businesses to support resource efficiency measures. These include programmes to minimise waste, to encourage energy efficiency, and to help innovation in design and resource use.

<sup>14</sup> The Productivity and Competitiveness Indicators provide a summary of progress under each of the drivers of productivity. There are also workstreams under individual drivers that feed into overall performance.

- related PSAs;
- research and evaluation (expanding and improving the evidence base);
- regional tasking framework (discussed below); and
- international negotiations and influencing on specific issues.

**Sub-national level** **3.28** Delivery at a sub-national level is primarily through the Regional Development Agencies (RDAs), which work with regional and local partners and have a key role to play in improving economic growth and productivity in their respective regions. Through the Regional Economic Strategy (RES), the RDAs articulate the actions that would have the greatest impact on economic performance in the regions, within environmental and social limits. The RES sets out the contribution of the RDA and of all key regional and local players to delivering regional economic growth. The RDAs will monitor and report annually progress towards increasing productivity in individual regions using similar performance indicators as those used at the national level for this PSA.<sup>15</sup>

## INFLUENCING PARTNERS/STAKEHOLDERS

Partners/Stakeholders	Influence and Interest in PSA Vision
Ministers in HMT/DIUS/BERR	The support and influence of ministers in these departments is critical to the delivery of the PSA vision. Their role is to both promote the PSA vision within their own departments and to gain support for its priority across government as a whole.
Ministers in other government departments	The support and influence of ministers in other government departments, especially DWP and Defra, is vitally important. Their support is essential for the adoption of the PSA policy propositions into policy instruments through the 2007 CSR process.
Senior officials in HMT/DIUS/BERR	The support of senior officials in the PSA's lead departments is vital to support and guide the work. It is also important to help overcome barriers to policy development and implementation in other government departments.
Senior officials in other government departments	The support of senior officials in other government departments, including DCSF, Defra, and DCMS, will be needed to develop and adopt policy instruments throughout the CSR07 period.
Key delivery partners, such as Regional Development Agencies (RDAs) and Skills Councils (Learning and Skills Council, (LSC), and Sector Skills Councils, (SSCs))	The RDAs are the primary delivery agency at the regional level for the PSA vision. They also lead on Regional Economic Strategies and provide knowledge about regional economic dynamics. The partnership approach should ensure that they are engaged in providing evidence and supporting the development of proposals for effective delivery.  The LSC and SSCs are an integral part of improving the skills base of the UK, particularly as they highlight where there are deficiencies. This evidence will continue to feed into the development of policy

<sup>15</sup> See also PSA 7.

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	and ensure that maximum productivity benefits can be achieved.
Business Council for Britain	Senior representatives of UK business, to advise Government on how it can best promote the long-term health of the UK economy.
Business more widely (incl. trade associations, industry bodies and specific companies) & unions	Key players for achieving the outcomes. Business and unions need to understand the Government's objectives.

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## ACCOUNTABILITY

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**3.29** The Secretary of State for BERR is the lead minister for this PSA. The relevant Cabinet Committee/s will drive performance by regularly monitoring progress, holding Departments and programmes to account and resolving inter-departmental disagreements where they arise.

**3.30** The Senior Responsible Officer within Government for the PSA will be the Director General of Economics in BERR who will chair a Senior Official PSA Delivery Board, comprising all lead and supporting departments. The Board will also monitor progress and review delivery regularly and report to the relevant Cabinet Committee/s.

**3.31** HMT, BERR and DIUS are committed to consultation in two forms. Firstly, parties involved in delivery of this PSA have been consulted throughout the development of this Delivery Agreement. They will continue to be consulted on a regular basis. Secondly, in terms of specific policies, the Government is committed to consulting all affected parties (in particular business) as per Cabinet Office Guidelines. In addition, HMT, BERR and DIUS will develop a stakeholder engagement plan to ensure this PSA's delivery strategy is successfully implemented across Government and delivery partners are aware of their roles and responsibilities in delivering the Productivity PSA.

## CONSULTATION

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### Engagement with stakeholders

**3.32** Effective communication and engagement with the above stakeholders is a priority. This will be achieved by:

- ensuring that ministers in HMT/DIUS/BERR are fully briefed and engaged in the delivery of the PSA vision work at important milestones;
- influencing ministers in other government departments through their officials;
- consulting key stakeholders in the private and public sectors as specific policies are developed, following Cabinet Office guidelines;
- keeping the RDA Chief Executives and officials at the RDAs informed on the development of productivity policy; and
- addressing PSA performance and monitoring requirements as necessary.



## MEASUREMENT ANNEX

Indicator I	Labour productivity (output per hour worked) over the economic cycle
Data provider	HMT (using Office of National Statistics (ONS) data).
Data set used	National Accounts data (Blue Book dataset).  Labour Force Survey, working-age employment and actual hours worked, adjusted for economic cycle.
Baseline	The UK economic cycle is defined as a period between two points when the economy is identified as being on-trend and which includes both a period when the economy is above trend and a period when it is below trend. Trend productivity growth will be compared between two economic cycles – the baseline is therefore the productivity performance of the UK over the previous economic cycle. <sup>1</sup>
Frequency of reporting	Biannually (supporting documents to Budget and Pre-Budget Report).
95 per cent confidence interval	HMT does not produce a confidence interval around the estimates of productivity growth. <sup>2</sup>
Data Quality Officer	Trend Growth Branch, Macroeconomic Prospects Team (HMT).
Minimum movement required for performance assessment	Due to cyclical nature of productivity, an assessment of the UK's productivity growth will only be made at the end of the economic cycle.

## DEFINITIONS OF KEY TERMS

- *Productivity:*  
Productivity in the context of this vision refers to labour productivity. There are a number of different measures of labour productivity. The UK Government uses two complementary measures to assess the UK's productivity performance:
  1. Output (GDP) per worker (person employed); and
  2. Output per hour worked.

<sup>1</sup> HMT has outlined their methodology for measuring UK productivity growth in *Trend growth: New Evidence and Prospects (2006)* – <http://www.hm-treasury.gov.uk/media/D6678/ACF521.pdf>

Currently, the last identified full economic cycle before the adoption of this PSA was 1986Q2 and 1997H1. Therefore, unless an end point for the current economic cycle running from 1997H1 can be identified prior to the start of the this new PSA period, this will be defined as the baseline.

However, it is important to note that it will only be possible to identify the most appropriate PSA comparison period at the end of the current PSA period. Also, if the depth and/or the length of the cycle change markedly over time, then it may not be possible to make a reliable or timely assessment. If this happens, then an assessment of why this is the case will be reported and, if possible, an alternative assessment of performance will be given.

<sup>2</sup> National Accounts data are subject to revision, and these revisions may have an impact on estimates of productivity growth over and during economic cycles. These data are not published with confidence intervals by ONS.

- *Major industrial competitors:*  
This PSA is designed to demonstrate progress against the UK's major industrial competitors. For the purposes of this analysis, these are defined as the US, France and Germany.
- *Output gap:*  
The deviation of actual output (GDP) from potential GDP as a percentage of potential GDP, i.e. the comparison of how an economy is actually performing relative to how it could be performing given available resources.

**A.1** Both measures are whole economy, that is, they cover both the private and public sectors.

Indicator 2	International Comparisons of Labour Productivity (per hour per worked)
Data provider	ONS (using OECD data).
Date set used	National Accounts data, PPP data.
Baseline	Performance will be measured between two years in which the UK, Germany, France and the US are assessed as being at a similar point on the economic cycle. <sup>3</sup> It will only be possible to identify the most appropriate period over which to assess PSA performance at the end of the Comprehensive Spending Review period (i.e. 2011). <sup>4</sup>
Frequency of reporting	Biannually (supporting documents to Budget and Pre-Budget Report)
95 per cent confidence interval	A precise confidence interval is not provided due to the complexities of analysing productivity internationally, particularly in the context of varying economic cycles.
Minimum movement required for performance assessment	There is no formal margin of error but the ONS add the following disclaimer:  “ICP estimates are now published to the nearest whole number. However, as advised in previous releases, differences of a few percentage points between the productivity estimates from individual countries should not be seen as significant because of the measurement difficulties that are present when making international comparisons.”
Data Quality Officer	Strategic Policy Analysis Team (BERR).

<sup>3</sup> ONS methodology and technical notes for producing the International Comparisons of Productivity (ICP) can be found at in the following two papers:

[http://www.statistics.gov.uk/articles/economic\\_trends/international\\_comparisons\\_of\\_productivity.pdf](http://www.statistics.gov.uk/articles/economic_trends/international_comparisons_of_productivity.pdf)

[http://www.statistics.gov.uk/downloads/theme\\_economy/2005\\_Feb\\_ICP\\_technical\\_note.pdf](http://www.statistics.gov.uk/downloads/theme_economy/2005_Feb_ICP_technical_note.pdf)

<sup>4</sup> Due to productivity growth variations with the economic cycle it is more meaningful to look at trend productivity growth over the longer-term. This would normally imply looking at performance over different economic cycles, but this is complicated when making international comparisons as the timing and dynamics of economic cycles varies across countries.

Therefore to pick a valid baseline for international comparisons, it is important to make an assessment about when countries are in similar stages in their economic cycles. In order to make this assessment, output gap data is used. The OECD produces data for UK, France, Germany and the US biannually in their Economic Outlook reports.

Ongoing analysis determines the most appropriate years for a baseline comparison, as these could be subject to change in light of further analysis or revisions to data.

## Supplementary Intermediate Data

**A.2** Intermediate data will be used to supplement the main two indicators for this PSA by giving an overview of relative performance to the US, France and Germany on each driver of productivity and can be used to monitor progress on productivity performance and provide early warning of where more policy action may be needed. An overall update on this supplementary data will be published annually.<sup>5</sup> Progress on individual policies and programmes will be monitored through reporting arrangements devised to monitor progress against departments' Strategic Objectives (DSOs).

**A.3** The consolidated set of data was decided upon following a joint consultation in 2004.<sup>6</sup> The following set was agreed following the exercise (sources in brackets):

- **Investment:**  
Volatility in GDP growth rate (BERR calculations on OECD data)  
Volatility in short-term interest rates (BERR calculations on OECD data).  
Business investment as per cent of GDP (OECD) Government investment as a per cent of GDP (OECD).
- **Innovation:**  
Publications and citations of research in academic journals (Evidence Ltd, Thomson ISI).  
Gross Domestic Expenditure on R&D as a per cent of GDP (OECD).  
Business Enterprise R&D as a per cent of GDP (OECD, ONS for UK).  
Patents granted in the US Patent and Trademark Office (US PTO).  
Proportion of enterprises with co-operation arrangements on technological innovation activities with other enterprise or institutions (Eurostat).  
Proportion of sales accounted for by new or improved products (Eurostat).
- **Skills:**  
International comparisons of the overall level of qualifications (OECD).  
Highest qualifications of adults in the UK (Labour Force Survey).  
Business executive perceptions of management quality (International Institute for Management Development).
- **Enterprise:**  
Entrepreneurial context (Global Entrepreneurship Monitor).  
Cost and time to start a business (World Bank).  
Venture capital investment (Eurostat -EVCA & PriceWaterhouseCoopers).  
Business start-ups (Global Entrepreneurship Monitor).  
Entrepreneurship activity by gender (Global Entrepreneurship Monitor).  
Productivity growth of small and medium sized enterprises (ONS).
- **Competition:**  
Trade in goods and services as a per cent of GDP (OECD).  
Product market regulation (OECD).  
Competition regime peer review – a survey of competition experts relating to the effectiveness of the competition regime in different countries (PriceWaterhouseCooper, KPMG).

<sup>5</sup> <http://www.berr.gov.uk/about/economics-statistics/economics-directorate/page21913.html>

<sup>6</sup> [http://www.hm-Treasury.gov.uk/consultation\\_and\\_legislation/productivity\\_indicators/consult\\_productivity\\_indicators\\_index.cfm](http://www.hm-Treasury.gov.uk/consultation_and_legislation/productivity_indicators/consult_productivity_indicators_index.cfm)

**A.4** Over the CSR07 period BERR will also work towards developing a metric of consumer empowerment to supplement the above basket of competition metrics.

### **Measuring welfare, labour productivity and output: limitations**

**A.5** Gross Domestic Product (and related productivity measures) value market transactions. In theory at least we should consider the total welfare generated through these transactions. However there are formidable difficulties in doing this: for example estimating the value consumers attach to consuming goods and services over and above what they pay. In addition welfare measures would share problems common to constructing measures of labour productivity and output:

- *Missing markets:* mean that sometimes things cannot be valued – for example, the development of coal-fired power plants led to greater economic efficiency, but produced pollution that had an adverse effect on people’s welfare. The absence of a form of market for pollution rights means that only the private economic benefits (e.g. profit or wages) are recorded in statistics and not the social or environmental costs;
- *Unquantified outputs:* Some outputs do not appear in the national accounts, for example housework. It is very difficult in practice to quantify the benefits from medical innovations such as the intra ocular lens and the consequential shorter time required to perform cataract operations, or the improved survival chances after heart operations and so on;
- *Changes in quality:* It is also not easy to value benefits from an improved quality of goods and services in general. The well-known examples of lighting and computers indicate how a failure to allow adequately for quality improvement can result in serious underestimates of the real value of the producing industries’ output. The problems of valuing quality improvements in service sector outputs are particularly acute;
- *Output prices may not exist* for some markets. By convention their contribution to productivity is shown by how much it costs to produce a good or service, rather than the value consumers place upon it. So it is likely that any productivity improvements in these sectors do not fully appear in the final statistics; and
- *Measures of productivity*, such as GDP per worker, are ratios where both the numerator and denominator can be subject to often significant measurement error. There are difficulties in measuring the volume of labour used, for example taking into account part-time jobs, self-employed workers, overtime and so on.

**A.6** Various organisations and researchers have sought to construct measures that overcome some of these, and other, difficulties. For example, measures of well being which go beyond trying to value market transactions and try to value social changes. However, such measures also have limitations with respect to their robustness, simplicity, and usefulness.

**A.7** BERR will continue to work with other government departments such as Defra and HMT, and external organisations, to further examine methodological issues around the development of alternative output and welfare measures. In particular BERR will

investigate the methodological and measurement issues related to formulating a set of practical sustainability indicators, which attach values to environmental degradation and resource depletion. BERR's discussions with the late Professor Pearce, for example, indicated that values for noise pollution, common air pollutants, water quality and usage, and waste could be constructed.



