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# Limiting the Fall-Out from Fiscal Adjustment

- In response to the largest post-war recession, OECD governments have run up record peacetime budget deficits. While deficit spending was the appropriate response to an unprecedented crisis, correcting these imbalances is now a critical challenge for economic policymakers.
- Empirical evidence is equivocal about the appropriate size of government in the long run. But history does provide guidance as to how governments can correct large fiscal imbalances, while protecting economic growth.
- In a review of every major fiscal correction in the OECD since 1975, we find that decisive budgetary adjustments that have focused on reducing government expenditure have (i) been successful in correcting fiscal imbalances; (ii) typically *boosted* growth; and (iii) resulted in significant bond and equity market outperformance. Tax-driven fiscal adjustments, by contrast, typically fail to correct fiscal imbalances and are damaging for growth.
- The trade-off between withdrawing the stimulus too soon (and threatening the economy's nascent recovery) and delaying the correction (and threatening a debt crisis) largely disappears when severe fiscal imbalances are corrected through reduced government expenditure.
- Our results are robust to controlling for prior economic conditions that might otherwise explain growth differences. They are also consistent with the findings of previous academic work in this area.
- That said, decisive expenditure-driven fiscal adjustments are politically difficult to implement and tend to take place only following a change in government and/or once bond markets force the government's hand.



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# Contents

# 1. Introduction & Summary: Limiting the fall-out from fiscal adjustment

The financial crisis of 2008 and 2009, like others before it, is now being followed by a fiscal crisis. Across the developed world, private-sector borrowing has been replaced by public-sector borrowing (Chart 1). This has raised fears about the integrity of public-sector debt (Chart 2) and put pressure on governments to tighten fiscal policy at what appears to be precisely the wrong stage of the cycle, just as economies are emerging from recession.

*The financial crisis of 2008 and 2009, like others before it, is now being followed by a fiscal crisis*

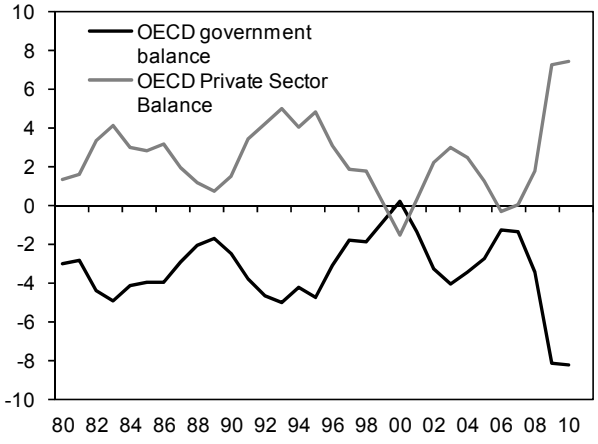
To some extent—probably to a greater extent than is commonly realised—the strong inverse correlation in Chart 1 is automatic. At least in part, the increase in government borrowing has been an unavoidable counterpart of the collapse in investment and credit growth in the private sector, not a discretionary easing of fiscal policy. To that extent, public-sector deficits will automatically decline as economies recover and the private sector's financial surplus starts to recede.

However, the deterioration in public finances is not entirely cyclical. Most governments have also implemented a significant discretionary loosening of fiscal policy. Furthermore, to the extent that the credit crunch has reduced potential output, structural borrowing will have risen even without any active decision to spend more or cut taxes. While recognising the huge uncertainties that surround such calculations, we estimate that the cyclically-adjusted deficit has risen to 5% of GDP in the EU, 7% in Japan and 7% in the US. There can be little doubt that more will be needed to reduce deficits than simply waiting for growth to resume. Either government spending must be cut or taxes raised, or both. Our aim in this paper is to see what can be learned about the economic effects of these decisions from the past experience of large fiscal consolidations in the OECD.

*Stronger growth will help to reduce budget deficits but much of the fiscal deterioration in advanced economies appears to be structural in nature*

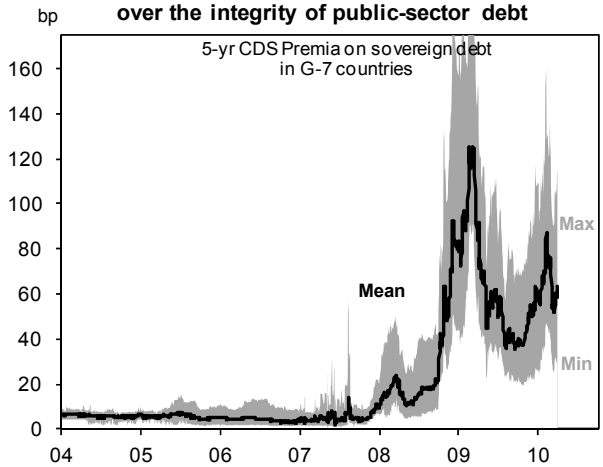
This is well-trodden ground in the economics literature. In a landmark paper in the mid-1990s, the economists Alberto Alesina and Roberto Perotti found that **economic growth fared much better during large fiscal corrections that were (i) decisive rather than gradual and (ii) relied on reductions in current government spending, rather than cuts in public-sector investment or higher taxes**. That finding has since been confirmed by a number of related studies, including Giavazzi and Pagano (1996), Alesina and Ardagna (2009), Reinhart and Rogoff (2010), and the UK Treasury (2009). It is also confirmed, with an updated dataset (and a slightly different methodology) in this paper.

**Chart 1: The rise in government deficits mirrors an increase in private saving**




Source: OECD

**Chart 2: The financial crisis increased fears over the integrity of public-sector debt**




Source: Datastream, GS Global ECS Research

Although the empirical literature provides no definitive explanation of the findings, several possible channels have been proposed:

- When fiscal imbalances are severe and a correction appears inevitable, cuts in government expenditure reduce the fear of future taxation and boost private spending by means of an expectations-driven 'income effect'.
- Spending cuts may help to loosen monetary conditions, either by reducing risk premia and the cost of long-term debt or, in open economies, via a depreciation of the exchange rate.
- Expenditure-driven adjustments, in reducing the public sector's demand for workers, have the effect of reducing whole-economy unit labour cost inflation, thereby increasing private-sector competitiveness.

*Economic growth has fared much better during large fiscal corrections that were (i) decisive rather than gradual, and (ii) relied on reductions in current government spending, rather than cuts in public-sector investment or higher taxes*

Plausible or not, however, these proposed mechanisms have left many unconvinced. The suggestion that reductions in government spending might add to growth is controversial.

One reason for this is political. It is easy to misinterpret the result as a commentary on the—inherently political—question of what constitutes an appropriate level of taxes and government spending in the long run. In this regard, we emphasise at the outset that the results in the literature, and what we add to that here, are only about the *transition* to fiscal sustainability, not about the size of the government once you arrive at that position. The empirical evidence is much more equivocal with regards to the appropriate size of government in the long run and we do not attempt to comment on this. However, while the findings are fully relevant only for countries with severe fiscal imbalances, this is exactly the predicament that many advanced economies find themselves in today.

*Economic conditions are typically worse ahead of expenditure-based corrections, which suggests that governments need to be under economic pressure before taking this route*

Another reason is that the result runs strongly against the Keynesian grain: how could it be that a contraction in one part of spending acts to boost the aggregate, especially if the economy has spare resources? Criticism of the empirical result has therefore focused on whether these correlations really are (or are not) identifying the true effects of fiscal policy. In particular, suppose that the economies that outperformed the OECD, in our sample, did so for some other, non-fiscal reason. If faster growth automatically reduced the expenditure ratio, you'd get the same negative correlation but for an entirely different reason.

It's not obvious why this should be the case. The series we (and others) use for tax and expenditure shares are already cyclically adjusted, cleansed of any systematic relationship with economic growth. So if the correlations here were picking up some reverse impact (from growth to spending), it would have to be an unusually strong one, above and beyond the normal cyclical response, and systematically so across the countries in our sample. That seems unlikely.

*The finding that growth improves following large, expenditure-based fiscal corrections is robust to controlling for initial conditions that might otherwise explain subsequent differences in growth*

In order to probe these relationships in a little more depth, and in addition to re-establishing the basic results in the literature with an updated sample, we complement them in this paper in three simple ways. First, we control statistically for economic conditions prior to fiscal consolidation—to the extent that these predict future growth, this should help sharpen the estimates of the marginal effects of policy. Second, we also examine how financial markets, and bond yields in particular, behave during these episodes, both before and during consolidations. Third, we take a look at the composition of aggregate expenditure during the transition.

Four broad conclusions emerge:

- Economic conditions are typically worse ahead of expenditure-based corrections. Relative to the rest of the OECD at the time, and relative to tax-

based adjustments, growth is worse and bond yields are higher. This suggests that governments need to be under economic pressure before succumbing to spending cuts.

- However, even controlling for the state of the economy at the time—bond yields as well as GDP—economic growth is still significantly better in expenditure-based corrections. This suggests that the benefits of spending cuts are not simply a reflection of having started from a worse position—something else is at work.

*Private sector investment improves much more rapidly following expenditure-driven adjustments*

- Although net trade contributes more to demand growth in the period immediately following expenditure-based corrections, the clearest outperformance is in investment. This could be a response to what is a bigger decline (from a higher level) in the cost of capital; it could also be a more direct response to improving optimism about future returns.

- Alongside better growth, financial markets outperform in expenditure-based corrections. Bond yields fall by more; equity markets also outperform the rest of the OECD, by 64% over a three-year period.

One thing that should be taken from this, we believe, is that the underlying result looks reasonably robust. Even allowing for any differences at the starting point (which might have prejudiced the subsequent correlations), the manner of significant fiscal corrections still seems to matter for economic growth.

Another is that, while it's hard to be precise about the mechanism involved, an improvement in confidence—in both the integrity of government debt and about returns on risky private-sector investment—seems to play an important part. In small open economies, the decline in the exchange rate may contribute to that improvement. Whether or not a significant decline in bond yields is a necessary component in the transmission to economic growth, or simply an incidental effect, is unclear, although it should be emphasised that bond yields decline in tax-based corrections too (albeit to a lesser extent).

*Bond and equity markets also outperform significantly following large expenditure-driven adjustments*

These uncertainties may, of course, affect one's view of the correct approach today, especially with global bond yields significantly lower than in our sample of fiscal corrections. But, on the face of it, none of the existing sets of fiscal plans in the major economies (to the extent we know them) qualifies as 'expenditure-based' and 'significant'. In several cases (Germany, France, Japan), this is simply because structural deficit reduction either isn't planned or is too moderate. Where there are significant corrections planned—a reduction of 1% of GDP in each of the next two years in the US structural deficit, 5% of GDP over the next three years in the UK—these are driven not by cuts in current spending but (predominantly) by lower investment or higher taxes.

These plans should be seen against the backdrop of a significant cyclical recovery in global economic activity, one that we believe will lead to marked reductions in government borrowing. But structural deficits are nevertheless large, and even those governments that have not yet announced plans to reduce them will probably have to do so in due course. If history provides a reliable guide, the governments that choose to effect this correction via reduced expenditure (and have the political capacity to push through this choice) are likely to witness stronger growth, lower borrowing costs and equity market outperformance.

*Existing fiscal plans fall well short of the benchmark set by the successful adjustments of the past*

The remainder of this paper is structured as follows: in Section 2 we review the wealth of academic literature that exists on this subject; in Section 3 we set out our main results; in Section 4 we provide a detailed analysis of three notable expansionary fiscal corrections (Ireland 1987-89, Sweden 1994-98, Canada 1994-97), and in Section 5 we discuss the existing fiscal plans of governments and draw some conclusions.

# 2. Lessons from the literature: Successful fiscal corrections are decisive and expenditure-driven

There is a wide cross-country empirical literature examining successful (and unsuccessful) fiscal consolidations of the past. Much of this research dates from the 1990s, when a large number of advanced economies were struggling with high government debt-to-GDP ratios.

*The consensus within the academic literature is that successful corrections of severe fiscal imbalances share two essential features: they are decisive and they focus on cutting expenditure*

The consensus within this literature is that successful corrections of severe fiscal imbalances share two essential features, relative to unsuccessful ones:

1. **Decisive action.** Gradual fiscal adjustments, phased in over a number of years, fail to reduce debt ratios and—more surprisingly—are typically more damaging for growth than decisive fiscal corrections.

2. **Successful corrections are characterised by declines in current spending rather than by tax increases or reduced government investment.** The composition of the adjustment appears to be critical. Fiscal adjustments that rely primarily on cuts to current expenditure appear more effective in reducing debt and less damaging (or even positive) for growth than fiscal adjustments that mostly rely on tax increases or cutting investment.

It is worth emphasising that this literature focuses on the correction of severe fiscal imbalances. Thus, although the conclusion that decisive, expenditure-driven corrections are more effective in severe budgetary imbalances and less damaging for growth is pretty much a universal finding of the literature, this does not imply that perpetually larger government surpluses or perpetually reducing government expenditure would be beneficial. Specifically:

*The evidence is much more equivocal as to the appropriate level of government spending and taxation over the longer term*

- While economic theory and practice provides strong guidance on the recommended balance between expenditure cuts and tax increases during the adjustment process, the evidence is much more equivocal as to the appropriate level of government spending and taxation over the longer term (i.e., once fiscal balance has been restored). With the correction made and the budget balanced, it may be that the government chooses to increase public expenditure and revenues together. (For example, Sweden targeted expenditure cuts during its successful fiscal correction of the mid-1990s but it typically has relatively high levels of government expenditure and taxation, and this does not appear to impede its performance.)

- The implications of the literature are not 'anti-Keynesian'. The fiscal multiplier is likely to be positive in normal times; it only turns negative in the face of severe budget deficits and/or high government debt ratios. The finding that decisive budgetary corrections result in positive growth effects is 'state-dependent' on there being a severe fiscal imbalance to start with.

*While the findings from this literature are fully relevant only for countries with severe fiscal imbalances, this is exactly the predicament that many advanced economies find themselves in today*

However, while the findings from this literature are fully relevant only for countries with severe fiscal imbalances, this is exactly the predicament that many advanced economies find themselves in today.

### Empirical literature on fiscal adjustments

The most widely cited research within the empirical literature is the work carried out by Alesina and Perotti (1995, 1997). Alesina and Perotti (A&P) identify four "critical questions" in the budgetary adjustment dilemma: (i) How quickly should fiscal policy be adjusted? (ii) Should the focus of the correction be on cutting government expenditure or raising tax revenues? (ii) What is the likelihood of the consolidation resulting in a permanent reduction in debt levels? and (iv) How damaging will the correction be for economic growth?

A&P argue that the answers to each of these questions are "deeply connected" and that the apparent trade-off—between cutting the deficit too fast and hurting growth, or cutting too slow and risking a fiscal crisis—is eliminated if the adjustment relies primarily on expenditure cuts. Based on fiscal data for OECD countries and three detailed case studies—Denmark (1983-86), Ireland (1987-89) and Italy (1989-92)—the authors conclude that fiscal adjustments that rely primarily on cuts to current spending "have a better chance of being successful and are expansionary".

*A recent UK Treasury study concluded: "There is broad agreement in the literature that spending restraint is more likely to generate lasting fiscal consolidation and better economic performance than tax increases"*

A large number of academic papers are closely related to the work of A&P and, as their results are similar, we don't discuss them in detail here. But the following is a selection of the most noteworthy:

- Giavazzi and Pagano (1990) also use a case-study approach to argue that severe fiscal adjustments can be expansionary.
- Alesina and Ardagna (2009) update the analysis of Alesina and Perotti (1995, 1997), obtaining very similar results.
- Perotti (1999) provides evidence that the effect of fiscal policy depends on the fiscal position prior to the adjustment: the more rapid the growth of public deficits and/or the higher the level of debt, the more likely it is that the fiscal correction will have expansionary effects.
- Reinhart and Rogoff (2010) argue that, when government debt rises above 90% of GDP, median growth rates fall by 1% and average growth falls considerably more. By implication, cutting the debt ratio below that threshold boosts growth.
- A recent study by economists at the UK Treasury (2009) summarised the findings of the literature, concluding that "there is broad agreement in the literature that spending restraint is more likely to generate lasting fiscal consolidation and better economic performance than tax increases".

*Blanchard (1985) argues that, while fiscal policy has strongly Keynesian effects at low levels of debt, the fiscal multiplier declines and can turn negative at high debt-to-GDP ratios*

### Why are decisive, expenditure-driven corrections more successful?

The message from the empirics is fairly definitive, but this still leaves unanswered the question of *why* decisive, expenditure-driven adjustments have been more successful in reducing debt and less damaging (or even positive) for growth. Taking each aspect in turn:

**Decisive action:** The literature emphasises two reasons why decisive corrections of severe budgetary imbalances can be expansionary:

- **The expectations view of fiscal policy:** Faced with severe fiscal imbalances, the private sector becomes keenly aware that a budgetary adjustment will be necessary in the future. In such a scenario, gradual fiscal adjustments tend to fail because they prolong uncertainty over future tax plans, leading to higher precautionary saving in the private sector (Giavazzi and Pagano (1996)). Blanchard (1985) argues that, while fiscal policy has strongly Keynesian effects at low levels of debt, the fiscal multiplier declines and can turn negative at high debt-to-GDP ratios. He argues that this is because, at low debt levels, the 'payback' for the private sector (in terms of lower expenditure/higher taxes) can be put off to the distant future. However, at higher levels of debt, the private sector realises that the situation is unsustainable and that a near-term correction is inevitable. (It is also possible that expenditure-driven adjustments are especially effective in reducing fiscal uncertainty because they are politically difficult to implement and therefore signal the government's resolve in tackling the problem.)

*It is possible that, because they are politically difficult to implement, expenditure-driven adjustments are especially effective in signalling the government's resolve to tackle the problem*

- **Credibility effects on interest rate risk premia:** Miller, Skidelsky and Weller (1990) show that, at high levels of debt, interest rate risk premia reduce private-sector spending, crowding out the positive effects of fiscal policy. The role of interest rate risk premia in reducing growth is also emphasised by Reinhart and Rogoff (2010).

*The interest rate channel: at high levels of debt, interest rate risk premia reduce private-sector spending, crowding out the positive effects of fiscal policy*

**Compositional effects:** The greater success of expenditure-driven vs. tax-driven adjustments is attributed to the following factors:

- **Expenditure-driven adjustments reduce unit labour costs (ULCs) and improve competitiveness.** A&P argue that this channel is especially important, noting a sharp difference in ULC inflation between successful and unsuccessful adjustments, and also that private-sector investment is the component of aggregate demand that differs most following successful and unsuccessful adjustments. Meanwhile, Lane and Perotti (2003) find that reduced fiscal reforms that take the form of a reduction in wage government spending have the effect of 'crowding in' an expansion in output, employment and profitability in the traded sector.

- **Cash-flow effects on private-sector spending:** It is easier for the private sector to fill the gap left by the budgetary adjustment if it does not face the additional burden of increased taxation during the adjustment process.

- **Supply-side effects:** Tax-driven adjustments to budgetary policy have the effect of reducing labour supply (Barro (1981)) and crowd out investment (Baxter and King (1993)).

*Expenditure-driven adjustments reduce ULCs and improve competitiveness*

In the following section, we extend the previous empirical work, focusing in particular on the interaction between bond markets and fiscal policy before and after major fiscal corrections, and also controlling for other sources of potential growth differences.

# 3. Empirical results: Lessons from 44 large fiscal adjustments

In an update and development of the empirical work by Alesina and Perotti (1995, 1997), we have analysed budgetary data for 24 OECD economies covering 35 years from 1975 to determine the effect of large budgetary adjustments on debt reduction and on growth. Our work introduces two important innovations, relative to previous studies:

*We have analysed budgetary data for 24 OECD economies covering 35 years from 1975 to determine the effect of large budgetary adjustments on debt reduction and on growth*

- We consider how bond markets interact with budgetary policy before and after major fiscal adjustments.
- In assessing how expenditure and tax changes affect growth, we control for differences in other exogenous factors that might independently affect growth (such as differences in the growth performance prior to the correction, in the starting level of debt and in bond spreads prior to the correction).

Before considering our results, we offer a couple of definitions:

- We define a large budgetary adjustment as one in which the cyclically-adjusted primary surplus rises by more than 1.5% of GDP in a year.[1] This criterion is pretty stringent, with only 44 observations in total (or 1.8 observations per country) over the 35-year sample.
- We split our sample into 'expenditure-driven' adjustments—where more than two-thirds of the total adjustment is made by a reduction in (cyclically-adjusted) expenditure as a share of GDP—and 'tax-driven' adjustments.[2] Eleven of the 44 large fiscal adjustments in our sample meet the criterion of being 'expenditure-driven'. A full list of the 'expenditure-driven' and 'tax-driven' corrections are provided in the Appendix.

*Expenditure-driven budgetary adjustments have been much more successful in reducing debt levels*

### The composition of the correction is critical

We set out our main results in graphical form before considering a more formal statistical analysis. In each of the charts, year 0 is the year in which the correction begins. Our main findings are:

1. **Expenditure-driven budgetary adjustments have been much more successful in reducing debt levels** (Chart 3). Starting from a higher level, the mean debt-to-GDP ratio falls quite sharply. In contrast, debt continues to rise following large tax-driven adjustments.

2. Chart 4 displays the average cyclically-adjusted primary balance across expenditure- and tax-driven adjustments. Prior to the adjustment, the average cyclically-adjusted primary deficit is worse for the expenditure-driven group (-3.0% of GDP vs. 2.4%). The average initial adjustment is comparable in size across both types of adjustments. However, progress in improving the cyclically-adjusted primary balance continues in expenditure-driven adjustments but tends to stall in tax-driven adjustments.

*Tax-driven budget adjustments have proved very damaging for growth but large, expenditure-driven budget adjustments have tended to* boost *growth*

3. **Tax-driven budget adjustments have proved very damaging for growth but large, expenditure-driven budget adjustments have tended to *boost* growth** (implying a fiscal multiplier in major fiscal corrections that is

1. Multi-year periods in which the primary surplus rises by more than 1.5% of GDP in consecutive years are treated as a single episode, as are multi-year periods in which the first and last years have a correction of more than 1.5% and the average over the whole period is more than 1.5% per year.
2. In this respect we differ from Alesina and Perotti (1995, 1997), who split their sample into 'successful' and 'unsuccessful' fiscal adjustments—based on the (ex-post) performance of debt-to-GDP and/or growth—and then looked back to consider the size and composition of the adjustments that fulfilled these criteria. We think it is more appropriate to set an ex-ante rather than an ex-post definition when considering what one should expect from a particular type of fiscal adjustment.

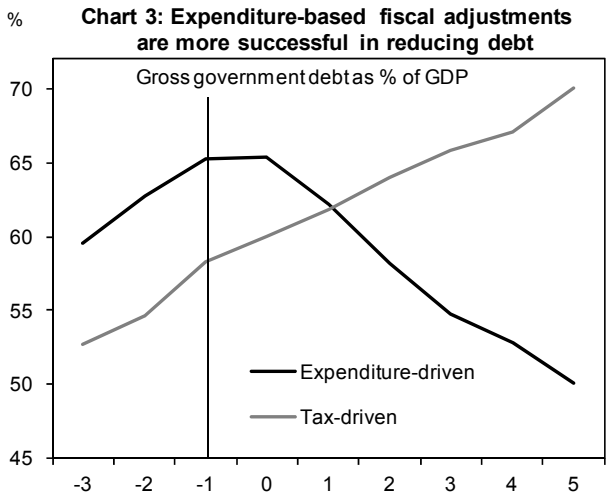



**Chart 3: Expenditure-based fiscal adjustments are more successful in reducing debt**

Source: OECD, GS Global ECS Research

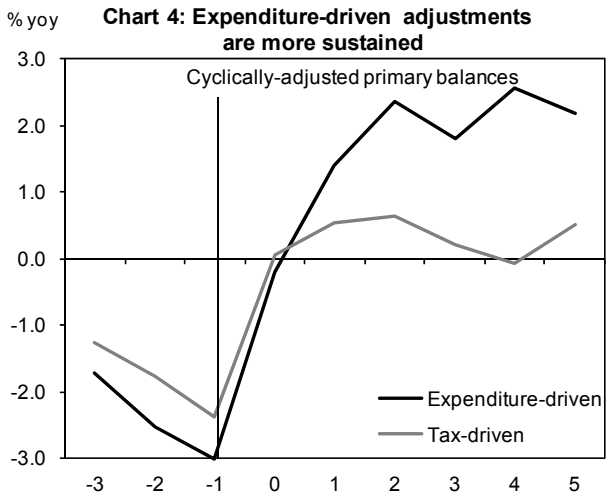



**Chart 4: Expenditure-driven adjustments are more sustained**

Source: OECD, GS Global ECS Research

negative). Chart 5 displays the growth performance *relative to the OECD*, so the outperformance in expenditure-driven cases is not being driven by a more benign global environment. Viewed in this way, the trade-off between withdrawing the stimulus too soon (and threatening the economy's nascent recovery) and delaying the correction (and threatening a debt crisis) appears to disappear when severe fiscal imbalances are corrected by expenditure-driven corrections.

4. The diametrically opposing effects on debt levels and growth from the two types of adjustment cannot be accounted for by the size of the average adjustments in the two groups. The mean initial adjustment in both samples is very similar, only the composition differs (Chart 6). A&P find that 'successful' fiscal consolidations also differ from 'unsuccessful' ones in terms of the reliance placed on cuts to investment spending vs. cuts to current expenditure. Cuts to investment spending tend to be less successful in reducing debt levels because they are less permanent (one cannot cut investment forever) and more damaging for growth (because they reduce the capital stock).

*Real bond yields and bond spreads both fall by much more following expenditure-driven adjustments*

5. **Real bond yields and bond spreads both fall by much more following expenditure-driven adjustments (Charts 7 & 8).** At least as interesting as what occurs *after* the budgetary adjustment, however, is how the two samples differ *before* the adjustment takes place. Real bond yields and bond

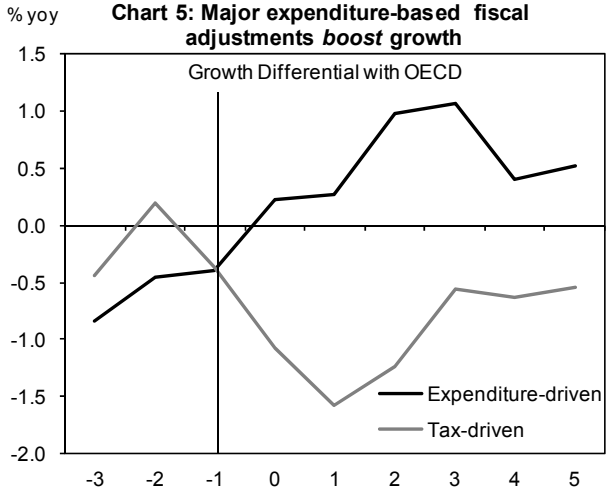



**Chart 5: Major expenditure-based fiscal adjustments *boost* growth**

Source: OECD, GS Global ECS Research

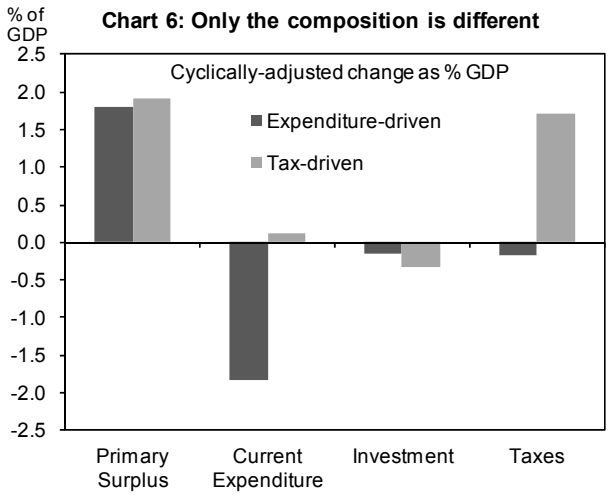



**Chart 6: Only the composition is different**

Source: OECD, GS Global ECS Research

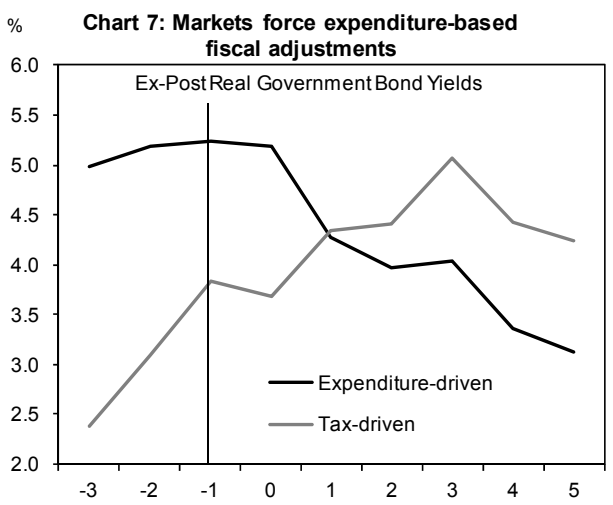



**Chart 7: Markets force expenditure-based fiscal adjustments**

Source: OECD, GS Global ECS Research

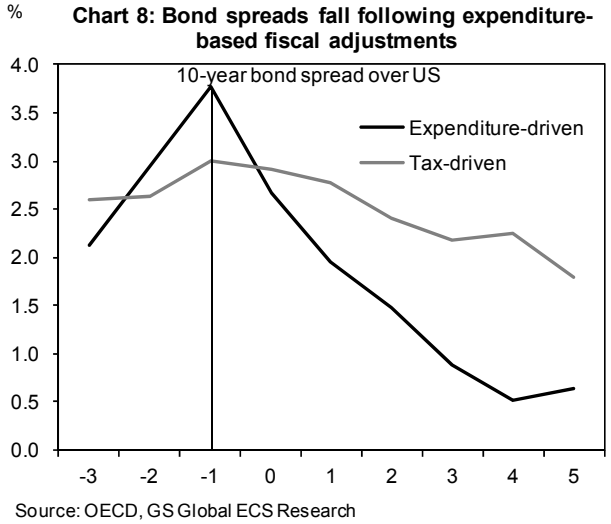



**Chart 8: Bond spreads fall following expenditure-based fiscal adjustments**

Source: OECD, GS Global ECS Research

spreads are both significantly higher prior to the adjustment for the expenditure-driven sample. It may be that governments do the 'right' thing only when they have exhausted the alternatives and are forced to do so. As the list in the Appendix shows, successful expenditure-driven adjustments have often only taken place following one or more unsuccessful tax-driven adjustments. We explore this point further in the case studies set out in the following section.

*Equity markets outperform following large expenditure-driven fiscal adjustments*

6. **Equity markets outperform following large expenditure-driven fiscal adjustments.** We have also considered the performance of equity markets before, during and after large fiscal adjustments. Given the pattern of weaker real unit labour costs, improved competitiveness and relatively strong growth in economies that have implemented large expenditure-driven fiscal adjustments, it is not surprising to see that the equity markets of these economies have typically outperformed global equity markets by a large margin in the aftermath of such adjustments. This is true both in local currency returns (Chart 9) and in US Dollar terms (Chart 10). The cumulative outperformance of total returns in the three years following a large expenditure-driven fiscal adjustment has been more than 60% in US Dollar terms (see Sharon Bell's recent piece "*Strategy Matters: Equity exposure to UK government spending*", March 23, 2010).

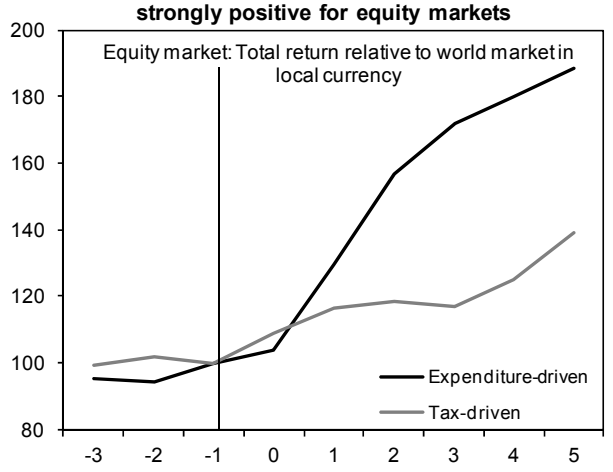



**Chart 9: Expenditure-driven adjustments are strongly positive for equity markets**

Source: Datastream, GS Global ECS Research

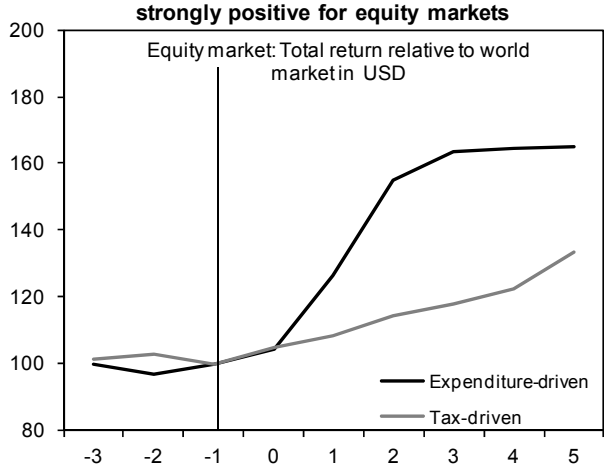



**Chart 10: Expenditure-driven adjustments are strongly positive for equity markets**

Source: Datastream, GS Global ECS Research

## Controlling for other sources of variation

In what is a politically sensitive area, the finding that—on the face of it—cuts in government expenditure appear to boost aggregate demand has been controversial. It's not that a negative fiscal multiplier is *prima facie* impossible. As we explained in the first section, and explore further below, there are several possible mechanisms that could give you that result. But critics remain unconvinced and are suspicious that some other, third factor might be explaining both the stronger growth and the simultaneous decline in the expenditure ratio.

*The government tax, spending and balance ratios that we use should not be exogenously affected by growth because they are cyclically adjusted*

Whatever that third factor might be, the decline in the ratio of spending to GDP cannot be an *automatic* response to strong growth, as both the denominator and the numerator in the fiscal ratios are cyclically adjusted: they are, by construction, invariant to independent changes in economic activity. It may be that the cyclical adjustment is inadequate in some way and underestimates the (negative) impact of growth on current government spending. But we doubt this could come close to explaining the differences observed in the charts. Besides, one striking feature of the data is that the tax ratio actually *declines* during expenditure-based corrections. In unadjusted, or only partially adjusted, data the opposite would happen (because tax revenues tend to increase more than one-for-one in response to faster growth).

It's still possible that the patterns in the sample are explained by something other than a negative fiscal multiplier. In general, deep recessions are usually followed by strong recoveries. As Charts 3-8 indicate, economic conditions prior to significant fiscal corrections are generally worse than in the rest of the OECD at the time—growth is weaker, bond yields and debt growth higher—especially ahead of expenditure-based (as opposed to tax-based) corrections. At least in principle, therefore, it's possible that the correlation arises not because the fiscal multiplier is genuinely negative but because bad recessions tend to induce both cuts in government spending and strong cyclical rebounds.

*We control for a number of other potential sources of growth differences: pre-crisis growth, bond yields and debt levels*

This is unconvincing, however. For one thing, growth is also relatively weak ahead of tax-based corrections (but it nevertheless persists in being weak *after* the correction as well). Second, a more systematic analysis, using standard OLS regressions, suggests that the fiscal multiplier is still negative (in response to cuts in current spending) *even controlling for initial conditions.*

Table 1 gives the results. The dependent variable in both cases is average growth (relative to the rest of the OECD) during the three years from the time the correction begins. In the first row the only regressors are cyclically-adjusted ratios of public-sector current spending, capital spending and taxes to potential (cyclically-adjusted) GDP. This is a simple numerical representation of Charts 3-8 and the qualitative results are therefore unsurprising: the coefficient on

**Table 1: Regression Results—Growth impact of expenditure, investment, tax changes and other variables**

| Average annual growth difference (yrs 0-3) on average expenditure, investment and tax changes (yrs 0-3) | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Growth | Constant | Expend | Invest | Taxes | | | | $R^2$ | DW |
| | | -0.20 | -0.59 | 0.85 | -0.70 | | | | 0.44 | 2.16 |
| | | (-0.73) | (-2.17)** | (1.66)* | (-1.85)* | | | | | |
| 2 | Growth | Constant | Expend | Invest | Taxes | Pre-Crisis Growth | Pre-Crisis Debt Level | Pre-Crisis Bond Spread | $R^2$ | DW |
| | | 0.42 | -0.63 | 1.25 | -0.87 | -0.22 | -0.01 | 0.04 | 0.44 | 2.16 |
| | | (0.87) | (-2.21)** | (2.02)* | (-2.09)** | (-1.45) | (-1.58) | (0.92) | | |

Source: GS Global ECS Research. Notes: (i) T-stats are in parentheses; (ii) * implies 10% significance, ** implies 5% significance; (iii) DW = Durbin-Watson stats

expenditure is negative (implying that expenditure cuts boost growth and vice versa) and statistically significant; the coefficient on investment is positive and significant; the coefficient on taxes is negative and significant.

In the second regression we control for a selection of candidate exogenous factors prior to the correction. We include: (i) pre-adjustment growth; (ii) the pre-adjustment level of debt, and (iii) the pre-adjustment bond spread. However, none of the coefficients on these three additional terms is significant, except at relatively wide margins of statistical significance, and their inclusion does not materially alter the sign, size or significance of the coefficients on the terms in the first regression (i.e., for expenditure, investment and taxes). Indeed, if anything, they strengthen the estimated marginal impacts of the three fiscal variables.[3]

*Reducing the cyclically-adjusted expenditure balance by one percentage point boosted average growth by 0.6 percentage points during the 44 large fiscal adjustments*

These estimated coefficients are sizeable:

- Reducing the cyclically-adjusted expenditure balance by one percentage point a year boosted average annual growth by 0.6 percentage points during the 44 large fiscal adjustments that have taken place in the OECD since 1975.
- Increasing the cyclically-adjusted investment balance by one percentage point increased average GDP growth by more than a percentage point (controlling for pre-adjustment growth, debt levels and bond spreads).
- Increasing the cyclically-adjusted tax-to-GDP ratio by one percentage point reduced growth by 0.9 percentage points on average.

*Increasing the cyclically-adjusted tax-to-GDP ratio by one percentage point reduced growth by 0.9 percentage points on average*

It's still possible to query whether these are really picking up the pure effects of fiscal policy in extreme circumstances. A convinced sceptic, for example, might argue (i) that growth had done better for reasons other than fiscal policy, and in ways that couldn't be predicted from the weakness of the economy beforehand, and (ii) that governments feel more comfortable about cutting spending once the economy is better. Because we can't perform experiments in macroeconomics, it's always possible to question whether correlation necessarily implies causation in one direction or another. But it becomes harder to do so, in any plausible fashion, if the results still stand after controlling for a variety of exogenous starting conditions. To us, this suggests that there genuinely is a difference in the fiscal multiplier, at least in the extreme circumstances we are considering here, according to whether it's taxes or (current) spending that do the work. We now consider why that might be the case.

## Why is growth stronger in expenditure-driven corrections?

In our review of the academic literature, we outlined a number of mechanisms or channels through which large expenditure-driven corrections might boost GDP growth. These included: (i) an expectations-driven income effect from reducing the fear of future taxation; (ii) looser monetary conditions (via lower borrowing costs and/or a weaker exchange rate); and (iii) reduced ULC inflation leading to improved private-sector competitiveness.

*It is important to gain some understanding of which channel has typically been the most important in driving the growth outperformance*

It is important to gain some understanding of which of these channels has typically been the most important in driving the growth outperformance because not all of them are likely to be as relevant for the major advanced economies today. Specifically, if the interest rate risk premia channel were critical to the success of past expenditure-driven adjustments, then this would be less relevant today because risk premia have (so far) remained low in most

3. We have also run the regressions with the absolute growth performance as the dependent variable (i.e., rather than growth relative to the OECD). The results are similar and we focus on the outcome relative to the OECD because we think it is important to condition for the global growth environment. We have also run regressions with each of these additional terms included individually, with similar results. The list of other variables that one could include here is pretty much inexhaustive and we have tried other variations—such as using the level of bond yields rather than bond spreads—with very similar results. We focus on these three variables because they seem the most likely to independently affect growth.

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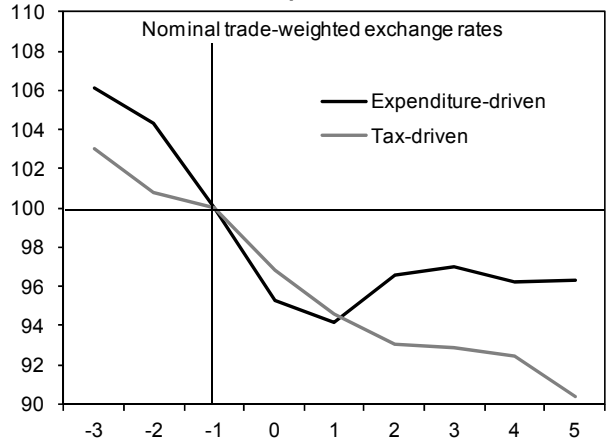
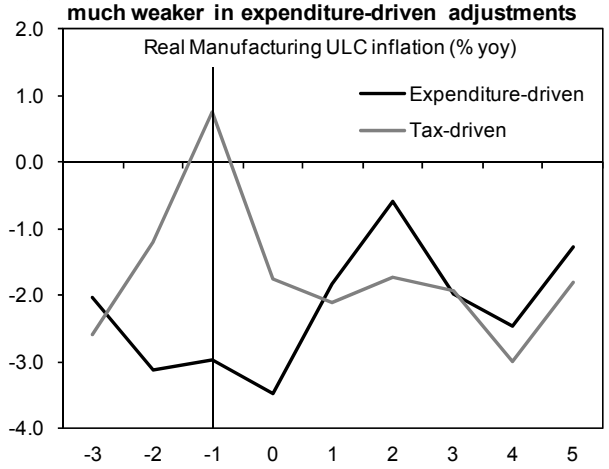
**Chart 11: Not much difference in exchange rate performance**




Source: OECD, GS Global ECS Research

% yoy

**Chart 12: Real unit labour cost inflation is much weaker in expenditure-driven adjustments**




Source: OECD, GS Global ECS Research

advanced economies. Similarly, if the exchange rate channel were key to past success, this would also be less relevant today because it is not possible for all of the major advanced economies to boost net trade by devaluing against each other. By contrast, if the 'expectations' channel or the ULC channel were key, then the historical lessons patterns would likely be just as relevant today (because fiscal policy is clearly unsustainable in many advanced economies and a reduction in ULC inflation could play an important role in boosting private-sector profitability and investment).

*ULCs have been much weaker on average during major expenditure-driven fiscal adjustments*

As we saw in Charts 7 & 8, real bond yields and bond spreads both fell by more following expenditure-driven adjustments. However, our regression analysis implied that lower borrowing costs was not a critical factor in driving growth—at least to the extent that those declines reflected especially high rates beforehand—and that, conditioning for this, expenditure-driven adjustments still boosted growth.

To determine the relative importance of some of the other channels, it is useful to highlight some more empirical regularities in the data:

- Nominal exchange rates fall a little more during expenditure-driven adjustments, although the most marked difference in this respect between the two groups is not in the performance before or during the initial adjustment but in the stabilisation and strengthening that typically occurs two years following expenditure-driven adjustments (Chart 11).

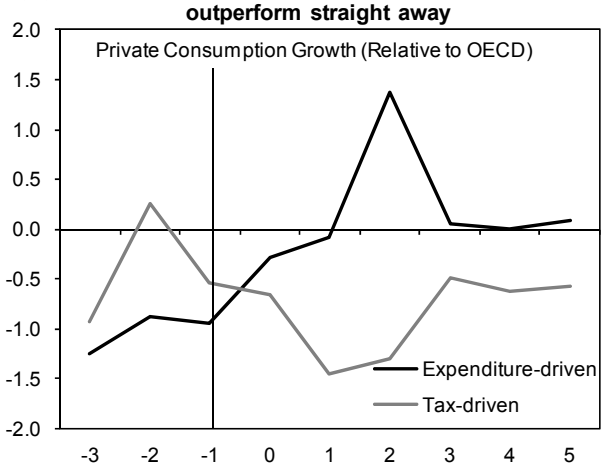
- Real unit labour costs (RULCs) have been much weaker on average during major expenditure-driven fiscal adjustments (Chart 12). This is consistent with the picture of weaker real unit labour costs boosting corporate profitability and the incentive to invest—a channel emphasised by Alesina and Perotti (1995, 1997), and Lane and Perotti (2003).

*Business investment growth accelerates very sharply during expenditure-driven adjustments*

The graphical evidence with regards to the relative importance of the exchange rate and ULCs is somewhat ambiguous, as both appear to have been supportive of growth. Another way to explore the question is to consider the components of aggregate demand during the adjustments, as different channels will tend to operate through different parts of demand:

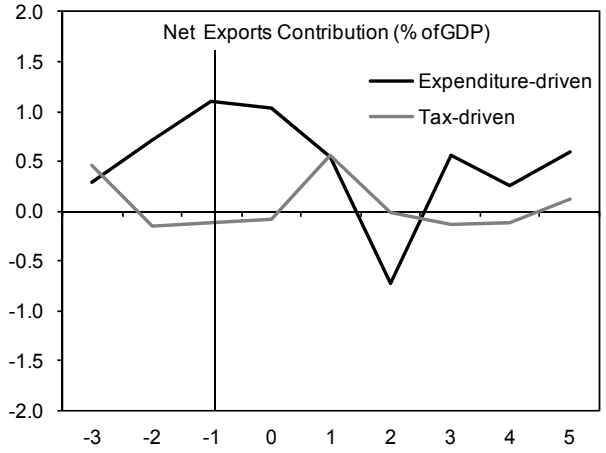
- Starting from a lower base, household consumption is marginally stronger following expenditure-driven adjustments relative to the OECD average. But the difference is not marked until 1-2 years after the adjustment begins (Chart 13).

% yoy **Chart 13: Private consumption does not outperform straight away**




Source: OECD, GS Global ECS Research

% yoy **Chart 14: Net exports do not drive the turnaround**




Source: OECD, GS Global ECS Research

- Net exports are also stronger during expenditure-driven adjustments (Chart 14). However, the change in net exports does not account for the acceleration observed in overall GDP growth: reflecting the relative weakness of domestic demand ahead of such adjustments, the positive contribution is just as strong before the adjustment as it is afterwards.

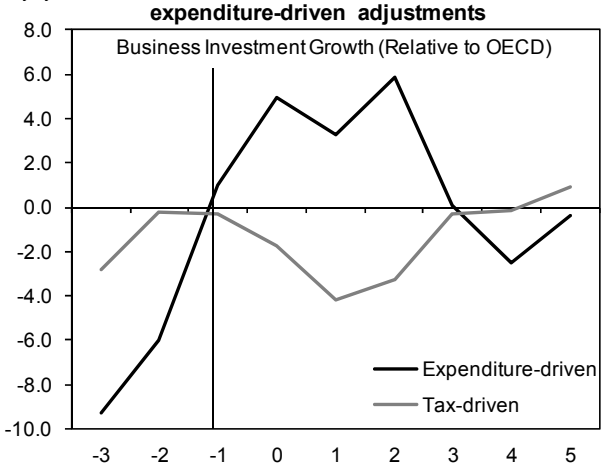
- Business investment growth, by contrast, accelerates very sharply: from an average of –9% (relative to the OECD) prior to expenditure-driven adjustments, to +5%yoy subsequent to the adjustment (Chart 15). Business investment accounts for a relatively small share of overall GDP—typically between 10% and 15% on average—but, such is the size of the relative acceleration, it accounts for all of the acceleration in relative GDP growth observed in Chart 5.

- We have also considered whether country size has mattered for the results and found it not to be significant.

*The success of expenditure-driven adjustments of the past has not relied on a 'beggar-thy-neighbour' boost*

The importance of investment spending in driving the acceleration of growth is important, as it is consistent with the importance of the expectations and ULC channels (whereas, if monetary conditions were generally key, one would expect more of the acceleration to come from net exports). Moreover, an acceleration in investment spending tends to be mutually reinforcing of growth in neighbouring economies, whereas net export growth comes at the expense of other economies. The success of expenditure-driven adjustments of the past has not relied on a 'beggar-thy-neighbour' boost.

% yoy **Chart 15: Investment recovers strongly in expenditure-driven adjustments**




Source: OECD, GS Global ECS Research

# 4. Country case studies

In this section we provide a detailed analysis of three of the most notable expansionary fiscal corrections: Ireland 1987-89, Sweden 1994-98, and Canada 1994-97. In addition to considering the economic conditions before and after these adjustments, we also discuss the political context of the adjustments.

## Ireland (1987-89)

### Background

*Ireland's successful fiscal correction followed a number of unsuccessful adjustments through the early-to-mid 1980s*

Ireland's successful fiscal correction, which began in 1987, followed a number of unsuccessful attempts through the early-to-mid 1980s. The previous efforts had attempted to correct the budget imbalance through tax increases and, in addition to failing to bring debt under control, were also associated with poor economic performance. Between 1980 and 1987: (i) government debt as a share of GDP rose from 75% to 123%; (ii) economic growth averaged just 1½% a year, despite exceptionally strong growth in Ireland's main trading partners at that time; and (iii) unemployment rose from 7% to 17%.

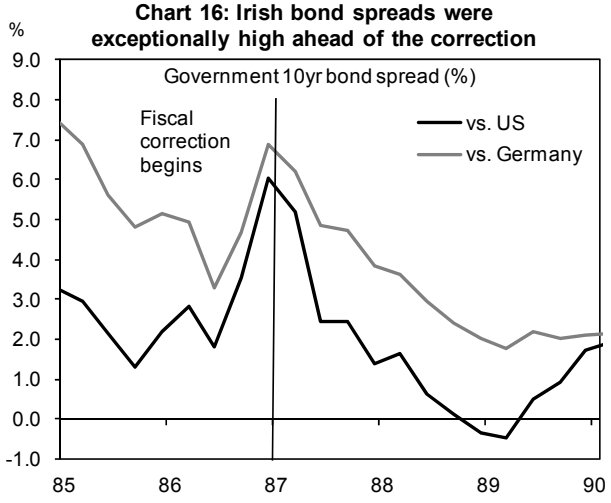
The political and financial market context of the 1987-89 consolidation was interesting in a number of respects:

- The adjustment followed a general election in which the previous Fine Gael/Labour coalition was replaced by a minority Fianna Fail government. Although the election campaign focused on the issue of economic competency, Fianna Fail did not campaign specifically on a platform of fiscal austerity.
- The incoming government did not have a working majority and it depended on the support of the largest opposition party (Fine Gael) to push through the consolidation programme.

*Ireland's fiscal adjustment followed an election and a change in government*

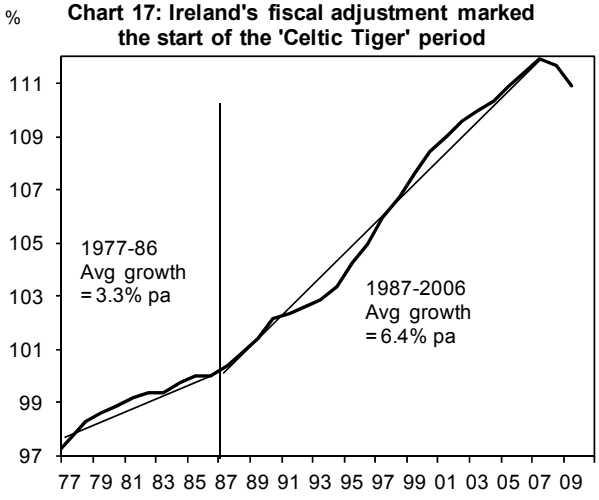
- The spread on Irish government bonds was high throughout the 1980s but it rose sharply to 690bps vs. Germany in 1986Q4, i.e., just prior to the election and the start of the adjustment (Chart 16).
- The size and the design of the consolidation effort were borne more from necessity than choice: the government's ability to raise new financing was threatened by a loss of market confidence, debt had become exceptionally costly and taxes could rise no further. While the hope was that the correction would bring the government finances under control, the widespread

**Chart 16: Irish bond spreads were exceptionally high ahead of the correction**




Source: OECD, GS Global ECS Research

**Chart 17: Ireland's fiscal adjustment marked the start of the 'Celtic Tiger' period**




Source: OECD, GS Global ECS Research

expectation was that it would was be associated with a prolonged period of economic hardship. There was no expectation before the event that the correction would be instrumental in bringing about a reversal in Ireland's economic fortunes and that a period of rapid growth would follow.

## Details of the fiscal consolidation programme

*There was no expectation before the event that the correction would be instrumental in bringing about a reversal in Ireland's economic fortunes*

- The budget deficit was reduced from 10.6% in 1986 to 2.6% in 1989, debt fell from 122% to 93% of GDP and annual GDP growth averaged 5½%. The fiscal correction marked the start of Ireland's 'Celtic Tiger' period, when GDP per capita rose from one of the lowest to one of the highest in Europe (Chart 17).
- The cyclically-adjusted primary balance improved by 5.2% of GDP over a period of three years, with cuts to primary current expenditure accounting for 77% of the improvement.
- The cuts to current expenditure were implemented via across-the-board cuts to all departments, in particular to health, social security benefits and state pensions. Education was the only major area of public expenditure that was 'ring-fenced'.
- Government transfers declined by 2.6% of GDP and the government wage bill was cut by 1.5% of GDP, via a 7% reduction in public-sector employment between 1986 and 1989.

## Lessons/Implications

*The fiscal correction marked the start of Ireland's 'Celtic Tiger' period, when GDP per capita rose from one of the lowest to one of the highest in Europe*

The issue of how and why the incoming Fianna Fail government managed to implement such stringent cuts following the February 1987 election is still a matter of political debate in Ireland. Our own view is that the decision to implement an adjustment of this type was largely forced upon the new government (it was facing difficulty raising funds in the bond market and previous attempts to correct the problem via higher taxes had already failed). Nevertheless, the government of that time deserves credit for the manner and verve with which it executed the programme—it is difficult to imagine it being implemented by the previous (coalition) government.

With regards to the question of why the fiscal consolidation was so successful, the role of wage moderation in improving competitiveness appears to have been critical. Real unit labour costs fell by 7% per year in the three years from 1987 to 1989, boosting profitability and triggering an investment boom that persisted for some years. The decline in the cost of borrowing in Ireland as it brought its budgetary balance under control was also supportive (Chart 18). In addition,

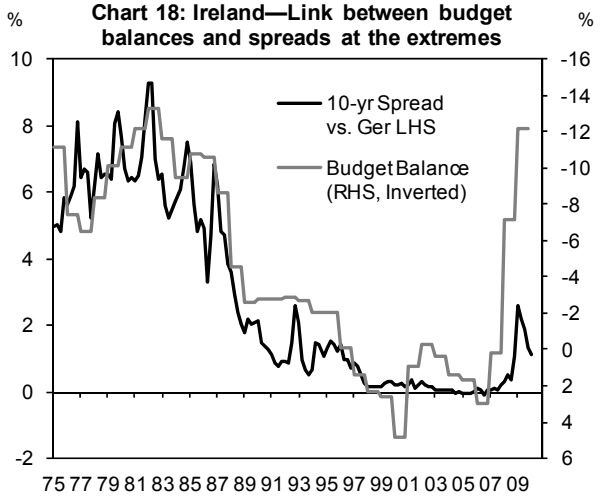



**Chart 18: Ireland—Link between budget balances and spreads at the extremes**

Source: OECD, GS Global ECS Research

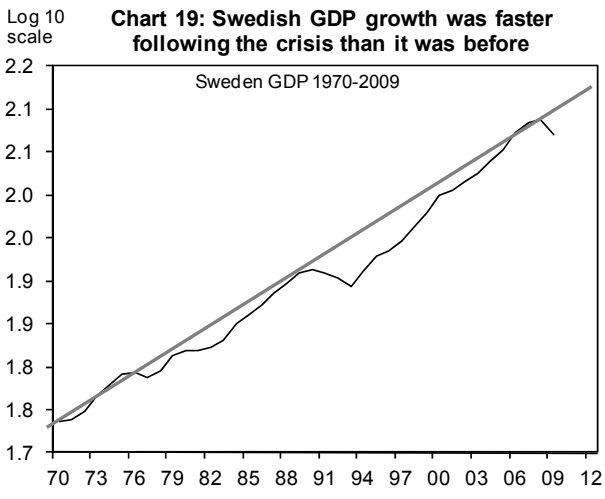



**Chart 19: Swedish GDP growth was faster following the crisis than it was before**

Source: Statitsics Sweden, GS Global ECS Research

Giavazzi and Pagano (1990) emphasise the importance of the expectations channel in Ireland's expansionary fiscal adjustment (an "income effect"), arguing that other factors (reduced real interest rates, lower ULCs, etc.) cannot fully account for the acceleration in growth.

## Sweden (1994-98)

*Sweden's experience in the 1990s has provided interesting parallels at every stage of the global financial crisis*

### Background

Sweden's experience in the 1990s has provided interesting parallels at every stage of the global financial crisis. Its problems started with the bursting of a real estate bubble in 1989/1990. This led to a banking crisis, which drove the economy into a deep recession and ultimately resulted in a government debt crisis.[4] But, for all the problems that it faced, Sweden's story is ultimately one of daunting challenges that were successfully overcome: the final cost to the government of the bank rescue was close to zero, the government balance moved from a deficit of 11.2% of GDP in 1993 to a surplus of 1.2% in 1998, and GDP growth averaged 3.5% per year during this adjustment. Indeed, post-crisis growth was faster than the pre-crisis trend and, while it took close to 10 years, the negative effect of the crisis on the *level* of GDP was also eliminated (Chart 19).

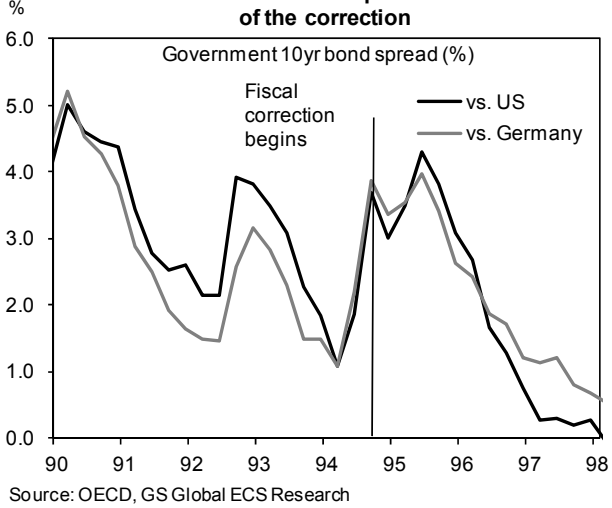
In previous research we have discussed Sweden's experience in the context of (i) the design of Sweden's successful bank bail-out and (ii) the role that Sweden's exchange rate devaluation (and easier financial conditions more generally) played in its recovery. While it is impossible to fully disentangle the role that each played in the subsequent recovery, we focus here on the part played by fiscal policy.

*In common with Ireland, the implementation of Sweden's fiscal correction also required a change of government*

In common with Ireland, the implementation of Sweden's fiscal correction also required a change of government. In contrast to Ireland, however, the change in government involved a leftward shift, with the right-of-centre Moderate/Centre Party coalition replaced by the left-of-centre Social Democrats (who formed a minority government).

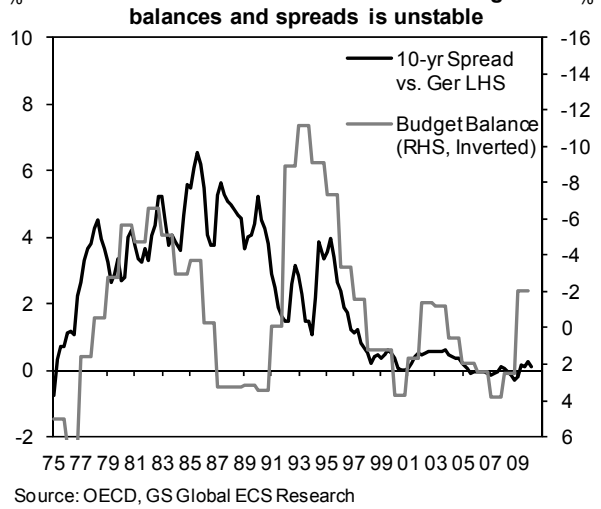
Also in common with Ireland, bond spreads (vs. Germany) had risen sharply in the months ahead of the election (Chart 20). However, it is difficult to conclude that this factor alone forced the incoming government to implement the correction, as spreads had been higher during the 1970s and early 1980s (when inflation was much higher than Germany and Sweden had experienced a series of devaluations—Chart 21).

**Chart 20: Swedish bond spreads rose ahead of the correction**




Source: OECD, GS Global ECS Research

**Chart 21: Sweden—Link between budget balances and spreads is unstable**




Source: OECD, GS Global ECS Research

4. Reinhart and Rogoff (2008) have identified Sweden's banking crisis of the early-1990s as one of five financial crises that were most akin, in severity and type, to the current crisis.

### Details of the fiscal consolidation programme

- Between 1993 and 1998, the budgetary balance swung from a deficit of 11.2% of GDP to a surplus of 1.2% of GDP, government debt was brought under control and GDP growth averaged 3.5%.
- The cyclically-adjusted primary balance rose by 10.7% of GDP over five years, with cuts to primary current expenditure accounting for about 80% of the improvement.
- From a peak in 1993, total public expenditure as a proportion of GDP was cut by 16 percentage points by 2000. Roughly half of this adjustment came from reduced transfer payments, driven a sharp tightening of eligibility requirements. The other half came from reduced government consumption (Hauptmeier *et al.* (2007)).

*Sweden's cyclically-adjusted primary balance rose by 10.7% of GDP over five years, with cuts to primary current expenditure accounting for about 80% of the improvement*

### Lessons/Implications

Given (i) the similarities between Sweden's experience during the 1990s and the current crisis, and (ii) that Sweden ultimately navigated its challenges very successfully, economists and policymakers have naturally sought to draw lessons from what it did. One difficulty with doing so is that, because a number of policy changes and macroeconomic shocks occurred simultaneously in Sweden in the early 1990s, it is difficult to disentangle their effects and determine which were instrumental in driving the recovery.

But an important clue is provided by the timing of the recovery: Swedish growth began to accelerate in late 1993 (i.e., before the fiscal adjustment was implemented), so it appears that the sharp easing in financial conditions that occurred in early 1993 may have been more instrumental than either the bank bail-out or the fiscal retrenchment in starting Sweden's turnaround. However, it is also clear that, far from derailing the nascent recovery, growth continued to be strong throughout a severe (11% of GDP), expenditure-driven fiscal retrenchment.

*In Sweden's case, the sharp easing in financial conditions appears to have played the most important role in the economic turnaround. But growth continued to be strong throughout a dramatic cutback in public spending*

## Canada (1994-97)

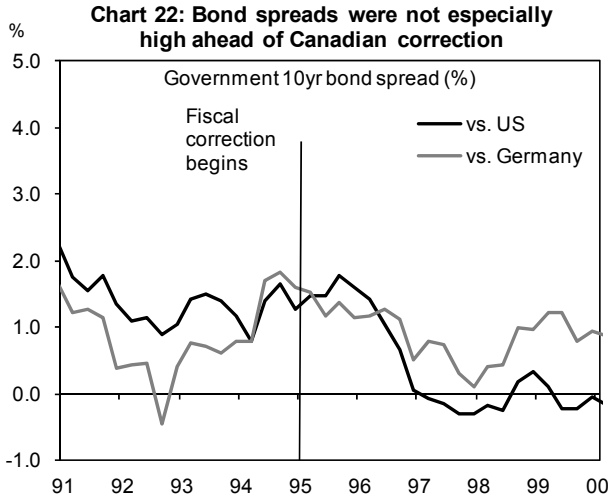
### Background

Canada's budget deficit and debt problems began in the 1980s as a result of a steady increase in unfunded government expenditure increases. The—already-precarious—fiscal position then took a sharp turn for the worse in the global recession of the early 1990s. The budget deficit rose from 4.6% of GDP in 1989 to 9.1% in 1992. In common with Ireland, there were a number of unsuccessful attempts to bring the deficit under control by increasing tax revenues, prior to the successful, expenditure-driven correction.

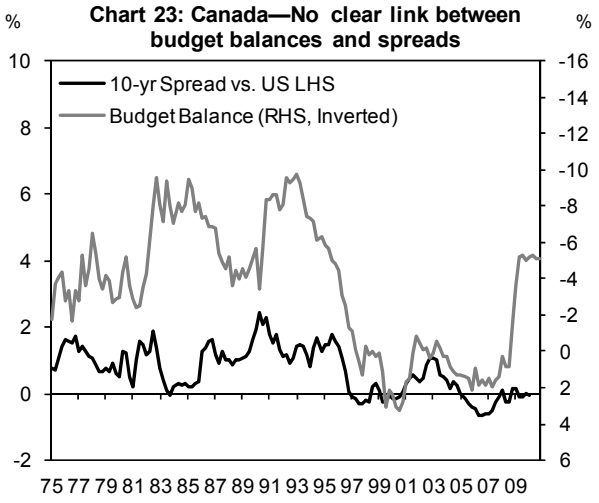
The successful adjustment began in 1994 and gathered pace in 1995. In common with Ireland and Sweden, the adjustment was introduced following a change of government: the Liberals won a strong majority in the federal election of October 1993, replacing the incumbent Conservative government. The Liberal party ran its election campaign explicitly on a platform of addressing Canada's fiscal issues and it provided a significant amount of detail on how it intended to achieve this goal in its manifesto (the so-called 'Red Book').

*There were a number of unsuccessful attempts to bring Canada's deficit under control by increasing tax revenues, prior to the successful, expenditure-driven correction*

In contrast with Ireland and Sweden, Canada's successful, expenditure-driven adjustment was not triggered by a sharp rise in bond spreads (Chart 22 displays the spread in 10-year yields vs. the US). More generally, it is difficult to observe any relationship between Canada's budget balance and the performance of spreads (Chart 23). However, this is not to say that market discipline did not play a role in triggering the move. While there was no sharp rise in bond *spreads*, there was nonetheless a significant rise in the cost of




Source: OECD, GS Global ECS Research




Source: OECD, GS Global ECS Research

borrowing in 1994 as a result of the global bond sell-off. Moreover, Moody's downgraded Canada's sovereign rating from Aaa to Aa1 in June 1994.

### Details of the fiscal consolidation programme

- In the four years from 1993 until 1997, the budget balance swung from a deficit of 8.7% of GDP to a surplus of 0.2% of GDP, government debt was brought under control and GDP growth averaged 3.4% per annum (up from 0.3% per annum in the previous four years).
- The cyclically-adjusted primary balance improved by 6.3% of GDP over four years, with cuts to primary current expenditure accounting for about 80% of the improvement (cyclically-adjusted primary current expenditure was reduced from 37.5% to 32.5% of potential GDP). Government investment fell by less than half a percentage point.
- There was a 23% reduction in public-sector employment but overall employment (private and public) rose sharply.
- Cyclically-adjusted tax revenues were broadly unchanged, with a reduction in tax rates offset by a broadening of the tax base.

*Canada's cyclically-adjusted primary balance improved by 6.3% of GDP over four years, with cuts to primary current expenditure accounting for about 80% of the improvement*

### Lessons/Implications

In common with Ireland (1987-89) and Sweden (1994-98), the electoral cycle played a key role in the timing of Canada's fiscal adjustment. It one sense it was politically easier for the left-of-centre Liberals to implement expenditure reductions because they were unlikely to lose votes to the right for implementing such policies.

With regards to the recovery in growth, real unit labour costs began to fall during the early 1990s recession and continued to decline through the fiscal correction. This resulted in a significant rise in company profitability and a 'crowding in' of private-sector employment and investment.

*GDP growth averaged 3.4% per annum during the adjustment, up from 0.3% per annum in the previous four years*

### Overall Lessons/Implications

The three successful fiscal corrections we have outlined here (and each of the other examples within the OECD sample from 1975) share the common features that they were decisive, and by far the largest part of the adjustment was accounted for by reduced public expenditure (a reduction in the *cyclically-adjusted* expenditure/GDP ratio accounted for around 80% of the improvement in the cyclically-adjusted primary balance in all three cases).

**To a greater or lesser extent, 'market discipline' also played a role in each of the three adjustments, either via a rise in bond spreads, a more general increase in bond yields or via a sovereign downgrade.** Decisive, expenditure-driven adjustments have also often followed one or more unsuccessful tax-driven attempts.

**Another common feature that they share is that they each followed an election and change of government. This is part of a more general result linking fiscal policy to the electoral cycle**: Alesina *et al*. (2006) find that newly-elected governments are more likely to implement large fiscal adjustments, while Baldacci *et al*. (2004) find that the likelihood of a major budgetary adjustment falls as the election approaches.[5]

*Newly-elected governments are more likely to implement large fiscal adjustments, although the act of changing government appears to be more important than any left-wing or right-wing shift*

The importance of the electoral cycle is consistent with the view that decisive, expenditure-driven adjustments are unpopular before the event and politically difficult to implement (even if they often prove popular after the event).

It is sometimes difficult—in considering individual case studies—to know whether the fiscal adjustment contributed significantly to growth. In Sweden's case the easing in financial conditions appears to have played the leading role, while in Ireland's case the fiscal correction appears more definitely to have been instrumental in the turnaround. For this question, the cross-sectional empirical results in the previous section provide a more definitive answer than the case studies.

5. Although the act of changing government appears to be more important than any left-wing or right-wing shift—a finding that is also consistent with the three case studies discussed.

# 5. Conclusions

The growth in budget deficits in OECD economies in the past two-and-a-half years was an entirely appropriate response to an unprecedented crisis. To a large extent, it has also been the unavoidable counterpart of a collapse in private-sector spending. As private-sector demand recovers, fiscal imbalances are likely to shrink to a greater degree than many people now suppose.

Nevertheless, not all of the rise in budget imbalances has been cyclical—large structural deficits have also built up across the OECD. While recognising the large uncertainties that surround such calculations, we estimate that the cyclically-adjusted deficit—the part of government borrowing that is immune to the timing and strength of economic recovery—has risen to 5% of GDP in the EU, 7% in Japan and 7% in the US. With growth now recovering, how governments correct these imbalances is arguably the biggest challenge facing policymakers.

*The growth in budget deficits in the past two-and-a-half years was an entirely appropriate response to an unprecedented crisis. But how these imbalances are corrected is now the biggest challenge facing policymakers*

Our aim in this paper has been to see what can be learned about the economic effects of these decisions from the past experience of large fiscal consolidations. If history provides a reliable guide, the governments who choose to effect this correction decisively through a reduction in current spending (and have the political capacity to push through this choice) are likely to witness stronger growth, lower borrowing costs and equity market outperformance.

We emphasise—once again—that this finding is specific to countries attempting to correct a large fiscal imbalance. The empirical evidence is much more equivocal with regards to the appropriate size of government in the long run and we do not attempt to comment on this. Sceptics might argue that, even during adjustments, and even controlling for initial conditions as we have, the correlations in this sample don't really identify the true impact of fiscal policy—or that, if they do, the 'negative fiscal multiplier' result only applies for countries in extreme fiscal difficulties.

We are more persuaded—we find it compelling that the result is robust to conditioning on a variety of initial conditions. And, if the result is relevant only for countries with severe fiscal imbalances, this is exactly the predicament that many advanced economies find themselves in today.

*If history provides a reliable guide, the governments that choose to effect this correction decisively via a reduction in public expenditure are likely to witness stronger growth, lower borrowing costs and equity market outperformance*

How do the existing fiscal plans of the major advanced economies measure up with the successful fiscal consolidations of the past? As things stand, they currently fall well short of this mark:

- The **US's** current plans (assuming no additional discretionary measures) imply an average adjustment of around 1% per year over the next two years, with most of the adjustment taking place via higher taxes.
- **Japan's** plans imply a further deterioration in the cyclically-adjusted primary balance and a higher government expenditure ratio.
- In Europe, **Germany's** plans also imply a small further deterioration (albeit from a better starting position); **France's** plans imply a small improvement, driven by reduced expenditure, while the **UK's** plans also imply a gradual improvement but one that—over the next two years at least—is funded primarily by higher taxes.

Although the appropriate timing will differ from country to country, governments will have to tighten fiscal policy by much more than their existing fiscal plans indicate. We are relatively optimistic on how this comes about but, given the political difficulties in implementing such an adjustment, it remains a key uncertainty for many advanced economies.

# Appendix 1: Large expenditure-driven and tax-driven fiscal adjustments

**Table A: List of Large Fiscal Corrections**

| | *Shading signifies expenditure-driven correction* | | | |
|---|---|---|---|---|
| Australia | 1987 | | | |
| Austria | 1984 | 1996/97 | 2001 | |
| Belgium | 1977 | 1982-84 | 1993 | |
| Canada | 1981 | 1995-97 | | |
| Czech Republic | 2004 | | | |
| Denmark | 1983-86 | 2004/5 | | |
| Finland | 1981 | 1984 | 1988 | 1996-2000 |
| France | 1996 | | | |
| Germany | | | | |
| Greece | 1986/87 | 1991 | 1994 | |
| Hungary | 1995/96 | | | |
| Ireland | 1983/84 | 1987/88 | | |
| Italy | 1976 | 1982 | 1991-93 | 1997 |
| Japan | 1984 | | | |
| Netherlands | 1983 | 1991-93 | 1996 | |
| New Zealand | 2000 | | | |
| Norway | 1994/95 | 2004-06 | | |
| Poland | | | | |
| Portugal | 1982/83 | 1992 | 2002 | 2006 |
| Spain | 1992 | | | |
| Sweden | 1976 | 1986/87 | 1994-98 | |
| United Kingdom | 1980-82 | 1996-98 | | |
| United States | | | | |

Source: OECD, Goldman Sachs estimates.

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