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Secular Stagnation: Evidence and Implications for Economic Policy

Łukasz Rawdanowicz,

Romain Bouis,

Kei-Ichiro Inaba,

Ane Kathrine Christensen

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ABSTRACT/RÉSUMÉ

Secular Stagnation: Evidence and Implications for Economic Policy

This paper investigates whether OECD countries are facing secular stagnation. Secular stagnation is defined as a situation when policy interest rates bounded at zero fail to stimulate demand sufficiently, due to low or negative neutral real interest rates and low inflation, and when ensuing prolonged and subdued growth undermines potential growth via labour hysteresis and discouraged investment. Obtaining firm evidence is complicated by considerable uncertainties surrounding estimates of economic slack and its impact on inflation, crisis-related hit to potential output and neutral interest rates. However, signs of secular stagnation are most evident in the euro area, particularly in the vulnerable members, in contrast to the United States and the United Kingdom, where evidence is less firm. Japan is arguably in the advanced stage of secular stagnation that started almost two decades ago. In countries with symptoms of secular stagnation, more monetary and fiscal stimulus should be accompanied by structural reforms to boost potential growth and neutral rates. Evidence on hysteresis effects strengthens the case for accommodative policies. In general, the large uncertainty about the size and persistence of hysteresis and risks associated with certain measures pose policy dilemmas and call for a comprehensive policy response.

JEL classification codes: E3, E4, E5, E6, J21, O47.
Keywords: Secular stagnation, neutral interest rates, potential output, inflation, monetary policy.

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Stagnation séculaire : évidences et répercussions sur la politique économique

Ce document cherche à déterminer si les pays de l'OCDE sont dans une stagnation séculaire. La stagnation séculaire désigne une situation dans laquelle les taux d'intérêt directeurs nuls ne parviennent pas à stimuler suffisamment la demande, en raison de taux d'intérêts réels neutres bas ou négatifs et d'une inflation faible, conjugués à une croissance durablement atone qui affaiblit la croissance potentielle via des effets d'hystérèse sur le marché du travail et un investissement découragé. Obtenir des évidences robustes est difficile du fait des incertitudes considérables entourant les estimations de la sous-utilisation des capacités de production et de son impact sur l'inflation, des effets négatifs de la crise sur la production potentielle et des taux d'intérêt neutres. Toutefois, les signes de stagnation séculaire sont les plus flagrants dans la zone euro, surtout dans les États membres vulnérables, contrairement aux États-Unis et au Royaume-Uni où les évidences sont moins tranchées. Le Japon se trouve probablement en phase avancée de stagnation séculaire, qui a débuté il y a près de vingt ans. Dans les pays montrant des signes de stagnation séculaire, de nouvelles mesures de relance monétaire et budgétaire devraient s'accompagner de réformes structurelles destinées à stimuler la croissance potentielle et les taux neutres. Les effets d'hystérèse plaident en faveur de politiques accommodantes. De manière générale, les incertitudes importantes entourant l'ampleur et la persistance des effets d'hystérèse et les risques associés à certaines mesures posent des dilemmes en termes de politique et nécessitent une réponse politique globale.

Codes de classification JEL : E3, E4, E5, E6, J21, O47.
Mots-clés : stagnation séculaire, taux d'intérêt neutres, production potentielle, inflation, politique monétaire.

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SECULAR STAGNATION: EVIDENCE AND IMPLICATIONS FOR ECONOMIC POLICY

By Łukasz Rawdanowicz, Romain Bouis, Kei-Ichiro Inaba and Ane Kathrine Christensen[1]

Introduction

Seven years since the beginning of the financial crisis, economic growth is generally sluggish, estimated economic slack large and inflation low in the main OECD areas. Protracted weakness in the aftermath of a financial bubble, as business and households indebtedness remains high, conforms to historical experiences (BIS, 2014) and could have been aggravated by fiscal consolidation. However, it has been suggested that this environment risks morphing into secular stagnation.

Secular stagnation mechanisms and definitions are contentious (Teulings and Baldwin, 2014). Some proponents of this hypothesis emphasise the importance of deficient demand (Summers, 2013, 2014a,b; Krugman, 2013, 2014).[2] This is when, in the absence of equilibrating forces, prolonged demand weakness undermines potential output and growth via labour hysteresis and discouraged investment. According to this hypothesis, the problem is the inability of monetary policy to stimulate demand sufficiently. This is due to a limited possibility to lower real interest rates sufficiently below their neutral levels, which may become particularly acute if the latter have turned negative. Real interest rates are prevented from falling significantly negative by the effective zero bound for nominal interest rates and low and falling inflation due to large economic slack. Real rates may even drift up if disinflationary pressures intensify and become deflationary. Other commentators on secular stagnation focus on the determinants of longer-run growth. They argue that potential growth in advanced economies has been on the declining trend due to population ageing, lower returns from education and possibly slower technological progress (e.g. Gordon, 2014).

This paper focuses more the deficient demand story, though it deals also with the supply side by analysing hysteresis effects and linking estimates of the neutral interest rate with potential GDP growth. It paper first investigates evidence for secular stagnation in the main OECD economies by analysing the extent of stagnation, crisis related hit to potential output, economic slack and its links with inflation, and by providing estimates of neutral interest rates. Then, it discusses policy options to prevent such a scenario.

The main findings are:

- At present, signs of a possible low-growth and low-inflation trap are most evident in the euro area, particularly in the vulnerable members, in contrast to the United States and the United Kingdom, where evidence is less firm. Japan is arguably in the advanced stage of secular stagnation that started almost two decades ago.
- Currently, large gaps between actual GDP and its pre-2008 trend level in most OECD countries are estimated to reflect both permanent hits to potential output and cyclical output gaps. These estimates are, however, subject to considerable uncertainty.
- The insensitivity of inflation to the level of slack throughout the OECD area, resulting in positive even if low inflation, has played a key stabilising role in recent years by limiting the increase in

1. The authors at the time of writing the paper were members of the Macroeconomic Policy Division of the Economics Department. They are indebted to Jean-Paul Renne for re-estimating models of neutral interest rates, and to Sveinbjörn Blöndal, Christian Kastrop, Elena Rusticelli, Jean-Luc Schneider and David Turner for their useful comments. The authors are also grateful to Isabelle Fakih and Maartje Michelson for help in the final document preparation.

2. A number or related articles on secular stagnation has been published in Teulings and Baldwin (2014).

real interest rates. It possibly reflects monetary policy credibility, globalisation, downward nominal rigidities and hysteresis.

- Neutral interest rates are estimated, subject to significant uncertainty, to have fallen with declines in potential output growth, partly related to the recent crisis. This has reduced the stimulus from very low policy rates. Neutral rates should recover in the coming years as investment picks up.
- In the euro area as a whole, economic growth has been mediocre, the hysteresis effects have been significant and the fall in the neutral interest rate implies that interest rate cuts may not be sufficiently accommodative. These effects have been more acute in the vulnerable countries.
- In Japan, hysteresis effects after the Great Recession have been absent but GDP growth has been sluggish and deflation persisted already long before the crisis. Real neutral rates have been well below actual real rates for almost two decades, though recently the quantitative and qualitative monetary easing has helped ease financial conditions.
- In the United States and the United Kingdom, hysteresis effects have been present and neutral interest rates are likely to have fallen but monetary policy has still provided stimulus, including trough unconventional measures. GDP growth has been not far from historical averages in the United States, and in both countries is expected to strengthen by 2015, reducing economic slack.
- In the euro area, and to a lesser extent in Japan, the evidence of secular stagnation strengthens the case for a comprehensive policy boosts. Given little or no scope for fiscal stimulus, more monetary policy accommodation, even if its marginal effects could diminish; measures to improve bank balance sheets; and structural policies to boost employment and investment are needed.
- In the United States and the United Kingdom, risks of a secular stagnation are low, allowing for a gradual withdrawal of monetary stimulus and sustaining a measured pace of fiscal consolidation.
- In the longer term, raising inflation targets could in theory minimise chances of hitting the zero lower bound but in practice could involve economic costs associated with higher inflation and undermine central bank credibility. Secular stagnation risks could also be reduced by implementing robust fiscal frameworks that would make sufficient room for fiscal accommodation in case of a crisis.

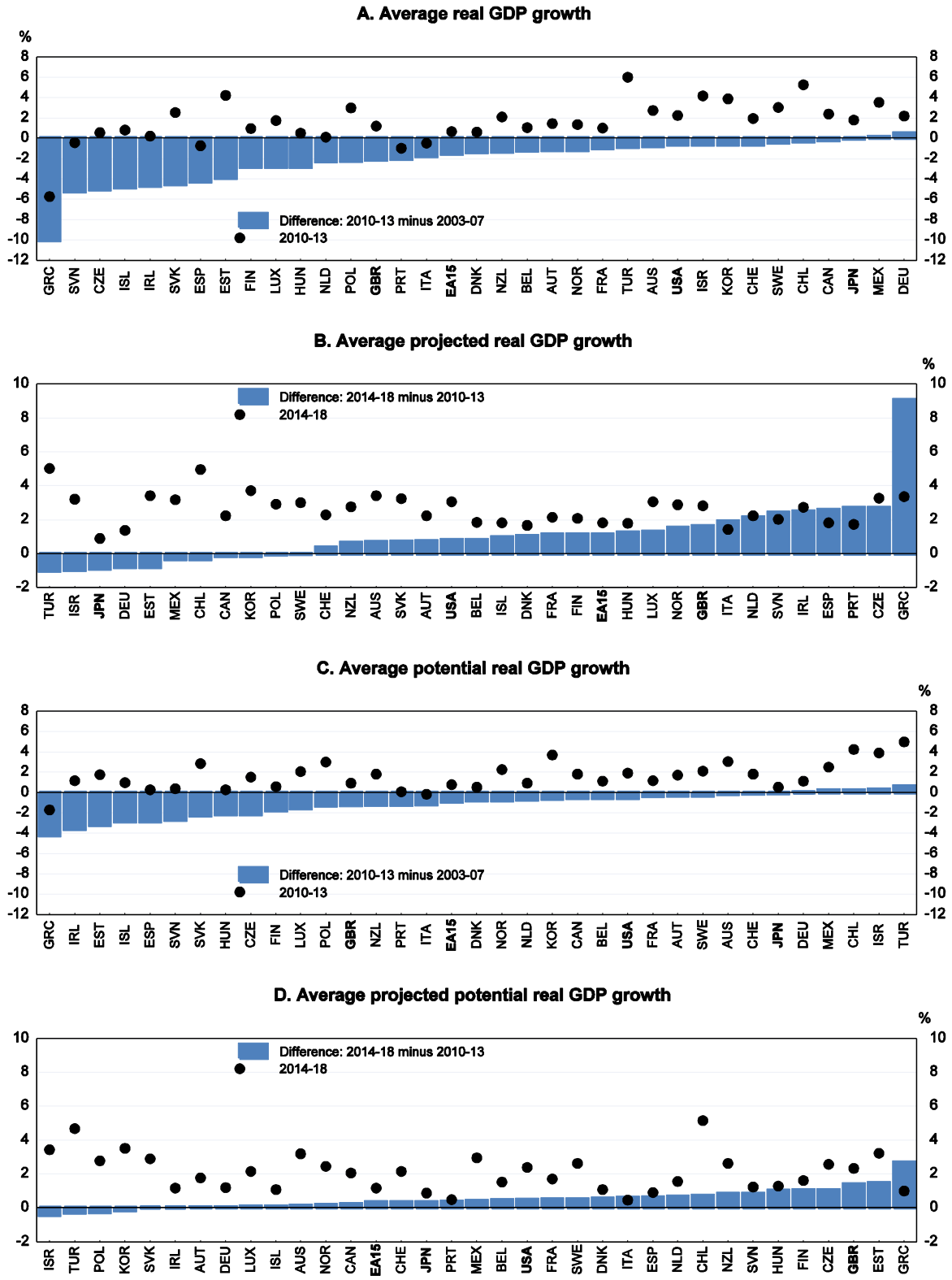
Evidence on secular stagnation

Signs of economic stagnation differ across the main OECD areas

Actual GDP growth has weakened but not uniformly

After the Great Recession, economic growth has been weak and on average lower than before the crisis in many but not all OECD countries. Compared with the pre-crisis period, growth slowed down especially in small euro area economies but also in some big European countries (Figure 1). In several countries, including Canada, Sweden, Switzerland and the United States, the slowdown was, however, significantly less marked and post-crisis output grew on average by at least 2% per year. The pre-crisis growth benchmark may, however, exaggerate the extent of the slowdown as high pre-crisis growth was

Figure 1. Pre and post-crisis economic growth



Source: OECD Economic Outlook 95 database.

possible thanks to growing imbalances and asset price bubbles, and thus was not sustainable (BIS, 2014). In contrast, GDP growth in Japan after the Great Recession hardly changed compared to the pre-crisis period, but was rather weak of around 1½ per cent. Indeed, growth in Japan has been persistently sluggish ever since the bursting of the financial bubble in the early 1990s. In Germany, growth actually increased after the crisis, which relates more to the under-performance of the German economy in the pre-crisis period.

Crisis-related reduction in potential output varies across OECD countries

In most OECD countries, the OECD estimates of the level of GDP in 2014 are significantly below a hypothetical level implied by the pre-crisis trend of potential GDP (Table 1). The resulting gap is estimated to be particularly large in some of the small countries hardest hit by the crisis (for example, exceeding 30% in Greece), close to 10% in Italy and the United Kingdom, and over 5% in the United States.

Part of the gap between the current GDP and the hypothetical level implied by the pre-crisis trend of potential GDP is explained by the estimated crisis-related hit to potential output levels. This has come about via hysteresis in labour markets, and hence higher structural unemployment and lower trend participation (especially in vulnerable euro area countries); the estimated reduction in actual capital stocks; and the reduced intensity of factor use and lower total factor productivity (Ollivaud and Turner, 2014). The reduction in potential output due to weak demand growth and large economic slack does not have to be permanent though (see below).

The crisis-related hit is estimated to be particularly large in some of the small European countries, but it is also very large in the United Kingdom, Italy and Sweden, and lower, but still notable, in the United States and many other OECD countries (Table 1). Generally, larger hits are found by Ball (2014) and BIS (2014), who use different methods of assessing the pre-crisis potential output trends.[3] No hit to potential output is estimated to have taken place in a few countries, including Japan, Germany and France, where labour force participation would have been lower on the pre-crisis trends.[4]

The implicit overall hysteresis parameter – the impact of one percentage point of the negative output gap on reducing potential output – varies across the OECD countries.[5] It is one-tenth of a percentage point in the United States (in line with De Long and Summers, 2012) and significantly higher in many European countries (Table 1).[6] Generally higher hysteresis parameters in Europe compared with the United States may stem from larger structural rigidities in the European economies.

3. Calculations by Ball (2014) are, however, based on the OECD estimates of potential output.

4. In France, this is partly due to the population ageing which implies a declining labour participation rate. In Germany, also structural unemployment turned out lower than expected, reflecting most likely the impact of structural reforms. Adjusting for this factor, the positive "hit" to potential output in Germany would be lower by 1.4 percentage points. Adjustment for labour market reforms would also have big impacts for Poland (6.2 percentage points) and Turkey (10.3 percentage points). Similarly, adjusting for faster post-crisis growth in capital per worker due to mining-related investment booms would lower estimates of crisis-related hits for Australia, Canada, and Chile between ½ and 5 percentage points.

5. The hysteresis parameter is approximated by dividing the estimated crisis-related hit to potential output, as estimated by Ollivaud and Turner (2014), by the cumulative negative output gaps over the 2009-14 period. The hysteresis parameter would be lower if pre-crisis potential GDP trends were biased upwards due to pre-crisis boom, for instance by exaggerating boost to productivity from rapid capital accumulation which was never likely to be sustained (Ollivaud and Turner, 2014).

6. Ball et al. (2014) find a higher hysteresis parameter (0.24) for the United States as they use a different estimate of the output loss and refer to a shorter period.

Table 1. The crisis-related hit to potential, output gaps and overall hysteresis

	Crisis-related hit[1]	Estimated output gap, 2014	Cumulative hit to GDP[2]	Cumulative output gaps, 2009-14	Hysteresis parameter[3]
	% of hypothetical potential GDP	% of potential GDP	% of hypothetical potential GDP	% of potential GDP	
	(1)	(2)	(3) ≈ (1) + (2)	(4)	(5) = (1) / (4)
Australia	2.8	-2.1	0.6	-7.6	-
Austria	-0.9	-3.2	-4.1	-12.2	0.1
Belgium	-3.3	-1.7	-5.0	-6.4	0.5
Canada	-0.6	-0.4	-1.0	-7.2	0.1
Chile	4.3	0.2	4.5	-4.0	-
Czech Republic	-10.6	-4.8	-14.9	-11.9	0.9
Denmark	-4.7	-2.6	-7.2	-17.4	0.3
Estonia	-15.4	-3.6	-18.4	-27.6	0.6
Finland	-6.9	-3.8	-10.4	-13.9	0.5
France	1.1	-3.4	-2.3	-12.8	-
Germany	3.9	0.1	4.0	-6.9	-
Greece	-22.7	-12.8	-32.6	-48.1	0.5
Hungary	-14.3	-1.5	-15.6	-15.4	0.9
Iceland	-15.9	-1.6	-17.3	-25.3	0.6
Ireland	-11.0	-7.8	-17.9	-43.7	0.3
Italy	-4.1	-5.1	-9.0	-24.3	0.2
Japan	0.9	0.5	1.5	-7.5	-
Korea	-3.4	-0.5	-3.8	-2.8	1.2
Mexico	-5.4	-0.6	-6.0	-8.9	0.6
Netherlands	-3.3	-4.4	-7.6	-13.7	0.2
New Zealand	-1.8	0.7	-1.1	-5.2	0.3
Norway	-3.9	-0.9	-4.8	-6.5	0.6
Poland	2.1	-0.7	1.4	-1.8	-
Portugal	-9.7	-6.5	-15.6	-28.3	0.3
Slovak Republic	-6.7	-3.2	-9.7	-7.5	0.9
Slovenia	-13.9	-5.2	-18.4	-17.7	0.8
Spain	-8.0	-5.0	-12.6	-19.4	0.4
Sweden	-4.8	-1.5	-6.2	-11.0	0.4
Switzerland	-2.2	-0.8	-3.0	-3.8	0.6
Turkey	7.5	-5.1	2.0	-19.8	-
United Kingdom	-8.6	-1.0	-9.5	-14.2	0.6
United States	-2.5	-3.1	-5.5	-23.3	0.1
Euro area crisis[4]	-6.3	-5.0	-11.0	-20.9	0.3

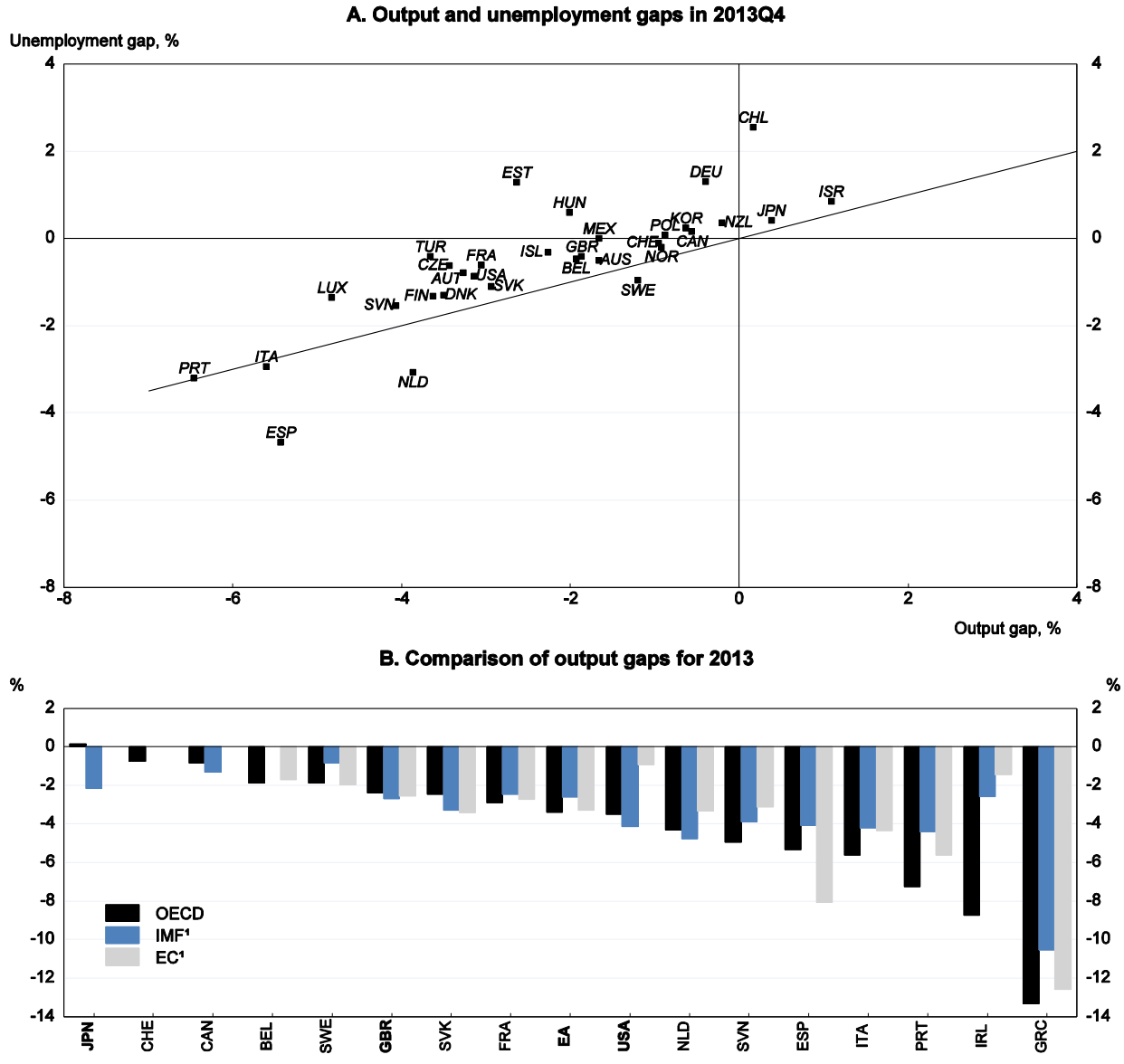
1. Ollivaud and Turner (2014) estimated effects of the crisis measured relative to a counter-factual scenario in which trend productivity continues at its pre-crisis (2000-07) trend growth rate, structural unemployment rates remain at their pre-crisis (2007) levels and trend participation rates are projected to allow for evolving demographics by holding labour force entry and exit rates constant at pre-crisis levels.
2. Sum of the first and the second column expressed as a per cent the hypothetical trend GDP in 2014.
3. Hysteresis parameters measure the impact of one percentage point of the negative output gap on reducing potential output and are calculated by dividing the estimated crisis-related hit to potential output (first column) by the cumulative negative output gaps over 2009-14 (fourth column). They are not reported for countries with positive "hit" to potential output.
4. GDP weighted average of euro area countries with a crisis-related hit to potential output.

Source: OECD Economic Outlook 95 database; Ollivaud and Turner (2014); and OECD calculations.

Economic slack remains large but its degree is uncertain

After adjusting for the crisis-related hit to potential output, the OECD estimates economic slack to be still large in the euro area and the United States (Figure 2). Particularly large negative output and unemployment gaps persist in small vulnerable euro area countries and Italy. In contrast, gaps are nearly closed or even positive in Canada, Germany, Japan and a few small OECD economies.

Figure 2. Estimates of economic slack



Note: The line in the top panel indicates the relationship between output and unemployment gaps implied by the Okun's law.

1. The European Commission does not report output gaps for Canada, Japan and Switzerland, and the IMF for Belgium and Switzerland.

Source: IMF World Economic Outlook, April 2014; European Commission, AMECO, May 2014; and OECD Economic Outlook 95 database.

Output gaps could be smaller than estimated by the OECD. Apart from an apparent muted downward pressure on inflation (discussed below), potential reasons for smaller-than-estimated slack include:

- Current estimates of the pre-crisis potential output could be still too high, resulting in an overestimation of post-crisis potential output. The build-up of financial and other macroeconomic imbalances prior to the Great Recession suggests that potential output could have been lower (Borio et al., 2013; and Alberola, et al., 2013). OECD estimates of potential output corrected for macroeconomic imbalances indicate that this was the case in Canada, France and Spain, resulting in potential output in 2008, and thus in 2012, being lower by around 2 percentage points (Rusticelli et al., 2014).[7] In contrast, potential output estimates corrected for imbalances are very close to the standard estimates in the United States and several other euro area countries.

- Hysteresis effects in labour markets could be stronger than assumed in some countries. New NAIRU estimates by the OECD incorporate the potential impact of long-term unemployment (Rusticelli, 2014). They suggest that in 2012 the NAIRU in the crisis-hit euro area countries, excluding Spain, could have been on average 1¾ percentage points higher than previously assumed. These estimates are, however, surrounded by large uncertainty.

- Actual capital stocks could be lower than recorded in official figures as capital may have been scrapped prematurely in the Great Recession and its aftermath. Official statistics used by the OECD assume constant working lives for different types of capital, but there is some evidence from previous deep downturns that premature scrapping takes place. This is likely to be particularly the case in sectors where over-capacity built up before the crisis, such as construction, with sector-specific capital not being transferable for other uses. However, easy financial conditions, and the associated ever-greening of problem loans, may have reduced such premature scrapping this time.

On the other hand, OECD output gaps could under-estimate the extent of slack. In particular, cyclical slack in average hours worked per employed person may be unusually large. Surveys indicate that a higher proportion of part-time workers in the United States, the euro area and the United Kingdom would like to work full time than at similar stages in previous recoveries, and this may not be well captured in OECD output gaps.

These considerations indicate that estimates of output gaps are highly uncertain, with the crisis amplifying the usual difficulties in gauging cyclical slack. Output gaps tend to be revised substantially over time, on average by 1-1.5 percentage points (Koske and Pain, 2008; Bouis et al., 2012b). Estimates also tend to differ across international institutions. For instance, output gaps calculated by the European Commission, the IMF and the OECD for 2013 diverged by between 2 and 6% of GDP in the vulnerable euro area countries, Japan and the United States (Figure 2). For the vulnerable euro area economies, the OECD estimates the negative output gaps to be generally larger than estimated by the two other institutions.

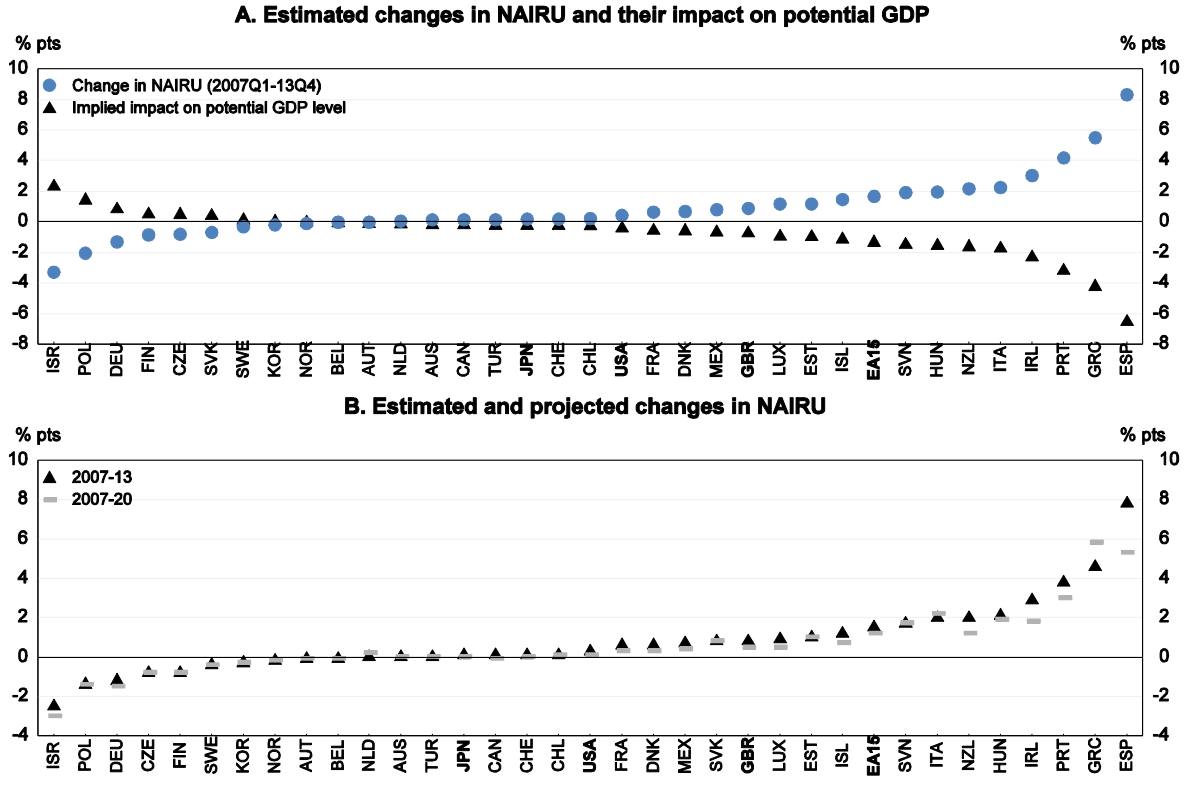
7. The methodology assumes that an output gap is an autoregressive process corrected for deviation of a given imbalance indicator from its historical mean, and that potential output growth follows a random walk process. The carry-over of lower pre-crisis levels of potential output could be offset to some extent by the narrowing of imbalances in recent years. The estimations are sensitive to the choice and specification of imbalance indicators, which differ across the countries analysed. The latest available estimates are for 2012.

The OECD does not project stagnation to continue

The OECD's projections until 2015 from May 2014 show a robust recovery in the United States and the United Kingdom that leads to a significant narrowing of negative output gaps (OECD, 2014). In contrast, in the euro area, only somewhat stronger growth will not be sufficient to make big inroads into economic slack. In Japan, economic growth is expected to moderate but still outpace very weak potential growth, leading to a further increase in the positive output gap. The longer-term scenario has by construction remaining output gaps in 2015 closing typically over a period of four to five years and a recovery in potential growth rates to pre-crisis levels as labour efficiency and investment growth rebound (Table 2; OECD, 2014). Nevertheless, the NAIRU is still projected to remain above the pre-crisis levels in 2020 in most of the countries where it increased in the aftermath of the crisis (Figure 3).

There is, however, a risk that aggregate demand will not expand as expected by the OECD due to inter alia weaker-than-projected inflation or monetary policy stimulus, and the adjustments in demand in the longer-term scenario may be less smooth than assumed. There is also a possibility that weak investment will become more entrenched, weighing negatively on technological progress and the capital stock, and in turn on potential growth. Weak and prolonged economic growth could for instance render some investments unprofitable given low expected returns. This would imply a faster closing of output gaps but still weak actual and potential growth.

Figure 3. Trends in NAIRU



Source: OECD Economic Outlook 95 long-term database.

Table 2. Decomposition of average potential real GDP growth

	Potential Growth	Labour Force Participation	(1-NAIRU)	Working Age Population	Human Capital	Labour Efficiency	Capital Stock
United States							
1994 - 2000	3.1	0.0	0.0	0.8	0.1	1.2	0.9
2001 - 2007	2.6	-0.1	0.0	0.8	0.1	1.2	0.8
2008 - 2014	2.0	-0.3	0.0	0.7	0.1	1.1	0.5
2015 - 2021	2.5	-0.3	0.0	0.6	0.1	1.2	0.9
Japan							
1994 - 2000	1.5	-0.2	-0.1	0.4	0.4	-0.1	1.0
2001 - 2007	0.7	-0.3	0.0	0.2	0.4	0.1	0.3
2008 - 2014	0.6	-0.2	0.0	0.0	0.3	0.4	0.0
2015 - 2021	1.0	-0.1	0.0	-0.1	0.2	0.7	0.3
United Kingdom							
1994 - 2000	3.4	-0.1	0.3	0.2	0.4	1.4	1.1
2001 - 2007	2.4	0.1	0.0	0.5	0.2	0.4	1.2
2008 - 2014	1.1	0.1	-0.1	0.5	0.2	-0.5	0.9
2015 - 2021	2.7	0.1	0.0	0.4	0.2	1.0	1.1
Euro area							
1994 - 2000	2.1	0.2	0.0	0.4	0.3	0.3	0.7
2001 - 2007	1.8	0.2	0.0	0.4	0.3	0.0	0.7
2008 - 2014	1.0	0.1	-0.2	0.3	0.3	0.0	0.5
2015 - 2021	1.4	-0.1	0.1	0.2	0.2	0.7	0.4
Germany							
1994 - 2000	1.8	0.0	-0.1	0.3	0.0	0.8	0.5
2001 - 2007	1.2	0.2	0.0	0.2	0.0	0.6	0.3
2008 - 2014	1.2	0.3	0.1	0.0	0.0	0.7	0.2
2015 - 2021	1.1	-0.1	0.0	-0.1	0.0	0.9	0.4
France							
1994 - 2000	2.0	0.0	0.1	0.4	0.4	0.4	0.5
2001 - 2007	1.7	0.0	0.1	0.5	0.5	0.0	0.7
2008 - 2014	1.2	0.0	-0.1	0.4	0.5	0.0	0.5
2015 - 2021	2.0	-0.1	0.0	0.3	0.4	0.7	0.6
Italy							
1994 - 2000	1.4	-0.1	0.0	0.2	0.8	-0.4	0.7
2001 - 2007	1.1	0.0	0.2	0.4	0.6	-0.8	0.7
2008 - 2014	0.0	-0.1	-0.3	0.4	0.4	-0.6	0.2
2015 - 2021	1.0	0.0	0.0	0.3	0.3	0.1	0.3
Greece							
1994 - 2000	2.9	0.2	-0.2	0.7	0.9	0.7	0.5
2001 - 2007	2.9	0.4	-0.1	0.2	0.7	0.0	1.4
2008 - 2014	-0.8	0.1	-0.7	0.0	0.4	-1.1	0.2
2015 - 2021	2.1	0.1	0.1	0.0	0.3	1.2	0.6
Ireland							
1994 - 2000	6.5	0.9	0.5	1.1	0.4	2.2	1.3
2001 - 2007	5.1	0.6	0.1	1.2	0.5	0.9	1.8
2008 - 2014	1.6	-0.1	-0.3	0.5	0.4	0.3	0.9
2015 - 2021	1.8	-0.1	0.1	0.6	0.3	0.5	0.4
Portugal							
1994 - 2000	3.0	0.1	0.0	0.5	0.9	-0.4	1.8
2001 - 2007	1.6	0.1	-0.2	0.4	0.7	-0.8	1.6
2008 - 2014	0.3	-0.2	-0.4	0.2	0.5	-0.6	0.8
2015 - 2021	0.7	-0.2	0.1	0.2	0.5	0.3	-0.2
Spain							
1994 - 2000	3.0	0.8	0.2	0.7	0.7	-0.7	1.4
2001 - 2007	3.2	1.1	0.0	0.9	0.7	-0.8	1.6
2008 - 2014	0.6	0.0	-0.9	0.5	0.5	-0.5	1.0
2015 - 2021	1.1	-0.1	0.4	0.3	0.4	0.1	0.1

Source: OECD Economic Outlook 95 long-term database.

The potential cost involved can be illustrated in the following hypothetical negative scenario. It is based on three assumptions. First, actual GDP grows in line with potential growth in the long-term OECD baseline, which implies much weaker growth than projected in the May *Economic Outlook*. Second, potential output is reduced from the baseline by hysteresis effects derived from the implicit hysteresis parameters presented in Table 1 and resulting lagged output gaps. Third, the starting point is the OECD projections for output gaps in 2014. In this scenario, the additional hit to potential output after 5 years would be around 1% in the United Kingdom, 1¼ per cent in the United States, 3% in Italy and the Netherlands, and around 4¾-6% in vulnerable euro area countries but Greece where it would be above 12%. In several of these countries output gaps would still remain large in 2019. These simple calculations are only illustrative and subject to considerable uncertainty, notably whether hysteresis will continue in the future or whether the recent hits to potential were one-offs related to the financial crisis. They do, however, highlight the importance of higher aggregate demand to minimise the risk of long-lasting stagnation and scars from the crisis.

Anchored inflation expectations have limited disinflation

At the level of the OECD area as a whole, core consumer price inflation has fluctuated between 1% and 2% since 2008, with the average only moderately lower than in the five years preceding the crisis. There have been differences across the main OECD areas. Core price inflation has recently been very low in the euro area, reflecting the appreciation of the currency, the reduced contribution of past indirect tax increases adding to some downward domestic cost pressures, and relative competitiveness adjustments in vulnerable euro area countries. In contrast, core price inflation has been high in Japan, partly reflecting the recent indirect tax increases, following almost two decades of deflation.

Inflation has been surprisingly high given the extent of slack since the onset of the crisis.[8] The apparent weak impact of domestic demand pressure on inflation was evident well before the crisis. This is reflected in the flattening of the Phillips curve that has been observed since the mid-1990s (Figure 4) and even a failure to detect any statistical significance of demand pressure variables (Rusticelli, 2014). Several factors could have contributed to this phenomenon (Bayoumi et al., 2014).

- Greater credibility of central banks' medium-term inflation targets, as testified by the stability of inflation expectations in the face of shifting output gaps and actual inflation rates, may have reduced the impact of current domestic demand pressures on inflation.

- Globalisation might have reduced the sensitivity of inflation to domestic conditions. With the prices of many domestic goods being determined by global demand and supply conditions, domestic inflation may have become less sensitive to measures of domestic economic slack and more sensitive to measures of foreign economic slack (Pain et al., 2006; IMF, 2006; and Borio and Filardo, 2007). With global slack smaller than the OECD slack in recent years, thanks to strong growth in the non-OECD area relative to potential, this may have moderated disinflationary pressures.

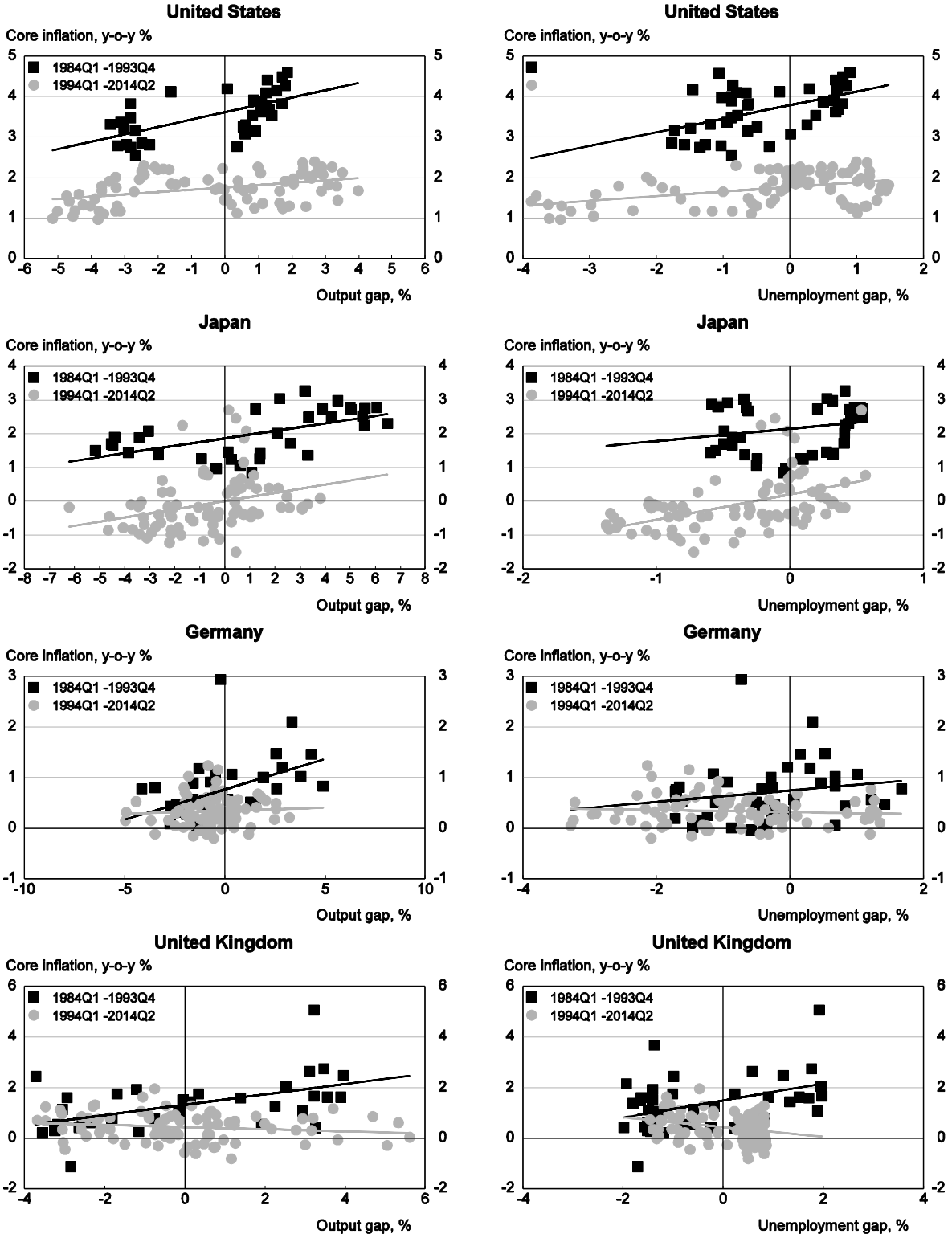
- Low inflation rates in advanced economies may have made downward nominal rigidities more binding as workers are reluctant to accept nominal wage cuts and prices change less frequently due to adjustment costs. In particular, given the low inflation rates at the start of the financial crisis, this may have blocked significant disinflation in recent years (Moccero et al., 2011).

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8. See Clark (2014) for supporting evidence for the United States.

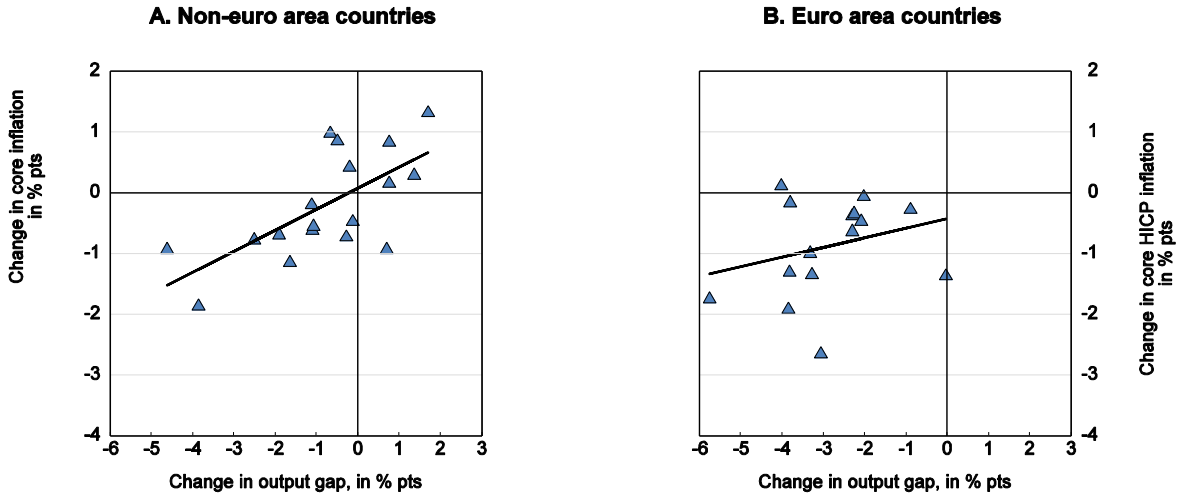
Figure 4. Flattening of Philips curves

Different scales



Source: OECD Economic Outlook 90 and 95 databases; OECD Main Economic Indicators; and OECD calculations.

Figure 5. Disinflation and increasing economic slack in the OECD countries



Note: Changes in inflation are from 2012Q1 to 2014Q1; changes in the output gap are from 2011 to 2013. Iceland is excluded.

Source: OECD Economic Outlook 95 database; OECD Main Economic Indicators database; and OECD calculations.

- Of particular relevance for the crisis period is that standard estimates of structural unemployment or potential output may result in an over-estimation of slack, failing to account properly for hysteresis (see above). In particular, estimates of the NAIRU accounting explicitly for long-term unemployment strengthen the relationship between inflation and labour market developments (Rusticelli, 2014). This is in line with evidence that the long-term unemployed tend to put less downward pressure on wages and prices (Krueger et al., 2014).

Attempts to better reflect these factors in empirical analyses have "rescued" the Phillips curve estimated over long sample periods for some countries,[9] but it remains the case that persistent large slack has failed to generate a downward spiral in inflation since the start of the crisis.

The increase in slack appears to have shifted down the level of inflation without generating a downward spiral as the accelerationist Philips curve models would have implied. Cross-country evidence suggests that disinflation since September 2011 has been greatest in the countries where negative output gaps have widened the most (Figure 5). This pattern is most evident across the OECD countries outside the euro area, whereas it is tenuous for countries within the euro area.

The insensitivity of inflation to the level of slack has played a key stabilising role in recent years and, if it continues, it will help ward off secular stagnation or worse outcomes in the future. By preventing continuous disinflation and eventually deflation, it has avoided a steady increase in the real value of zero-bounded nominal interest rates that would have put progressively stronger downward pressure on demand. Even if slack were to persist at current high levels in coming years, inflation would have only weak, if any, tendency to fall as long as this insensitivity continues. Inflation should pick up from current low rates as long as inflation expectations remain firmly anchored close to medium-term inflation objectives and economic slack is reduced. However, a risk of de-anchoring could surface if further shocks were to push

9. For example, Moccero et al. (2011) included in the Phillips curve framework a time-varying parameter on import prices to account for the increase in the share of imported goods in private consumption and short-term price expectations as a proxy for central bank credibility; Rusticelli (2014) included a long-term unemployment rate in the accelerationist OECD Phillips curve.

down inflation to very low or negative levels and the monetary authorities were seen to take inadequate measures to bring inflation back to target.

Neutral real interest rates have declined but their levels are highly uncertain

Very low real interest rates in recent years may have failed to provide adequate stimulus if neutral interest rates have fallen as well. A neutral interest rate conventionally refers to a theoretical short-term real interest rate that would prevail with a closed output gap and stable inflation.

The fall in real long-term bond yields is sometimes seen as an indication of falling neutral rates. Although the two rates can co-move together, to the extent they are correlated with economic growth which affects returns on real investment, they are driven by fundamentally different set of variables. Market real interest rates are primarily affected by financial market conditions, including monetary policy, whereas neutral real interest rates are determined by the real side of the economy, with monetary factors in principle playing little or no role. Thus, the reduction in US real long-term interest rates since the turn of the century was driven initially by bond purchases of official investors in emerging market economies, related to increased foreign exchange reserves due to managed exchange rates, and later by quantitative easing (QE) and other unconventional monetary policy action and possibly by the Basel-III-induced increase in bank demand for safe assets (Bouis et al., 2014). These policy-driven reductions in bond yields cannot, however, be taken as a direct evidence of falling neutral rates.

Nevertheless, OECD econometric estimates suggest that the neutral rates have declined to historically low levels in several OECD economies in the wake of the crisis (Figure 6; Bouis et al., 2013; and Box 1).[10] In the euro area, Japan and the United Kingdom, and to a lesser extent in the United States, they may even have turned negative. For the United States, a similar level and trend of the neutral real interest rate is estimated by Laubach and Williams (2003).[11] This decline was a continuation of a downward trend that started in the 2000s. All these estimates are, however, highly uncertain (Box 1). The estimated drop in neutral rate mainly reflects lower potential GDP growth, whose drivers differ across countries but are largely explained by weak investment and slower labour efficiency growth (Box 1 and Table 2).

On the basis of the estimated negative neutral interest rates, current low policy rates are providing only weak, if any, stimulus to the economy. In the United States and the United Kingdom, actual real interest rates have been below the point estimates of neutral levels, but only by 1 percentage point; in the euro area as a whole, both rates have been nearly equal; and, in Japan, actual real policy rates have been well above neutral rates during almost the past two decades, though estimates indicate that the interest rate differential has not affected aggregate demand. Within the euro area, the degree of monetary stimulus is, however, likely to vary considerably across countries. Very weak or even negative potential GDP growth and large output gaps in vulnerable countries suggest that real neutral rates are likely to be strongly negative, in contrast to core countries. Moreover, in the vulnerable countries, real policy rates are high given their lower inflation and spreads between policy rates and credit rates offered by banks to businesses and households are large. Thus, the monetary policy stance seems significantly tighter in vulnerable countries.[12]

10. Similar findings apply to Canada, where the neutral interest rate is currently estimated at around 1-2% down by 1½ percentage points from the period prior to the crisis (Mendes, 2014; and Wilkins, 2014).

11. The updated estimates are available at: http://www.frbsf.org/economic-research/economists/johnwilliams/Laubach_Williams_updated_estimates.xlsx.

12. A simple Taylor rule supports the intuition that the highly diversified economic situation in the euro area calls for a very different policy stance, necessitating negative policy rates of more than 4% in Italy and small vulnerable euro area countries, and positive rates of 1½ per cent in Germany.

Box 1. OECD estimates of neutral interest rates

Unobservable time-varying neutral interest rates are estimated in a small-scale macroeconomic model via the Kalman filter (Laubach and Williams, 2003; Mésonnier and Renne, 2007). The neutral real interest rate at time t (r^*_t) is determined by: the unconditional average of neutral interest rate (μ_r); the difference between real potential GDP growth (g_t) and its sample average (μ_g); and the inverse of the inter-temporal elasticity of substitution in consumption (relative risk aversion – θ) – for more details see Annex 1 in Bouis et al. (2013): $r^*_t = \mu_r + \theta(g_t - \mu_g)$.

Given the specification of the model, the neutral rates fell mainly in response to the decline in potential GDP growth. The fall in potential growth since the start of the crisis varies across countries (Table 2). In the United States, it is mainly attributable to lower growth in the capital stock and labour force participation, which is partly due to population ageing. Similar drivers explained the slowdown in potential growth in Japan in the early 2000s. In the United Kingdom, a decline in labour efficiency is the main reason together with lower capital stock growth. There is also big heterogeneity across euro area countries. In France and Italy, the slowdown is mostly driven by higher NAIRUs and weaker capital stock growth, while in the vulnerable euro area countries a decline in labour efficiency growth and ageing effects played also a role. To the extent that the OECD measure of potential growth reflects cyclical developments in investment, the decline in neutral rate since the beginning of the crisis may be exaggerated. The estimates cannot, however, account for potential changes in relative risk aversion parameter nor in the average of potential GDP growth.[1]

The OECD estimates of neutral rates are highly uncertain. This uncertainty stems from three sources: statistical uncertainty of the Kalman filter estimates; OECD's estimates of potential output growth; and the assumption about the risk aversion coefficient (Bouis et al., 2013). For the baseline model, the 95% confidence intervals around the estimated unobservable rate are between 3 and 4 percentage points (Figure 6). This is a low estimate of uncertainty as uncertainty about the model's parameters is not taken into account. The neutral real interest estimates can also change by up to 4 percentage points with alternative assumptions about the risk aversion coefficient (Annex 1 in Bouis et al., 2013).

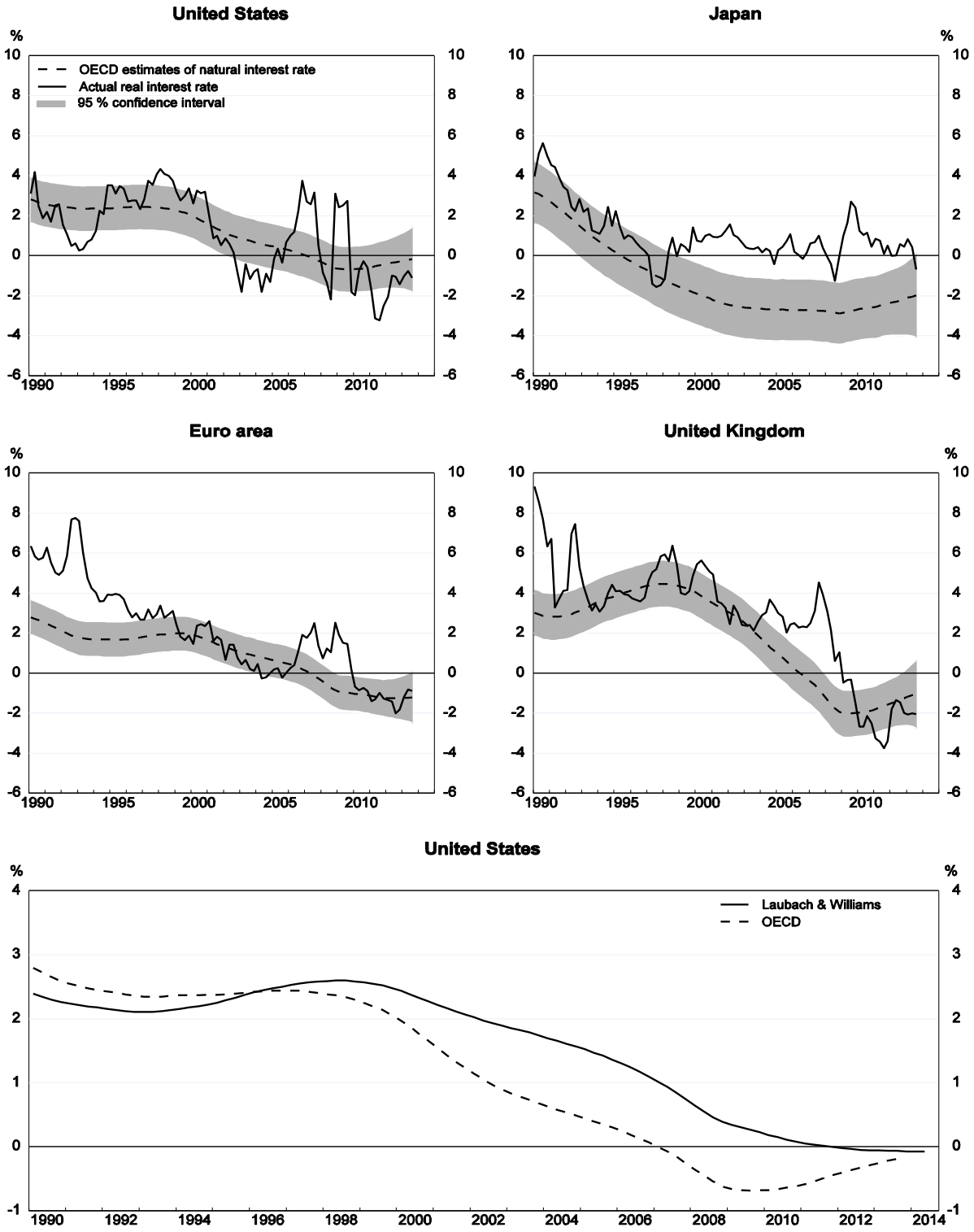
1. For instance, De Paoli and Zabczyk (2013) show in a New Keynesian model that a decline in household risk aversion during recessions contributes to the fall in neutral interest rates.

In assessing the overall stance of monetary policy, it is, however, necessary to account for the impact of non-conventional measures on long-term bond yields. QE measures since 2009 may have reduced yields on 10-year government bond yields by 230 basis points in the United States, 90 basis points in the United Kingdom and around 140 basis points in Japan (Bouis et al., 2014). These stimuli might have boosted GDP in the United States, the United Kingdom and Japan to a similar extent as a cut in the policy rate of around 380, 350 and 190 basis points, respectively.[13] In addition, broader financial conditions (in terms of exchange rates, corporate bond yield spreads, credit conditions and household financial wealth) have eased more than just implied by policy rates and they have been supportive to growth.[14] The overall impact of financial conditions on GDP growth could have been, however, mitigated by impairments in the functioning of the banking sector, and in the euro area and the United States likely offset by fiscal consolidation, which could have reduced the GDP growth rate over the same period by at least 2 percentage points.

13. A 100-basis point decline in the 10-year government bond yield (which amounts to a reduction in the slope of the yield curve with short-term rates at their effective lower bound) is estimated to boost real GDP by 2% in the United States, 2.3% in the United Kingdom and 1.1% in Japan (Baumeister and Benati, 2013), while a 100-basis point cut in the policy rate is estimated to increase real GDP in the three countries by 1.2%, 0.55% and 0.75% (average elasticities from various studies reported in Table 1 in Bouis et al., 2013).

14. Based on findings in Guichard et al. (2009), the easing of financial conditions as measured by the increase in the OECD Financial Condition Index since end-2009 should in itself have boosted the GDP level by 1½ per cent in the euro area, over 2% in the United States and nearly 4% in Japan.

Figure 6. Estimates of real neutral interest rates



Note: The 95% confidence intervals indicate uncertainty around the Kalman filter estimate of the neutral interest rates based on the estimated standard deviation of the unobservable neutral interest rate.

Source: OECD (updated estimations from Bouis et al. (2013)) and Laubach and Williams (2003) (updated two-sided estimates from August 28, 2014; final data point: 2014Q2).

Looking forward, the OECD long-term projections show a recovery in potential GDP growth (Figure 1; Table 2; and OECD, 2014) and this should increase neutral interest rates. The expected pick-up in potential growth after 2013 is due to the completion of the phasing in of the hit to the level of potential output and the easing of deleveraging pressures, and thus a return of investment spending to more normal levels. It is also based on the assumption that the financial crisis has not had any permanent impact on potential growth. According to the OECD estimates, the increase in potential growth rates from their post-2008 lows is already under way, with half of the adjustment set to be completed in 2014 in Japan, the United Kingdom and the United States, but much less in the euro area. With neutral interest rates following potential growth rates, the maintenance of policy rates at their current level would provide progressively stronger stimulus or gradual increases in policy rates would be less contractionary (Table 3). However, if the revival of demand is slower than projected, there is a risk that neutral interest rates will remain low and limit the effectiveness of conventional monetary policy. As discussed above, weak demand could result in continued hits to potential output and consequently continued weak potential growth.

Summing up: Evidence on secular stagnation differs across countries

The evidence discussed above suggests that several economies have experienced prolonged periods of weak growth and significant resource under-utilisation with negative effects on potential output, and a fall in neutral interest rates since the onset of the Great Recession, but that the strength of these effects has varied (Table 3):

- ***Euro area***: in the area as a whole, the crisis-related hit to potential output has been significant and the fall in the neutral interest rate implies that the decline in interest rates to close to zero may not be giving sufficient stimulus. Ensuing actual and potential growth dynamics has been mediocre and slack remains large, especially in the labour markets. These secular stagnation features have been particularly strong in the vulnerable countries.
- ***Japan***: hysteresis effects since the Great Recession have been absent but, already long before the crisis, GDP growth was sluggish and deflation persisted. Estimated neutral rates have been well below actual rates for almost two decades, suggesting that the zero-interest-rate policy failed to provide any support to demand though monetary policy has become supportive since the introduction of quantitative and qualitative monetary easing (QQME) in 2013.
- ***United States***: hysteresis effects have been present but muted compared with elsewhere, and the neutral interest rate is likely to have fallen though monetary policy has still provided stimulus to aggregate demand trough unconventional measures. Consequently, average GDP growth has been not far from historical averages, even if economic slack still persists.
- ***United Kingdom***: hysteresis effects appear to have been strong and neutral rates have fallen though monetary policy has succeeded in providing stimulus through unconventional measures, boosting GDP growth recently.

The worst has been avoided thanks to sustained positive, even if low, inflation due to the apparent insensitivity of inflation to the level of slack throughout the OECD area.

Longer-term OECD's projections have stagnation tendencies coming to an end in the main OECD areas. Thus, the projections have output gaps closing through stronger demand, no further hit to potential output and strengthening potential output growth that eventually pushes up the level of neutral interest rates. There is, however, a risk that a secular stagnation scenario may become entrenched in the euro area, so that persistent slack will be reduced through hysteresis-driven declines in potential output and monetary policy effectiveness will be limited due to continued low neutral rates.

Table 3. Summary of selected features of secular stagnation

In per cent unless stated otherwise

	Euro area			Japan			United Kingdom			United States		
	2013	2014	2015	2013	2014	2015	2013	2014	2015	2013	2014	2015
GDP growth[1]	-0.4	1.2	1.7	1.5	1.2	1.2	1.7	3.2	2.7	1.9	2.6	3.5
Potential GDP growth	0.7	1.0	1.1	0.7	0.8	0.8	1.2	1.7	2.0	2.0	2.1	2.3
Output gap, % of potential GDP	-3.4	-3.1	-2.6	0.2	0.5	1.0	-2.4	-1.0	-0.4	-3.5	-3.1	-2.0
Unemployment rate	11.9	11.7	11.4	4.0	3.8	3.7	7.6	6.9	6.5	7.4	6.5	6.0
NAIRU	10.1	10.2	10.2	4.3	4.3	4.3	6.9	6.7	6.6	6.1	6.1	6.1
Nominal long-term interest rate	2.9	2.5	2.7	0.7	0.9	1.7	2.5	3.1	3.8	2.4	3.0	3.6
Nominal short-term interest rate	0.2	0.1	0.1	0.2	0.1	0.2	0.5	0.6	1.2	0.3	0.3	0.9
Consumer price inflation[2]	1.3	0.7	1.1	0.4	1.0	1.1	2.6	2.0	2.1	1.5	1.5	1.7
Real neutral interest rate[3]	-1.4	-0.8	-0.4	-2.5	-2.3	-2.3	-0.7	0.5	1.3	-0.4	0.1	0.6
Real short-term rate - real neutral rate	0.3	0.2	-0.7	2.3	1.4	1.4	-1.4	-1.9	-2.2	-0.8	-1.3	-1.4
Implied monetary stimulus[4]	-0.6	-0.5	1.7	-	-	-	2.2	3.1	3.5	1.4	2.5	2.7
Implied monetary stimulus including QE effects[5]	-0.6	-0.5	1.7	0.3	0.7	-0.1	2.0	3.0	3.5	3.5	3.0	2.2
Memorandum												
Short-term rate - rate implied by the Taylor rule[6]	3.9	3.9	2.3	3.0	1.3	0.8	0.7	-0.9	-1.9	3.0	2.0	0.7
General government budget balance, % of GDP	-3.0	-2.5	-1.8	-9.3	-8.4	-6.7	-5.9	-5.3	-4.1	-6.4	-5.8	-4.6
Primary underlying balance, % of potential GDP	0.9	1.4	1.8	-7.9	-7.1	-5.4	-3.5	-2.6	-1.4	-3.0	-2.4	-1.7
Implied fiscal stimulus[7]	-0.3	-0.2	-0.2	0.3	-0.4	-0.8	-0.5	-0.5	-0.6	-0.9	-0.3	-0.4
Implied monetary (including QE effects) and fiscal stimulus	-0.9	-0.7	1.6	0.6	0.3	-0.9	1.5	2.6	2.9	2.6	2.7	1.8

1. Since the release of the OECD Economic Outlook 95, 2013 GDP growth has been revised upwards for the United States to 2.2%.
2. For Japan, OECD inflation projections exclude effects of the increase in the consumption tax rate.
3. Annual averages of projections based on OECD estimates.
4. Implied monetary stimulus (positive numbers) indicates a boost to GDP growth resulting from the negative difference between real actual and neutral interest rates, based on updated estimates of the model's parameters (for details see Annex 1 in Bouis et al., 2013). For Japan, the elasticity of GDP with respect to the difference in real interest rates is estimated to be zero.
5. Sum of monetary stimulus from the row above and approximate QE effects, which are based on changes in the share of central bank holdings in total outstanding government bonds based on estimated elasticities for the United Kingdom (2.5-basis point decline in long-term interest rate for each percentage point increase in the central bank share in total outstanding government debt) and for the United States (23). The assumed elasticity for Japan is the average of the two elasticities (12.5). For more details see Bouis et al. (2014). In 2015, central banks' government bond holdings are assumed to be kept constant in nominal terms. As the supply of government bonds outpaces central banks purchases, QE in the United Kingdom in 2014-15 and the United States in 2015 is expected to raise government bond yields.
6. Negative values imply that monetary policy is accommodative compared with the Taylor (1999) rule prescription: $i_t = r_t + \pi_t + 0.5(\pi_t - \pi_t^*) + gap_t$; where i_t is the short-term interest rate, π_t is the annual core inflation rate, π^* is the inflation target (1.9% in the euro area and the United States; and 2% in Japan and the United Kingdom), r_t is the neutral interest rate, and gap_t is the output gap.
7. Based on a stylised fiscal multiplier of 0.5 with respect to the change in the underlying primary balance.

Source: OECD Economic Outlook 95 database; and OECD calculations.

Policy implications

Short-term policy implications

Secular stagnation characteristics and risks of falling into its trap are especially evident in the euro area and, to a lesser extent, in Japan, necessitating a comprehensive stimulus package to avoid such a scenario. In principle, more monetary and fiscal stimulus should be accompanied by structural reforms that boost potential growth and neutral rates. The presence of hysteresis effects strengthens the case for accommodative policies, with potentially beneficial longer-term implications for economic activity. However, large uncertainty about the size and persistence of hysteresis and risks associated with certain measures poses policy dilemmas:

- ***Monetary policy.*** With policy interest rates at their effective lower bound, further stimulus would have to come from unconventional measures, including QE, forward guidance or schemes to provide funding to banks. There is some evidence that the effectiveness of such measures may decline as they are used more extensively and asset prices become richly valued (Rawdanowicz et al., 2013). Thus, their effectiveness in addressing the problem of hysteresis is not certain as they may also encourage excessive risk-taking and asset price booms that lead to financial instability and costly recessions. Prudential measures could offset some of these risks but there are limits to their effectiveness and it is doubtful if they can counter a generalised rise in risk-taking (Box 1.5 in OECD, 2013). Moreover, tightening regulation for commercial banks can result in regular bank activities migrating to lightly regulated shadow banks.

- ***Fiscal policy.*** Fiscal stimulus could be at least partly self-financing (as a permanent increase in potential output implies a permanent increase in taxes) in the presence of hysteresis, high fiscal multipliers and sustained low real interest rates (DeLong and Summers, 2012). Nevertheless, such a strategy involves risks. The cost of increased debt may turn out higher due to reduced private investment and increasing economic vulnerability (Feldstein, 2012). Moreover, fiscal stimulus may be less potent to deal with a prolonged period of subdued growth, as fiscal multipliers could be smaller than during outright recessions.[15] Finally, postponing the implementation of a credible fiscal consolidation plan could lead to adverse market reactions.

- ***Structural policy.*** Structural reforms can boost potential output in the longer term and thus neutral interest rates, increasing the effectiveness of monetary policy. They, however, risk widening output gaps from already high levels if they were to weaken aggregate demand and strengthen potential output in the short run. To the extent that hysteresis effects operate, the widening of economic slack could on its own permanently reduce output, thus offsetting to some extent the beneficial long-run effects of structural reforms. OECD research shows that in some cases structural reforms can have immediate positive demand effects (Bouis et al., 2012a) and such reforms should be prioritised when economic slack is large.[16]

In the euro area, in view of secular stagnation evidence, more accommodative macroeconomic policies, combined with measures to strengthen the banking sector and structural reforms to boost potential

15. Fiscal multipliers are estimated to be large during recessions when economic slack is large and the effectiveness of monetary policy is reduced as policy rates are bounded at zero and credit constraints bind (Gali et al., 2007; Christiano et al., 2009; Woodford, 2011; and Auerbach and Gorodnichenko, 2012).

16. For instance, reducing the difference in contract provisions between permanent and temporary workers and growth friendly revenue-neutral tax reforms can swiftly lower unemployment, in particular for youth and women. Also, reforms of network industries tend to increase labour force participation and private consumption without delay, but may have negative short-term effects on private investment.

growth are needed. The monetary policy stance has recently been eased, including via policy interest rate cuts, targeted longer-term refinancing operations and announced purchases of covered bonds and asset-backed securities. Further unconventional monetary accommodation is, however, needed. Resulting potential costs, involving for instance an excessive compression of sovereign yield spreads and higher issuance of high-yield bonds, do not seem to outweigh associated benefits from higher growth and inflation converging to its target. House price and credit bubbles at national level should be addressed by prudential measures. To ensure an efficient transmission of monetary policy, it will be essential to finalise the repair of bank balance sheets. Some progress in bank recapitalisation has already been achieved. Deleveraging and recapitalisations are by no means finished, given continued weak growth and still high ratios of non-performing loans. The pace of structural fiscal adjustment could be slowed in some countries if this is in line with EU fiscal rules and does not undermine market confidence. Too ambitious consolidation in the presence of hysteresis effects, high fiscal multipliers and interest rate shocks can result in a protracted spell of negative output gaps and deflation which reduces the level of potential output (Rawdanowicz, 2013). The limited room for fiscal stimulus stresses the importance to raise public sector efficiency and implement growth-friendly budget neutral changes in the structure of government revenue and spending (Cournède et al., 2013). Structural reforms are needed to boost potential output growth but they should be designed so as to have the least negative impact on demand. This calls in particular for reforms to stimulate investment as they would help increase both demand and potential growth.

In Japan, given no scope for fiscal stimulus, policy boost must come from further quantitative easing together with urgent further improvements in structural policy settings. Very high sovereign debt is expected to continue to increase over the next decade even with sustained consolidation (OECD, 2014). Thus, failing to improve the fiscal position risks sparking adverse financial market reactions (Guillemette and Strasky, 2013). To ensure market confidence, the top priority should be to produce a detailed and credible long-term consolidation plan, including social security reforms to limit spending increases in health and long-term care and revenue increases. The current QQME programme provides increasing monetary policy stimulus but further measures are needed. Decisions about the size of a new programme would have to take into account possible diminishing marginal benefits and risks to financial stability. In view of limits to macroeconomic stimulus in Japan and an ageing society, structural reforms to boost actual and potential GDP are needed. This requires implementing specific measures based on the government's revised growth strategy, and carrying out bolder reforms of product markets, including greater international openness, and reducing labour market dualism.

In the United States and the United Kingdom, risks of secular stagnation seem far less important. A pick-up in aggregate demand and firming of potential GDP, as recently experienced and projected by the OECD, call for gradually removing monetary stimulus while sustaining fiscal consolidation to ensure lower public debt in the longer run. A gradual normalisation of monetary policy is supported by growing evidence of increasing risk-taking in financial markets. In the United States, risk spreads have fallen to close to immediate pre-crisis levels; the issuance of high-yield bonds has reached new highs; underwriting standards have fallen, with covenant-light contracts expanding significantly; and the securitisation of loans to leveraged borrowers into collateralised loan obligations has surged. The United Kingdom has also experienced a compression of corporate bond spreads and a rapid increase in house prices, which have already been above long-term averages in relation to rents and income.

Other longer-term policy considerations

Looking towards preventing the risk of secular stagnation beyond the near term, the inflation target could be raised to reduce the probability of hitting the zero lower bound or to increase resilience in case the bound is reached (Blanchard et al., 2010; Ball, 2013; and Krugman, 2014a). A higher inflation rate and the associated higher nominal interest rates would provide greater room to ease monetary policy in the face of negative shocks. Against these benefits, there are, however, at least two associated risks (Bayoumi et al.,

2014). First, a permanently higher inflation rate would entail several costs including distortions in cash holdings; overinvestment in the financial sector; greater uncertainty about relative prices and the aggregate price level; distortions of the tax system; redistribution of wealth; and difficulties in financial planning. Higher inflation also tends to be more volatile, thus raising the term premium and nominal and real long-term interest rates (Bouis et al., 2014). Second, it could be difficult for central banks to credibly modify the inflation target as raising it once could generate expectations of future upward shifts (Bernanke, 2010).

Looking further in the future, implementing fiscal frameworks to ensure low debt levels in normal times would minimise risks of limited room for fiscal accommodation to deal with secular stagnation, should the economy be hit by a large shock. Frameworks could involve a combination of fiscal rules, including debt ceilings, expenditure or deficit rules (Sutherland et al., 2012). Fiscal discipline could be bolstered and a deficit bias reduced by setting up an independent fiscal policy watchdog, to scrutinise budget proposals and underlying macroeconomic assumptions, and strong budgetary procedures. This is likely to help raise transparency and help hold governments accountable for meeting their long-term sustainability goals. Fiscal rules, independent watchdogs and budgetary procedures must be backed by a strong government commitment to fiscal discipline to be efficient.

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