Centre for International
Governance Innovation

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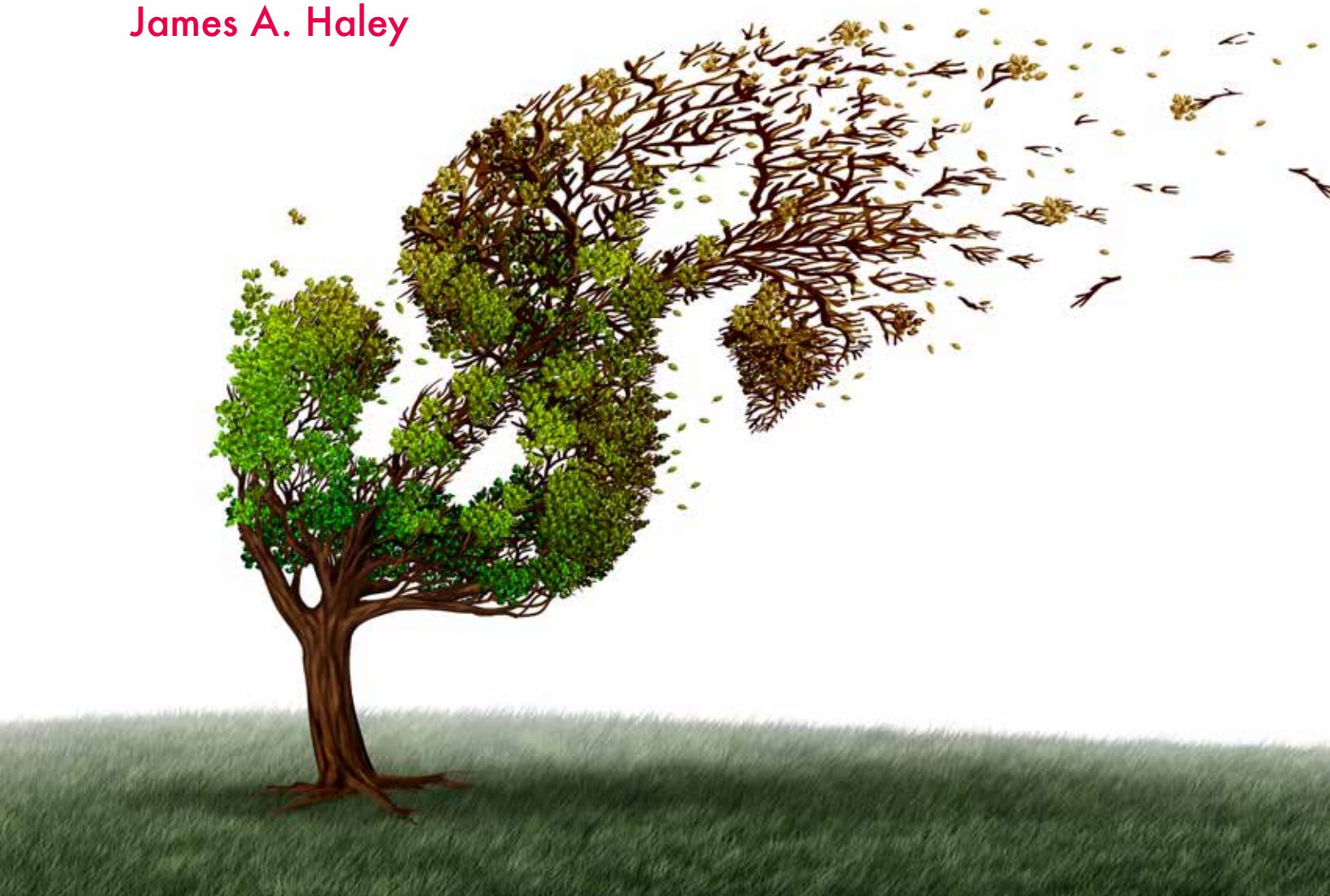
Fiscal Space
What Is It? Who Has It? When to Use It?

James A. Haley



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From 2003 to 2006, he was research director of the International Department of the Bank of Canada. In this capacity, he advised the governor and deputy governor on international economic and financial market developments, external imbalances, IMF reform and related policy issues. From 1993 to 1996, he was a senior economist in the research and European departments of the IMF. He obtained his B.A. in economics from Carleton University and received his graduate training in economics at Queen's University. He has lectured on macroeconomics, international finance and international financial institutions at the McCourt School of Public Policy, Georgetown University, and the Norman Patterson School of International Affairs, Carleton University. He is a Canada Institute global fellow at the Woodrow Wilson International Center for Scholars in Washington, DC. His published work focuses on international financial issues, the IMF and sovereign debt restructuring.

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Acronyms and Abbreviations

CBO	Congressional Budget Office
CPP	Canada Pension Plan
DSA	debt sustainability analysis
ECB	European Central Bank
FIM	fiscal impact measure
G7	Group of Seven
G20	Group of Twenty
IEO	Independent Evaluation Office
IMF	International Monetary Fund
MBS	model-based stability
MPS	maximum primary surplus
MSB	maximum sustainable borrowing
MSD	maximum sustainable debt

Executive Summary

This paper reviews the concept of fiscal space, or the capacity to deploy fiscal stimulus should it be needed; identifies the key factors that determine its size; and discusses considerations relevant to its use. The paper is motivated by the remarkably rapid mobilization of fiscal stimulus in the 2008-2009 global financial crisis, coordinated by the International Monetary Fund (IMF), which was followed by the equally remarkable rapid adoption of austerity in key advanced economies. This switch from stimulus to austerity occurred despite the languid pace of the global recovery, in which growth was, as subsequently described by IMF Managing Director Christine Lagarde, "too low, for too long." At the time, the change was justified in terms of concerns over large debt burdens and diminished capacity for future action. Curiously, however, the principled voices defending the interests of future generations were silent with respect to more recent tax cuts and the adoption of higher budgeted spending. The prospective long-term fiscal deterioration resulting from these measures, together with the realization that demographic factors have begun to affect the economy, focus attention on the role of fiscal policy in stabilizing (or destabilizing) output. This role was largely ignored in the pre-crisis period. But recent developments, and the fragility of the global recovery, have reanimated long-dormant policy debates. Whatever the outcome of these debates, trade or other policy-induced shocks could push the global economy into recession, prompting calls for the IMF to once again coordinate efforts to restore growth. If fiscal policy is to be used proactively for stabilization purposes, IMF members must know their room to manoeuvre, and there must be a consensus on when to use it. Fiscal space provides guidance on these issues.

Introduction

In January 2009, at the nadir of the global financial crisis, employment, output and trade flows were collapsing. In response to the crisis, then President-elect Barack Obama was expected to propose a fiscal stimulus package estimated at US$775 billion through calendar year 2010 after his inauguration.[1] In the end, the total cost of fiscal stimulus, estimated to be US$787 billion at the time of passage, was revised upwards to US$831 billion.[2] These are big numbers. Even so, the stimulus package was criticized as being too small.[3] This critique was later acknowledged by the plan's chief architect, Christina Romer, who chaired President Obama's Council of Economic Advisors (Romer 2012).

A larger stimulus package might have offset more of the employment decline and accelerated recovery. However, even if additional stimulus had been added to the original package, it may not have made much of a difference to the recovery. By 2010, there was already mounting political pressure to reduce deficits, even though unemployment remained above its full employment rate and output was below its potential level. John Boehner, Speaker of the House of Representatives at the time, argued that higher debt would "act as an anchor on our economy, costing American jobs and endangering our children's future" (cited in *The Economist* 2013). Boehner was not alone. Other leaders also embraced austerity (Cameron 2011). And the IMF, which coordinated the international fiscal stimulus at the bleakest point of the crisis, turned cautious, alarmed by the severity and speed of Greece's debt debacle. Austerity soon replaced fiscal stimulus in three key advanced economies (the United States, the United Kingdom and Germany) and the pace of recovery slowed, frustrating the projected rebound in growth. The weak labour market conditions that resulted nurtured economic nationalism and political populism.

Publicly at least, the pivot from stimulus to austerity was justified by concerns of large debt burdens and diminished capacity for future fiscal

1 See Macroeconomic Advisors (2009). The stimulus package was expected to raise the level of GDP, reduce unemployment and reduce the risk of deflation. It succeeded (see note 4).

2 The full cost is estimated through 2019. See Congressional Budget Office (CBO) (2012).

3 See, for example, Martin Wolf (2009) and Brian Butler (2009). Roger E. A. Farmer and Dmitry Plotnikov (2010) compare the Obama stimulus, which increased government expenditures from 20 percent to 25 percent of GDP, to US government expenditures in World War II, which increased from 16 percent to 52 percent of GDP. Despite the disparity between the two episodes, Alan S. Blinder and Mark Zandi (2015) estimate that without the extraordinary measures taken by US authorities in response to the global financial crisis, the peak-to-trough decline in US real GDP would have been 14 percent, compared to the actual decline of four percent, while unemployment would have peaked at 16 percent rather than the actual peak of 10 percent.

action in the event of negative shocks.[4] More recently, large tax cuts and higher budgeted spending in the United States, together with the realization that long-term demographic factors are now affecting economic outcomes, have focused attention on the role of fiscal policy as a key policy instrument to stabilize the economy and safeguard long-term prosperity.[5] These developments and the continuing fragility of the global recovery have reanimated long-dormant policy debates on the appropriate role of fiscal policy. Meanwhile, trade or other policy-induced shocks could push the global economy into recession, prompting calls for IMF-led coordination of policies to restore growth. If fiscal policy is to be used proactively for stabilization purposes, governments must have a clear sense of their room to manoeuvre and when to deploy their fiscal instruments. Fiscal space provides guidance on these issues.

Fiscal Space: What Is It?

Most individuals would agree with the intuitive notion that a government's ability to borrow to finance expenditures or tax cuts must clearly be limited. But going beyond simple intuition, the subject quickly becomes opaque.[6] Consider the most basic constraint on debt capacity, the government's intertemporal budget constraint. This condition limits debt to the discounted present value of future primary fiscal surpluses such that debt issued today must (eventually) be repaid from future surpluses (Box 1). This is not a particularly onerous constraint, since with a sufficiently long-term time horizon, growth and stable interest rates will enable future taxes (spending cuts) that raise primary surpluses to support more debt. In fact, in an infinite horizon model, additional debt issued today can always be serviced from tax receipts far into the future — there is no well-defined limit on debt.[7]

This feature of the intertemporal budget constraint makes it a poor guide to debt capacity. Spendthrift governments wanting to raise spending could take comfort in the ambiguity. That said, two factors tighten the constraint on government debt. First, if interest rates exceed growth in the economy and this gap increases over time, the present value of future tax receipts becomes progressively smaller. With interest rates sufficiently high, the discounted value of future taxes received far out into the future becomes infinitesimally small. In this regard, high levels of debt as a share of GDP that presage higher interest rates through an increase in risk premia are a real consideration. But this relationship is not linear. At low levels of indebtedness, the risk of default need not rise in lock-step with the debt burden. However, as the debt-to-GDP ratio increases, additional debt may lead to a discrete increase in default risk and sustainability may then rest on a finely honed knife edge of stability. This effect raises the possibility that high indebtedness is associated with multiple equilibria as expectations and risk premia shift. In such circumstances, a debt burden that is widely viewed as sustainable one day may suddenly become unsustainable the next, should perceived default risk change (Stiglitz 2014).[8] It is clear that expectations of future budget policy are key.

4 While congressional Republicans framed their rejection of stimulus in terms of fiscal probity and concern for future generations, recent tax cuts and large increases in budgeted spending belie a political motivation for their earlier prudence. Republican opposition to stimulus may have reflected resistance to the Obama presidency and can be analyzed within the political "wars of attrition" literature (Alesina and Drazen 1991) and using models with debt as a strategic variable (Alesina and Tabellini 1990).

5 A key factor motivating this reconsideration is the belated recognition that the post-financial crisis environment, characterized by balance-sheet restructuring and disruptions to the monetary transmission mechanism, impaired the ability of monetary policy to restore the economy to full employment.

6 M. Ayhan Kose et al. (2017) assemble a database of 28 different indicators of fiscal space for many countries. This surfeit of indicators is an embarrassment of riches; yet, the sheer number of their indicators creates the potential of conflicting signals that could impede decision making. Ideally, there would be one universally agreed indicator to guide decisions. This is unlikely; the approach adopted here (see discussion below) is to focus on two indicators that form an upper and lower bound for fiscal capacity.

7 Strictly speaking, this is not technically correct. Formally, debt is limited by a transversality condition that rules out the explosive growth of debt. (This precludes, for example, a situation in which the economy grows at a linear rate, while debt expands exponentially.) But regardless of how much debt is already outstanding, a government could always issue more, provided it does not increase by "too much," producing an unstable trajectory. The adjustment to prevent unbounded growth in debt need not occur at any specific point in time; only that it occurs at some point. This restriction does not put a finite bound on debt.

8 An example: In the summer of 2012, the euro confronted existential risks as investors weighed the potential consequences of highly indebted countries exiting voluntarily or being ejected from the euro zone. Calm was only restored when the president of the European Central Bank (ECB), Mario Draghi, anchored expectations with his pledge to "do whatever it takes" to preserve the euro. Draghi's personal reputation made credible his commitment to mobilize the ECB's balance sheet in defence of the euro and induced markets to quickly jump from a panicked equilibrium to a stable outcome.

Box 1: Debt Dynamics and the Intertemporal Budget Constraint

The central government debt level at time t, denoted by Dt, is equal to the debt level at time t-1 plus the corresponding nominal interest paid on the outstanding debt $rtDt$-1 minus the primary balance surplus, Bt:

$$Dt = (1 + r_t)D_{t-1} - B_t.$$

Assuming that the nominal interest rate rt and the nominal growth rate g_t are relatively small, the equation driving the debt-to-GDP ratio dynamics is approximated by:

$$\Delta d_t = (r_t - g_t)d_{t-1} - b_t.$$

This expresses the evolution of the sovereign debt-to-GDP ratio between t-1 and t (Δd_t) as a function of four factors:

- the debt-to-GDP ratio at time t-1, d_{t-1};
- the nominal growth rate of GDP at time t, g_t;
- the nominal effective interest rate on outstanding debt at time t, r_t; and
- the primary balance (surplus) as a share of GDP at time t, b_t.

To derive the government's intertemporal budget constraint, $D_t = (1 + r_t)D_{t-1} - B_t$ is solved recursively forward. Imposing the transversality condition that nominal debt does not permanently grow faster than the rate of interest yields the result that outstanding debt must equal the discounted present value of primary surpluses. See James Hamilton and Marjorie Flavin (1986).

Limits on governments' willingness to make the adjustments needed to avoid default — the fiscal reaction function — is the second reason the intertemporal budget constraint is a poor guide to debt capacity. In theory, extremely high debt loads can be supported if taxes are raised to very high levels; in the limit, confiscate the full value of output.[9] In practice, there are economic and political limits on how high tax rates can be raised. This is because beyond some point, higher taxes distort investment decisions and incite political backlash that governments are loath to entertain. Individuals will be reluctant to invest if the profits from investing are confiscated to service bondholders. Similarly, draconian cuts to expenditures could be made to prioritize debt payments, but such a response is improbable for political reasons. These considerations are amplified if the debt is held by foreigners; governments may then balk at raising taxes on citizens and refuse to prioritize foreign bondholders over domestic claims on revenues, such as pensions.[10] *In extremis*, governments may choose to default rather than raise taxes or slash spending to service outstanding debts.[11] In short, tax rates cannot be raised without limit and non-interest expenditures cannot be reduced to zero.

9 But, of course, taxes cannot exceed the value of output and, in practice, are severely limited by political considerations. This accounts for the condition that debt cannot grow at an unbounded rate that would outstrip the growth of the tax base.

10 This is not to imply that the use of high marginal tax rates to reduce debt burdens is unknown. In the United States., for example, the highest *marginal* tax rate in the post-World War II period was 94 percent (Tax Foundation 2013). Average tax rates were much lower and, because the debt was held by US citizens, concerns of prioritizing foreign bondholders over residents were not a factor. Nevertheless, this example illustrates the point that tax rates can be raised to high levels.

11 Default can be direct, in which case it is achieved by repudiation or negotiation; or indirect through inflation. The latter method is most readily available to advanced economies that issue debt in their own currency; this channel is not open to emerging markets that must issue debt denominated in a foreign currency. Ricardo Caballero and Arvind Krishnamurthy (2004) argue that emerging markets are characterized by a lack of financial depth, or limits to the supply of funds available to the government and private sector, that reflects the increased informational requirements of investing in these economies. These requirements may include knowledge of political and exchange rate risk, and assessments of the quality of corporate, judicial and government institutions. Given these requirements, financial depth of emerging economies is determined by the liquidity of those specializing in these markets.

Table 1: Concepts of Fiscal Capacity

Concept	Key Characteristics	Key References
Intertemporal budget constraint	Debt is limited by the discounted present value of future primary surpluses. This rules out explosive growth in debt in which sustainability would require the primary surplus to exceed GDP.	Hamilton and Flavin (1986)
Model-based stability condition	The fiscal reaction function approach involves assessment of whether primary surpluses respond positively to increases in debt-to-GDP ratio, controlling for other determinants of the primary balance.	Bohn (1998; 2008)
Fiscal space	Debt limit is determined by fiscal reaction function (response of primary surpluses to debt-to-GDP ratio) beyond which default is unavoidable in the absence of extraordinary fiscal adjustment efforts (i.e., outside the range of historical experience). Fiscal space is defined as the difference between debt limit and actual debt levels.	Ostry et al. (2010), Ghosh et al. (2013)
Maximum sustainable debt	Maximum sustainable *debt* reflects maximum sustainable *borrowing*, determined by maximum sustainable primary surpluses and the mean and volatility of growth. Because borrowing is limited by what investors are prepared to lend in the future, and borrowing needs are determined by outstanding debt, maximum sustainable debt also depends on the expected probability of default.	Collard, Habib and Rochet (2015)

Source: Author, from various sources.

A finely calibrated measure of fiscal capacity, one that can provide guidance in uncertain times, must address these considerations. Over the past decade, the intertemporal budget constraint has been extended to better define sustainability and establish clearer debt limits (see Table 1).[12] The first such extension addresses the fact that, in the absence of a credible track record of fiscal probity, markets are unlikely to be reassured by commitments that fiscal adjustment will be forthcoming. The ability of governments to make fiscal adjustments and, thereby avoid disruptive market response, is critical.

The model-based stability (MBS) approach attempts to gauge these effects (Bohn 1998; 2008). It asks the question: if past fiscal policy responses are a reliable guide, would the outstanding debt be sustainable? A positive answer to the question is consistent with the hypothesis that governments observe the intertemporal budget constraint and can be relied upon to act to preserve debt sustainability. The intuition is that "responsible" governments will respond to underlying shocks in the economy that raise the debt-to-GDP ratio by increasing the primary surplus-to-GDP ratio. A positive coefficient on the fiscal reaction function thus demonstrates that the government is conscious of the intertemporal budget constraint and wary of unstable debt dynamics. Such governments can be relied on to ensure debt sustainability.[13]

12 See IMF (2016a, 1) for a review of analytical and empirical approaches to measuring fiscal space. As noted there, "fiscal space is a multi-dimensional concept reflecting whether a government can raise spending or lower taxes without endangering market access and debt sustainability." It includes measures such as fiscal gaps and different formulations of fiscal sustainability not considered here. The subsequent discussion does not provide quantitative assessments of fiscal space or address when available fiscal space should be used. In contrast, these issues are the focus of this paper, the objective of which is to assess the justification for the mid-recession switch from stimulus to austerity.

13 Reassuringly, Henning Bohn (see Table 1 for references) finds that US fiscal effort increases with debt level. Similarly, Enrique G. Mendoza and Jonathan D. Ostry (2008) find strong empirical evidence of a robust, positive conditional relationship between primary surpluses and public debt for both emerging market and advanced economies. They note this relationship is encouraging from a policy perspective, since it suggests that fiscal policy on the whole operates in a responsible manner. However, Mendoza and Ostry (2008) also found evidence that adjustment effort may begin to wane at moderate debt levels (roughly 50 percent of GDP).

While MBS represents an important extension to the notion of intertemporal solvency, it is inherently backward looking. It bases *future* sustainability on *past* policy actions when the politics and policies of debt can change suddenly. At the same time, model-based assessments do not provide clear guidance on how much room exists for additional fiscal measures because they do not identify a finite debt limit. Like the intertemporal budget constraint, MBS is a weak sustainability criterion, since an ever-increasing debt-to-GDP ratio (primary surpluses that eventually exceed GDP) cannot be ruled out.[14]

If the primary balance is a constant proportion of lagged debt, a sufficient condition for sustainability is that the responsiveness of the primary balance is greater than the interest rate-growth differential. This felicitous result need not always hold, however, and the possibility of fiscal "fatigue" at high debt levels cannot be discounted. Mendoza and Ostry (2008) find evidence of the fiscal fatigue result in which the primary surplus does not respond to changes in the debt-to-GDP ratio with the same alacrity as at more moderate debt levels. This finding is important because if the primary balance does not rise with the increase in debt, there will be a level of indebtedness beyond which the dynamics of debt accumulation become explosive, with the debt-to-GDP ratio growing without bound. Ostry et al. (2010) argue that this effect defines a critical limit on indebtedness such that, at that point, the government must either undertake extraordinary fiscal adjustment (i.e., efforts outside the range of historical experience) or default. Fiscal space is then defined simply as the difference between this limit and actual debt.

A critical determinant of the debt limit is the response of interest rates to rising levels of debt. Accounting for these effects is not straightforward, and only an intuitive treatment is offered here.[15] The challenge is to incorporate the fact that interest rates will include a premium for default risk as debt burdens increase.[16] To see this effect, assume there is a presumed critical limit of indebtedness based on a given (exogenous) interest rate. As defined above, this is the threshold between sustainability and default. At that point, the risk of default is clear and present; default can only be avoided if the government undertakes extraordinary measures to raise the primary surplus. But this fiscal response is not assured, and before the debt reaches the critical level, investors contemplating the possibility of default will require a risk premium to hold the debt. However, because this higher risk premium increases the interest rate on the debt, the primary surplus required to avoid default must likewise increase. Yet, these endogenous interest rate effects may open an even larger gap between the primary surplus needed to preserve stability and historical fiscal responses, making the situation more fraught, further stoking fears of default and further rising risk premia. The problem is analogous to that of infinite regress, as higher risk premia raise interest rates still higher and call for a larger primary surplus; with this effect, the debt level initially assumed to be the critical threshold is too high. Finding the finite critical threshold requires the identification of a debt level incorporating the interaction effects between risk premium and the risk of default, such that investors are content to hold the debt at the endogenously determined interest rate at that level of indebtedness.[17]

Fiscal space represents an important innovation in that it provides clear guidance on possible danger zones with respect to debt accumulation. That said, several caveats apply to the concept. Most important, estimates of fiscal space are based on policy reactions in the future that mirror the past. While this condition need not hold, the methodology still bears fruit in terms of assessing fiscal risks. Ostry et al. (2010, 3) note, "this debt limit is not an absolute and immutable barrier, but it does define a critical point above which the country's *historical* fiscal response to rising debt becomes insufficient to maintain debt sustainability." At the same time, the fiscal space concept does not define maximum sustainable debt. Higher debt loads are feasible — although not advisable — but require an associated commitment to fiscal adjustment beyond the historical track record. Moreover, the fiscal

14 As Ostry et al. (2010) note, this is a profoundly unsatisfying result, since debt capacity is either infinite or zero.

15 Interested readers are encouraged to refer to Atish R. Ghosh et al. (2013) for a technical treatment.

16 As one reviewer rightly pointed out, the relationship here is complex and depends on a range of country-specific factors. Even as debt burdens were rising steadily in the post-crisis period, long-term bond yields in Japan and Italy fell. In part, this reflected the aggressive response of major central banks that depressed global short-term yields (and, thus, long-term bond yields through term structure effects) as well as idiosyncratic factors – Japan's ability to conduct independent monetary policy via its flexible exchange rate and the ECB's commitment to support the euro.

17 Mathematically, the solution is a contraction mapping between risk premium and the default risk. At the critical debt level, the risk premium compensates investors for the increased default risk, given historical fiscal adjustment efforts. A debt shock, such as the recognition of previously undetected off-balance-sheet liabilities, would upset the equilibrium and trigger a crisis. Such effects may account for the sudden onset and virulence of the Greek debt crisis.

Table 2: MSD: Impact of MPS, Mean and Volatility of Growth

Impact on:	MSB	MSD	Probability of Default
Variable:			
MPS	Increasing	Increasing	Decreasing
Mean growth	Increasing	Increasing	Decreasing
Volatility of growth	Decreasing	Decreasing	Increasing

Source: Author, from Collard, Habib and Rochet (2015).

space approach focuses on solvency, not liquidity.[18] In practice, investors may refuse to roll over debt as it matures, precipitating a liquidity crisis, even in the absence of threats to long-term solvency.

The observation that a country can only borrow as much as its lenders are prepared to lend underlies the maximum sustainable debt (MSD) ratio developed by Collard, Habib and Rochet (2015). They argue that, while the fiscal space measure above is the maximum that can be borrowed, it is not necessarily sustainable. Should growth falter, and appropriate fiscal responses delayed, investors may refuse to roll over debt as it matures. Default then becomes inevitable, even as the government remains theoretically solvent. In contrast, the MSD concept allows for a shortfall in growth to increase the probability of default without triggering certain default.

The MSD is derived from four factors. The first is the country's maximum primary surplus (MPS), which is the maximum primary surplus that the country can sustain. The second factor is the mean and volatility of growth, with higher and less volatile growth supporting higher debt capacity. The third factor is the payment record; specifically, whether the government defaults only if it is unable to service its debt because of lack of resources (ability) or engages in strategic default when the payoff from default is higher than the returns from debt service (willingness). The final factor is lenders' expectations of new borrowing that can be raised to service existing debt. A government that can roll over debt as it matures will be able to borrow much more than a government that is unable to roll over its debt.

With its focus on sustainability, the definition of MSD starts with what the government can currently borrow, maximum sustainable borrowing (MSB).[19] This is an increasing function of MPS and mean growth and a decreasing function of volatility of growth (see Table 2). The amount a government can borrow also depends on its future ability to borrow; investors will not lend *today* if governments are expected to be barred from markets *tomorrow*. Governments that are expected to default or are constrained in their future borrowing will therefore have difficulty rolling over maturing debt. Meanwhile, given the need to refinance maturing debt, current borrowing demands increase with the amount of outstanding debt, so that the probability of default depends on the actual debt level and the MSB.[20] Since existing debt represents past MSB, induction can be used to solve for an upper limit on debt that is sustainable, even as perturbations to growth increase the probability of default.

The fact that the MDS indicator does not rest on a knife-edged sustainability condition facilitates fiscally prudent planning and the avoidance of inadvertent crises should growth disappoint. However, the MSD approach assumes an independent central bank that resists government demands to decrease the real value of the debt through inflation. It is, thus, a conditional constraint; in practice, while central banks enjoy operational independence with respect to their inflation targets, this does not cover exigent circumstances, such as the government's inability to roll over debt or in the event of a national emergency. In this respect, central bank independence is not unconditional; if faced with default, the use of financial repression and inflation cannot be discounted, consistent with the central bank's role as fiscal agent

18 The implicit assumption is that risk premia compensate for the possibility of default, so that it is possible to roll over debt right up to the point of default. Evan Tanner (2013) uses this result to define an upper bound on debt as the annuity value of the maximum achievable primary surplus. As noted by Fabrice Collard, Michel Habib and Jean-Charles Rochet (2015), however, the contract between the government and investors is less like debt and more like equity under such conditions.

19 Once again, an intuitive account of the MSD approach is outlined here. Readers are invited to refer to Collard, Habib and Rochet (2015) for technical details.

20 Failure to roll over maturing debt implies that the primary surplus must be sufficiently large to cover the stock of all debts coming due. As this is unlikely, default ineluctably follows.

for the government. That was the case in the post-World War II period (Aizenman and Marion 2009; Reinhart and Sbrancia 2011). Estimates of MSD are thus not necessarily binding upper limits, since recourse to central bank financing would mitigate default risk, even if the real value of the debt is reduced as a result.[21]

Fiscal Space: Who Has It?

Recent policy debates on fiscal policy have balanced short-term stabilization objectives against potential longer-term consequences of excessive debt burdens.[22] This is wholly appropriate. There are very real costs — economic, social and political — associated with the willful failure to return to full employment after a shock. These costs should be evaluated; so too the effects of fiscal excesses that result in excessive tax burdens or public debt crises, both of which impair long-term growth. To assess this debate, we compare estimates of fiscal space with those for MSD.[23]

Recent estimates of fiscal space, calculated by Mark Zandi, Xu Cheng and Tu Packard (2011) for Moody's Analytics, are shown in Table 3.[24] They reveal marked differences in the capacity to take on additional debt, measured in terms of debt-to-GDP ratios. Estimates range from Taiwan's high of 300 percentage points of available space to zero room (Cyprus, Greece, Italy and Japan). Greece's precarious fiscal position stands out: it not only has zero fiscal space, but its estimated "survival rate" — the interest rate beyond which debt burden spirals out of control as the cost of debt servicing grows faster than GDP — is only 2.8 percent. This compares with survival rates of greater than 10 percent for several countries.[25]

The fiscal space of three large advanced economies (Germany, the United Kingdom and the United States), all of whom switched from stimulus to austerity in the recession, is of especial interest. All three seemingly have ample room, with Germany and the United States both enjoying more than 150 percentage points of fiscal space, while the United Kingdom has more than 130 percentage points. As noted above, however, because fiscal space rests on a knife edge at the precipice of default or the need for extraordinary fiscal adjustment, it is likely to form an upper bound of prudent fiscal policy.[26] Meanwhile, since MSD estimates preclude central bank financing under exigent circumstances, they may be regarded as the lower bound of feasible fiscal capacity available for counter-cyclical stabilization policy, should it be needed.

Two different estimates of MSD are provided in Table 4. The first set of estimates, in the left column, is calculated based on a primary surplus of five percent for all countries. This allows for cross-country comparison, holding this critical factor constant. Once again, there is substantial variation across countries with respect to fiscal capacity in the sample: Korea claims the highest level of MSD at 282 percentage points; Greece has the lowest level at 89. The second set of estimates (right column of Table 4) is calculated using countries' historical high primary surpluses. Here, too, there

21 Analytically, inflation is default, albeit with high recovery rates (if inflation is contained). A more disruptive scenario results if central bank financing creates hyperinflation and collapse.

22 For a summary of the US debate, see James A. Haley (2018).

23 From this point on, fiscal space refers to the measure developed by Ostry et al. (2010) and Ghosh et al. (2013), while MSD is reserved for the concept proposed by Collard, Habib and Rochet (2015). One reviewer rightly notes that IMF debt sustainability analysis (DSA) provides critical insights into questions regarding public debt management. The author fully agrees. That being said, and at the risk of simplification, the focus of DSA is on the probabilistic robustness of debt management to various shocks to the ability to *service* debt. Measures of fiscal space or debt capacity, meanwhile, provide guidance on an upper level of debt burden that can accumulate without triggering the disruptive adjustments associated with *loss of market access*. The distinction is important, since, as Charles Wyplosz (2007, 3) points out, governments can remain indebted in perpetuity, provided they retain market access. Examining 300 years of UK financial history, he observes: "It may well be that the debt has been pronounced several times unsustainable, but it was sustained in the sense that the British government never defaulted." The two concepts are linked in that sustainability concerns could affect the ability to roll over debt. Huixin Bi (2012) integrates the two concepts in the context of a dynamic stochastic general equilibrium model. One possible — but by no means ideal — taxonomy might reserve the use of fiscal space/debt limits to advanced countries whose access to capital markets is more or less secure, while DSA is more appropriately applied to sovereign borrowers with contingent access to capital markets. This distinction ignores long-term factors, such as demographic changes, that could impinge on advanced economies' access if not addressed. However, since the purpose of this paper is to better understand the switch from stimulus to austerity in the post-crisis period by key advanced economies, and the implications that had on stabilization policy, the focus here is on the former concept. At the same time, it should be noted that both concepts are at best educated guess and rough "rules of thumb."

24 These estimates are periodically updated, and the results compared with proprietary and market-based indicators of fiscal sustainability. See Zandi, Cheng and Packard (2011).

25 Note that these indicators are post-restructuring operations, which evidently failed to restore debt sustainability, despite significant fiscal adjustment efforts. Although some might take umbrage with the characterization of these efforts as "extraordinary" as used here, there is no disputing that Greece has persevered through Great Depression-era levels of unemployment.

26 "Prudent" in the sense that most governments would prefer to avoid default or the need to make extraordinary fiscal adjustment.

Table 3: Estimates of Fiscal Space by Moody's Analytics

	Fiscal Space (ppts)	Survival Rate: Upper Limit on 10-year Bonds (%)
Australia	215	>10
Austria	157	5.6
Belgium	124	6.0
Canada	150	8.1
Cyprus	0	6.3
Denmark	197	8.5
Finland	172	5.8
France	117	4.2
Germany	168	6.6
Greece	0	2.8
Hong Kong, SAR*	225	9.4
Iceland	145	>10
Ireland	106	7.6
Israel	191	>10
Italy	0	3.9
Japan	0	Negative interest
Korea (Republic of) (South)	241	>10
Luxembourg	223	7.7
Malta	151	5.8
Netherlands	158	6.4
New Zealand	228	>10
Norway	246	>10
Portugal	59	4.7
Singapore	193	6.0
Spain	115	5.7
Sweden	189	6.3
Switzerland	202	7.9
Taiwan (Province of China)	300	6.5
United Kingdom	134	7.7
United States	165	8.8

Source: Zandi, Cheng and Packard (2011).
*Special Administrative Region of China

is wide variation; in fact, dispersion is higher, given differences in historical fiscal adjustment efforts.

In some cases, the differences between the two sets of estimates are striking. On the one hand, Canada clearly has a much higher MSD, reflecting its historical high primary surplus, which is more than the five percent assumption. On the other hand, estimated fiscal capacity for France and Portugal, using the maximum historical primary surplus, is much lower compared to the former estimate, given their historical high primary surpluses are well below five percent.

The fiscal space and the MSD indicators give estimates of the capacity to undertake counter-cyclical fiscal stimulus should the need arise. But the two are not directly comparable. Fiscal space shows the increase in debt burden, measured by the debt-to-GDP ratio, that can be absorbed for stabilization purposes. In contrast, MSD provides an estimate of the limit on debt-to-GDP ratios. To compare the different measures on an equivalent basis, two separate estimates of quasi-fiscal space, defined as MSD adjusted for actual debt burdens, are calculated for Group of Seven (G7)

Table 4: MSD Estimates

	Primary Surplus (5%)	Maximum Historical Primary Surplus
Australia	142	118
Austria	145	96
Belgium	133	182
Canada	121	243
Denmark	117	166
Finland	110	216
France	147	40
Germany	130	113
Greece	89	78
Hungary	114	191
Iceland	111	188
Ireland	153	206
Italy	113	148
Korea	282	363
Netherlands	137	154
New Zealand	100	155
Norway	178	720
Portugal	109	5
Spain	144	116
Sweden	116	164
Switzerland	103	63
United Kingdom	126	159
United States	121	123

Source: Collard, Habib and Rochet (2015).

countries (see Table 5). The first such estimate is based on the historical high primary surpluses achieved by the various countries, while the second is calculated using an assumed primary surplus of five percent.

As would be expected, given that it likely forms an upper bound, fiscal space generally exceeds the quasi-fiscal space indictor.[27] Canada is one exception. The quasi-fiscal space measure, based on the historical high primary surplus, is greater than the fiscal space measure, reflecting Canada's impressive fiscal adjustment in the 1990s. Italy is another exception, based on historical high primary surpluses, although it should be noted that quasi-fiscal space is zero, based on an assumed primary surplus of five percent. In contrast, Table 5 shows that France has zero quasi-fiscal capacity, calculated using historical high primary surpluses, even when the country has ample capacity under the fiscal space indicator.

Table 5 also shows that the three large advanced economies that adopted austerity in the middle of the Great Recession (Germany, the United Kingdom and the United States) all had fiscal capacity, regardless of the measure used. The difference between indicators is large (between 50 and almost 140 percentage points, depending on the indicator), although it bears repeating from the discussion above that the quasi-fiscal indicator

27 In the full sample of 22 countries over which comparison of fiscal space and the quasi-fiscal space indictors is possible, the latter is higher in four countries (Canada, Italy, Ireland and Korea) when calculated using historical high primary surpluses. When a primary surplus of five percent is assumed, only Korea shows a higher quasi-fiscal space measure. It should be noted that fiscal space is calculated as of 2011; quasi-fiscal space for 2010. The average over the entire sample is almost 140 percentage points for the former, and 62 (102) percentage points for the latter when calculated using historical high (five percent) primary surpluses. The two measures display a reasonable degree of correlation, with a correlation coefficient of 0.67 (0.50) between fiscal space and quasi-fiscal indicators calculated using the historical high (five percent) primary surpluses for the full sample of 22 countries. This is an important result for indicators of fiscal capacity, since it raises the signal-to-noise ratio of the message that each sends.

Table 5: Fiscal Space and MSD Compared (G7 Countries)

	Fiscal Space by Moody's Analytics (ppts) (2011)	Quasi-fiscal Space (ppts) MSD* – Actual Debt (2010)	
Canada	155	161	39
France	127	0	62
Germany	149	34	51
Italy	0	31	0
Japan	0	...	...
United Kingdom	142	83	50
United States	171	30	28

Source: Author, from Zandi, Cheng and Packard (2011) and Collard, Habib and Rochet (2015).

Notes: *Left column: MSD (2010) at country-specific historical high primary surplus. Right column: MSD (2010) calculated using primary surplus of five percent.

... Indicates data unavailable.

can be thought of as a lower bound on the scope for counter-cyclical stabilization policy. As a purely expository exercise, taking the mid-point between fiscal space and the lower of the two measures of quasi-fiscal space for the three countries gives an average indicator of fiscal capacity of almost 100 percentage points. On that basis, at least, there is no evidence that debt was nearing a level consistent with an imminent fiscal crisis requiring extraordinary fiscal adjustment or default.

Fiscal Space: When to Use It?

The fact that these countries eschewed stimulus, even as output remained below its potential level and unemployment was far from full employment, despite the absence of a binding debt constraint, suggests that factors, other than concern for fiscal probity, may have played a role in the decision to switch from stimulus to austerity. There was, it seems, a corresponding shift in the way in which fiscal policy was viewed. It is difficult to escape the conclusion that political considerations may have played a decisive factor. Thus, it is clear that understanding the considerations surrounding when to use fiscal space to stabilize the economy is of critical importance.[28]

Stabilization Policy in the Wake of Depression

Fiscal policy was viewed as an important instrument of stabilization policy in the four decades following World War II. The trauma of the Great Depression and the post-war triumph of Keynesian analysis combined to create a paradigm in which government had a responsibility to stabilize the economy in which fiscal policy was the instrument of choice. This reliance on fiscal policy reflected the decision to relegate monetary policy to a largely passive role under the Bretton Woods system of fixed (but adjustable) exchange rates, as well as the presumption that fluctuations in the economy stemmed from volatile private investment that is subject to the often-fickle expectations or "animal spirits" of business leaders. According to the paradigm, the active use of fiscal policy, implemented by non-political

28 At the same time, such considerations are not independent of the stance of monetary policy. In the post-crisis environment, with monetary policy fully deployed, interest rates at the effective zero lower bound and the monetary transmission mechanism distorted by balance sheet restructuring and, arguably, the pernicious effects of pervasive uncertainty, the potential impact of fiscal policy was greatest.

technicians, would smooth the booms and busts of the cycle and support full employment.

Or so it was thought.

Even as Keynesian demand management reigned supreme, voices of dissent were building. Keynes was careful to stress the need for *counter-cyclical* stabilization policy in that, just as fiscal expansion should be used to offset a decline in investment that might otherwise lead to a recession, fiscal instruments should limit booms by reducing government expenditures or raising taxes: "The boom, not the bust," he said, "is the time for austerity at the Treasury" (Keynes 1978, 390). Keynes's advice was not always followed.

By the 1960s, James Buchanan and colleagues in the public choice school argued that a combination of "fiscal illusion" created permanently excessive deficits. Fiscal illusion implies that voters do not understand the notion of the intertemporal budget constraint and overestimate the benefit of current spending relative to the costs of future taxation. In addition, according to this view, while Keynesian policies prescribed spending and deficits during recessions, the political process ensured that countervailing surpluses and cuts during expansion were put off, creating a ratchet effect on the size of government and persistent deficits.

As public choice theorists raised concerns about an inexorable increase in the debt burden, Milton Friedman was waging a second front on the prevailing policy paradigm. Friedman argued that monetary policy was miscast in a passive role under that paradigm and that only a steady, predictable expansion of the money supply would smooth the economy. With money demand a stable function of a handful of variables, he argued, a stable policy of steady monetary expansion would contain inflation, minimize interest rate volatility and stabilize private investment. Friedman's influence was greatest in the late 1970s in the wake of high, variable inflation and disappointing economic performance, which seemed to confirm his celebrated paper on the natural rate of unemployment.

That experience, and central banks' subsequent success in purging inflation from the economy, led to a revolution in monetary policy as central banks around the globe adopted inflation-targeting frameworks. These frameworks provide clear guidance to markets regarding policy objectives and anchor inflation expectations, while giving central bankers the flexibility needed to respond to shocks in the economy. Today, virtually all advanced economies' central banks and those of most emerging market economies follow the inflation-targeting paradigm.[29]

Stabilization Policy in the Great Moderation

Before the global financial crisis, confidence in the effectiveness of monetary policy to maintain full employment was mirrored by a clear three-part assignment of instruments: first, monetary policy would provide a steady nominal anchor for the economy; second, fiscal policy should smooth tax burdens associated with the provision of public goods and services, consistent with a target for public debt; and third, effective financial sector policies (embodied in microprudential regulation) could safeguard financial stability. The deliberate pursuit of all three objectives, it was agreed, would foster long-term growth.

The long period of macroeconomic stability preceding the crisis, dubbed the "Great Moderation," seemingly confirmed the wisdom of this assignment. Woodford (2003, 2) explained the prevailing thinking in terms of this conjuncture: "This period of improved macroeconomic stability has coincided with a *reduction*, in certain senses, in the ambition of central banks' efforts at macroeconomic stabilization. Banks around the world have committed themselves more explicitly to relatively straightforward objectives with regard to the control of inflation, and have found when they do so that not only is it easier to control inflation that previous experience might have suggested, but that price stability creates a sound basis for real economic activity as well."

Monetary policy and fiscal policy were complementary, with good economic performance (stable growth and low inflation) dependent on

29 Albeit, most with explicit or implicit complementary growth or full employment mandates. That being said, the prevailing paradigm held that those objectives were secured with a low, stable rate of inflation (see following discussion).

the effective coordination of the two.[30] While this framework for analysis embodied a clear separation or "de-coupling" of policy instruments, with sound monetary and fiscal policies both necessary for good economic performance, there was a clear hierarchy. Consistent with the evolution of macroeconomic theory, monetary policy bore primary responsibility for stabilizing output around its potential level.[31] For inflation-targeting central banks, transparency of the inflation target and clarity of communications effectively promoted this objective. With sustained success in achieving inflation targets, this approach would result in a steady accretion of credibility that would reduce the output costs of returning inflation to target in the face of shocks. In this regard, the importance attached to credibility led policy makers to focus on the need for effective institutions and policy rules: independent, accountable central banks to stabilize long-term inflation expectations; and fiscal rules to avoid excessive debt burdens and potential "fiscal dominance" that might constrain monetary policy if left unchecked.[32] The counter-revolution to Keynesian stabilization theory was complete — monetary policy bore the brunt of the responsibility for keeping the economy at full employment; not fiscal policy as Keynes had argued.

Stabilization Policy in the Wake of the Great Recession

That was, indeed, the case in the halcyon days before the global financial crisis. The crisis and the languid growth associated with the tepid recovery from the subsequent Great Recession, which IMF Managing Director Christine Lagarde (2016) described as "too low, for too long," has thrown the comfortable certainties of the Great Moderation into doubt.[33] Today, there is greater appreciation for the potential role for fiscal policy to complement monetary policy.[34] However, the path taken in the evolution of thinking has been circuitous; Table 6 lays out key markers in its twists and turns.

Despite the certainty of the pre-crisis consensus on the limited role of fiscal policy for stabilization purposes, by the autumn of 2008, it was apparent that the severity and potential destructiveness of the global financial crisis called for extraordinary responses. G7 central banks adopted measures reserved for "exigent circumstances" and Group of Twenty (G20) governments quickly agreed to coordinated fiscal stimulus under the aegis of then IMF Managing Director Dominque Strauss-Kahn. The analytical foundations for this coordinated response were laid by Larry Summers (2007) as the crisis was still unfolding. He presciently warned that financial dysfunction threatened to stifle private spending and investment, with timely and profound effects.

Summers was right. His call for "timely, targeted, and temporary" stimulus to offset the collapse in private spending was echoed by the IMF (2008). And as the global economy was threatened with catastrophic collapse in 2008, Summers's prescription was incorporated in G7 and G20 communiqués. The language was expanded (as is so often the case in international communiqué drafting) in subsequent policy declarations, but not the analytical content. The initial formulation of "timely, targeted, and temporary" fiscal stimulus

30 This need for cooperation between the monetary and fiscal authorities derives from the fact that the Nash non-cooperative equilibrium, resulting from independent plays of separate authorities, need not be efficient.

31 John Taylor (2000) articulated this view. As Blinder (2016, 5) notes, "These were not idiosyncratic views. There really was such a consensus." Events demonstrated the possible need to mobilize fiscal policy in the event of severe shocks (Taylor's "fail-safe device"). However, the notion that fiscal policy should eschew stabilization objectives was deeply engrained in the pre-crisis policy framework; adherence to it likely contributed to subsequent consolidation.

32 The "policy games" literature builds on the unsatisfactory economic performance of the 1970s, which was marred by high inflation and high unemployment. This "stagflation" was attributed in part to the lack of effective coordination between policy instruments.

33 As one reader correctly notes, this is caricature. For example, the IMF had a nuanced view of policy requirements calibrated to individual country circumstances before the crisis; in the wake of the crisis there were voices — including the IMF's Independent Evaluation Office (IEO) — that reliance on monetary policy alone to restore full employment in the face of premature fiscal consolidation was misplaced.

34 The following discussion focuses on the use of fiscal instruments in stabilization. It largely ignores the literature on sources of biases in the implementation of fiscal policy, including political business cycles, the common pool problem and bargaining within legislatures or between levels of government, rent-seeking behaviour and intergenerational considerations. Nor are budget rules and institutional arrangements to limit these biases discussed here. Alesina and Passalacqua (2015) ably survey these issues.

remained the core of these messages.[35] Keynesian stabilization policy was resurgent. Or so it seemed.

The "return of Depression economics" was remarkably short-lived.[36] Paradoxically, this can be attributed to the success of the coordinated response to the crisis, which arrested the contraction in output, employment and trade. Thanks to that response, economic collapse was averted and recovery seemed assured. But as prospects brightened, concerns ostensibly grew that the debt burdens generated by fiscal stimulus posed grave long-term threats to public finances. In this environment, attention quickly shifted from stimulus and stabilization to the goal of "balancing" support for the recovery with the need to sustain confidence. The turning point was the 2010 G20 meeting in Toronto at which G20 countries "committed to fiscal plans that will at least halve deficits by 2013 and stabilize or reduce government debt-to-GDP ratios by 2016" (G20 2010).

This preoccupation with market "confidence" was a key factor behind the switch from stimulus to austerity. The problem with this seemingly sensible proposition was that, while most G20 economies were once again growing by 2010, the steep collapse in their economies had opened large gaps between actual and potential GDP and between the actual unemployment rate and full employment.[37] These gaps put downward pressure on prices, and with short-term *nominal* interest rates already at the effective zero lower bound because of the extraordinary policy responses of central banks around the world, monetary policy would be less effective in reducing *real* interest rates further to support economic recovery.

Meanwhile, with output still below potential and the unemployment rate above the full employment level, the G20 commitment to "at least halve deficits by 2013" meant that fiscal policy was becoming less expansionary (G20 2010). The G20's *volte-face*, therefore, weighed heavily on the economy.

The situation worsened, as fiscal policy in three large advanced economies quickly turned from stimulus to austerity. In the United Kingdom, then Prime Minister David Cameron (2011) solemnly warned of the dangers of deficits in Churchillian prose: "Those who argue that dealing with our deficit and promoting growth are somehow alternatives are wrong. You cannot put off the first in order to promote the second."[38] While expressed in terms of fiscal rectitude and the Victorian virtue of thrift, his rejection of fiscal stimulus may have stemmed from the cynical adoption of austerity as an ideological marker to differentiate Oxonian Tories from New Labour. Similarly, the Boehner quotation cited in the introduction was framed in terms of concern for future generations, but US fiscal austerity resulting from sequestration may have reflected the increasingly dysfunctional nature of Congress and Republican efforts to thwart Obama administration initiatives for political — or other — reasons.[39] In Germany, fiscal austerity may have reflected the complexities of coalition government and the political exigency of constraining coalition partners: with individual coalition members vying for dominance, each would seek to restrain spending that could give other members electoral benefits, or refrain from funding their own priorities that could be used against them in the polls.

It seems likely, therefore, that political considerations figured prominently in the switch from stimulus to austerity. But the retreat from counter-cyclical stabilization policy was not ordered in a vacuum; the decision to switch from stimulus to austerity largely reflected two factors.

35 The IMF (2008) added important nuance in its guidance on appropriate crisis responses, *Fiscal Policy for the Crisis*, which called for stimulus packages in support of aggregate demand to be large, lasting, diversified, contingent, collective and sustainable. Two adjectives – lasting and sustainable – signalled that the crisis would be severe and long-lasting. While this suggests an apparent inconsistency with the "temporary" stimulus Summers advocated, the IMF was, in fact, cautioning against premature withdrawal of stimulus, before private consumption and investment spending had recovered on a sustainable basis. Summers's use of temporary referred to counter-cyclical stabilization, not structural changes in government expenditures or tax revenues as shares of GDP. In this respect, his original wording is fully consistent with Keynes.

36 See Paul Krugman (2008). Krugman proved to be remarkably adept in understanding and anticipating the various phases of the crisis, despite his "disadvantage" (as he might facetiously put it) of being armed with only vintage Keynesian models circa 1937 (Hicks 1937).

37 To employ a (North American) football metaphor, the shift from stimulus to austerity was akin to "spiking" the ball at the 50-yard line on a kickoff return. However brilliant the return to that point, celebration is premature.

38 Readers may recall that, while Winston Churchill was a brilliant and inspiring wartime leader, his term as Chancellor of the Exchequer was marked by a disastrous decision to return the pound to the gold standard at a greatly appreciated rate in 1925. Likewise, it is tempting to speculate on the extent to which Cameron's decision to pursue austerity influenced the Brexit vote.

39 This presumption is supported by the recent implementation of large cuts pushed through Congress without any bi-partisan support and the adoption of budget plans calling for increased expenditures. The CBO (2018) warns that these measures will result in serious deterioration in long-term public finances, likely to put upward pressure on interest rates that could pose a serious future fiscal challenge.

Table 6: Evolution of Fiscal Policy Perspectives in Crisis and Recovery (2007–2016)

Source	Rule	Date
Summers (2007)	"Timely, targeted, and temporary."	December 2007
IMF (2008)	"Timely, large, lasting, diversified, contingent, collective and sustainable."	December 2008
G7 (2008)	"We will use macroeconomic policy tools as necessary and appropriate."	October 2008
G20 (2008)	"Use fiscal measures to stimulate domestic demand to rapid effect, as appropriate, while maintaining a policy framework conducive to fiscal sustainability."	November 2008
G7 (2009)	"Our fiscal policy measures adhere to principles that will increase their effectiveness: - be frontloaded and quickly executed; - include the appropriate mix of spending and tax measures to stimulate domestic demand and job creation and support the most vulnerable; - increase longer-term growth prospects, addressing structural weaknesses through targeted investments; - be consistent with medium-term fiscal sustainability and mostly rely on temporary measures."	February 2009
G20 (2010)	"Reflecting this balance [between the need to sustain recovery and sustain confidence], advanced economies have committed to fiscal plans that will at least halve deficits by 2013 and stabilize or reduce government debt-to-GDP ratios by 2016.... Fiscal consolidation plans will be credible, clearly communicated, differentiated to national circumstances, and focused on measures to foster economic growth."	June 2010
Cameron (2011)	"Those who argue that dealing with our deficit and promoting growth are somehow alternatives are wrong. You cannot put off the first in order to promote the second."	January 2011
Goldman Sachs (2011)	"The extent of the growth drag will likely vary across countries, as adjustments tend to be more painful in large, closed economies and countries with fixed exchange rates." "The 'speed limit' of fiscal adjustment — the pace of tightening after which the corrosive impact on growth starts to undermine the fiscal position itself — is therefore likely to be lower in large, closed economies (like the US or Japan) and in countries with fixed exchange rates (European periphery) than in small, open economies (UK)."	August 2011
IMF (2011)	"The speed and severity with which financial pressures spread in the euro area should serve as a cautionary tale to Japan and the United States....The credibility of Japan and the United States could suddenly weaken if sufficiently detailed *and* ambitious plans to reduce deficits and debts are not forthcoming."	September 2011
Blinder (2016)	"[The pre-crisis presumption that] fiscal policy is superfluous because monetary policy can always do the job" is "demonstrably false." "[W]e need to find ways — which are probably more political than economic — to discourage politicians from pulling the plug on expansionary fiscal policy prematurely. We made that mistake in 1937, to devastating effect. We made it again in 2011-14, and it slowed the recovery."	May 2016
IMF (2016c)	"The 3-C approach starts from an analytical framework of instruments and 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 risk, and discretionary countercyclical support for monetary policy in the event of large shocks to output."	September 2016

Source: Author, compiled from various sources (see references).

The first was empirical work that purported to show a negative impact of debt on growth. Carmen M. Reinhart and Kenneth S. Rogoff (2010) claimed that when a debt-to-GDP threshold exceeds 90 percent, median growth rates fall by one percent and average growth falls considerably more.[40] Their work was hugely influential among those in policy circles, who feared the loss of financial market confidence, particularly after Greece's rapid and vertiginous descent into debt crisis. In this respect, a warning by the IMF (2011) of the risks of excessive debt, which focused on the need to maintain market confidence, may have alarmed some governments. The IMF argued: "The speed and severity with which financial pressures spread in the euro area should serve as a cautionary tale to Japan and the United States.... The credibility of Japan and the United States could suddenly weaken if sufficiently detailed *and* ambitious plans to reduce deficits and debts are not forthcoming." That cautionary tale, along with the results of Reinhart and Rogoff (2010), undoubtedly provided intellectual justification for the adoption of fiscal austerity in the deepest recession since the Great Depression.[41]

The second factor influencing the decision to switch from stimulus to austerity was research that cast doubt on the efficacy of fiscal stimulus. In this vein, Taylor (2000) reviewed three counter-cyclical stimulus packages implemented in the 2000s, concluding that they did not have a significant effect. His conclusion reflects an ongoing debate regarding the relative effectiveness of different fiscal policy actions. These effects are captured in the size of fiscal multipliers, the ratio of the rise in GDP relative to the size of the fiscal measure.[42]

Conceptually, the impact of exogenous fiscal stimulus depends on the state of the economy. Fiscal expansion at full employment, for example, is likely to be far less effective in raising output than a comparable expansion under conditions of high unemployment. At full employment, monetary policy can be expected to offset, to some extent, the impact of stimulus. In forward-looking models, the efficacy of the fiscal stimulus would still be affected, even if the monetary authorities kept their instrument unchanged for the duration of the stimulus. This is because individuals would anticipate the effects of inflationary pressures on future short-term interests, raising current long-term bond yields and dampening the effects of the fiscal stimulus. In contrast, in a recession, particularly in the conditions of the Great Recession, during which interest rates were effectively at zero and expected to remain very low indefinitely, the impact of fiscal policy is magnified (Christiano, Eichenbaum and Rebelo 2011). With nominal interest rates at the zero lower bound, and central banks committed to supporting recovery, fiscal stimulus would be unlikely to raise interest rates significantly, so that crowding out of investment and interest-sensitive consumption would be minimal.[43]

In hindsight, both factors — the need to maintain confidence and questions regarding the efficacy of

40 Their work is subject to considerable controversy, to put it mildly, which need not be reviewed in depth here. Suffice to say that other researchers could not replicate the Reinhart and Rogoff (2010) results and found that the supposed threshold was illusionary. See Herndon, Ash and Pollin (2013).

41 The IMF's own IEO assessed the policy advice in unequivocal terms (IEO 2014): "In 2010-11, IMF advice to major advanced economies shifted to favor fiscal consolidation. This advice arose from concern that large fiscal deficits and rising public debt were threatening fiscal solvency and exacerbating the risk of fiscal crises. Moreover, IMF projections as of late 2009 indicated that economic growth in advanced economies would turn positive in 2010 and strengthen in the medium term."

42 In practice, the time frame of the multiplier employed must be specified since different fiscal actions will have different time profiles (i.e., cumulative change in GDP to the cumulative change in the fiscal instrument over some period, for example, five years; or the peak change in GDP to the peak change in the policy variable). Meanwhile, the effects of different fiscal measures can be considered on an economy-wide basis or with respect to specific sectors. Alan J. Auerbach, William G. Gale and Benjamin H. Harris (2010) discuss key considerations in the use of fiscal policy.

43 The challenge in estimating the size and significance of these effects is that the number of episodes during which an individual economy is clearly at full employment or in recession is limited, so that researchers have typically pooled cross-country experiences. However, Carlo Favero, Francesco Giavazzi and Jacopo Perego (2011) and Ethan Ilzetzki, Enrique G. Mendoza and Carlos A. Végh (2011) demonstrate that there is no unconditional fiscal policy multiplier; effects depend on debt dynamics, degree of openness and different fiscal reaction functions across different countries. Fiscal arrangements *within* a country also have important effects. For example, in the case of the United States, Joshua Aizenman and Gurnain Kaur Pasricha (2010) show that the measured impact of federal fiscal stimulus is reduced by a state government's balanced-budget provisions. They find that counter-cyclical federal stimulus merely offsets pro-cyclical declines in state expenditures.

fiscal stimulus — are unconvincing.[44] In this respect, the emphasis that the UK government put on financial market confidence is especially curious, given that one major investment bank cautioned against premature and overly hasty fiscal consolidation. As the extract in Table 6 notes, Goldman Sachs (2011, 1) framed the issue in terms of "speed limits" that determine when fiscal adjustment would negatively affect growth and prove counterproductive: "The extent of the growth drag will likely vary across countries, as adjustments tend to be more painful in large, closed economies and countries with fixed exchange rates....The 'speed limit' of fiscal adjustment — the pace of tightening after which the corrosive impact on growth starts to undermine the fiscal position itself — is therefore likely to be lower in large, closed economies (like the US or Japan) and in countries with fixed exchange rates (European periphery) than in small, open economies (UK)."

In two of the economies identified by the Goldman Sachs analysis, the United Kingdom and the United States, fiscal austerity was met with slower growth as predicted. Sadly, the results of this slower growth were equally predictable, as progress toward full employment waned and millions of unemployed workers were subjected to continuing economic insecurity.

Meanwhile, there is now a consensus that fiscal multipliers are both positive and large (greater than one) under the conditions of the Great Recession.[45] And even as the adverse effects of austerity were being felt, DeLong and Summers (2012) demonstrated that, with US interest rates at historically low levels and ample excess capacity, fiscal stimulus would pay for itself through the growth it would unleash as full employment is restored. At its core, their argument, while complicated somewhat by the consideration of hysteresis effects, was based on a simple argument: with the debt-to-GDP ratio a function of the difference between the interest rate on debt (r) and the growth rate of the economy (g), fiscal stimulus that raises g but leaves r unchanged would reduce the burden of the debt. Such conditions prevailed at the time congressional Republicans forced austerity on an unwilling administration. In doing so, they ignored Keynes (1978), who argued: "Look after the unemployment, and the budget will look after itself."

What of Germany's shift from stimulus to austerity? The embrace of austerity there was widely justified in terms of prudent stewardship of public finances, in particular the need to be mindful of demographic changes and the importance of intergenerational equity in apportioning debt burdens and the fact that output quickly returned to its potential level following the crisis. Fiscal stimulus, it was argued, would lead to overheating and macroeconomic imbalances and burden future generations with excessive debt.

These arguments are suspect. To begin, with the rest of Europe in deep recession, excess demand in Germany would have spilled over to others, without necessarily leading to macroeconomic imbalances.[46] There is, after all, free (albeit not perfect) mobility of factors and goods in the euro zone. That said, the potential for bottlenecks and other structural problems leading to efficiency losses cannot be dismissed.

More problematic is the claim that austerity reflected sound stewardship of public assets, a claim that became more suspect as nominal interest rates on German government bonds fell to very low levels and eventually turned negative. As yields on bonds fell, government net investment in infrastructure was negative, since new investment failed to keep pace with the underlying depreciation of infrastructure assets. With an aging population, this meant that future generations would bear a higher tax burden to enjoy the benefits of the same stock of infrastructure. Rather than promoting intergenerational equity, the German government may have presided over a transfer of wealth from *future* generations to the *current* population.[47]

44 Some readers may object to this characterization and call for some modifier, such as "with the benefit of hindsight," to promote balance and fairness. While this objection might be justified if the weakness in the arguments were unknown at the time, this is not the case. Krugman, in particular, and others identified inconsistencies with such arguments and offered alternative analysis that "in hindsight" was validated by subsequent events.

45 In retrospect, it is disappointing that claims to the contrary were seriously entertained, much less influenced policy.

46 In this period, German exports received a boost from existential fears for the euro stemming from the possible exit of highly indebted weaker members of the currency union. In the counterfactual situation in which the euro was not introduced, the Deutschmark would have appreciated as output returned to potential and employment converged on the full employment level, providing demand for the rest of Europe and releasing inflationary pressures. While such effects were not operative once the euro was introduced, German fiscal stimulus would have assisted in the adjustment process for weaker members and strengthened the euro, promoting rebalancing in the global economy.

47 This critique would not apply if there was excess capital in the economy, a condition known as *dynamic inefficiency*. While the possibility of over-accumulation of capital cannot be summarily dismissed, it seems unlikely that this was the case.

Fiscal Policy Going Forward: *Plus Ça Change?*

Following the switch from stimulus to austerity in key advanced economies, the pace of recovery slowed.[48] Unemployment remained stubbornly high, while participation rates, which had fallen sharply in the crisis, stayed low in the face of poor labour market conditions. This conjuncture provided fertile ground in which the seeds of economic nationalism and political populism germinated and flourished.

Against this background, the role of fiscal policy is under reconsideration.[49] The starting point is to develop more robust automatic stabilizers (Blanchard 2015). More broadly, there is scope for reanimating the use of counter-cyclical fiscal policy. In the first instance, this could be limited to ensuring that fiscal policy is not pro-cyclical. Going further, efforts should be made to forge a broad consensus on an analytical framework for stabilization, such as that proposed by the IMF (2016c). At the same time, the use of fiscal policy to avoid potential excessive financial risk taking should also be considered in the context of stabilization policy.[50]

The IMF has a critical role to play in this reconsideration of fiscal policy in counter-cyclical stabilization policy. Two measures stand out. First, the IMF could get an agreement among its members on how to measure fiscal capacity. This task is complicated by the myriad indicators that can be deployed, which may provide conflicting signals and allow contradictory conclusions. The two indicators highlighted in this paper can assist the IMF to forge this consensus by framing clear, analytical upper and lower bounds of fiscal capacity. Second, the IMF must secure a consensus on when to use available headroom. This may be an even more daunting challenge, notwithstanding the clear analytical lessons provided by the global financial crisis and the Great Recession. This is because politically motivated decisions are often impervious to analytical results. The point was made succinctly by Blinder (2016, 23), who argued: "We need to find ways — which are probably more political than economic — to discourage politicians from pulling the plug on expansionary fiscal policy prematurely. We made that mistake in 1937, to devastating effect. We made it again in 2011–14, and it slowed the recovery."

For the avoidance of doubt, it must be stressed that these policy prescriptions do not imply, or should not be interpreted as saying, that debt burdens do not matter. Prudent debt management is fully consistent with the view that fiscal policy can be used for counter-cyclical stabilization policy. Timing is the critical issue; that is, when to inject stimulus and when to rebuild public sector balance sheets.[51] The point is made in a recent IMF (2016d, 19) discussion: "Entering a financial crisis with a weak fiscal position exacerbates the depth and duration of the ensuing recession. The reason is that the absence of fiscal buffers prior to the crisis significantly curtails the ability to conduct countercyclical fiscal policy, especially in emerging market economies. These results argue for strengthening the government balance sheet in upturns, while adequately accounting for financial cycles when assessing a country's fiscal position, and ensuring the close monitoring of private debt through adequate regulatory and supervisory frameworks."

Nothing in this passage is fundamentally counter to the analysis that Keynes articulated in response to the Great Depression fully eight decades ago. The evolution of thinking on fiscal policy appears

48 The Brookings Institution's Hutchins Center on Fiscal and Monetary Policy created and maintains the fiscal impact measure (FIM). The FIM gauges the contribution of US federal, state and local fiscal policy to near-term changes in the GDP. It shows that the fiscal impact was negative for the period 2011–2014, indicating a restraint on growth.

49 Much of this work was initiated by Olivier Blanchard and colleagues: see Blanchard et al. (2010), *In the Wake of the Crisis*, for early lessons from the crisis; a follow-up volume, George A. Akerlof et al. (2014), *What Have We Learned?*; and a retrospective volume, Blanchard et al. (2016), *Progress and Confusion: The State of Macroeconomic Policy*.

50 The scope for measures to dampen credit expansion could be explored, including the use of tax policies to correct externalities that lead to excessive leverage.

51 A related question is *when* debt should be reduced through active efforts, rather than allowing growth to lower debt-to-GDP ratios over time. Ostry, Ghosh and Raphael Espinoza (2015) make an important contribution to this issue. They argue that countries with ample fiscal headroom, at little or no risk of default, should not actively pay down the debt, but allow the debt to decline organically through growth and "opportunistic" revenues coming from unexpected positive shocks to the economy. Their conclusion reflects the sunk-cost nature of deadweight losses from debt; in their model, raising distortionary taxes to pay down debt would only add to the burden of debt. Where the risk of default is negligible, it is better to live with the debt, since the higher taxes needed to pay off the debt would be more harmful to growth.

to have come full circle; indeed, it is tempting to assert *plus ça change, plus c'est la même chose*.

That conclusion may be wholly appropriate, but there is a caveat.

While the primary focus of this paper is on short-term stabilization policy, long-term considerations, including the consequences of aging populations, affect public finances. These factors loom large in advanced economies that emerged from the crisis with higher levels of debt. For some, the effects of aging populations are already being felt as members of the "baby boom" generation retire or scale back their participation in the workplace. With higher debt and fewer workers, burdens on remaining workers are increased. These burdens are likely to rise as key drivers of debt, in particular social security and medical costs, increase as the population ages.

Prudence dictates that efforts to put public finances on a secure footing be made earlier, rather than later.[52] "The boom, not the slump," Keynes argued in 1937, "is the right time for austerity at the Treasury."[53] In contrast, in the United States, recent tax cuts and higher projected budgeted spending will take effect just as the economy converges on full employment and potential output.[54] An assessment of the long-term fiscal consequences of these actions by the CBO warns of persistent large deficits and higher debt loads over the coming decade (CBO 2018). The CBO analysis shows that by 2028, the debt-to-GDP ratio will be roughly 20 percentage points higher than its current level. The analysis also notes that the baseline projections "reflect a number of significant changes to tax and spending policies that are scheduled to take effect under current law. If those changes did not occur, deficits and debt would be substantially larger" (ibid., 79). Implicit in this message is a warning, since past practice has frequently been to extend tax cuts or maintain funding "scheduled" to be phased out.

These projections raise concerns of possible disruptive scenarios, as financial markets dictate that severe fiscal adjustments be made to ensure long-term sustainability.[55] How imminent is such a scenario? Based on the fiscal space indicator, which continues to signal ample capacity to take on more debt (165 percentage points), such concerns seem premature. However, the quasi-fiscal space indicator provides far less comfort. At roughly 30 percentage points (based on 2010) data, a 20-point rise in the US debt-to-GDP ratio narrows considerably available "headroom" for a further increase in the debt burden and effectively exhausts buffers for possible miscalculation or negative shocks not factored into the CBO projections. On this basis, the bi-partisan alarm raised by prominent economists is warranted.

Conclusion

In a sense, this paper addresses two questions: first, what accounted for the abrupt switch from stimulus to austerity in the Great Recession that followed the global financial crisis; and, second, to assess risks arising from the recent re-embrace of expansionary tax cuts and spending by the United States.

Addressing the first issue is inherently difficult, since it requires the counterfactual of what growth would have been had the switch not been made. If there was a significant risk of an imminent fiscal crisis with large, long-lasting negative effects on growth and welfare, the subordination of short-term stabilization objectives would have been justified. But, as noted above, the fact that key advanced economies eschewed stimulus, even as output remained below its potential level and

52 This point was made before the crisis by then Chairman of the Federal Reserve Ben Bernanke (2006, 6): "The longer the delay in putting our entitlement programs on a sound fiscal footing, the heavier the burden that will be passed on to future generations." Canadian experience provides a useful example. In the 1990s, changes to the Canada Pension Plan (CPP) put the system on a sustainable path. By acting before demographic pressures were significant factors, CPP reforms required only small "tweaks" to the system. In contrast, 20 years of inaction in the United States have made the challenges associated with "entitlement reform" much greater.

53 Cited in Krugman (2011).

54 This highlights an important consideration with respect to the political economy of stimulus: Not only are multipliers associated with government spending likely to exceed those from tax cuts (since a portion of the tax cuts is saved in periods of uncertainty), but tax cuts introduced as a stimulus measure in recession may be politically difficult to reverse in expansion. The result can be a long-term deterioration in fiscal sustainability. However, those opposed to government spending on ideological grounds use tax cuts to "starve the beast" and force reductions in social security and other programs. Such arguments account for the *volte-face* of congressional Republicans in the United States.

55 See, for example, the warnings of two prominent groups of economists: Baily et al. (2018); Boskin et al. (2018). While the two groups agree that a fiscal crisis is possible, their policy prescriptions differ significantly.

unemployment was far from full employment, despite the absence of a binding debt constraint, suggests that factors other than concern for fiscal probity may have played a role in the decision to switch from stimulus to austerity. There was a shift in the way in which fiscal policy was viewed. Under the circumstances, it is difficult to escape the conclusion that political considerations played a decisive factor.

The second issue — assessing the potential risks associated with recent fiscal stimulus in the United States — is similarly difficult to discern. Nevertheless, the CBO estimates suggest that tax cuts and spending proposals are a source of concern. The problem is not of some imminent risk of going over a fiscal cliff — the United States enjoys unique privileges as the issuer of the global reserve asset and medium of exchange for the bulk of global trade. These factors endow the United States with the capacity to issue more debt than other countries. But the dollar's exceptional features are not immutable; they rest on the foundation of prudent economic management and a commitment to open markets. These conditions can no longer be taken for granted.

In this respect, this paper conveys a deceptively simple message: fiscal policy must be used *responsibly*; this entails building capacity when the economy is at, or above, its potential level, and employment is at, or above, full employment, so that governments engaged in counter-cyclical fiscal expansion are immunized from real or imagined financial markets, or politically motivated, pressures to prematurely switch to austerity.

Author's Note

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