

# IMF STAFF DISCUSSION NOTE

## **Macroeconomic Management When Policy Space Is Constrained: A Comprehensive, Consistent, and Coordinated Approach to Economic Policy**

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## EXECUTIVE SUMMARY

Recovery in GDP growth since the global financial crisis has been halting and weak. An aggressive and internationally-coordinated policy stimulus in 2009–10 turned around a severe recession. Since then, however, while monetary conditions have remained easy, many governments have withdrawn fiscal stimulus out of concern for high and rising public debt. Yet global output remains below potential, unemployment above its natural rate, and inflation below target.

Concern is widespread that countercyclical policies have run out of space or lack the power to raise growth or deal with the next negative shock. The common perceptions are that the effective lower bound on policy interest rates limits the room to loosen monetary conditions further and that high debt constrains fiscal policy, including automatic stabilizers. That said, this Staff Discussion Note argues that room exists for effective policies and that it should be used if appropriate. Building on the *three-pronged policy approach* advocated by IMF Managing Director Christine Lagarde in an April 2016 speech, we argue that the most promising route involves a *comprehensive, consistent, and coordinated* approach to policymaking.<sup>2</sup> Such an approach allows policymakers to better align instruments and objectives, helps them deal with shocks when they materialize, and improves economies' resilience. It taps the synergies of different policies working together, within a country, across countries, and over time.

*Comprehensive* policy actions within a country exploit synergies, making the whole greater than the sum of its parts. This entails the mutually supportive use of the three policy prongs—monetary, fiscal, and structural—tailored to specific country circumstances, as advised by the IMF to member countries. Demand-management policies can support implementation of structural reforms that increase potential growth and prevent any initial drop in output and employment. When monetary policy is constrained, fiscal policy provides support. Similarly, monetary policy accommodation prevents a crowding out of the expansionary fiscal response to a negative shock. Some countries have room for fiscal stimulus, especially in an environment of extremely low long-term interest rates. For others where room for fiscal maneuver is especially limited, such as many commodity-exporting countries currently, this approach allows for better tailoring the pace of necessary fiscal adjustment and implementing growth-friendly fiscal rebalancing. Financial sector policies that strengthen banking systems and markets help improve the transmission of monetary policy and dampen shocks.

*Consistent* policy frameworks anchor long-term expectations while allowing decisive short- to medium-term accommodation whenever necessary. They do so by systematically linking instruments to policy objectives over time. For monetary policy, an inflation-forecast-targeting framework allows effective stimulus, even when the policy interest rate is at its floor, in the form of a planned temporary overshoot of the inflation target. Fiscal policy must commit to managing public balance sheet risks, and some countries need prompt action to upgrade macroeconomic policy

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<sup>2</sup> Lagarde (2016).

frameworks, as the IMF has recommended. Credible commitment and enduring practice of prudent management allow fiscal policy the flexibility to support economic activity when appropriate.

Finally, *coordinated* policies across major economies amplify the helpful effects of individual policy actions through positive cross-border spillovers. Under conditions of very low interest rates and wide output gaps, international coordination of fiscal and monetary stimulus can boost global GDP. In turn, stronger nominal GDP keeps debt-to-GDP ratios under control.

The benefits of global coordination are indeed reflected in the Group of Twenty (G20) Brisbane Action Plan and more generally in the IMF's three-pronged policy advice. However, the findings of this note also indicate that coordination of active monetary and fiscal policy adds particular value if the current policy approach falls short of reviving growth, or in the event of a further downward shock.

## I. INTRODUCTION

**1. The combination of monetary and fiscal stimulus in response to the global financial crisis in 2009–10, deployed across many countries, helped pull the international economy back from a cliff edge.** It is difficult to exaggerate how badly confidence collapsed when the financial crisis in advanced economies turned into a global economic recession. Commodity and asset prices were plunging, and financial markets were dysfunctional, beset by concerns regarding liquidity, counterparty risk, and uncertain collateral valuations. Banks were under pressure to rebuild capital; their lending to other banks froze; and they cut credit lines even to established, creditworthy clients. Large industrial firms regarded as economic pillars, including automobile manufacturers, struggled to survive. Many other firms, attempting to reduce debt and strengthen balance sheets, dropped plans for capital investment. Households were suffering under high debt burdens and falling real estate prices. Output and employment were plummeting economy-wide. By 2009, many countries had enacted coordinated expansionary policies that helped stop the downside and start a recovery within a few quarters. It was important that monetary and fiscal authorities worked in tandem, in the context of international coordination, as agreed at the G20 summit of November 2008.

**2. Since the initial shift from contraction to expansion, however, the growth outlook has remained weak and halting.** In many advanced economies, the recovery remains incomplete, with output and employment below potential. Adverse longer-term trends—the persistent decline in the global real equilibrium interest rate, lower productivity growth, aging populations—have become more visible since the crisis. Since 2014, a renewed demand deceleration has been accompanied by a global decline in investment, trade, and manufacturing and by undesirably low inflation in much of the world.

**3. Downside risks are high, and confidence in a sustainable recovery of growth is low.** In 2016, inflation in the large advanced economies has remained below target. Low inflation persists in

many, with several verging on deflation. With the effective lower bound constraining policy interest rates, a deflationary cloud threatens as weak growth looms.<sup>3</sup>

**4. Perceptions that each individual policy instrument could be reaching its limit, in turn, are undermining policy credibility.** There is a widespread impression that there is limited policy space in the event of further negative shocks. The effective lower bound on policy rates thus limits conventional monetary stimulus: quantitative easing and negative interest rates are expected to have positive effects on output and inflation, but the transmission mechanism is uncertain and may cause undesirable macro-financial side-effects. As for fiscal policy, unprecedented peacetime public debt-to-GDP ratios weigh on many countries. Demographic pressures are driving up public spending. An adequate framework that credibly ensures long-term budget sustainability and manages public sector balance sheet risks would provide room for fiscal stimulus.

**5. To address these challenges, this Staff Discussion Note proposes a general framework to design comprehensive, consistent, and coordinated macroeconomic policies.** Such an approach taps the synergies of different policies working together, within a country, across countries, and over time (Box 1). It allows policymakers better to align instruments and objectives, helps them deal with shocks when they materialize, and improves economies' resilience. The approach can be used to support growth at the current juncture but more so in the event of a negative shock to global conditions. Applying this approach implies benefits far above those accruing from a similar set of measures applied piecemeal.

**6. Comprehensive policy actions exploit synergies within countries, making the whole greater than the sum of its parts.** It avoids the risk of paralysis, in the face of a negative shock, from looking at policy space on an instrument-by-instrument basis. Comprehensive policy entails the mutually supportive use of the three policy prongs—structural, fiscal, and monetary—as outlined by IMF Managing Director Christine Lagarde in an April 2016 speech.<sup>4</sup> Such a comprehensive approach, tailored to specific country circumstances, has been central in the IMF's policy advice to member countries. Fiscal policy action supports aggregate demand when monetary policy is constrained at the effective lower bound on policy interest rates. Similarly, monetary policy accommodates fiscal policy in response to a negative shock. Some countries have room for fiscal stimulus, especially in an environment of extremely low long-term interest rates. For others with especially limited room for fiscal maneuver, such as many commodity-exporting countries currently, this approach can help them better determine the pace of necessary fiscal adjustment and implement growth-friendly fiscal rebalancing. The implementation of financial sector policies that strengthen banking systems and markets improves the transmission of monetary policy and helps dampen shocks. Structural reforms increase potential growth, which also helps reduce debt to GDP. In addition, better-designed demand-management policies can mitigate any potential short-term

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<sup>3</sup> The effective lower bound may differ from country to country, as it is affected by varying institutional arrangements, regulations in money markets, and the costs of holding large stocks of cash. Depending on the situation, the effective lower bound may be negative or positive, but in all cases it is a number near zero.

<sup>4</sup> Lagarde (2016).

### Box 1. The Comprehensive, Consistent, and Coordinated Approach in a Nutshell

**The comprehensive, consistent, and coordinated policy approach starts from an analytical framework of instruments and objectives.** The framework would help establish stabilizing expectations for inflation and for the public sector balance sheet. To this end, policymakers would make conditional commitments on how policy instruments are likely to be adjusted to achieve objectives. In operational terms, monetary policy would be responsible for achieving the inflation target, while minimizing any adverse effects on output and employment. The government's objectives would include prudent management of public sector balance sheet risks and discretionary countercyclical support for monetary policy in the event of large shocks to output. Constraints on a given set of instruments argue for the combined application of all available instruments, including unconventional instruments. Otherwise, perceptions of policy ineffectiveness, or passivity, may result in destabilizing market movements following economic shocks.

**Why comprehensive?** Conventional monetary policy runs out of space at the effective lower bound on the policy rate. Unconventional monetary actions such as quantitative and qualitative easing can be applied. If these still are not enough to address a negative shock, other policies are needed—fiscal stimulus and, in Japan, an incomes policy to raise inflation expectations to the target rate. Assertive actions are needed for the maintenance of policy credibility. Similarly, fiscal stimulus alone, without monetary policy support, would not have significant multiplier effects. Without a sufficient boost to nominal GDP and the tax base, the public debt ratio would rise, hence the perceived need for future fiscal consolidation. Structural reforms can increase potential output and growth, and financial sector policies that strengthen banking systems and markets ensure financial stability. Structural reforms could be contractionary in the short term as sectoral adjustments take place. Appropriate demand-management measures can offset such negative short-term effects on the economy, thereby reducing the costs of productive structural reforms, as well as the resistance from segments of the population that may be adversely affected.

**Why consistent?** Policy consistency assists policy effectiveness. For instance, if people expect that a temporary fiscal stimulus will, because of its implications for debt growth, have to be reversed later, it will have little effect on output. Similarly, without a coherent communication strategy, monetary easing may result in a ratcheting up of longer-term inflation expectations and a perception that the central bank will soon tighten, again offsetting the effect on output. When these types of perceptions exist, financial markets are apt to react with bouts of volatility and sharp increases in term and risk premiums. Policy actions conducted within a long-term stability framework, however, are more likely to have the intended results.

**Why coordinated?** During global crises or prolonged economic slowdowns, international interdependencies become more prominent—spillovers and contagion appear simultaneously in many economies and financial markets. International policy coordination would help to restore confidence, especially as positive cross-border spillovers reinforce the impact of domestic actions. In such cases, internationally coordinated policy action may appear attractive to policymakers even though solo action does not.

macroeconomic and distributional costs of structural reforms, making it easier for policymakers to implement them. Under certain conditions, other policies, such as incomes policy, may be needed to help stabilize inflation expectations at target rates.

**7. A consistent framework is needed to guide economic policies over time.** One of the major challenges most advanced economies face today is to be able to deliver demand support in the short term if a new negative shock to global growth materializes, without jeopardizing longer-term debt sustainability objectives. A *consistent* framework allows for a transparent mapping between policy instruments and policy objectives over time. Such an approach helps to anchor inflation over the long term and create resilience in the public sector balance sheet while broadening the short- to medium-term scope for countercyclical policies. This long-term orientation not only ensures that monetary and fiscal policies do not run out of space, it also enables credible and effective macroeconomic policy action to support demand in the short term when needed. Under these conditions, short-term, temporary above-target increases in deficits or inflation will reassure rather than rattle financial markets, and movements in the current inflation rate will not shift long-term expectations above the long-term target rate. Some countries need to upgrade policy frameworks, in particular to implement a sound medium-term fiscal framework that manages public sector balance sheet risks and a credible monetary framework that boosts firms' and households' confidence in the long-term inflation target.

**8. Coordinated policies across major economies can and should amplify the impact of the policy action.** Positive spillovers from coordinated action occur in normal times, but are particularly valuable in the event of a further downward global shock, where the need for international coordination would not only become much more urgent but also more self-evident. Such coordination would increase the effectiveness of country-level policies through positive global spillovers (see, for example, Chapter 1 in the April 2016 *World Economic Outlook*). Against this backdrop, the IMF has previously called for coordinated policy action at the G20 level to strengthen longer-term growth through structural reform (as in the Brisbane Action Plan) and to counter a possible material weakening of the global outlook.<sup>5</sup> Moreover, a coordinated policy package in the event of a new downward global demand shock would use all available policy levers to lift nominal growth in the short and medium terms. Such parallel policy implementation would broaden policy space more than a go-it-alone strategy, in part by boosting geopolitical and economic credibility.

**9. To illustrate the advantages of the comprehensive, consistent, and coordinated approach, this note uses simulations based on the IMF's suite of models.** The approach is a general framework that needs to be tailored to specific country circumstances. This note provides two illustrations of the approach for Canada and Japan, two contrasting economies. Long-term expectations in Canada are firmly anchored. Also, Canada has fiscal space and is using it. Nonetheless, strengthening the fiscal framework by establishing a credible medium-term fiscal consolidation plan will help make the current stimulus more credible. In Japan's much more limited policy space, a well-designed package of demand-management policies, structural reforms, and

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<sup>5</sup> See, for example, IMF (2014b, 2016d).

measures to strengthen the wage-setting process can create momentum for stronger growth and inflation closer to target. In both countries, this strategy highlights fiscal initiatives with high multiplier effects—such as by favoring investment and transfers to cash-strapped households. Given the current environments of sizable output gaps and below-target inflation, the central banks can plan to hold policy interest rates at or near the effective lower bound long enough to allow inflation to accelerate rapidly. In simulations, the inflation rate then exceeds the target of 2 percent for a while before falling back to the target.

**10. Under current conditions—extremely low interest rates, high unemployment, below-target actual and expected inflation—a fiscal stimulus would effectively support output following a negative shock.** Since monetary policy would support the stimulus, the policy interest rate would stay at the effective lower bound for longer. The combined fiscal/monetary expansion of 2009–10 provides the best evidence that it would work during recessions. In contrast, in full employment periods, the short-term fiscal multiplier would be low or negligible because of crowding out as the central bank increases the policy interest rate to contain inflation.<sup>6</sup> Public investment or assistance to cash-strapped households would likely have large multiplier effects. Moreover, conventional macro models do not take account of the positive effects on productivity that would follow from increased employment (and hence improved on-the-job training) and from the technological advances embodied in new investment.<sup>7</sup>

**11. Experience suggests caveats for the success of the approach, especially for fiscal policies.** Governments need to manage their spending with care. Infrastructure investment is an important case in point: poor productivity, cost overruns, and delays have often marred such projects. On the broader issue of public sector balance sheet risks, governments that fail to establish credible long-term plans run into difficulties that can be sudden and severe. Additionally, in smaller or less-advanced economies, perceptions of unstable fiscal dynamics at high debt levels could abruptly cut off access to international financial markets.

**12. The organization of the note is as follows.** Section II describes the elements of comprehensive, consistent, and coordinated economic policy formulation. Section III discusses applications of such policies, using Canada and Japan as examples. In light of the successful coordinated global stimulus of 2009–10, the section also describes the potential role for international policy coordination if global growth slows significantly. Section IV concludes.

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<sup>6</sup> See Auerbach and Gorodnichenko (2012a, 2012b).

<sup>7</sup> That is, the models ignore that output and employment are subject to *hysteresis*.



## II. ELEMENTS OF THE COMPREHENSIVE, CONSISTENT, AND COORDINATED APPROACH

**13. Fiscal policy in many countries seemingly has little flexibility to respond to the next negative shock.** Some countries have embarked on austerity programs to control high and rising government debt-to-GDP ratios. In others, political impasse blocks budget initiatives.

**14. Proximity to the effective-lower-bound constraint, as noted, has narrowed the room for conventional monetary stimulus in most economies.** And this constraint is more serious given the evident steep drop in the global real equilibrium interest rate since the crisis. The range of estimates for the U.S. equilibrium real rate in 2016 is wide, but most are below 1 percent (Figure 1).<sup>8</sup> Alongside the decline in expected inflation, this is reflected in the trend decline of long-term interest rates to unprecedented lows (Figure 2). Thus, in 2016, a policy rate even as low as zero may not provide much demand support. The interest rate bind has created a need for alternative instruments to guard against destabilizing inflation expectations and deflation.

**15. The diminishing usefulness of each policy measure—instrument by instrument and country by country—risks policy paralysis if growth slows again.** This risk applies nationally and internationally. In an April 2016 speech, IMF Managing Director Christine Lagarde confronted the issue by urging a set of mutually supportive actions for the three policy prongs—structural, fiscal, and monetary—that could now be coordinated within and across countries. We expand on this, arguing that the benefits of the approach outlined in this note extend beyond current circumstances: it can provide short- to medium-term support to growth when needed and permanently widen the room for policy action. The argument draws on a broad range of recent analytical and policy work on structural and financial sector reforms, fiscal multipliers, government investment spending, the management of public sector balance sheet risks, and inflation targeting.

### II.A. Fiscal Policy

**16. A well-designed fiscal stimulus can effectively protect against persistent contractionary shocks, especially if conducted within a credible fiscal framework.** Where fiscal space is perceived to be limited,<sup>9</sup> a well-designed stimulus maximizes the effect on output of a given increase in the deficit. Under certain conditions in which comprehensive, consistent, and coordinated policies raise nominal GDP sufficiently, fiscal stimulus can improve the debt ratio

<sup>8</sup> Summers (2014) underlines evidence of the extent of the drop and the difficulties it has caused for conventional macro policy.

<sup>9</sup> Fiscal space is a multidimensional concept reflecting whether a government can raise spending or lower taxes without endangering market access and debt sustainability. An assessment of a country's fiscal space—one that considers both baseline and alternative scenarios—needs to take into account the level and trajectory of public debt, financing needs, fiscal track record, economic conjuncture, and market sentiment, among other things.

(relative to a scenario with no policy response following a contractionary shock) in the long term, and even in the near term. A higher nominal GDP improves the fiscal position by expanding the tax base and reducing transfers. The size of the short-term multiplier effects on aggregate demand depends on:

- the type of fiscal instrument (government investment, government consumption, transfers, taxes, and others);
- the structure of the economy (households' marginal propensity to consume, degree of openness, and others);
- a sound and credible fiscal framework that manages risks to the public sector balance sheet—without such a framework, high existing debt or deficits could undermine the credibility of fiscal stimulus; and
- last, but not least, the cyclical positions of the economy and the response of monetary policy.

**17. Credibility is critical to the success of fiscal stimulus, especially where fiscal space appears to be limited.** Fiscal policy should commit to long-term management of public sector balance sheet risks, taking into account both assets and liabilities. Fiscal stimulus lacking a credible fiscal framework may widen sovereign spreads and undermine confidence. A high and rising government debt-to-GDP ratio may pose a problem in this regard. Gaining and maintaining fiscal credibility would require, among other things, a clearly articulated long-term fiscal anchor—generally defined as a stock variable or a combination of stock and flow variables (IMF 2016c)—and a systematic behavioral rule for fiscal policy relative to deviations from the anchor.<sup>10</sup> Such a rule-based approach would discipline the transition to the anchor, especially when coupled with enhanced fiscal institutional reforms to guide the budget process. The framework should embed a strong fiscal risk-management component to deal with the public sector balance sheet implications of potentially large contingent-liability events and other macro-fiscal shocks. This includes identifying and quantifying fiscal risks, developing mitigating strategies, and provisioning for the residual risks (see [Online Appendix 1](#)). Although gaining credibility in a rule-based fiscal framework takes time, the implementation of a comprehensive approach can help build credibility by clearly communicating the government's objectives and instruments, and the path to achieve them.<sup>11</sup>

**18. The response of interest rates can have a large effect on the fiscal multiplier.** When the economy is near full employment or overheating, the central bank would normally have to raise its policy interest rate in response to a fiscal expansion in defense of its inflation objective. This would crowd out private spending, dampening the multiplier effect (Auerbach and Gorodnichenko 2012a, 2012b). Where the main danger is recession and low inflation, the central bank would accommodate

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<sup>10</sup> Well-designed escape clauses may need to be incorporated in fiscal frameworks to allow for an adequate fiscal policy response in exceptional circumstances.

<sup>11</sup> As discussed in IMF (2016b), Japan illustrates how the stop-go nature of fiscal policy can undermine the credibility of the medium-term fiscal anchor and contribute to policy uncertainty.

the stimulus by holding the policy interest rate constant, or even cutting policy rates, to boost aggregate demand further.

**19. In countries with excessive debt, a credible and concrete long-term fiscal framework is needed to keep debt-to-GDP ratios on a sustainable downward trend and help manage public sector balance sheet risks.** If the government debt ratio is already high, and in the absence of a credible long-term fiscal strategy, economic agents may expect that a fiscal expansion today will be completely reversed in the near future to keep debt under control. In this case, the effect of the policy on output and inflation might be negligible. In addition, if debt dynamics are viewed as unstable, this can increase risk premiums sharply. Arbatli and others (2016) build the case for comprehensive, consistent, and coordinated policies for Japan and show the risks of some well-known alternative proposals such as “irresponsible fiscal policy” or “debt monetization.” For a discussion of fiscal frameworks, see [Online Appendix 1](#).

**20. With long-term nominal bond rates at extremely low levels, and with the boost to nominal GDP growth, a short-term fiscal stimulus need not weaken the public balance sheet.** When economic slack is substantial, multiplier effects raise incomes and tax revenues, such that over the medium term the government debt-to-GDP ratio does not necessarily rise relative to a scenario with no policy response following a negative shock. In 2016, many governments can obtain long-term financing at very low real rates. Many infrastructure projects would easily pass this cost test, implying that they would be socially beneficial, even if the government itself does not recoup all of the return as revenue—the present value of the increase in future potential output would exceed the consumption sacrifice today. Certain fiscal structural measures, such as those that reduce labor tax wedges and increase public spending on active labor market policies, could also fit the bill (see section II.C). However, experience in Japan from the 1990s to the early 2000s and elsewhere suggests that the design of a productive investment program has to be tailored carefully to the long-term needs of a region.

**21. Simulation results with the Global Integrated Monetary and Fiscal (GIMF) Model for a generic large open economy illustrate these principles.** In GIMF, household and firm behavior follows classical optimizing principles based on model-consistent and forward-looking expectations. The model also contains sticky prices and liquidity constraints on spending, which imply that monetary policies and fiscal deficits have real effects. These effects fade over time as wages and prices eventually adjust. Shocks in the model are propagated by a financial accelerator, which works through procyclical changes in asset prices and risk premiums (Kumhof and others (2010) and Anderson and others (2013) describe the GIMF model in detail).<sup>12</sup> The simulations deal with hypothetical shocks to government investment, government consumption, and transfer payments,

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<sup>12</sup> The model’s fiscal multipliers are in line with other models in the literature (Coenen and others 2012). As with any other policy exercise, to the extent that there is uncertainty about the effects of fiscal instruments on the economy, it requires monitoring observed outcomes and adjusting the instruments accordingly.

(continued)

as well as varying degrees of monetary accommodation. In the baseline case, monetary policy follows an inflation-forecast-based reaction function.<sup>13</sup>

**22. Efficiently managed government investment has a stronger, longer-lasting effect on real GDP than government consumption because it increases potential output (Table 1).** In each case, the temporary shock to deficit-financed government spending is equivalent in value to 1 percent of baseline GDP in years 1 and 2, 0.5 percent in year 3, and zero thereafter. Although the short-term impacts, through the circular flow of income, are fairly similar, government investment has a durable effect that government consumption does not because it increases potential output.<sup>14</sup> In the model, increases in government investment increase the public sector capital stock and raise the desired capital stock of the private sector. This raises potential output, thus stimulating consumption and private investment.<sup>15</sup>

**23. Government investment has the largest effect on GDP, followed by government consumption, targeted transfers, and general transfers, respectively.** Transfers have the smallest effect because the leakages (taxes, savings, imports) from the circular flow of income are larger. This applies especially to general transfers, where recipients may have lower marginal propensities to consume (because of balance sheet repair, for example). Multipliers for transfers targeted to cash-strapped groups are substantially larger, but still only half of those for government investment. In short: government investment, when managed efficiently, gives the biggest “bang for the buck.”

**24. The multipliers in GIMF are larger if monetary policy keeps interest rates lower for longer.** Table 1 illustrates two cases in which the central bank overrides the model’s monetary policy reaction function, holding the policy interest rate flat for one and two years, respectively. The increased rate of inflation over the medium term reduces the real interest rate, eases financial conditions, and increases asset prices. These effects, in turn, stimulate private consumption and investment.<sup>16</sup> Over the long term, with the regular reaction function, inflation stabilizes at the official target rate.

**25. The increase in nominal GDP—achieved by coordinating fiscal, monetary, and structural policies—may be large enough that the debt-to-GDP ratio declines even though the deficit rises temporarily.** Even though demand-management policies may have a limited positive

<sup>13</sup> Standard inflation-forecast-based reaction functions used in central banks include the central bank’s forecast of inflation and the contemporaneous output gap. They also include a lagged interest rate term to account for interest rate smoothing. Linear rules may be useful approximations in periods when shocks are small. When there are big inflation or output gaps, however, risk avoidance would imply much larger response coefficients. A loss-minimization approach explicitly takes account of this type of nonlinearity. See Alichì and others (2015) and Obstfeld and others (2016).

<sup>14</sup> Permanent increases in government investment that are successful in stimulating private sector investment would also result in an increase in the equilibrium real interest rate.

<sup>15</sup> Elekdag and Muir (2014) quantify the domestic and spillovers effects associated with higher public investment in the case of Germany, taking into account the frictions arising from “time to plan” and “time to build.”

<sup>16</sup> For a more detailed analysis of these mechanisms, see Freedman and others (2010).

(continued)

effect on the long-term real rate of growth, it is worth stressing that the increase in nominal income raises tax revenues, as well as the denominator in the conventional debt-to-GDP ratio.<sup>17</sup> Through an increase in the rate of inflation, monetary and fiscal policies, acting together, can permanently raise the level of nominal GDP. However, in view of the unsatisfactory experiences with certain infrastructure projects in various parts of the world (poor choices, cost overruns, delays), we stress the importance of wise choices between projects and of effective management.

**26. The structural, productivity-enhancing case for a permanent increase in government investment is strong.** Very low long-term borrowing costs and, in many countries, substantial infrastructure deficiencies, imply a large social benefit (Abiad and others 2014). The returns would increase with the size of the infrastructure gap. Government investment projects can improve or expand basic infrastructure (roads, bridges, airports, and so on) and could include measures to boost employment and productivity growth over the long term (such as through the provision of childcare services, education, and research and development facilities). To illustrate, Figure 3 reports results for a permanent increase in government investment equal to 1 percent of baseline GDP, a relevant scenario for countries that need to address sizable infrastructure gaps.<sup>18</sup> This leads to higher productivity in the private sector, resulting in permanently higher private investment and consumption. At the same time, a higher level of imports implies positive spillovers to other countries. The increased growth rate of potential output would create future policy space by raising government revenues, reducing debt-to-GDP ratios, and raising the neutral interest rate.

**27. The growth dividends of public investment, however, critically depend on its efficiency.** High-return projects should be prioritized, particularly in countries that face higher interest rates and where fiscal policy is constrained. IMF (2015) finds that the most efficient public investors get twice the growth impact from their public investment than the least efficient. An alternative simulation experiment therefore involves a policy designed to increase productivity through a permanent switch in government spending from general consumption to investment, with no net change in outlays. The results show smaller, but still sizable, gains in real GDP, consumption, and investment. An important caveat here is that infrastructure development designed to support particular sectors with chronic and growing excess capacity may delay necessary long-term adjustments and provide a boost to output only in the short term.

## II.B. Monetary Policy

**28. Under a comprehensive, consistent, and coordinated approach, monetary policy strengthens the nominal anchor provided by the official inflation target.** The issue at hand is to raise the actual and expected inflation rate in a controlled manner to the target level and to move output closer to potential. Monetary and fiscal policy acting together can always raise the rate of

<sup>17</sup> For example, in the new Keynesian model of Erceg and Lindé (2012), because of increased revenues, increased government spending during a prolonged liquidity trap does not raise the budget deficit.

<sup>18</sup> To illustrate, it is assumed that monetary policy welcomes the expansion in aggregate demand by keeping the interest rate unchanged for two years. Obviously, the appropriate monetary policy response would depend on specific country circumstances.

inflation. Indeed, the risk of inflationary deficit financing underlies key political and institutional constraints imposed on central banks: these include restrictions on direct lending to the government, and other measures to prevent fiscal dominance over monetary policy. Such a strategy maintains the independence of the monetary policy instrument to pursue the established inflation target, while allowing short- to medium-term discretion to act against shocks to output and employment.

**29. In addition to its impact on the short-term fiscal multiplier, monetary policy has an important, proactive role to play in influencing inflation expectations and real interest rates under the comprehensive, consistent, and coordinated approach.** Where central banks operate at the effective lower bound, strategies aiming for a slow and monotonic return to the inflation target over the medium term may not provide sufficient demand support to anchor long-term inflation expectations to the target while restoring the economy to full employment. In view of the prolonged softness of economic activity in many economies and the lengthening period of below-target inflation, something more is needed to shift expectations of inflation up to target (see [Online Appendix 2](#)). One option is for monetary policy to aim for a faster increase in the inflation rate, with the expectation that this will imply a modest overshooting of inflation. The target would then eventually be approached from above (the Bank of Japan has just explicitly embraced this approach.) As is shown in section III, this would also improve debt dynamics by increasing nominal GDP and reducing debt-to-GDP ratios.

**30. In this context, an inflation-forecast-targeting (IFT) framework can make a difference.**<sup>19</sup> IFT central banks have either explicit or implicit dual mandates (Clinton and others 2015). While inflation control is the primary objective of monetary policy, these central banks also make output stability an important goal, especially in circumstances where the policy rate is at the effective lower bound and there are significant risks that long-term inflation expectations could ratchet downward.<sup>20</sup> Moreover, the targeting of inflation is symmetric around a point target, in that policy decisions give equal weight to avoiding outcomes below and above the target. Over a number of years, one would therefore expect to see deviations in both directions: undershoots and overshoots would be about equally frequent. In economies with material economic slack and

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<sup>19</sup> IFT involves a central bank forecast that has an endogenous path for the short-term interest rate and forward-looking expectations of the inflation rate. Examples are in Canada, the Czech Republic, and New Zealand. We do not classify the European Central Bank or the Bank of Japan as IFT.

<sup>20</sup> Even those central banks that do not have an explicit dual mandate do not try to target inflation rigidly, as extreme instability in the real economy could result, particularly when economies become vulnerable at the effective lower bound. Adopting IFT, or its dual mandate equivalent, might require modifications to the operational definition of the inflation control targets of some central banks, but the regime is consistent with the central bank monetary policy mandates of which we are aware—unless a very narrow interpretation is placed on a price stability mandate.

(continued)

inflation expectations below target, a risk-avoidance strategy under IFT would call for an aggressive monetary expansion.<sup>21</sup>

**31. Under IFT, monetary policy can credibly commit to a temporary period of inflation somewhat above target without undermining its medium-term goal of price stability.** A strategy involving planned temporary and modest overshoots (and undershoots) could enhance inflation-target credibility as well as confidence in the economy's stability. Not only would the strategy be consistent with achieving an inflation rate closer to the target on average, it would also induce a faster convergence of output and the unemployment rate to their natural levels ([Online Appendix 3](#)).<sup>22</sup> In the end, credibility comes from satisfying one's mandate, within the boundaries of an explicit framework. An IFT framework gives monetary policy the scope to act as an effective buffer against cyclical shocks, without undermining the credibility of inflation control.<sup>23</sup> More generally, for all aspects of monetary policy, credibility and expectations are critical. The issue of the effectiveness of the transmission mechanism (or pass-through) cannot be separated from the credibility of the target or from expectations of future central bank policy rates. Transparent central bank communications, in line with appropriate actions, help with both aspects.

**32. Practical experience suggests that the successful implementation of IFT depends on a high degree of monetary policy transparency.** Inflation-targeting central banks have long held to the practice of publishing their inflation forecasts and the outlook for the output gap. Some go further by releasing the forecast interest rate path along with confidence bands. In practice, financial market participants have adapted well in the countries where the central bank publishes the path for the policy rate from a consistent model-based forecast, as this practice helps better align the yield curve with policy objectives and clarifies the concrete implications of "data dependent" policy (Clinton and others 2015).<sup>24</sup> More generally, over time, the central bank would establish an open

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<sup>21</sup> Section III considers the case of Japan where the policy rate is expected to remain at the effective lower bound for years. In such cases, other policies must be used aggressively to stimulate aggregate demand and raise inflation expectations to avoid getting stuck in a deflation or low-inflation trap.

<sup>22</sup> Price or nominal GDP *level* targeting would explicitly allow overshoots. A flexible inflation targeting framework, in which the central bank cares about both inflation and unemployment (explicit or implicit dual mandate), can offer a compromise. A proactive risk-avoidance strategy under IFT might aim at a deliberate overshoot if output and inflation have been significantly below their desired levels for a prolonged period and there is a risk that long-term inflation expectations will ratchet downward. Ex post, after a long run of years, the price-level path from such a strategy could look as if the central bank had been price-level targeting. Unlike the latter, however, IFT would not have memory: that is, it would not respond to past deviations from target as such.

<sup>23</sup> Levin, Natalucci, and Piger (2004) and Goretto and Laxton (2005) show that long-term inflation expectations are better anchored in IFT countries that have a well-defined point target for inflation and have established a track record achieving results.

<sup>24</sup> For example, Alichì and others (2015) argue that the Federal Reserve should replace the current Summary of Economic Projections "dots" with a consistent macro forecast and risk assessments. Such assessments would provide a starting point for the presentation of the various views among Federal Open Market Committee members. This would reduce uncertainty about the strategies being employed to achieve the dual mandate and allow financial market participants to better understand how the Federal Reserve is likely to react to new information. For a

(continued)

public record of its approach to managing the short-term trade-off between output and inflation. This would better reveal the relative weights the central bank places on deviations from potential output and the inflation target.

**33. Empirically, IFT regimes represent the highest levels of transparency.**<sup>25</sup> Under IFT, the central bank's forecast of inflation represents an ideal intermediate target that is used to communicate how the central bank is managing the short-term output-inflation trade-off (Svensson 1997). All IFT central banks publish forecasts for the inflation rate and output. Some go so far as to release all key variables of their macroeconomic forecasts, including the forecast path and confidence bands for the short-term interest rate—which here, for simplicity, we call the policy rate—and where relevant, the forecast for other, less conventional, policy instruments.

**34. IFT also provides a more robust form of forward guidance.** IFT central banks communicate a better sense of how the interest rate path might change in response to a variety of developments. This has been described by some policymakers as finding a path that “looks good” (Svensson 2002; Qvigstad 2005). An advantage of this approach is that the central bank does not have to give special guidance as to when any particular policy approach will switch on and off, for example, with reference to threshold values of inflation and unemployment.<sup>26</sup>

**35. Data on inflation expectations suggest that IFT has, in fact, provided a firm nominal anchor.** In Figure 4, the horizontal axes plot the expected deviation of this year's inflation from the official target for two groups of countries, one a group of inflation-forecast targeters, and the other, non-inflation-forecast-targeting advanced economies. The surveys were conducted in 2015 and 2016. In almost all the economies covered, expected inflation is below target, largely because of known factors at the time of the survey (such as low energy prices and economic slack). The vertical axes plot the inflation rate expected three years ahead. There is a remarkable difference between the two groups. In the non-IFT advanced-economy group, expectations for a negative deviation persist at least until the third year ahead, and there is a distinct positive correlation between the expected deviation in this year's inflation and that in three years' time. In contrast, the expected three-year-ahead deviation from target in the IFT group is near zero, with no such correlation. Thus, whereas in non-IFT economies negative inflation shocks tend to shift medium-term inflation expectations downward, in IFT economies medium-term expectations remain stable at the target rate.

**36. Inflation targeting can be adopted very quickly, although it takes time to develop a full-fledged IFT regime.** Inflation-targeting central banks typically adopted the regime quickly, after a crisis or a history of unsatisfactory inflation. In many cases, it has not required statutory

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discussion of recent improvements in Federal Reserve transparency, see Bernanke (2013), Dudley (2012), English, López-Salido, and Tetlow (2013), Mester (2015), Plosser (2014), and Yellen (2013).

<sup>25</sup> Dincer and Eichengreen (2014) created measures of central bank transparency for over a hundred countries. The most transparent central banks are all inflation-forecast-targeting central banks. For example, the top three are Sweden, the Czech Republic, and New Zealand. For a discussion, see Obstfeld and others (2016).

<sup>26</sup> For a discussion of the issues of the Federal Reserve's experiences deploying unconventional forward guidance during and after the global financial crisis, see Alichí and others (2015).



changes to central banking law, but simply a reinterpretation of an existing mandate that puts more emphasis on effectively implementing either an explicit or implicit dual mandate. In the case of the United States, which adopted flexible inflation targeting in 2012 with an announced explicit numerical objective, this was accompanied by a clear statement of the dual mandate (FOMC 2012). Experience also suggests that it can take time to anchor long-term inflation expectations to the target and that establishing full credibility requires a comprehensive suite of policies (including assurances against fiscal dominance, for example).

## II.C. Synergies Between Demand Management and Structural Policies

**37. Fiscal, monetary, and structural policies can have mutually supportive macroeconomic effects.** Reforms are needed to address the decline in potential growth and the associated decline in the global equilibrium rate of interest since the early 2000s, which deepened after the global financial crisis (Figure 5). Revived investment demand will raise the neutral interest rate and thereby widen the room to maneuver for monetary policy. By increasing output over the medium term, these reforms will increase fiscal space. In turn, some of this fiscal space can be used to accommodate the budgetary cost of some useful reforms (such as training costs related to active labor market policies) and to enhance the economy's short-term response to reforms, namely, to front-load gains and to minimize short-term output costs.<sup>27</sup>

**38. Over time, successful structural policies would increase the fiscal space available to the government.** Product and labor market reforms would raise potential output. This, in turn, would raise nominal GDP, reducing the debt-to-GDP ratio (through the denominator) and strengthening the budget by expanding the tax base and/or reducing transfers.

**39. In particular, product market reforms could deliver sizable medium-term output gains and pay off fairly quickly.** Across advanced economies, on average, major past episodes of deregulation of retail trade, professional services, and network sectors—such as large reductions in barriers to entry—led to large increases in GDP (Figure 6). In Japan, for example, there is scope for progress in several of these areas. There is, however, a possibility that product market reforms might be deflationary in the short term when monetary policy is constrained (Eggertsson, Ferrero, and Raffo 2014), although this needs to be weighed against their inflationary effect due to the impact of firm entry on demand for capital and labor (Cacciatore and others 2016b). Therefore, monetary policymakers should stand ready to ease further should reforms have any noticeable short-term deflationary effects.

**40. Effective measures to increase labor market participation would also have positive output effects in both the short term and the long term.** For example, improved education and training, increased availability of day care for children, and reductions in marginal taxes on second

<sup>27</sup> This section is largely based on IMF (2016a) and follow-up analysis. It relies on new IMF estimates of the dynamic effects of major past labor and product market reforms across a panel of 26 advanced economies since 1970, using the local projection method proposed by Jordà (2005). See related works by Cacciatore and others (2015, 2016a, 2016b), and Cacciatore and Fiori (2016).

earners have an immediate cost to the budget and therefore may benefit from using some fiscal space. However, these costs would be at least partially offset by the subsequent broadening of the tax base as participation rises and on-the-job human capital accumulates.

**41. Fiscal stimulus can enhance the short-term macroeconomic effects of labor market reforms.** In addition to boosting aggregate demand, a fiscal expansion enhances the economy's response to reforms that could otherwise entail short-term costs, especially under weak macroeconomic conditions (Chapter 3 in the April 2016 *World Economic Outlook*). Estimated average outcomes for major past legislative reforms that relax employment protection legislation for regular workers show a significant decline in unemployment when reforms were accompanied by a large fiscal expansion, versus an increase when reforms were implemented together with a major fiscal contraction—controlling for the direct unemployment impact of the fiscal impulse itself (Figure 7). Employment protection reform increases incentives for firms both to lay off existing workers and to recruit new ones; thus, the more expansionary is fiscal policy, the stronger is aggregate demand and the more firms will respond to reform by recruiting new workers and keeping existing ones rather than by laying off workers.

**42. Fiscal policy can encourage the implementation of structural reforms by mitigating the distributive effects of reform.** This can help ease resistance by segments of the population particularly affected by the reform. As discussed in IMF (2014a), some countries have used fiscal policy to gain traction for labor reform by bundling relaxation of employment protection together with more generous unemployment benefits, higher spending on active labor market policies, and labor tax cuts.

**43. Fiscal structural reform can further support output by making tax and expenditure policies more growth-friendly (IMF 2015b).** Tax policy and administration reform can increase the fairness and efficiency of the tax system. Strengthening of fiscal institutions and budgetary frameworks can improve government transparency and accountability. Expenditure reform can improve the efficiency of public spending and address the challenges related to mounting health and pension spending pressures. Examples of such policies include improving the design and efficiency of health and education spending to achieve better outcomes and reforming untargeted subsidies, especially on energy. Such reforms can create fiscal space that can in turn be used to stimulate the economy where needed in the short term.

**44. To sum up, structural reforms will work best as part of a coordinated package that includes appropriate budgetary measures and monetary accommodation.** Such an approach would provide quicker benefits with respect to output and employment, and could help ease political obstacles to reform.

## II.D. Financial Sector Policy

**45. Effects of monetary policy on the real economy are transmitted through various channels, most of which require a healthy financial system.** These channels are discussed in

detail in [Online Appendix 4](#). Well-functioning markets allow monetary policy to affect a wide array of market prices. Banks, in turn, play a critical role in extending credit to households and firms, which must see an upside to expanding their balance sheets. Micro- and macroprudential policies favoring a resilient financial sector, as well as decisively tackling nonperforming loans, reduce the risk that the financial system will become a source, or an amplifier, of shocks, thus leaving more room for monetary policy to maneuver.

**46. A weak banking sector can be a significant hurdle to monetary policy transmission.**

Banks that are overly exposed to troubled assets or face capital shortages will tend to cut back on lending. Likewise, they will attempt to keep lending rates high to rebuild equity through retained earnings.<sup>28</sup> Banks might also opt to limit risk-taking. Finally, banks that are seen as risky will only be able to raise funds at a significant premium over the policy rate, unless central banks are willing to extend generous funding against a wide array of collateral assets.

**47. Likewise, overstretched non-financial-sector balance sheets can limit the effects of monetary policy on the real economy.** Households and firms can reach or exceed their borrowing constraints if the value of their assets and collateral decreases markedly. The constraint usually stems from the prudent or regulatory requirement to keep a minimum equity buffer. Borrowers having reached their constraint will become less sensitive to monetary policy; they will not engage in new borrowing.

**48. While accommodative monetary policy can lead to a build-up of financial imbalances in some sectors, macroprudential policy can help address these vulnerabilities.** Experience suggests that a broad range of tools may be needed to address potential vulnerabilities in both the time and structural dimensions. In the time dimension, prudential tools can be used to build up additional buffers as systemic risk accumulates in order for those buffers to be drawn down in times of stress. This will help constrain the risks to the financial system from the boom and dampen the negative impact on credit provision in the bust. In the structural dimension, in turn, various prudential tools can be used to address the externalities that systematically important financial institutions could impose on the financial system. Capital surcharges can enhance the resilience of these institutions to shocks. Additional loss absorbency requirements can facilitate their orderly resolution and reduce spillover risks within the financial system (IMF/FSB/BIS 2016).

**49. Active use of macroprudential policies can help support the room for maneuver for monetary policy.** For instance, in a number of countries, low interest rates, in combination with limited elasticity of housing supply, have contributed to increases in house prices and a run-up in household debt and leverage. Targeted macroprudential policies (such as the tightening of caps on loan-to-value and debt-service-to-income ratios) can help contain these dynamics and increase the system's resilience to shocks to asset prices or household incomes. When macroprudential buffers have been built up, some of them can also be relaxed when systemic risks materialize and financial

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<sup>28</sup> For a discussion of an analytical framework that deals with vicious interactions between bank balance sheets, asset prices, and the real economy, see Benes, Kumhof, and Laxton (2014a, 2014b).

shocks lead banks to pull back credit. Such a relaxation can then help sustain the flow of credit through adverse financial conditions (IMF 2013; Nier and Kang 2016).

**50. In acute financial crises, swift and decisive policy action to restore the health of the financial system is essential to support monetary policy transmission.** Policies must give incentives to both lenders and borrowers to address their balance sheet weaknesses. While it may be rational from the perspective of individual agents to wait to “grow out” of the crisis, in aggregate, this strategy leads to costly misallocation of resources, slow credit growth, and weak recovery. Restoring the health of the financial sector often translates into higher public debt ratios, as contingent financial liabilities migrate to the public sector balance sheet. This makes managing public sector balance sheet risks all the more important, including building policy space in good times (see section II.A).

**51. Both supply-side and demand-side policies are needed to strengthen monetary policy transmission, especially after an acute crisis.** These policies are reviewed in detail in [Online Appendix 4](#). On the supply side, supervisory action is needed to give banks incentive to promptly recognize losses from troubled assets. Asset quality reviews have proven especially helpful in ensuring that balance sheets reflect actual economic valuations. Likewise, stress tests are key to reassuring investors of the adequacy of banks’ capital buffers and viability over a longer horizon. In many cases, banks’ capital bases will need to be strengthened, if possible before a crisis ensues, so that the banks can continue lending to the economy, even during protracted downturns. Putting in place well-designed bank resolution frameworks ex ante is important to reduce moral hazard and minimize the cost to the public sector. State solvency support for bank recapitalizations should remain a measure of last resort. Private sector involvement through bail-ins is also possible, although it needs to be managed carefully. Following more acute crises, asset management companies can relieve banks of troubled assets, but this raises multiple issues with respect to moral hazard, budgetary costs, public debt and contingent liabilities, and so on. Central bank liquidity lines can also help restore market functioning, supporting bank balance sheets, but should only be used to address temporary market distortions. On the demand side, overindebtedness in households and firms is a key impediment to new lending. Swift restructuring of distressed loans is vital to cleaning private sector balance sheets and jump-starting credit demand.

**52. Accommodative monetary policy should help both supply and demand factors.** The first-order effect will be to boost growth and thus decrease nonperforming loans, improve valuations, strengthen balance sheets, and decrease the riskiness of borrowers. However, cheap funding will tend to postpone the difficult choice of recognizing losses and restructuring loans (the *evergreening* issue explored in the October 2013 *Global Financial Stability Report*).

### III. ILLUSTRATING COMPREHENSIVE, CONSISTENT, AND COORDINATED POLICIES

#### III.A. Examples of Canada and Japan

**53. The comprehensive, consistent, and coordinated policy approach needs to be tailored to specific country circumstances.** Among the advanced economies, Canada and Japan present contrasting positions in regard to the room each has for maneuvering macroeconomic policy. Canada has substantial fiscal space, notwithstanding variability in this position from province to province, and—subject to appropriate regulatory measures to cool overheated housing markets—room for further monetary stimulus. Long-term inflation expectations are firmly anchored at the 2 percent target rate. In Japan, conditions are more challenging, and headwinds are stronger. Growth has been low, and expectations of inflation are below target after decades of deflation. Yet expansionary macroeconomic policies have been pushed toward perceived limits (Figure 8). Model simulations for the two countries, discussed in [Online Appendix 5](#), mark the ends of a range of comprehensive, consistent, and coordinated policy possibilities for advanced economies sitting at points between them. Most of these economies face fewer difficulties than Japan, but have somewhat more limited policy space than Canada.

**54. Canada illustrates how comprehensive policies can get the most from the existing policy space.** Model simulations show that fiscal support, complemented by monetary accommodation, can help offset disturbances that may occur ([Online Appendix 5](#); Obstfeld and others 2016). By closing the output gap and raising inflation quickly, the policy stimulus creates conditions in which further disinflationary shocks are more easily resisted. Over the medium term, it raises the nominal interest rate somewhat, away from the effective lower bound. The higher inflation rate reinforces expectations that the inflation target will be achieved, and thereby further solidifies the already firm nominal anchor. Stronger nominal GDP boosts government revenues, helping stabilize government finances. In addition, with the lower interest rate, debt service cost goes down in the short term.

**55. Japan illustrates a situation in which constraints on policy instruments, and the need to rebuild policy space, sharpen the need for a comprehensive, consistent, and coordinated approach.**<sup>29</sup> Building on the “Three Arrows” program of Prime Minister Shinzo Abe’s government, we recommend a “Three-Arrows-Plus” package. For fiscal policy, we recommend a gradual increase in the value-added tax (VAT) to help manage public sector balance sheet risks. The VAT is the least harmful revenue source in both its macroeconomic impact (low multiplier) and allocative distortions. Gradual increases will avoid the abrupt reallocations of consumption from one quarter to another,

<sup>29</sup> This paragraph summarizes the simulations and policy discussions in the 2016 Japan Article IV Consultation (IMF, 2016b) and in Arbatli and others (2016).

and the eventual weakness of spending amid low potential growth, that were associated with the pre-announced VAT hike of 2014. For monetary policy, the Bank of Japan could adopt a transparent IFT regime to strengthen its inflation-targeting approach. In addition, support from growth-enhancing structural policies is vital. Labor market reform in Japan could help offset the drag from a declining workforce, while reducing labor-market dualism between those with job security and the increasing worker population with more precarious employment. Reforms to ease barriers that exclude workers from the more protected sectors would help investment in human capital, which can be lost when workers are trapped in low-skill jobs. While the long-term gains to potential output would be large, the short-term impact of structural reforms is difficult to quantify given uncertainty about how the private sector would respond. The fiscal and monetary policies of the comprehensive, consistent, and coordinated framework would be able, in principle, to keep the economy on the desired growth path over the medium term, offsetting any short-term contractionary impact that structural reforms might have. Since the dual labor market has exacerbated the problem of inflation control, the government should consider special measures to overcome the entrenched deflationary mindset. An incomes policy, to support nominal wage growth directly, could help raise wage inflation to a rate consistent with the 2 percent inflation objective. Model simulations indicate that such a Three-Arrows-Plus package could deliver the ambitious targets of Abenomics ([Online Appendix 5](#); Arbatli and others 2016).

**56. In the cases of both Canada and Japan, an effective comprehensive, consistent, and coordinated policy program would increase rather than diminish monetary and fiscal policy space over the medium term.** As a result of the boost to nominal GDP, the simulated policies, anchored by the medium-term fiscal consolidation path, would produce a lower government debt-to-GDP ratio over the medium term than a no-stimulus alternative. The initial conditions of low inflation and a negative output gap allow an increase in both real output and the rate of inflation. The positive outcomes would help dispel notions of policy impotence.

### III.B. International Policy Coordination: The Positive Spillovers

**57. Under current circumstances, a large new global contractionary shock would raise the risk that economies might fall into a deflation (or low-inflation) trap.** Such a negative shock to demand, in an economy already operating below potential, could do long-term damage. A timely and coordinated policy response could, however, jump-start a permanent and offsetting increase in employment and output. An example of such a response is the G20 stimulus package after the global financial crisis, which saved the global economy from a much more severe recession. That package called for tax cuts and discretionary spending increases equivalent to 2 percent of GDP in both 2009 and 2010, but the actual size and composition of fiscal packages varied across countries. Benes and others (2016) and Coenen and others (2010) provide evidence that the coordinated G20 stimulus was crucial in helping to avert recessionary forces.

**58. The GIMF model illustrates the plausible global effects from a coordinated international response to a hypothetical negative demand shock.** While such a new demand shock is currently not anticipated, the simulation provides useful insights on the economic

mechanism at play and also highlights the benefits of coordinated policy action in general. GIMF takes into account key differences in economic structures, such as country size, degree of openness, and the liquidity constraints of the population. Spillovers are endogenized through trade and financial links. We look at the effects of the coordinated stimulus on output by region—and for the global economy as a whole—and compare the results with the effects of a stimulus by each region on its own. The assumed stimulus takes the form of raising government investment, government consumption, and targeted transfers. The overall size of the hypothetical fiscal stimulus is equal to 1 percent of each region's baseline GDP in year 1, 1 percent in year 2, and 0.5 percent in year 3, with all instruments subsequently returning to baseline. In view of the weakening economy, monetary policies accommodate the fiscal expansion by keeping nominal policy interest rates unchanged for two years.

**59. Estimated domestic multipliers exceed unity for almost all regions.** The estimated impact of each region's fiscal stimulus on the world, on itself, and on other regions is shown in columns 2–6 of Table 2. The estimated domestic multiplier (shown in underlined numbers along a diagonal) is greatest for emerging Asia, Latin America, and the remaining countries group, where relatively high shares of households are liquidity constrained. The short-term multipliers for the three large advanced economies—the euro area, the United States, and Japan—are about unity.

**60. The simulation results show large international spillover effects.** The first row of Table 2 shows the impact on world GDP if each region does its fiscal stimulus alone. The global impact depends on the size of the region's economy, on the magnitude of the domestic output effect, and on the region's openness. Thus, fiscal stimulus in emerging Asia or the remaining countries has especially powerful spillovers, which show up in Table 2 as sizable increases in world GDP. Fiscal stimulus in the United States or the euro area also has strong spillovers to other regions, because of their economic size and high share of world imports. Part of the strength of the estimated policy impact stems from financial sector linkages. The policy transmission mechanism in the model features a financial accelerator effect: with nominal policy rates held constant, real rates decline as the stimulus raises the inflation rate. In turn, the reduction in real rates causes an increase in asset prices, which strengthens balance sheets, reduces risk premiums, and eases credit conditions. Cross-border trade integration propagates these effects globally.

**61. The simulation shows that, in response to a hypothetical negative global shock, an internationally coordinated stimulus would boost global GDP sizably and, importantly, benefit each country individually.** The first column of Table 2 shows the impact on global GDP of the stimulus when applied simultaneously in every region. Thus, these results include the positive spillovers from other regions, as well as the domestic effect of each region's own program. The estimated effect adds 2.4 percent to world GDP in years 1 and 2, and 1.1 percent in year 3. The impact is largest for countries other than the three large advanced economies, in part because of the openness of emerging markets to spillovers. The euro area and the United States would see an output boost of over 1½ percent, and Japan about 1.8 percent. These increases represent a powerful multiplier effect: through positive spillovers, simultaneous international action can substantially amplify the effectiveness of national policy actions. Without coordination, governments might fail to

act, because from their individual viewpoints the spillovers constitute leakages of spending that reduce the multiplier and, hence, the perceived benefits of a fiscal expansion. These simulations do not take into account the additional beneficial effects of structural reforms or differences in fiscal packages across regions. Such factors, however, may generate even larger positive spillovers.

**62. The model results may understate longer-term effects of the policy response because the model disregards the negative effects of a prolonged slump on employment, productivity, and confidence.** When an economy operates below potential over a period of years, the level of potential output itself adjusts downward (Summers 2014). Prolonged unemployment brings erosion of job skills and a lack of openings for training in new expertise. Weak levels of investment deprive the economy of future capacity, not least through the loss of innovation incorporated in new capital. An appropriate policy response avoids these dangers.

**63. As global fiscal and monetary coordination permanently raises nominal GDP, the debt-to-GDP ratio is eventually lower for all regions, notwithstanding the initial increase in budget deficits.** This fiscal dividend is illustrated by negative numbers in the first column of Table 3, which shows estimates of the change in the debt ratio in year 4 (relative to the baseline). For example, the euro area debt ratio would decline by 0.3 percentage point, according to the simulations, as nominal GDP is up by 1 percent. Other regions see larger declines, mainly because of stronger multiplier effects on nominal GDP. These improvements are, however, achieved only with global fiscal and monetary coordination. The debt-to-GDP ratio rises if a country carries out a fiscal expansion alone, as is indicated by the underlined numbers on the bottom panel's diagonal. And the difference is significant. For example, a stimulus confined to the euro area alone would raise that area's debt ratio by 0.9 percentage point, 1.2 percentage points more than with an internationally coordinated stimulus. Beyond the mechanical effects, the moderation of the hypothetical global slowdown eases the job of structuring a fiscal framework that keeps the long-term public debt-to-GDP ratio under control.

## IV. POLICY CONCLUSIONS

**64. In the event of a renewed global slowdown, a *comprehensive, consistent, and coordinated* policy approach could move the global economy well away from a possible danger zone.** Policy needs to be ready for *comprehensive* action using all three policy prongs—monetary, fiscal, and structural—because applying them in combination overcomes apparent constraints faced by these policy instruments individually. Such a comprehensive approach, tailored to specific country circumstances, has been central to the IMF's policy advice to its member countries. *Consistent* policy frameworks can provide the policy space to deliver decisive short- to medium-term support to an economy, for example, by holding long-term inflation expectations to target rates and committing fiscal policy to an eventual sustainable downtrend in government debt-to-GDP ratios. *Coordinated* policies across major economies can amplify the effects of individual policy actions through positive cross-border spillovers. This holds in normal times but is particularly relevant when the world is faced with a large global shock, as was illustrated in section III.B. International coordination of fiscal and monetary stimulus can also boost global nominal GDP,



helping to keep debt-to-GDP ratios in check. Overall, the approach helps dispel perceptions that there is only limited policy space.

**65. Under this approach to macroeconomic policy, the whole is greater than the sum of its parts.** In particular, model simulations suggest that a fiscal stimulus (applied where feasible), accommodated by monetary policy, could mitigate the impact on output of a negative shock, and help raise inflation to target levels. Moreover, the resulting higher growth rate of nominal GDP would improve the dynamics of debt-to-GDP ratios. These short-term policies are more effective when conducted within a sound fiscal framework that manages public sector balance sheet risks and within a credible monetary framework that boosts firms' confidence in the long-term inflation target. Upgrades will be needed in those countries where credible frameworks have not yet been fully developed. International coordination between countries amplifies the effects of individual country stimulus through three channels. First, strong positive cross-border spillovers through trade and financial channels are clearly indicated in simulations of a global model. Second, the lower cross-border leakages compared to a solo expansion encourage bolder action by each government. And third, there is a confidence effect—people are more likely to accord credibility to a coordinated international action, as evidenced by the 2009–10 actions, which helped calm a globally shared state of high anxiety.

**66. This approach also encompasses financial sector policies and structural reforms that can have large positive effects over the long term.** The transmission of monetary policy can be improved through financial sector policies that strengthen banking systems and markets—for example, through prudential policy, resolution of legacy loan issues, and stronger bank capital bases. Macroprudential policy can also contain unintended side effects of monetary accommodation. Structural reforms—in labor, product, and services markets—can increase potential growth. In turn, higher nominal GDP growth makes the debt-to-GDP ratio fall and strengthens the budget by expanding the tax base and/or lowering transfers. However, even some sound reforms can have short-term negative impacts on aggregate output. The comprehensive, consistent, and coordinated approach would use monetary and fiscal instruments to offset any such impacts. Model simulations for Japan—where perceived macroeconomic policy space is very limited—suggest that such an approach, which supplements the “Three Arrows” of Abenomics with an incomes policy to raise expectations of inflation, could help achieve that program's ambitious objectives on a timely schedule.

**67. The insights of this note are relevant for emerging market economies as well, many of which have recently suffered from recession and falling commodity prices.** In these economies, establishing sound consistent fiscal frameworks that successfully manage fiscal balance sheet risks over time is a precondition. Reforms of the monetary framework can also help in many cases to establish clarity on monetary policy objectives and targets. Stronger governance arrangements would gradually also help entrench greater monetary policy credibility. This advantage, in turn, would allow more flexible use of monetary and fiscal tools in managing aggregate demand. For countries with limited room for maneuver, for example, commodity exporting countries, this

approach can help them better determine the pace of necessary fiscal adjustment and implement growth-friendly fiscal rebalancing.

**68. In sum, the comprehensive, consistent, and coordinated policy framework, by systematically relating policy objectives and instruments over time, offers the best chance for successfully dealing with a negative shock.** The global macroeconomic risks of 2016 are one-sided. Output in major advanced economies and many emerging market economies remains short of potential—well short in many cases. Inflation is below target in many regions, and below zero in some. Geopolitical frictions and economic imbalances around the world encourage isolationist policies and unmistakably tilt the balance of risks toward further negative shocks to global output. In view of this starting point, a major downdraft now would push the global economy closer toward, and in some regions definitively into, a low-inflation quagmire. On the positive side, the payoff from a successful policy strategy as laid out in this note would be large—probably even larger than suggested by our macroeconomic models, which do not take into account the lasting gains to productivity that come with higher employment (through acquisition of skills and know-how) and increased investment (through a larger, newer capital stock and the embodied technical advances).

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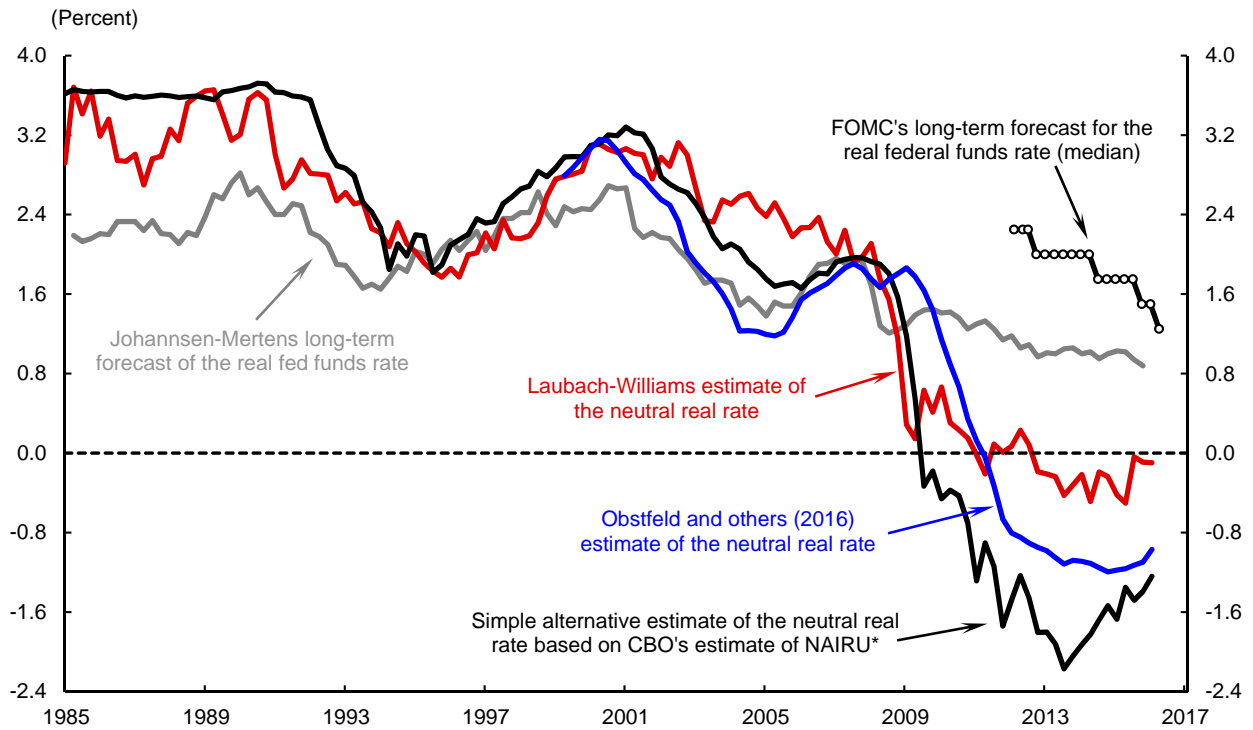
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**Figure 1. Measures of the Equilibrium U.S. Real Interest Rate**

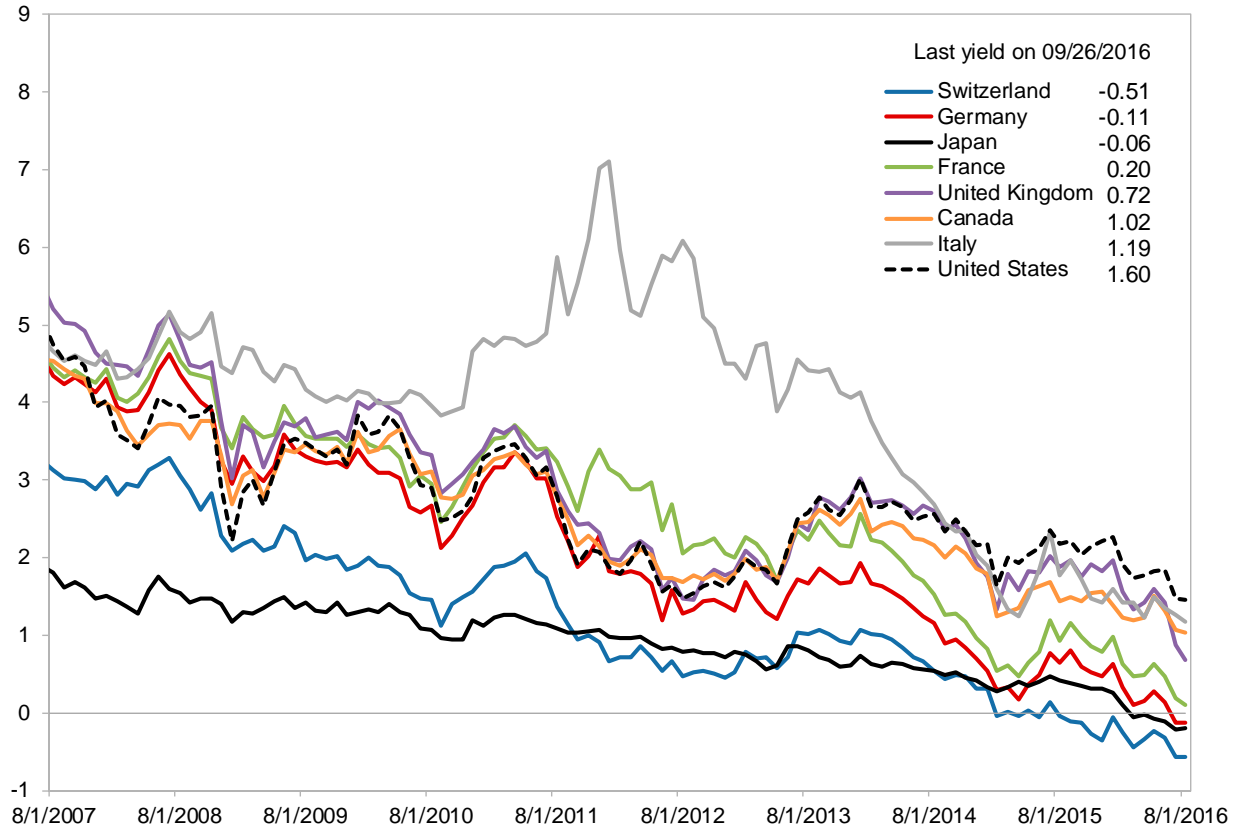


Note: FOMC stands for the Federal Open Market Committee. CBO stands for the United States Congressional Budget Office. NAIRU stands for the nonaccelerating inflation rate of unemployment.

Sources: Johanssen and Mertens (2016); Laubach and Williams (2015); Obstfeld and others (2016); Federal Reserve; and Nomura.

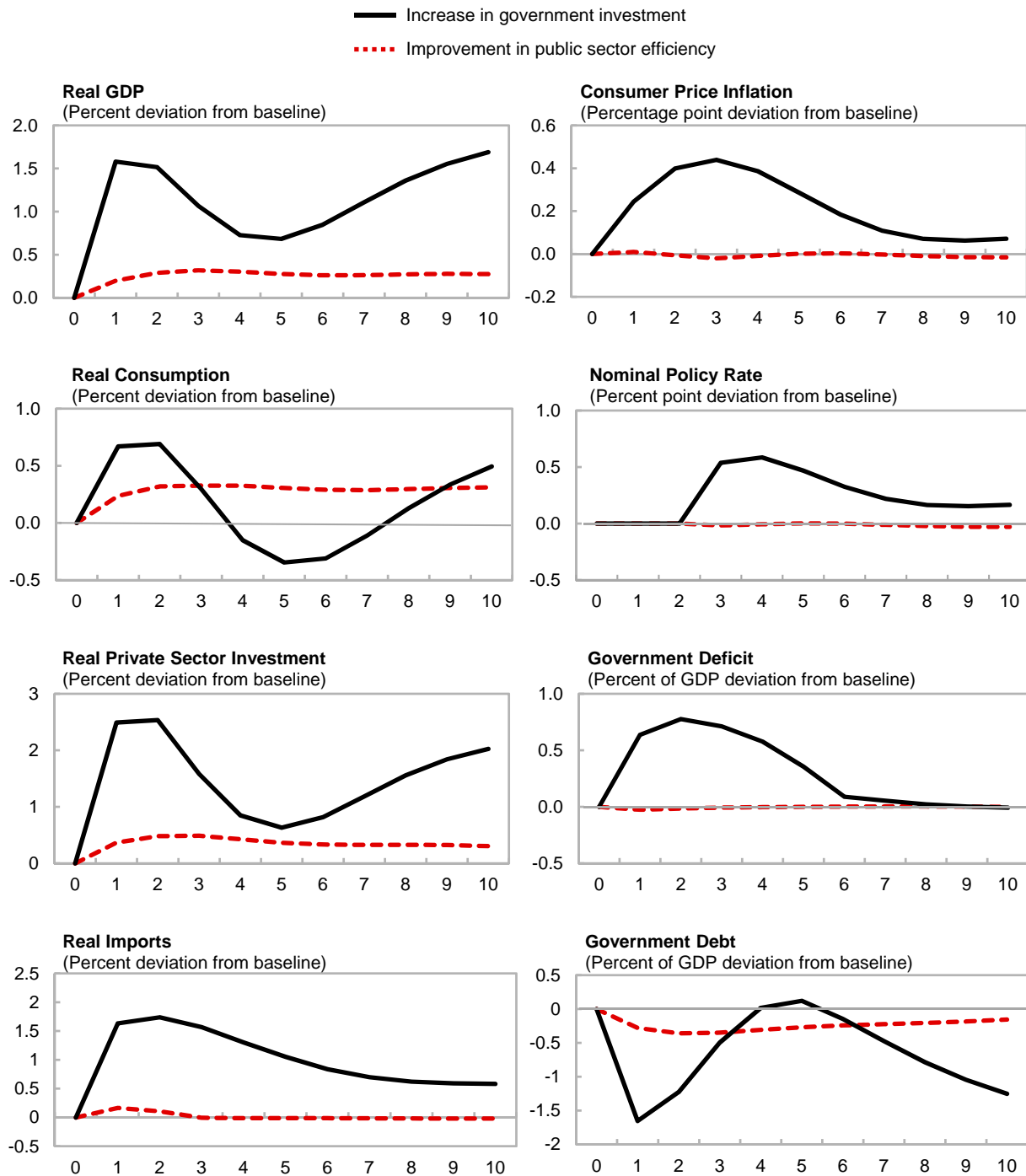


**Figure 2. 10-Year Bond Yields in Selected Major Economies**  
(Percent)



Source: Bloomberg.

**Figure 3. Illustrative Effects of a Permanent Increase in Government Investment**

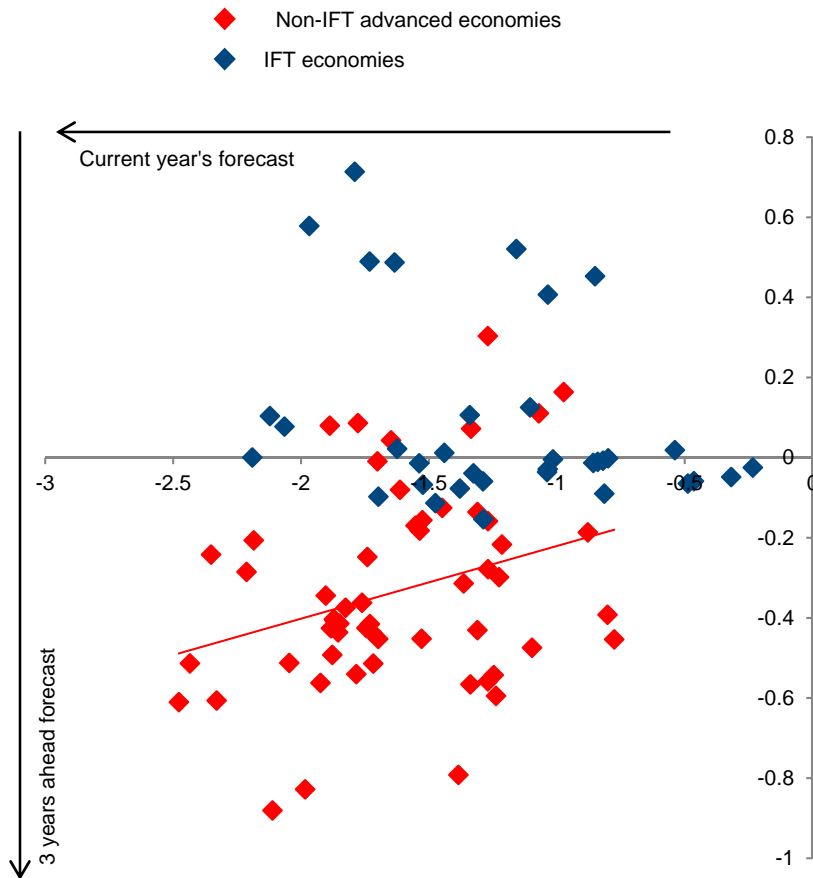


Note: Both simulations are done with two years of monetary accommodation. The increase in government investment scenario is modeled as a permanent increase in government investment equal to 1 percent of baseline GDP financed initially by a higher fiscal deficit. The improvement in public sector efficiency scenario is modeled as a permanent increase in government investment equal to 1 percent of baseline GDP financed by a cut in government consumption.

Source: Authors' simulations.

**Figure 4. Inflation Expectations Better Anchored in Inflation-Forecast-Targeting Economies**

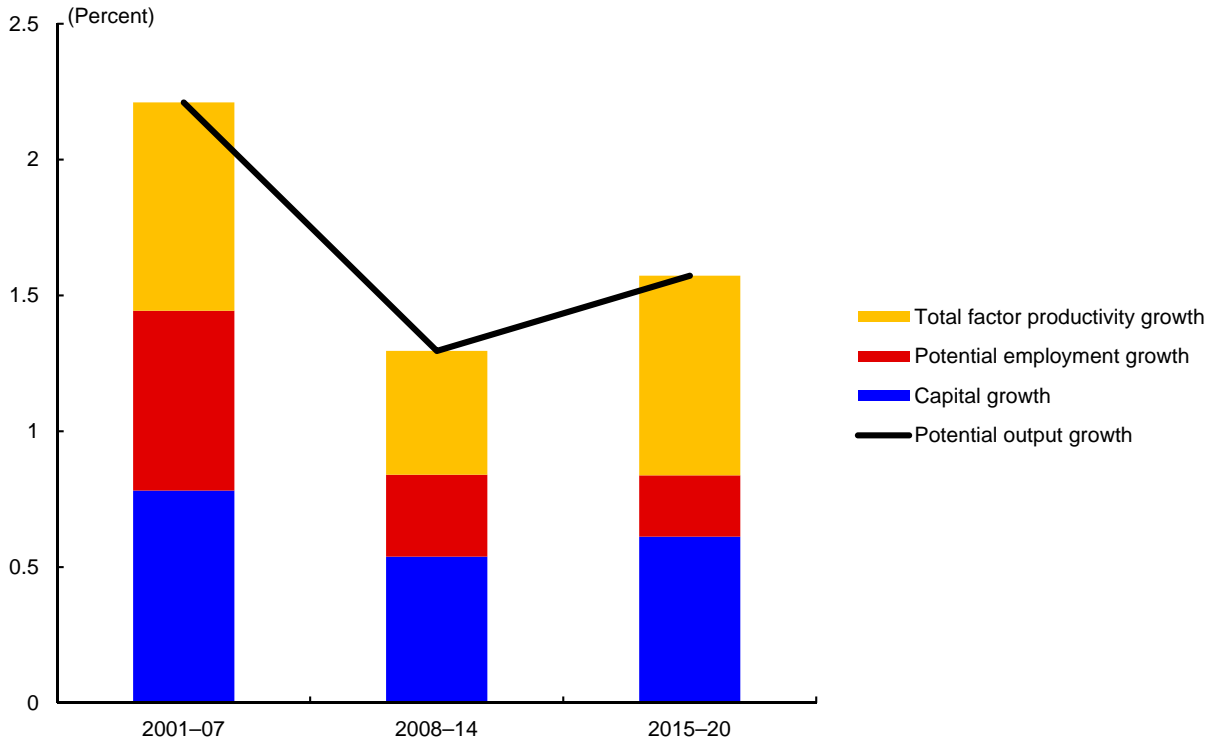
Headline Inflation Consensus Forecast This Year versus Three Years Ahead  
(deviation from target)



Note: Inflation-forecast-targeting (IFT) economies include Canada, the Czech Republic, New Zealand, Sweden, and the United States.

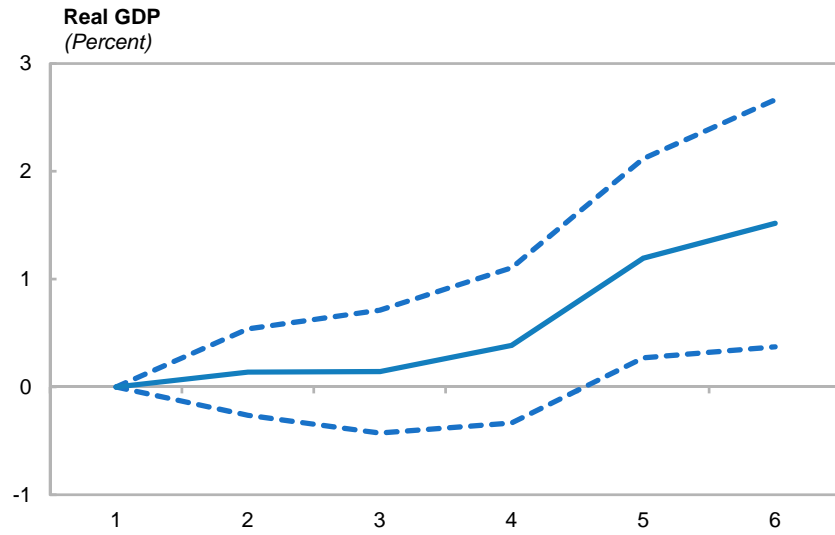
Source: Consensus Economics 2015–2016.

**Figure 5. Evolution of Potential Output Growth and Its Components in Advanced Economies**



Source: IMF, *World Economic Outlook*, April 2016.

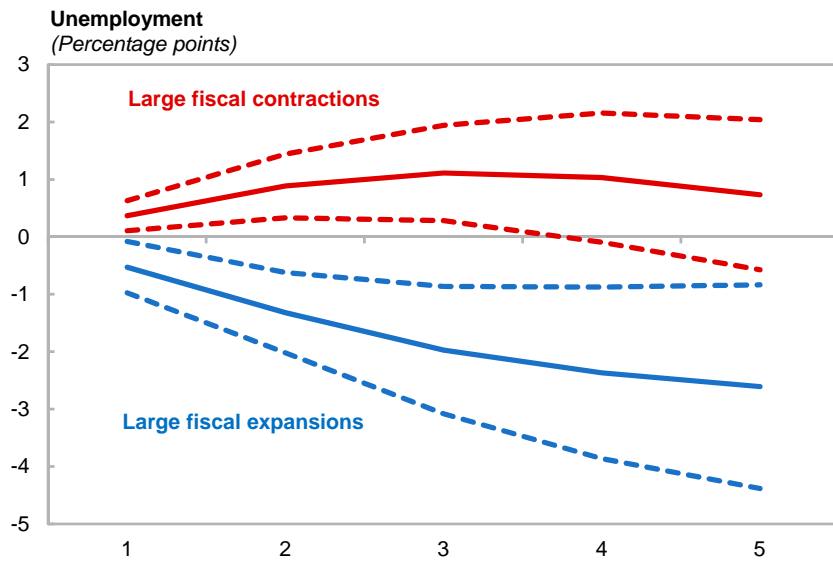
**Figure 6. GDP Effects of Major Past Product Market Reforms**



Note:  $t = 1$  is the year of the shock. Solid lines denote the response to a major reform in product market regulation, and dashed lines denote 90 percent confidence bands. Effect is the average across advanced economies over the period 1970–2013.

Source: IMF, *World Economic Outlook*, April 2016.

**Figure 7. Role of Fiscal Policy in Determining the Effects of Employment Protection Legislation and Unemployment Benefit Reforms**

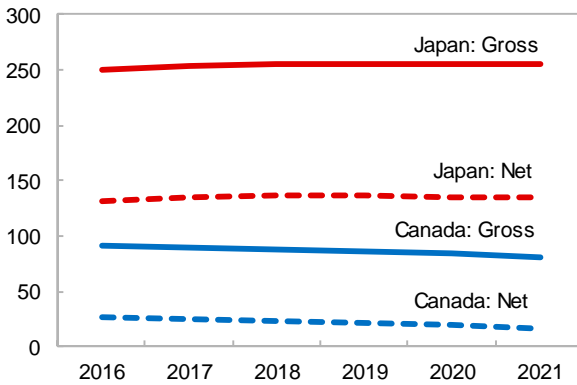


Note:  $t = 1$  is the year of the shock. Solid lines denote the response to a major reform in employment protection legislation; dashed lines denote 90 percent confidence bands. Effect is the average across advanced economies over 1970–2013.

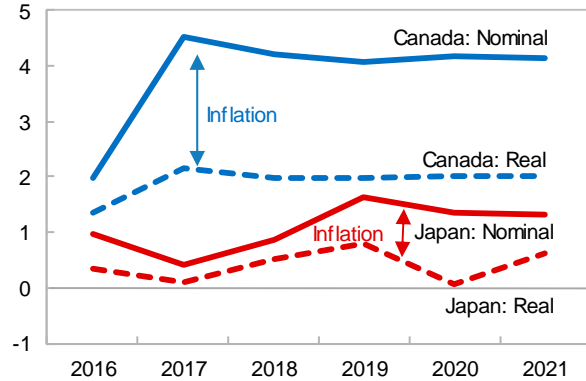
Source: IMF, *World Economic Outlook*, April 2016.

Figure 8. Key Macroeconomic Variables for Canada and Japan

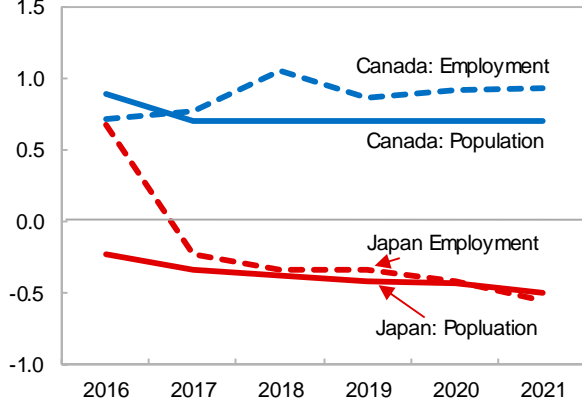
1. Government Debt (Percent of GDP)



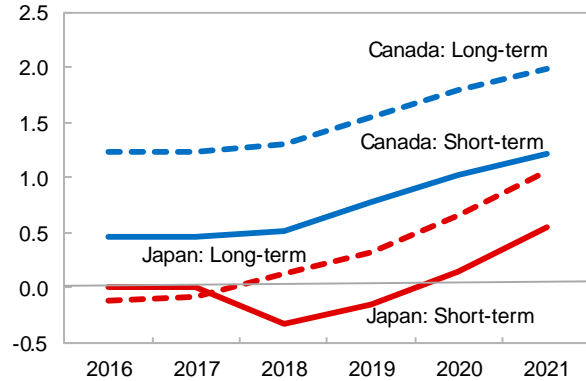
2. GDP Growth (Percent)



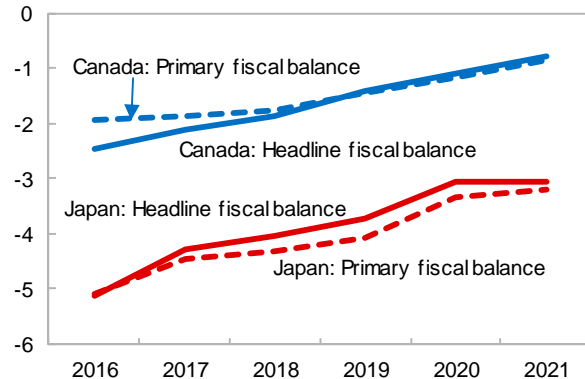
3. Employment and Population (Percent)



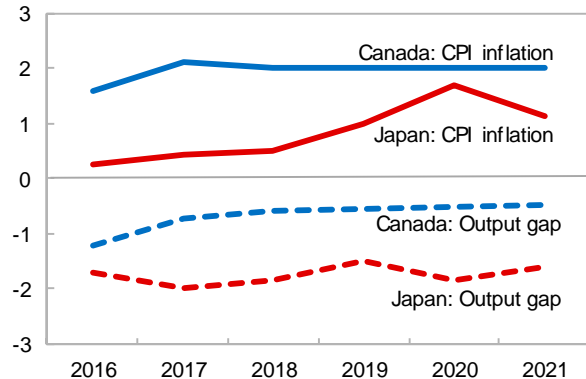
4. Interest Rate (Percent)



5. Government Balance (Percent of GDP)



6. Inflation and Output Gap (Percent)



Note: CPI refers to the consumer price index.

Source: IMF, *World Economic Outlook Update*, July 2016.

Table 1. Illustrative Discretionary Fiscal Multipliers with Monetary Policy Accommodation

	Year 1	Year 2	Year 3
<b>Real GDP (Percent deviation from baseline)</b>			
<b>Government investment</b>	1.2	1.1	0.5
with one-year monetary accommodation	1.3	1.3	0.6
with two-year monetary accommodation	1.7	1.7	0.8
<b>Government consumption</b>	0.9	0.8	0.2
with one-year monetary accommodation	1.1	0.9	0.2
with two-year monetary accommodation	1.4	1.3	0.4
<b>Targeted transfers</b>	0.5	0.5	0.2
with one-year monetary accommodation	0.6	0.6	0.2
with two-year monetary accommodation	0.8	0.8	0.3
<b>General transfers</b>	0.1	0.1	0.0
with one-year monetary accommodation	0.2	0.1	0.0
with two-year monetary accommodation	0.2	0.2	0.1
<b>Government Debt (Percent of GDP deviation from baseline)</b>			
<b>Government investment</b>	-0.9	-0.2	0.8
with one-year monetary accommodation	-1.2	-0.5	0.5
with two-year monetary accommodation	-1.8	-1.4	-0.2
<b>Government consumption</b>	-0.5	0.2	1.3
with one-year monetary accommodation	-0.8	-0.0	1.1
with two-year monetary accommodation	-1.4	-0.8	0.3
<b>Targeted transfers</b>	0.2	0.9	1.6
with one-year monetary accommodation	0.0	0.7	1.5
with two-year monetary accommodation	-0.4	0.2	1.0
<b>General transfers</b>	0.8	1.7	2.1
with one-year monetary accommodation	0.7	1.6	2.1
with two-year monetary accommodation	0.6	1.4	2.0
<b>Inflation (Percentage point deviation from baseline)</b>			
<b>Government investment</b>	0.1	0.2	0.2
with one-year monetary accommodation	0.2	0.2	0.2
with two-year monetary accommodation	0.2	0.4	0.4
<b>Government consumption</b>	0.1	0.2	0.2
with one-year monetary accommodation	0.1	0.2	0.2
with two-year monetary accommodation	0.2	0.3	0.3
<b>Targeted transfers</b>	0.1	0.1	0.1
with one-year monetary accommodation	0.1	0.1	0.1
with two-year monetary accommodation	0.1	0.2	0.2
<b>General transfers</b>	0.0	0.0	0.0
with one-year monetary accommodation	0.0	0.0	0.0
with two-year monetary accommodation	0.0	0.1	0.1

Source: Authors' simulations.



**Table 2. Estimates of the Effects of a Coordinated Fiscal Stimulus after a Hypothetical Negative Global Demand Shock (Part I)**

Effects on Real GDP Level in Year 1 (Percent deviation from baseline)							
Effects on	When stimulus in all regions	When stimulus in the following region only					
		United States	Euro Area	Japan	Emerging Asia	Latin America	Remaining Countries
World	<b>2.4</b>	0.4	0.3	0.1	0.8	0.2	0.8
United States	<b>1.6</b>	<u>1.1</u>	0.1	0.0	0.2	0.1	0.2
Euro Area	<b>1.5</b>	0.1	<u>0.9</u>	0.0	0.2	0.0	0.3
Japan	<b>1.8</b>	0.1	0.1	<u>1.1</u>	0.4	0.0	0.2
Emerging Asia	<b>3.4</b>	0.4	0.3	0.2	<u>2.0</u>	0.2	0.8
Latin America	<b>2.4</b>	0.3	0.2	0.1	0.3	<u>1.5</u>	0.3
Remaining Countries	<b>2.3</b>	0.2	0.3	0.1	0.5	0.1	<u>1.4</u>
Effects on Real GDP Level in Year 2 (Percent deviation from baseline)							
Effects on	When stimulus in all regions	When stimulus in the following region only					
		United States	Euro Area	Japan	Emerging Asia	Latin America	Remaining Countries
World	<b>2.4</b>	0.4	0.3	0.1	0.8	0.2	0.8
United States	<b>1.6</b>	<u>1.1</u>	0.1	0.0	0.2	0.1	0.3
Euro Area	<b>1.6</b>	0.1	<u>1.0</u>	0.0	0.2	0.0	0.3
Japan	<b>1.8</b>	0.1	0.1	<u>1.1</u>	0.4	0.1	0.2
Emerging Asia	<b>3.3</b>	0.4	0.3	0.2	<u>1.9</u>	0.2	0.8
Latin America	<b>2.4</b>	0.3	0.2	0.1	0.3	<u>1.5</u>	0.3
Remaining Countries	<b>2.3</b>	0.2	0.3	0.1	0.5	0.1	<u>1.4</u>
Effects on Real GDP Level in Year 3 (Percent deviation from baseline)							
Effects on	When stimulus in all regions	When stimulus in the following region only					
		United States	Euro Area	Japan	Emerging Asia	Latin America	Remaining Countries
World	<b>1.1</b>	0.2	0.2	0.1	0.4	0.1	0.4
United States	<b>0.8</b>	<u>0.4</u>	0.1	0.0	0.1	0.0	0.1
Euro Area	<b>0.9</b>	0.1	<u>0.5</u>	0.0	0.1	0.0	0.2
Japan	<b>0.8</b>	0.1	0.1	<u>0.4</u>	0.2	0.0	0.2
Emerging Asia	<b>1.4</b>	0.2	0.2	0.1	<u>0.8</u>	0.1	0.4
Latin America	<b>1.1</b>	0.2	0.1	0.0	0.2	<u>0.6</u>	0.2
Remaining Countries	<b>1.1</b>	0.1	0.1	0.1	0.3	0.0	<u>0.7</u>

Note: The size of the fiscal stimulus is equal to 1 percent, 1 percent, and 0.5 percent of each region's baseline GDP, respectively. It consists of government investment, government consumption, and targeted transfers, with their respective share being  $\frac{1}{4}$ ,  $\frac{1}{4}$ , and  $\frac{1}{2}$  of the total stimulus. Monetary policy in all regions accommodates the fiscal expansion by keeping nominal policy interest rate unchanged for two years.

Source: Authors' simulations.

**Table 3. Estimates of the Effects of a Coordinated Fiscal Stimulus after a Hypothetical Negative Global Demand Shock (Part II)**

Effects on Nominal GDP Level in Year 4 (Percent deviation from baseline)							
Effects on	When stimulus in all regions	When stimulus in the following region only					
		United States	Euro Area	Japan	Emerging Asia	Latin America	Remaining Countries
World	<b>2.3</b>	0.4	0.3	0.1	0.8	0.2	0.8
United States	<b>1.6</b>	<u>0.9</u>	0.1	0.1	0.3	0.1	0.3
Euro Area	<b>1.0</b>	0.1	<u>0.4</u>	0.0	0.2	0.0	0.3
Japan	<b>1.8</b>	0.2	0.2	<u>0.8</u>	0.5	0.1	0.3
Emerging Asia	<b>3.3</b>	0.4	0.4	0.2	<u>1.8</u>	0.2	0.9
Latin America	<b>2.4</b>	0.4	0.2	0.1	0.4	<u>1.1</u>	0.4
Remaining Countries	<b>2.4</b>	0.3	0.3	0.1	0.6	0.1	<u>1.3</u>

Effects on Debt/GDP Ratio in Year 4 (Percentage deviation from baseline)							
Effects on	When stimulus in all regions	When stimulus in the following region only					
		United States	Euro Area	Japan	Emerging Asia	Latin America	Remaining Countries
World	<b>-0.7</b>	0.0	0.0	-0.0	-0.2	-0.0	-0.1
United States	<b>-0.4</b>	<u>0.8</u>	-0.1	-0.1	-0.3	-0.1	-0.3
Euro Area	<b>-0.3</b>	-0.1	<u>0.9</u>	-0.0	-0.2	-0.0	-0.3
Japan	<b>-1.8</b>	-0.3	-0.2	<u>0.2</u>	-0.6	-0.1	-0.5
Emerging Asia	<b>-1.4</b>	-0.2	-0.2	-0.1	<u>0.2</u>	-0.1	-0.5
Latin America	<b>-0.6</b>	-0.2	-0.1	-0.0	-0.2	<u>0.7</u>	-0.2
Remaining Countries	<b>-0.7</b>	-0.1	-0.2	-0.0	-0.3	-0.0	<u>0.5</u>

Note: The size of the fiscal stimulus is equal to 1, 1, and 0.5 percent of each region's baseline GDP, respectively. It consists of government investment, government consumption, and targeted transfers, with their respective share being  $\frac{1}{4}$ ,  $\frac{1}{4}$ , and  $\frac{1}{2}$  of the total stimulus. Monetary policy in all regions accommodates the fiscal expansion by keeping nominal policy interest rate unchanged for two years.

Source: Authors' simulations.