# Productivity Projections for 2012 from The Conference Board Total Economy Database™

January 2012

## Advanced economies are gradually losing their edge in productivity

- Global labor productivity growth in 2011 slows more than projected, from 3.6% in 2010 to 2.5% in 2011
- Slower output growth in advanced economies is main reason for faster slowdown, as pro-cyclical recovery effects came to early halt
- Further decline in productivity growth to 2.3 percent in 2012 – emerging economies account for substantial part of slowdown
- Productivity is a key driver of growth – even more when austerity reigns
- While productivity levels in emerging and developing economies are still much lower, the gap will gradually narrow
- Technology and innovation (as proxied by trend in total factor productivity growth) shows no signs of picking up, globally


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# Agenda

- Headlines on global productivity performance from the 2012 release of The Conference Board Total Economy Database™
- Is Europe declining trend in productivity reversing?
- Innovation and technology as key driver of productivity – the role of intangibles
- Productivity as part of the escape route from the debt crisis in advanced economies?



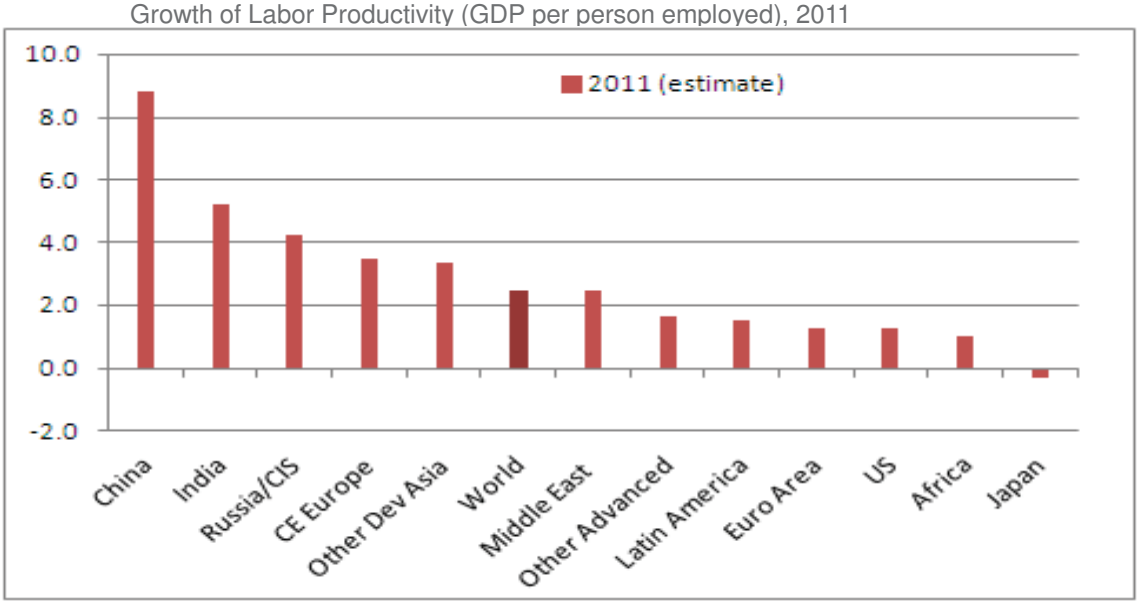
# The Conference Board Total Economy Database™

- TCB flagship data and analysis on productivity performance
- Covers > 100 countries, with annual data on output, employment, hours, labor productivity
- Includes measures of capital inputs (machinery, ICT, labor skills, etc.) and total factor productivity
- Comes with a publicly accessible database (http://www.conference-board.org/data/economydatabase/)
- Country-specific stories on sources of growth and productivity, and what it means for investment and competitiveness
- *The Conference Board Productivity Brief* describes main trends; In February short report, titled *Performance 2012 (*longer version in *Performance 2011).*



# Global productivity growth at 2.5 percent in 2011 …

Growth of Labor Productivity (GDP per person employed), 2011

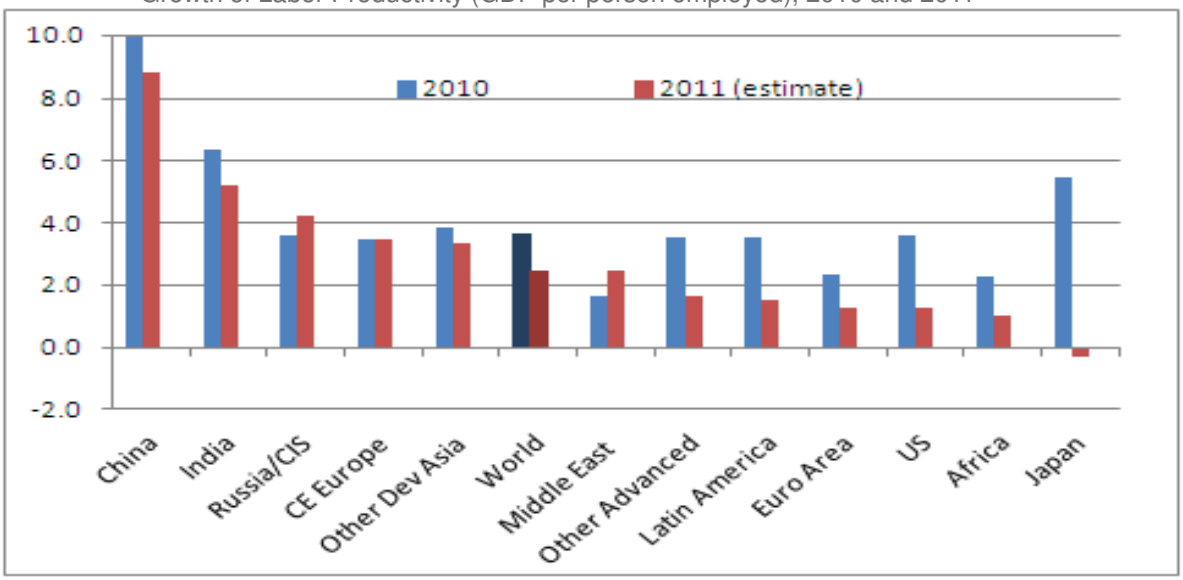



*Source: The Conference Board Total Economy Database*



# … down from 3.6 percent in 2010

Growth of Labor Productivity (GDP per person employed), 2010 and 2011

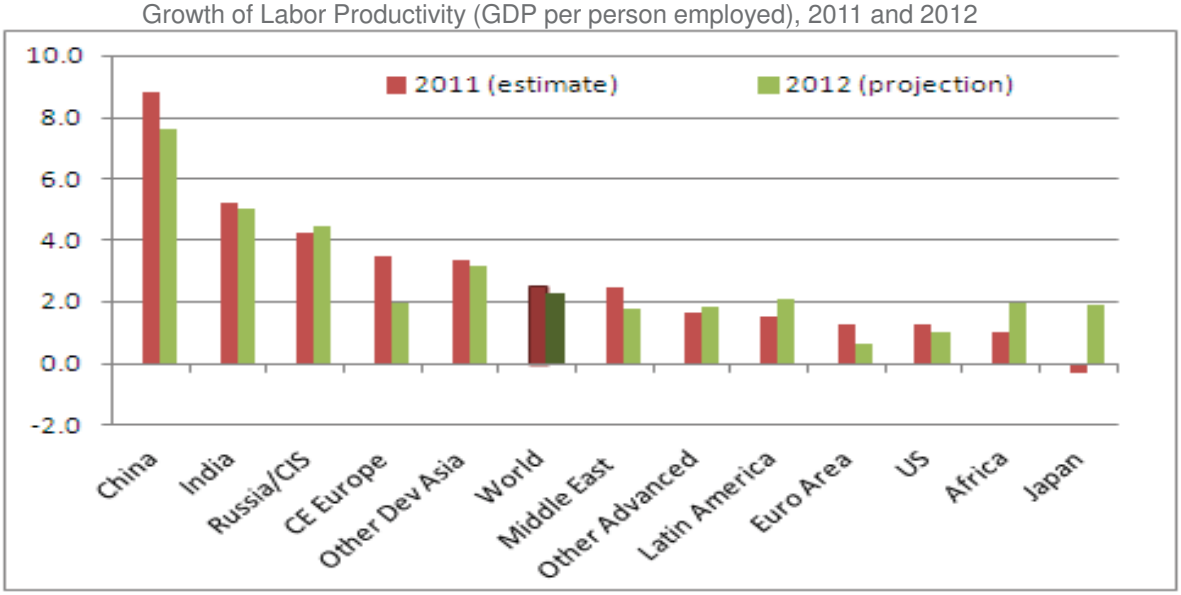



*Source: The Conference Board Total Economy Database*



# … and slightly slowing further in 2012

Growth of Labor Productivity (GDP per person employed), 2011 and 2012

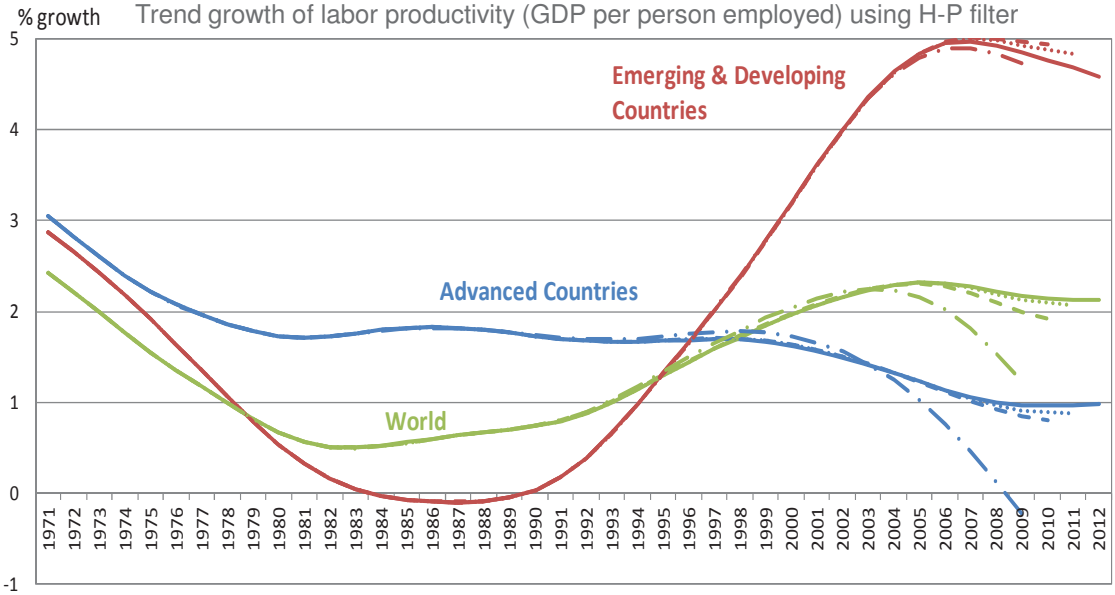



*Source: The Conference Board Total Economy Database*



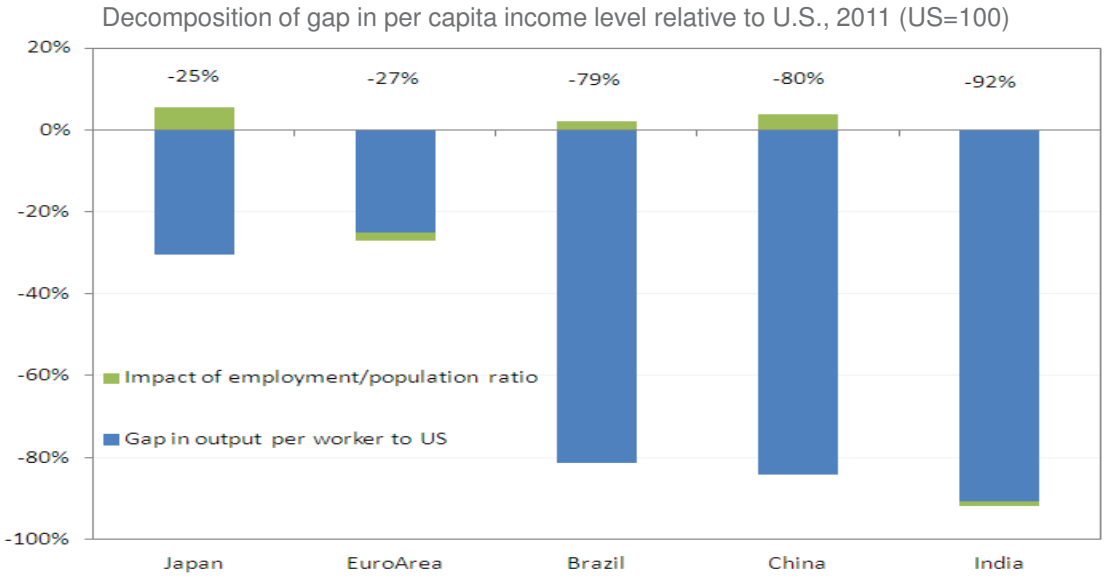
# Productivity growth differential still large between emerging and advanced economies, although gradually narrowing

Trend growth of labor productivity (GDP per person employed) using H-P filter




*Source: The Conference Board Total Economy Database*

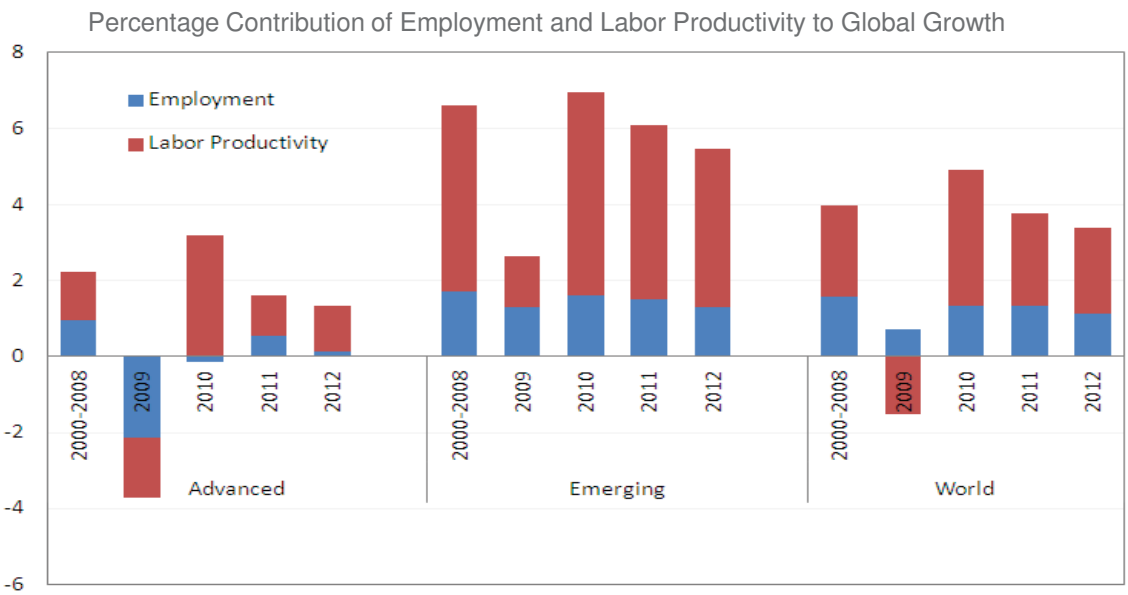
# Catching up potential for labor productivity still looks large




*Note: measured in log of gaps; reported numbers are actual gap in per capita income; China refers to 2010*
*Source: The Conference Board Total Economy Database*

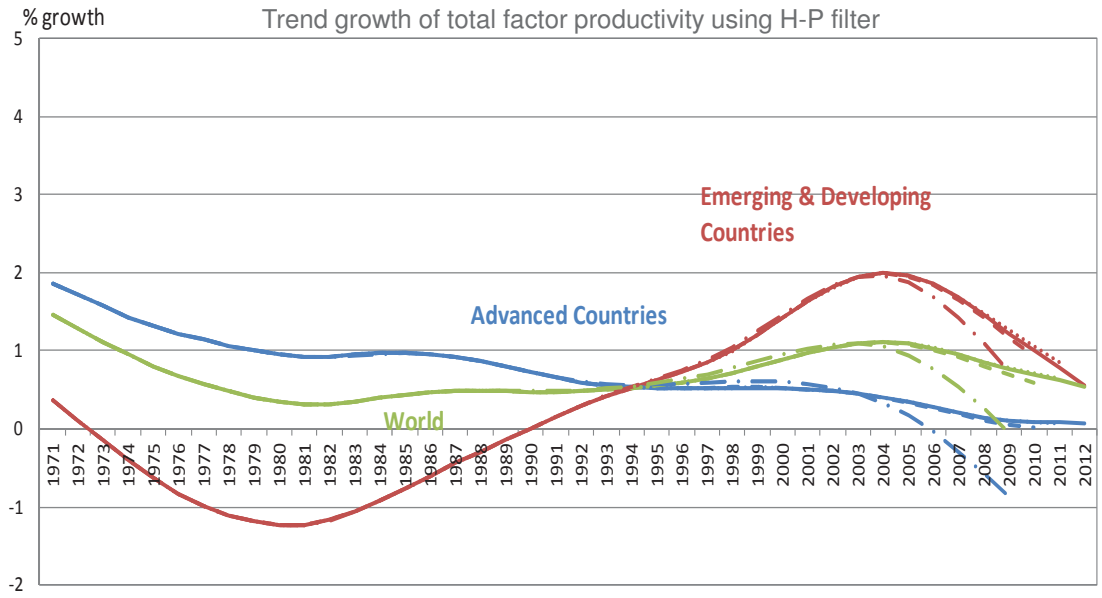


# Productivity remains a more important driver of economic growth than increases in employment




*Source: The Conference Board Total Economy Database*

# Trends in total factor productivity growth in emerging economies declines rapidly as transitional effects wane




*Source: The Conference Board Total Economy Database*

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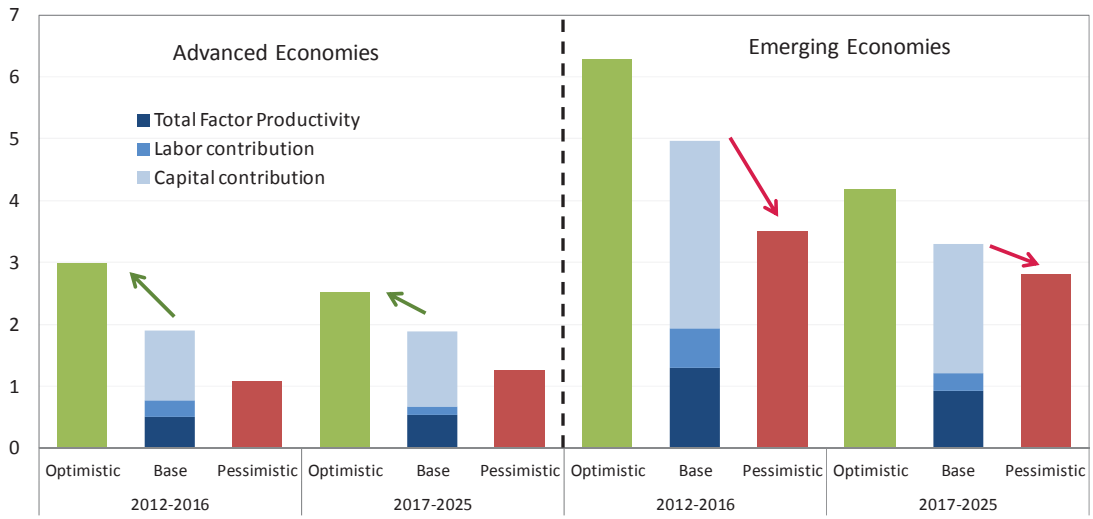
# Globally, the challenge is how to avoid a more dramatic slowdown in emerging economies




*Source: The Conference Board Global Economic Outlook, January 2012 (updated)*

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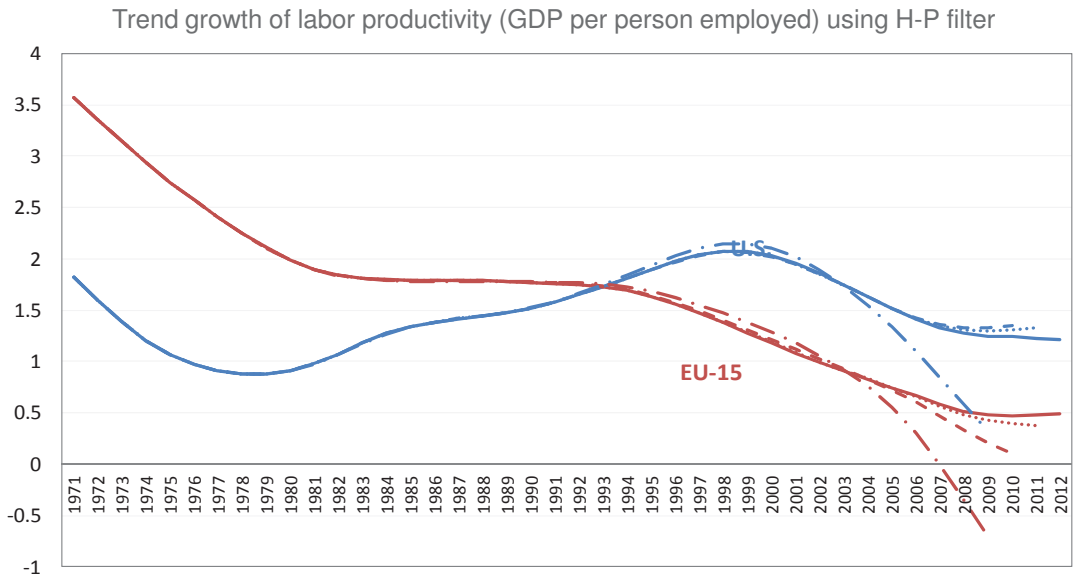
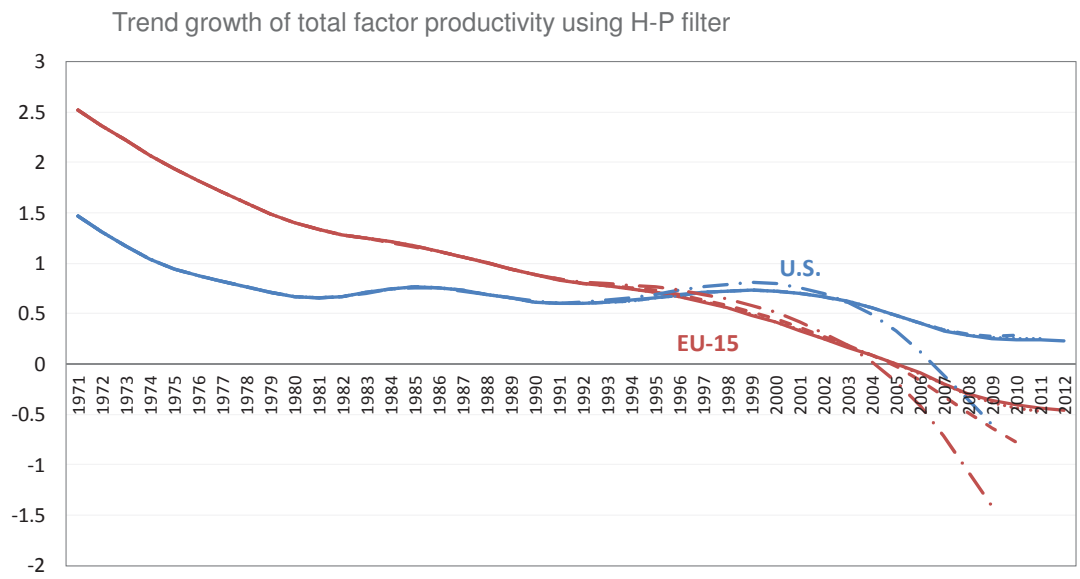
# Trend in labor productivity growth in United States remains consistently at 0.75% point above EU trend




*Source: The Conference Board Total Economy Database*



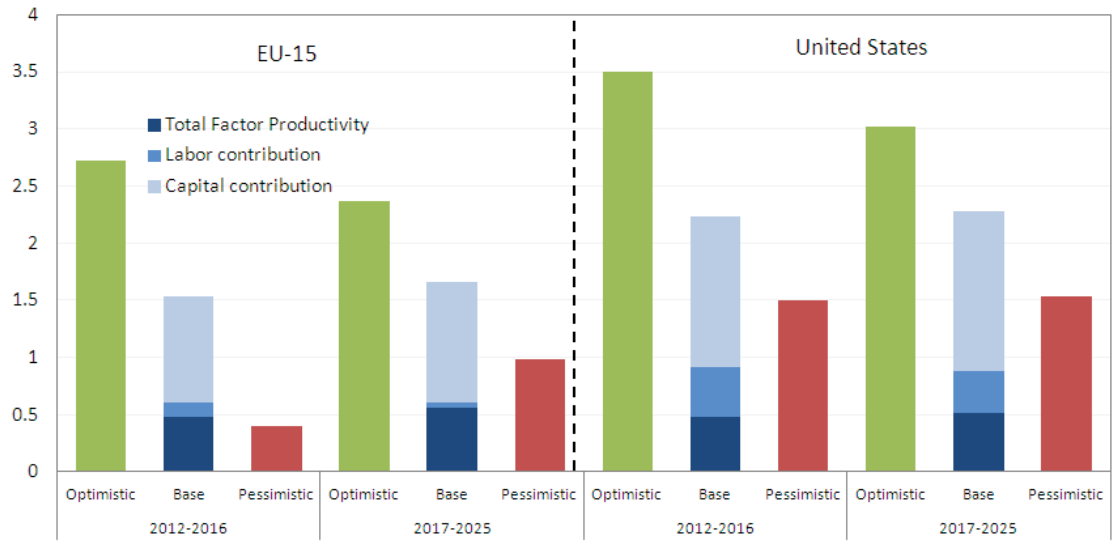
# Total factor productivity has been trending downwards much more strongly in both U.S. and Europe




*Source: The Conference Board Total Economy Database*



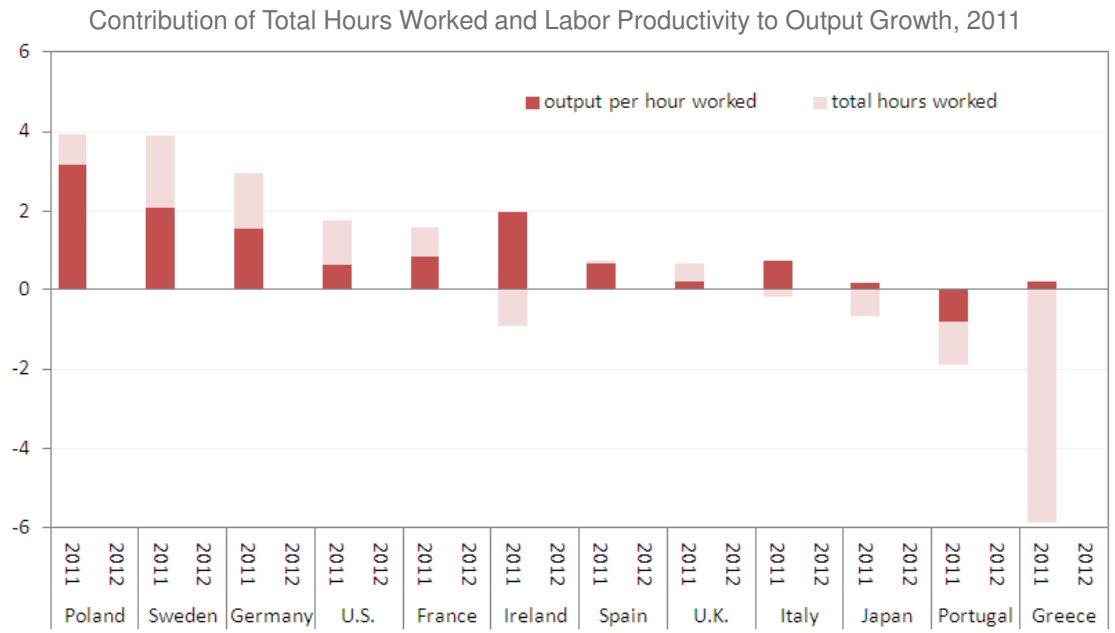
# Going forward, importance of TFP growth needs to rise, especially in Europe




*Source: The Conference Board Global Economic Outlook*



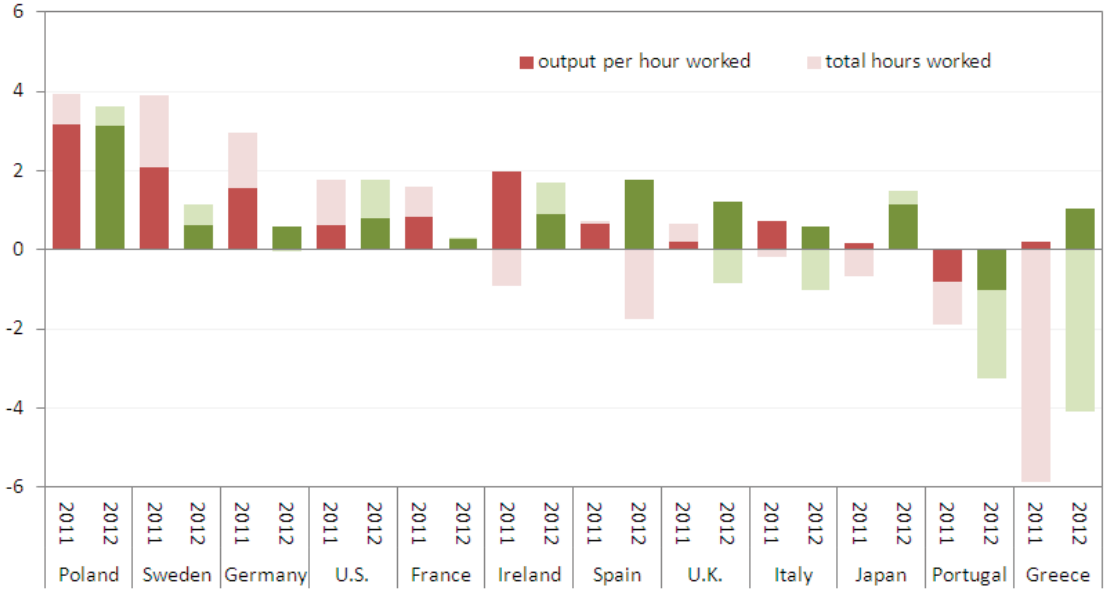
# Advanced countries have seen slowing in output and productivity across the board




*Source: The Conference Board Total Economy Database*

# In 2012, productivity growth accounts for even larger part of output, as labor input growth shrinks, especially also in most troubled economies

Contribution of Total Hours Worked and Labor Productivity to Output Growth, 2011 and 2012

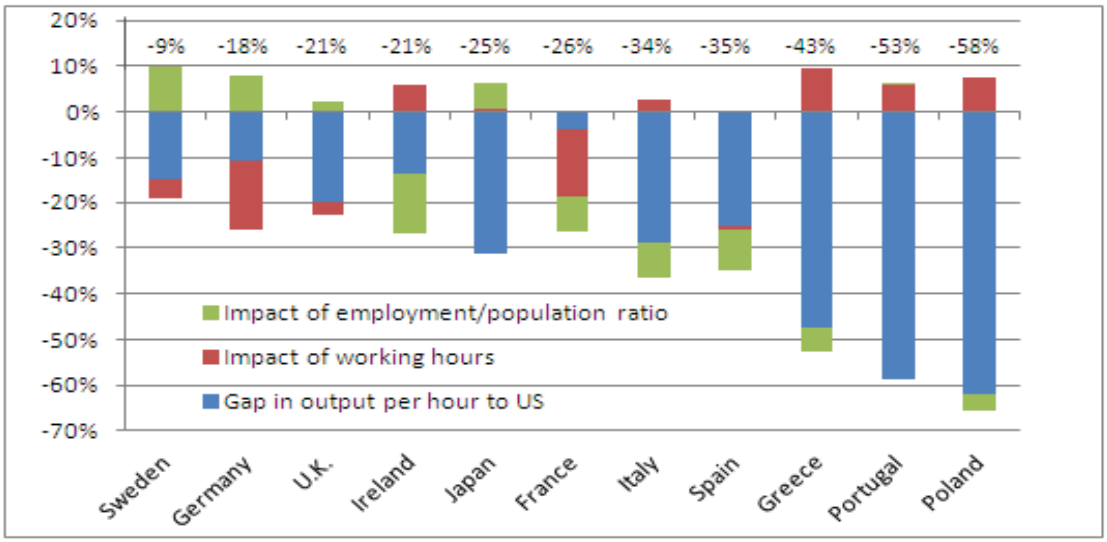



*Source: The Conference Board Total Economy Database*



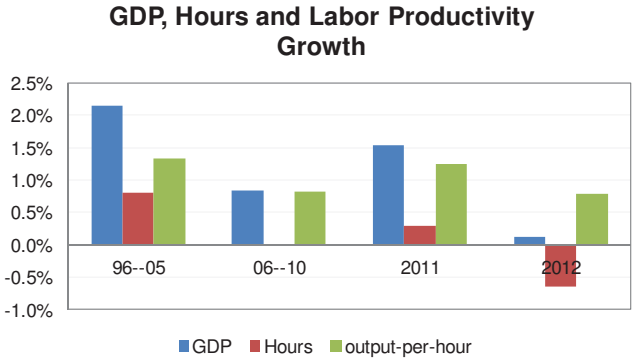
# Productivity is key driver of gap in per capita income level

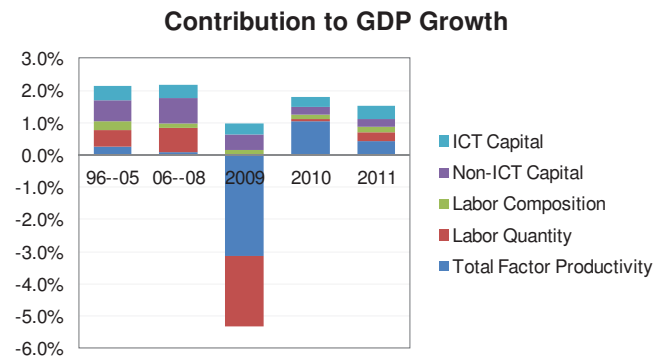
Decomposition of gap in per capita income level relative to U.S., 2011 (US=100)




*Source: The Conference Board Total Economy Database*

# Euro Area: contraction reigns as productivity growth slows




*Source: The Conference Board **Total Economy Database**™, January 2012*

- Productivity growth in the Euro Area has continued to weak for most of the first decade of the 21st century. The TFP trend has been close to zero for most years, pointing to a weakening capacity for innovation and a failure to strengthen competitiveness across the European Union
- Total working hours were stagnant in 2010 and rose only 0.3 percent in 2011. Productivity growth weakened from 1.8 percent in 2010 to 1.2 percent in 2011, although it was the highest among the major advanced economies.
- The already weak output growth of 2010 at 1.8 percent continued to decline into 2011, dropping to 1.5 percent.Growth received a bigger hit than expected in the second half of 2011, especially during the final quarter when the sovereign debt and bank crisis began to take its toll.
- Productivity growth will continue to slow to 0.8 percent in 2012, the same rate as that of the United States. However,, in contrast to the Euro Area, the U.S. will gain ground with stronger labor performance in 2012 (a 1 percent rise in total hours in the United States versus a -0.7 percent contraction in hours in the Euro Area)

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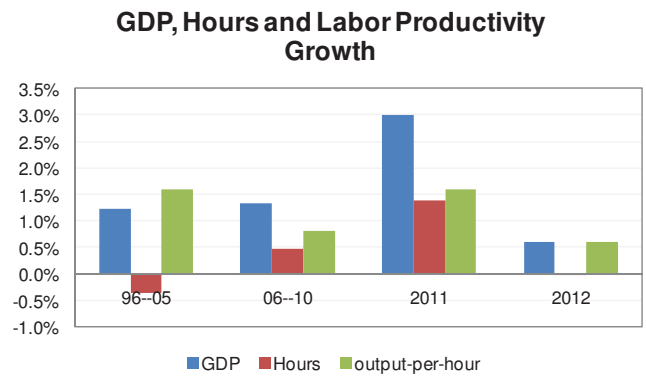
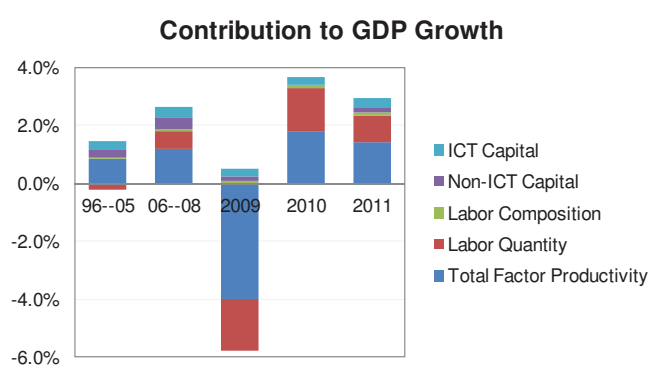
# Germany: a rapid erosion of the 2011 advantage?




*Source: The Conference Board **Total Economy Database**™, January 2012*

- Germany was one of the best performers among major advanced economies in 2011, with GDP, total hours worked and labor productivity growing at 3 percent, 1.4 percent and 1.6 percent respectively.
- Unlike most European countries, TFP growth explained most of the GDP growth in 1996-2008.
- The recession in 2008/09 briefly disrupted TFP growth, which persisted its solid performance in 2010 and 2011
- Against the backdrop of the European debt crisis, in 2012 the economy is projected to see a slower output growth at 0.6 percent. Total hours worked will remain unchanged and labor productivity growth will drop to 0.6 percent, lower than the average growth in 2006-2010
- Germany's ability to sustain TFP growth in an environment characterized by government budget cuts and austerity will be key in determining both its short and long term growth

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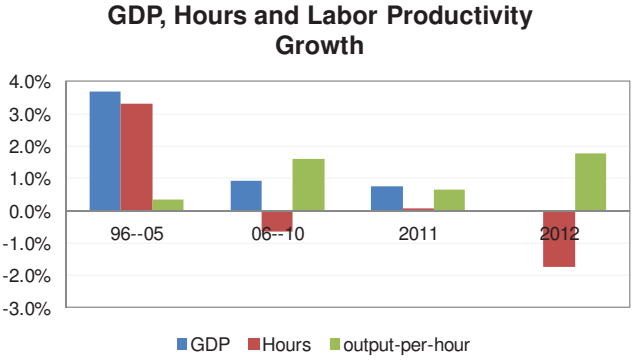
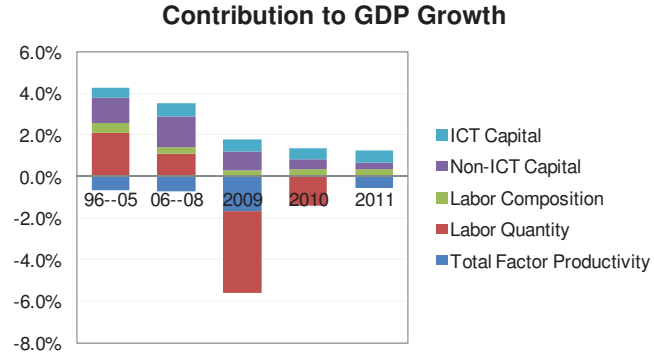
# Spain: productivity gains in times of austerity and cuts



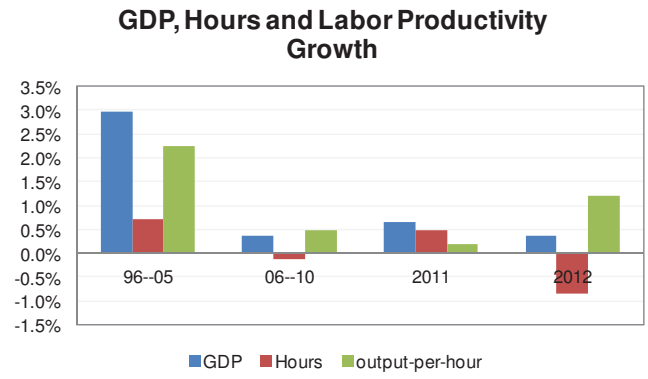



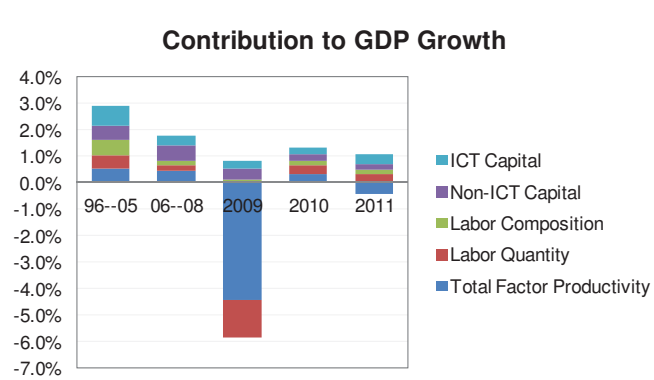

- After two years' decline, output grew at 0.7 percent in 2011. The recovery in total working hours (at a meager 0.1 percent) was weaker than output growth, resulting in a productivity growth at 0.7 percent
- The labor-driven growth performance of the late 1990s and early 2000s lost its shine in the second half of the past decade, as productivity appeared too weak. The total factor productivity growth has been negative since 1996 and has not shown any sign of recovery, suggesting the urgent need for a structural reform of the economy.
- Following the immediate pains of the crisis, the current austerity policies will lead to a stagnation in output growth. Output is projected to be stagnant this year.
- Productivity will improve significantly to 1.8 percent as the many cuts squeeze out unproductive firms and economic activity in the economy. The growth contributions remain extremely contracted for the coming year, 2012.

*Source: The Conference Board **Total Economy Database**™, January 2012*



# United Kingdom: Productivity Gains on Austerity?

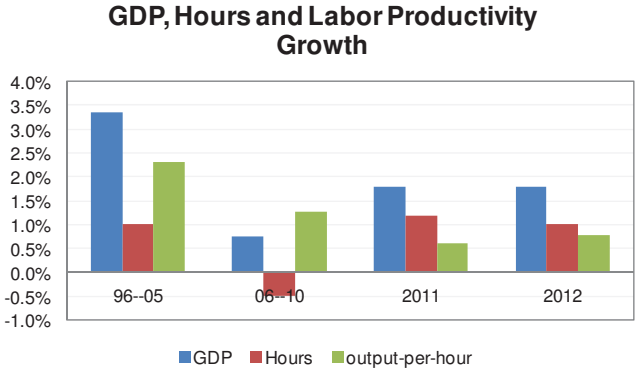


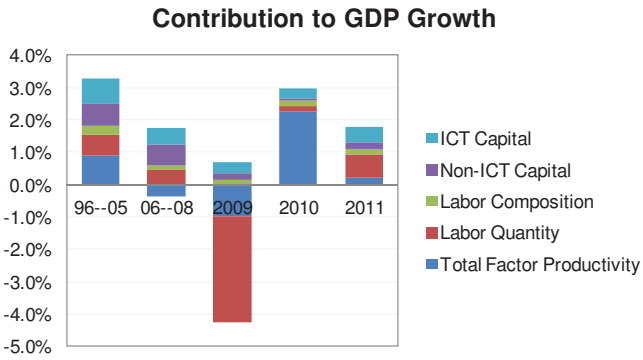




- Following a rebound in labor productivity in 2010, labor productivity was nearly flat, growing only 0.2 percent, while total hours growth remained constant at 0.5 percent
- As a result, output growth slowed to 0.7 percent in 2011
- In 2012, output growth is expected to slow further to 0.4 percent as the recession in Europe unfolds.
- However, the United Kingdom will still see a significant increase in labor productivity growth as austerity measures impact the labor market, resulting in a 0.8 percent decrease in total hours worked
- At the same time, austerity measures may force small and medium-sized enterprises to exit their industries, resulting in temporary productivity gains where surviving, more efficient firms remain

*Source: The Conference Board **Total Economy Database**™, January 2012*

# United States: a slow but gradual return to healthier growth?




- Labor productivity in the U.S. continued to grow, although at a slower rate than in 2010, while momentum in output growth diminished significantly from 3 percent in 2010 to 1.8 percent in 2011
- While labor productivity growth slowed from 2.7 percent to 0.6 percent, a significant portion of this slowdown (0.9 percentage points) resulted from modest gains in total hours worked.
- The United States will see continued gradual improvement in the labor market, in the form of positive albeit slow total hours growth. As output growth is expected to grow at the same rate as in 2011, labor productivity growth will improve slightly depending on developments in the labor market
- A renewed slowdown in 2011 suggests that the TFP trend in the United States may continue downward and that the productivity effects from ICT applications, especially in the services sector of the U.S. economy, have begun to erode

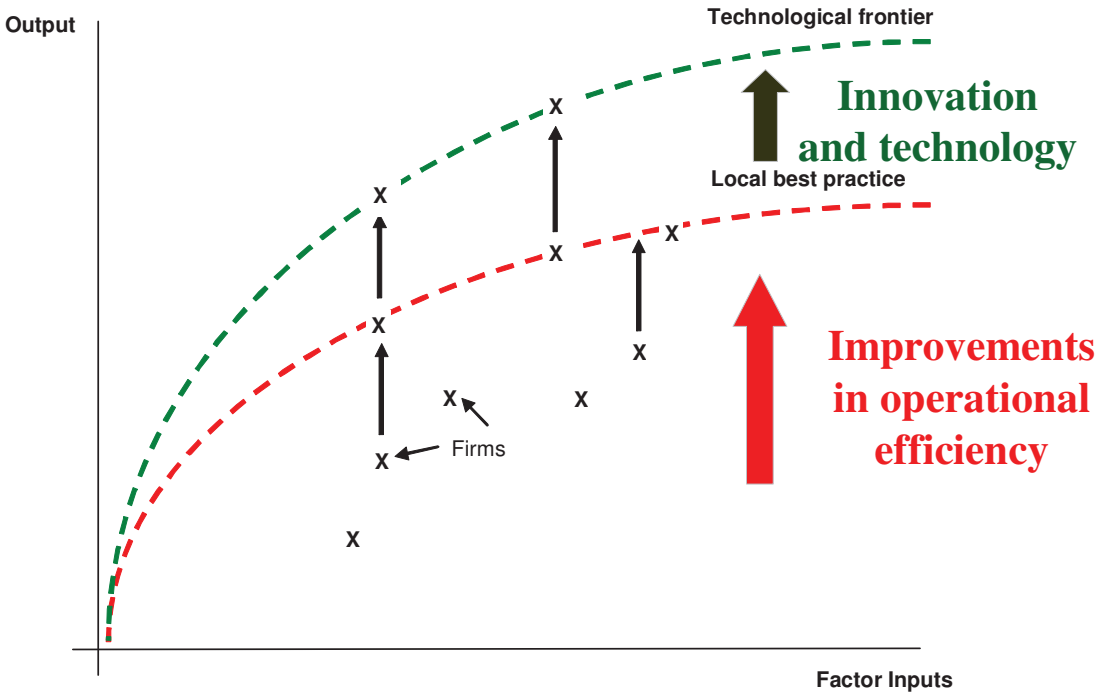
*Source: The Conference Board **Total Economy Database**™, January 2012*



# Technology and innovation as driver of better productivity performance require investment in intangibles

- Total factor productivity is a residual, representing a diversity of factors:
  - Technology and innovation
  - Motivation and competencies
  - Regulations, competition rules, structural reforms, etc.
- Zooming in on innovation , the distinction between improving average and best practices is crucial for the comprehensiveness of productivity gains and for policy purposes
- Innovation is the result of investment in intangibles

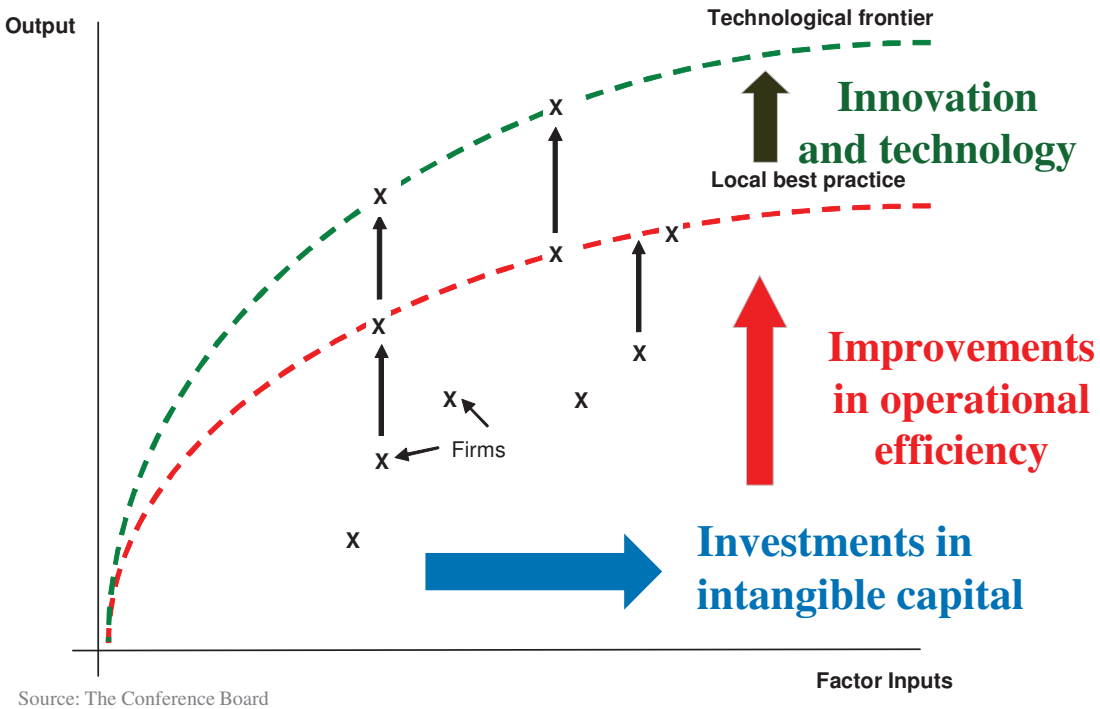
# Technology and innovation are key for a long term productivity strategy




Source: The Conference Board



# Investments in intangible capital is key to innovation



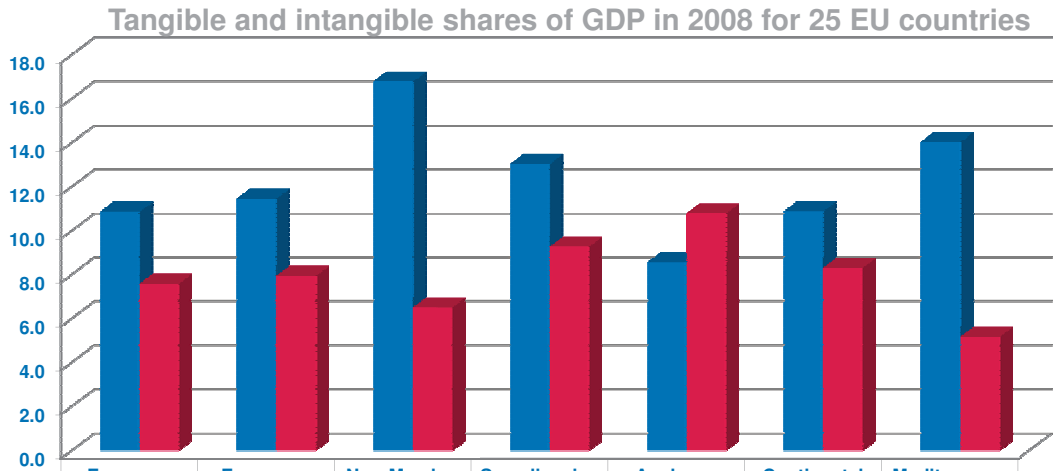

Source: The Conference Board

## Inputs to Innovation include more than ICT, Intangible investments include more than R&D, IPRs cover more than Science & Engineering patents

| Broad category | Type of Investment | Type of Capital |
|---|---|---|
| Computerized Information | • Software development<br>• Database development | IPRs/Codified knowledge |
| Innovative Property | • R&D<br>• Mineral exploration<br>• Copyright development (artistic originals)<br>• Design and other product development costs | Forms of IPRs:<br>• Patent<br>• License<br>• Copyright<br>• Design IPR<br>• Trademark |
| Economic Competencies | • Market research & advertising<br>• Business process investment<br>• Training & skill development | Organizational |



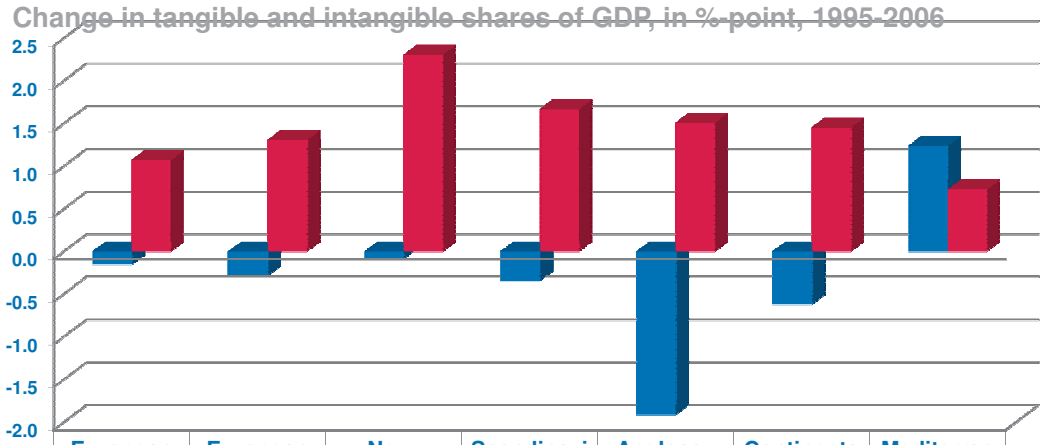
## GDP share of intangibles relative large in Anglo-Saxon economies relative to Continental Europe




| | European Union (25 countries) | European Union (15 countries) | New Member States (2004) | Scandinavian (DK, FI, SE) | Anglosax (IE,UK) | Continental (AT, BE, FR, DE, LU, NL) | Mediterranean (GR, IT, PT, ES) |
|---|---|---|---|---|---|---|---|
| Tan 2008 | 10.9 | 11.5 | 16.8 | 13.0 | 8.6 | 10.9 | 14.0 |
| Intan 2008 | 7.6 | 8.0 | 6.5 | 9.3 | 10.8 | 8.3 | 5.2 |

*Source: Corrado, Haskel, Jonas-Lasinio and Iommi, 2011*

# Intangibles shares rapidly increased until 2006

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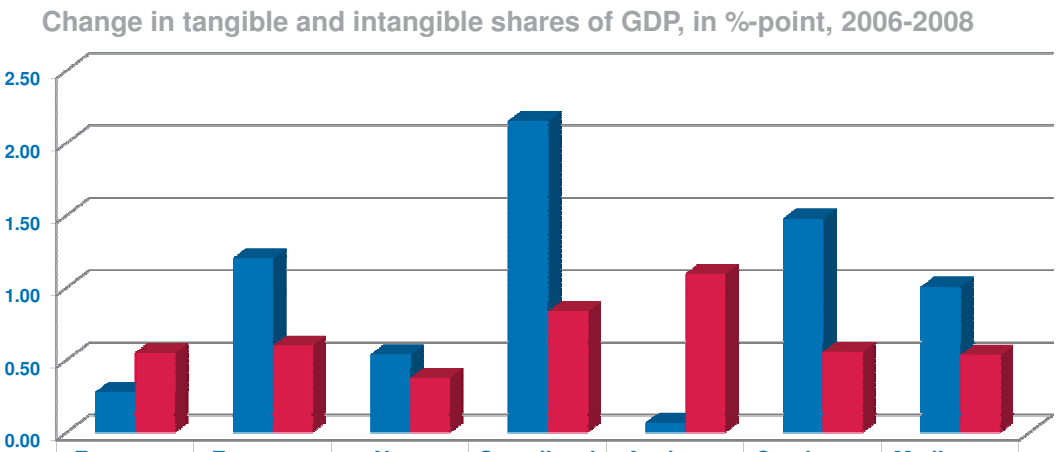
|---|---|---|---|---|---|---|---|
| Tangible | -0.2 | -0.3 | -0.1 | -0.3 | -1.9 | -0.6 | 1.2 |
| Intangible | 1.1 | 1.3 | 2.3 | 1.7 | 1.5 | 1.5 | 0.7 |

*Source: Corrado, Haskel, Jonas-Lasinio and Iommi, 2011*



# Intangibles shares declined more sharply in Europe than in Anglo-Saxon economies

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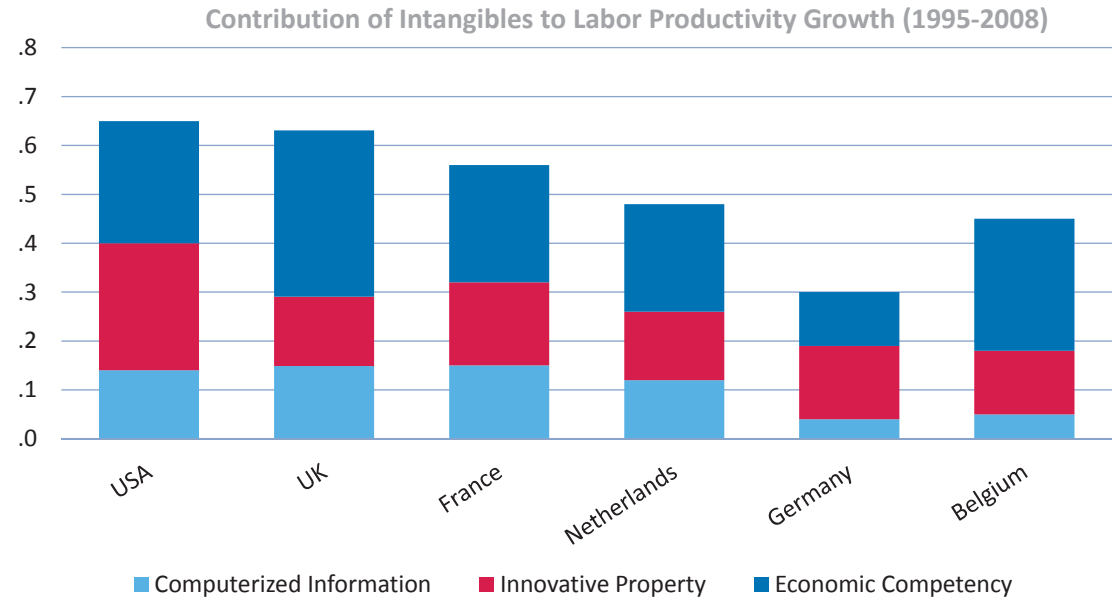
|---|---|---|---|---|---|---|---|
| Tangible | 0.28 | 1.20 | 0.54 | 2.15 | 0.07 | 1.48 | 1.00 |
| Intangible | 0.5 | 0.6 | 0.4 | 0.8 | 1.1 | 0.6 | 0.5 |

*Source: Corrado, Haskel, Jonas-Lasinio and Iommi, 2011*



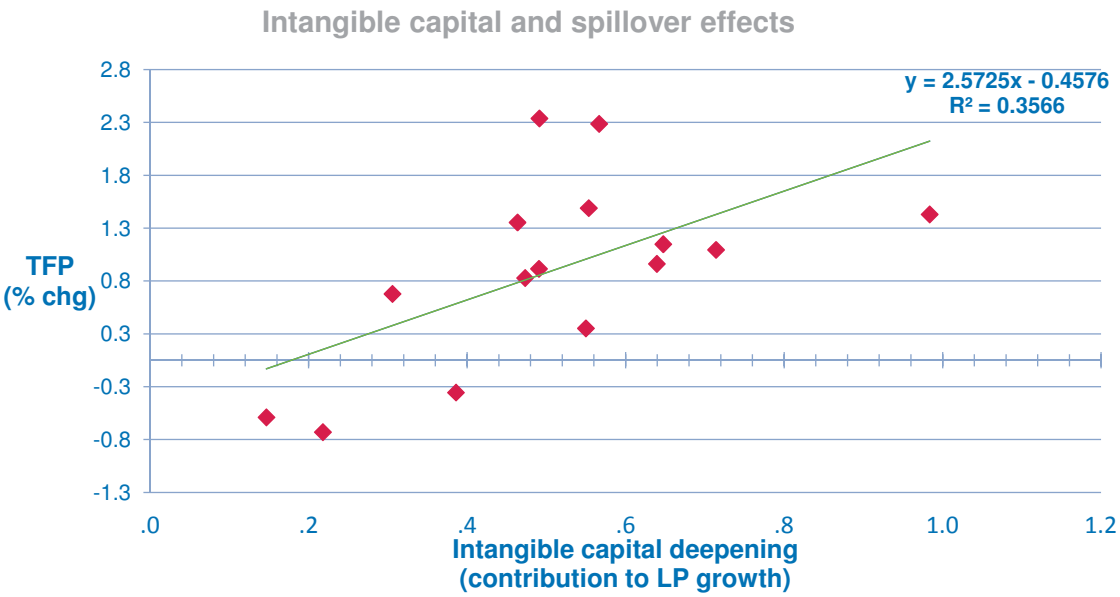
# Between 0.3-0.7 %-points of labor productivity growth in advanced countries is due to rise in intangibles …




*Source: Corrado, Haskel, Jonas-Lasinio and Iommi, 2011*



# … and impact on TFP growth seems to exists as well




*Source: Corrado, Haskel, Jonas-Lasinio and Iommi, 2011*

# How much will productivity growth help to resolve crisis?

Executive Action Series

## Escaping the Sovereign-Debt Crisis

Productivity-Driven Growth and Moderate Spending May Offer a Way Out

by Stephen Sexauer and Bart van Ark

Sovereign debt and fiscal deficits are strangling many advanced economies. Policy choices are complex, but there is an escape strategy that does not require draconian budget cuts or risky debt-financed stimulus spending. The solution is based on two principal policy levers: encouraging productivity-driven GDP growth and keeping government spending per worker constant. When governments align their policies with these growth principles, a fiscal surplus will eventually materialize and the ratio of government debt to GDP will decline substantially within one to two decades.

Many advanced economies, including the United States and various countries in the Euro Area, face a major crisis due to their accumulation of sovereign debt and fiscal deficits. In the United States—the world's biggest economy—the federal government deficit is running at 10 percent of GDP and publicly held federal debt lurched from 36 percent of GDP in 2006 to 53 percent in 2009. The question now is how to get out of the "great debt" crisis before debt markets close.

No country can easily grow itself out of a debt crisis. Recovery from the current episode of rapidly increasing debt is especially difficult because a turnaround is needed at a time when structural weaknesses have accumulated, including a slowdown in innovation; there are increasing shortages of human capital; and the structural reforms needed to strengthen competitiveness and growth are not at the top of the agenda. Country-specific solutions to restart the engine of growth are, therefore, extraordinarily complex.

NO. 339 DECEMBER 2010

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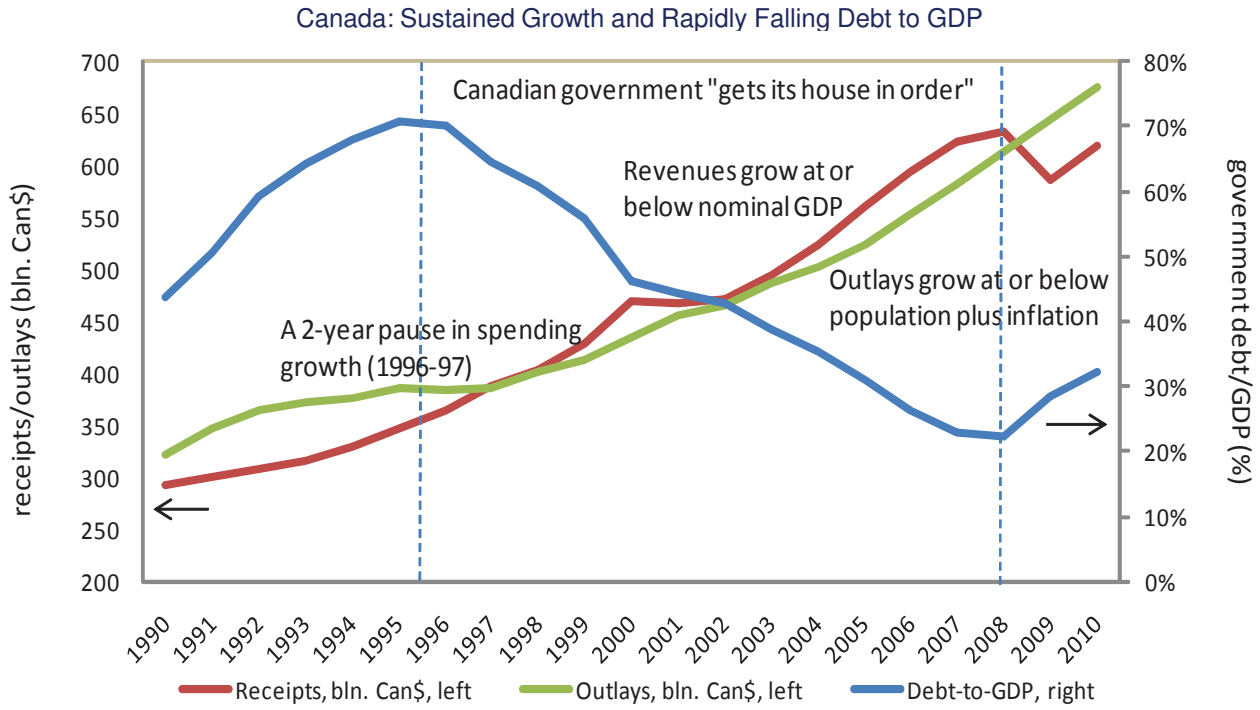
# An example: Canada
# Grow revenues at GDP and grow expenditure at less than that




Sources: Bank of Canada, IMF, The Conference Board

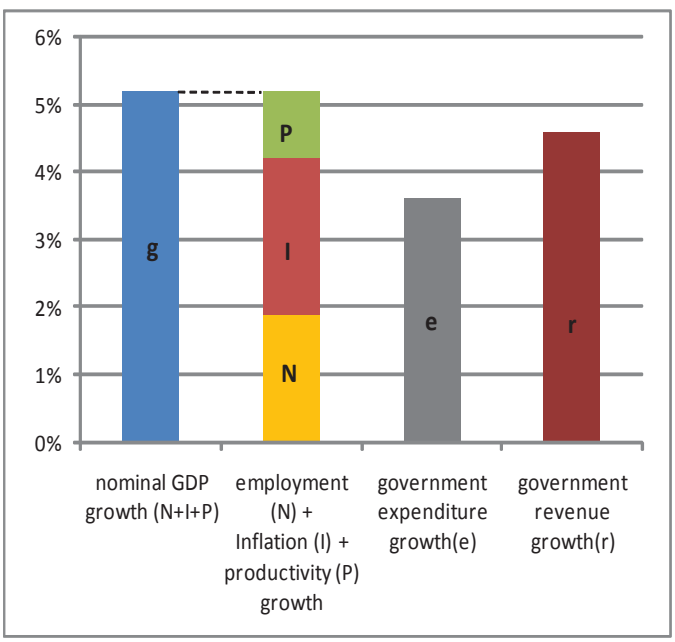
# Key principles of fiscal policy may make difficult task a little easier

- Focus on growth rather than levels of output, outlays and receipts:
  - ✓ Grow the economy faster than the growth in employment and inflation through productivity growth
  - ✓ Reduce the growth in medium-term government spending to match employment and inflation growth (no-one-worse-off policy)
  - ✓ Grow revenues faster than spending at or somewhat below nominal GDP growth



# What matters is growth – and good policies driving it

The Sources of Canada's GDP Growth and Debt Reduction, 1995-2008



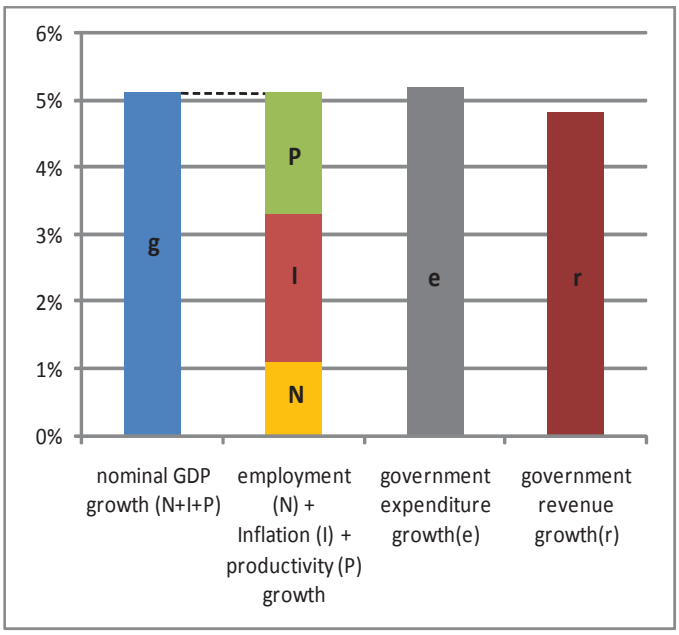

| | | |
|---|---|---|
| g | 5.2% | =NOMINAL GDP growth = N + I + P |
| r | 4.6% | =revenue growth |
| e | 3.6% | =expense growth |
| λ | 0.86 | = ratio government growth to N + I = λ |
| β | 0.88 | = ratio revenue growth to GDP (N + I +P) |
| N | 1.9% | = employment growth |
| I | 2.3% | = inflation (GDP deflator) |
| P | 1.0% | = productivity (GDP - N - I) |

Sources: IMF, The Conference Board Total Economy Database



# U.S. pre-crisis picture shows more productivity growth than Canada, but spending unsustainable

The Sources of U.S. GDP Growth and Debt Reduction, 1995-2008



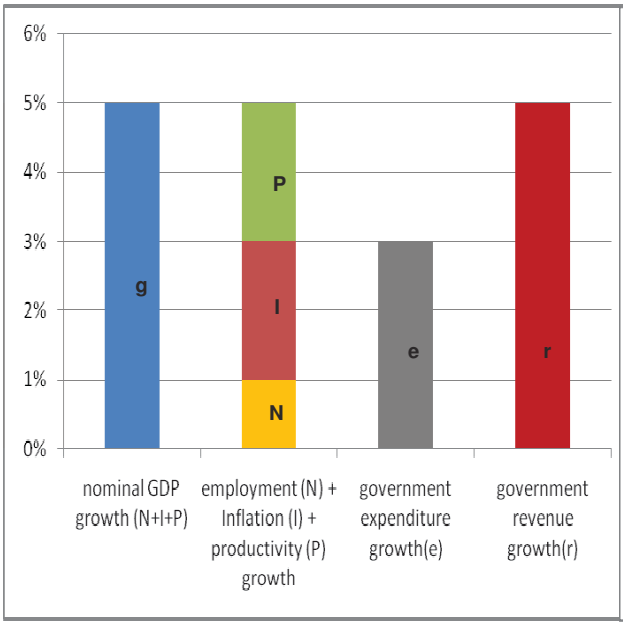

| | | |
|---|---|---|
| g | 5.1% | =NOMINAL GDP growth = N + I + P |
| r | 4.8% | =revenue growth |
| e | 5.2% | =expense growth |
| λ | 1.58 | = ratio government growth to N + I = λ |
| β | 0.94 | = ratio revenue growth to GDP (N + I +P) |
| N | 1.1% | = employment growth |
| I | 2.2% | = inflation (GDP deflator) |
| P | 1.8% | = productivity (GDP - N - I) |

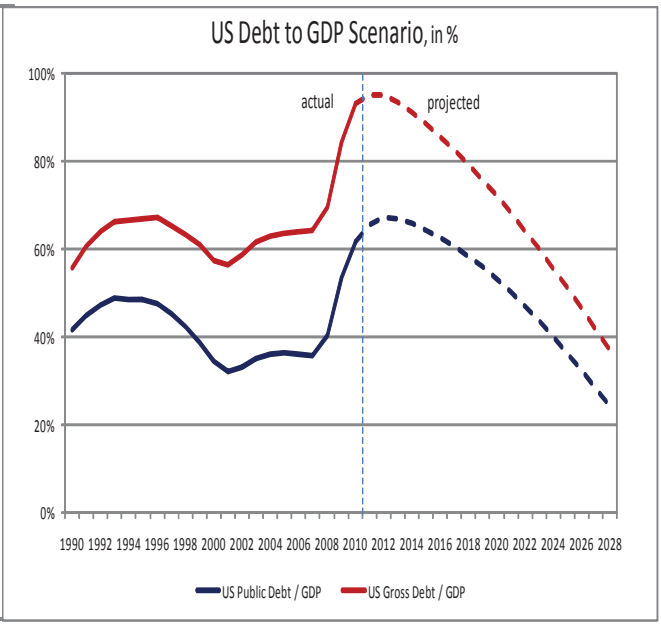
Sources: BEA, Federal Reserve, The Conference Board Total Economy Database



# A solid reduction scenario is definitely possible, and productivity drives the growth engine

Sources of Projected U.S. GDP growth and Debt Reduction

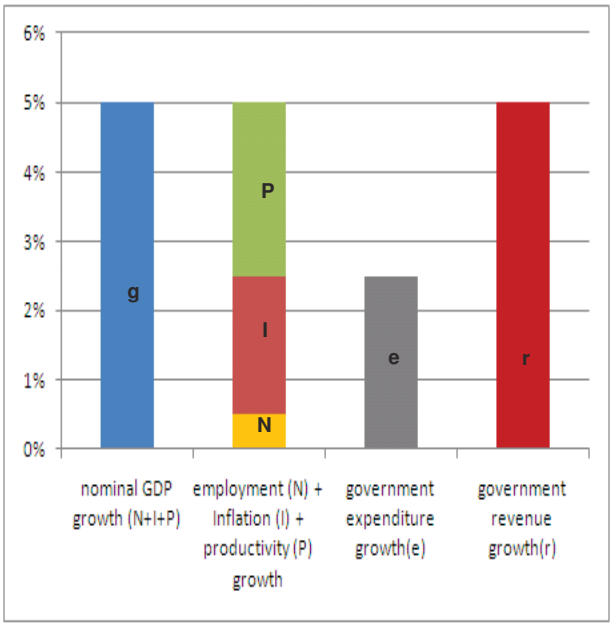


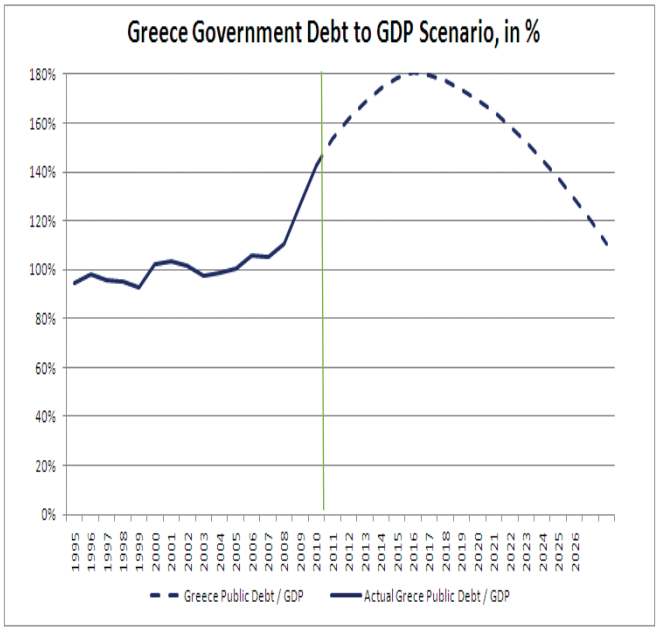




Note: Assuming a cyclically adjusted 19% revenue-to-GDP ratio
Sources: Federal Reserve, The Conference Board.

# Productivity growth would make the key difference to prospects for Greece to escape the crisis

Sources of Projected Greek GDP growth (2012-2016) and Debt Reduction (2010-2030)



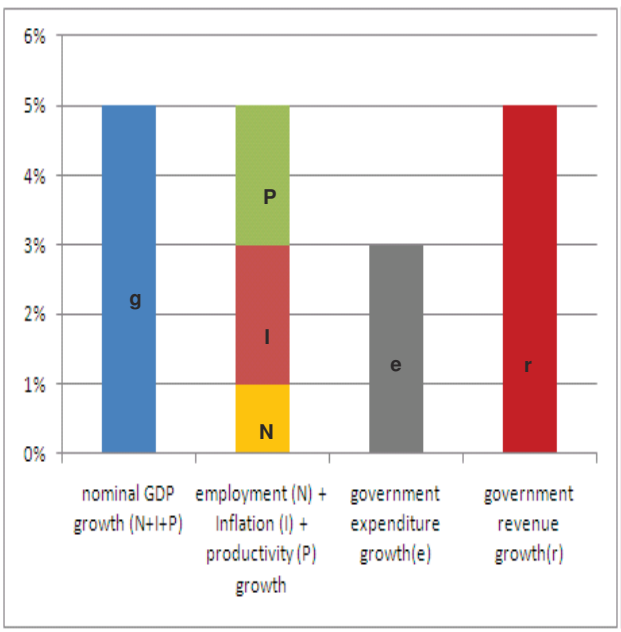



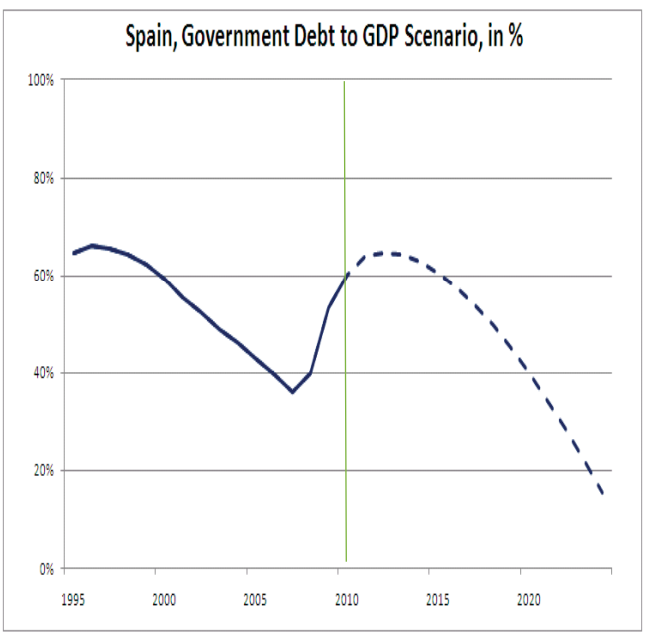

Note: Assuming a cyclically adjusted 40% revenue-to-GDP ratio
Sources: Eurostat, IMF, The Conference Board.



# Spain faces faster employment growth and a greater challenge for productivity, but better starting position on debt

Sources of Projected Spanish GDP growth (2012-2016) and Debt Reduction (2010-2030)



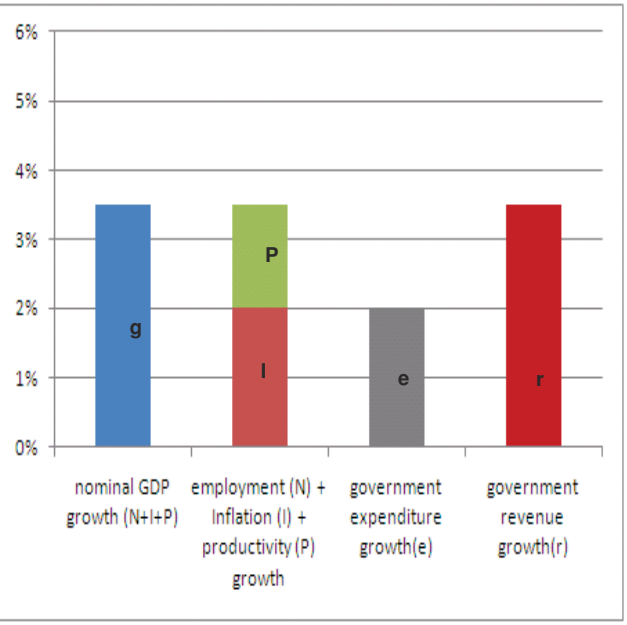



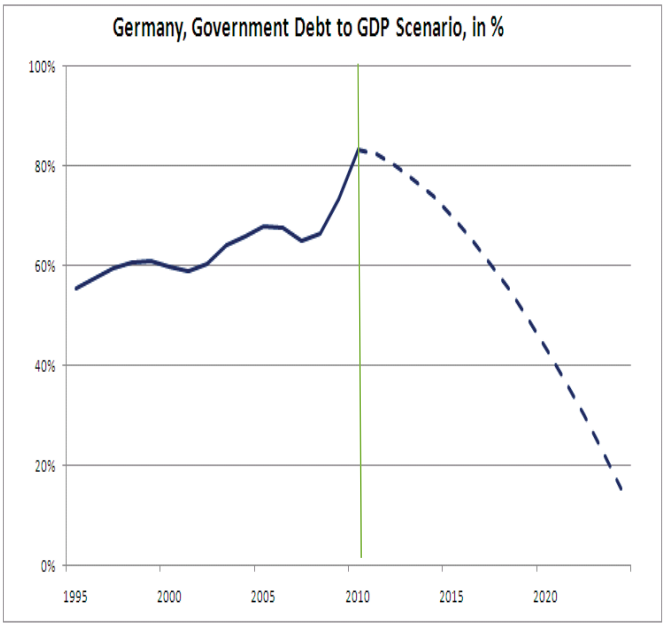

Note: Assuming a cyclically adjusted 38% revenue-to-GDP ratio
Sources: Eurostat, IMF, The Conference Board.



# Weak employment growth and limited potential for productivity growth challenges German growth scenario

Sources of Projected German GDP growth (2012-2016) and Debt Reduction (2010-2030)



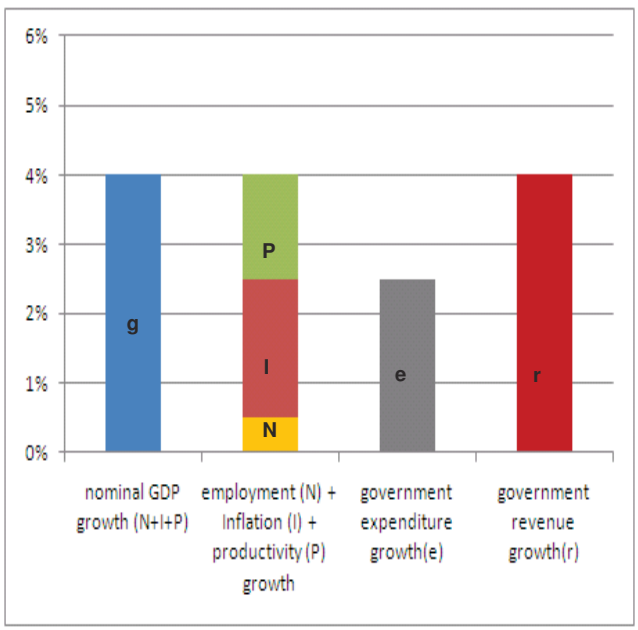



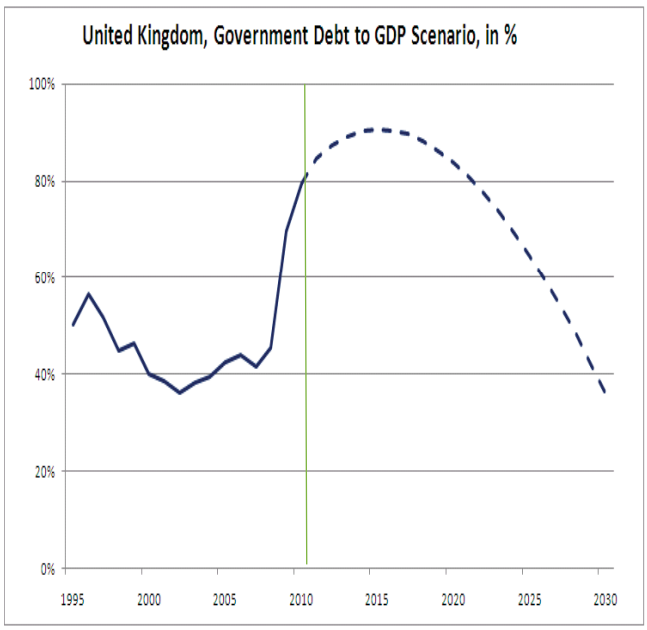

Note: Assuming a cyclically adjusted 45% revenue-to-GDP ratio
Sources: Eurostat, IMF, The Conference Board.



# Government expenditure in UK can grow at employment and inflation, provided productivity problem is tackled

Sources of Projected UK GDP growth (2012-2016) and Debt Reduction (2010-2030)




Note: Assuming a cyclically adjusted 40% revenue-to-GDP ratio
Sources: Eurostat, IMF, The Conference Board.



# Policy and strategy implications

- Only jobs is not enough to sustain growth – the focus needs to be on productive jobs
- Balanced approach to sovereign budget discipline and investment in productivity-enhancing investment is crucial for recovery.
- Productivity gains in austerity-dominated environment needs to be exploited to reallocate resources to more productivity uses.
- Investment in intangibles is key business-investment strategy in knowledge-based economy, especially to strengthen diffusion of innovation and services economy.
- As emerging economies gradually narrow the gap in productivity to leading economies, changing cost structures change the global competitive landscape



**Table 1: Growth in GDP, Employment and GDP per Person Employed by Major Region, 2010-2012**

| | 2010 | | | 2011 (estimate) | | | 2012 (projection) | | |
|---|---|---|---|---|---|---|---|---|---|
| | GDP | Employment | GDP per Person Employed | GDP | Employment | GDP per Person Employed | GDP | Employment | GDP per Person Employed |
| US | 3.0 | -0.6 | 3.6 | 1.8 | 0.5 | 1.2 | 1.8 | 0.8 | 1.0 |
| EU-15 (old) | 1.8 | -0.4 | 2.2 | 1.4 | 0.4 | 1.1 | 0.2 | -0.5 | 0.7 |
| Japan | 4.4 | -1.0 | 5.5 | -0.5 | -0.2 | -0.3 | 1.5 | -0.4 | 1.9 |
| Other Advanced* | 5.3 | 1.7 | 3.6 | 3.2 | 1.5 | 1.7 | 2.8 | 0.9 | 1.9 |
| **Advanced Countries** | **3.1** | **-0.2** | **3.3** | **1.6** | **0.6** | **1.1** | **1.3** | **0.1** | **1.2** |
| China | 10.3 | 0.4 | 9.9 | 9.2 | 0.3 | 8.8 | 8.0 | 0.3 | 7.6 |
| India | 8.5 | 2.1 | 6.3 | 7.5 | 2.2 | 5.2 | 6.9 | 1.8 | 5.1 |
| Other developing Asia | 6.4 | 2.5 | 3.8 | 5.1 | 1.7 | 3.3 | 5.0 | 1.8 | 3.1 |
| Latin America | 5.9 | 2.3 | 3.5 | 4.1 | 2.6 | 1.5 | 3.6 | 1.4 | 2.1 |
| Middle East | 4.3 | 2.7 | 1.6 | 4.9 | 2.4 | 2.4 | 3.9 | 2.1 | 1.8 |
| Africa | 5.0 | 2.7 | 2.3 | 3.7 | 2.7 | 1.0 | 4.7 | 2.7 | 1.9 |
| Central & Eastern Europe | 4.2 | 0.7 | 3.5 | 4.3 | 0.8 | 3.5 | 2.5 | 0.6 | 1.9 |
| Russia and other CIS** | 4.5 | 0.9 | 3.6 | 4.4 | 0.2 | 4.2 | 4.2 | -0.3 | 4.4 |
| **Emerging Market and Developing Countries** | **7.2** | **1.6** | **5.5** | **6.3** | **1.5** | **4.7** | **5.6** | **1.3** | **4.2** |
| **World** | **5.0** | **1.3** | **3.6** | **3.9** | **1.4** | **2.5** | **3.4** | **1.1** | **2.3** |
| **Addenda:** | | | | | | | | | |
| EU-12 (new) | 2.3 | -1.3 | 3.6 | 2.9 | 0.6 | 2.3 | 2.2 | 0.4 | 1.7 |
| EU-27 | 1.9 | -0.5 | 2.4 | 1.6 | 0.4 | 1.2 | 0.4 | -0.3 | 0.8 |
| Euro Area | 1.8 | -0.5 | 2.3 | 1.5 | 0.3 | 1.3 | 0.1 | -0.5 | 0.7 |
| OECD | 3.1 | 0.1 | 3.0 | 1.8 | 1.0 | 0.8 | 1.5 | 0.3 | 1.2 |

Note: This table is based on estimates for 122 countries (see table 9)

Note: Growth rates are based on the percent change in the levels of each variable

*Other advanced includes Canada, Switzerland, Norway, Israel, Iceland, Cyprus, Korea, Australia, Taiwan Province of China, Hong Kong, Singapore, New Zealand, Malta

**CIS: Commonwealth of Independent States

Source: ***The Conference Board Total Economy Database***™ (January 2012), OECD, IMF, World Bank