



CAN COORDINATION IN THE G-20 HELP COUNTRIES TO REDUCE DEBT AND DEFICITS?

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Can coordination in the G-20 help countries to reduce debt and deficits?¹

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Abstract

G-20 countries added \$33 trillion to the global stock of debt from 2007 to 2018, more than double the pre-crisis level. The paper explores whether coordination in the G-20 could help countries to reduce their debt and deficits. The answer to this question depends on the answers to several other questions: has the G-20 been successful in its previous attempts at coordinated fiscal consolidation? Is there an economic case for coordinated fiscal consolidation in the first place? Does coordination ease the pain of fiscal consolidation or make it worse? Is there some form of coordination (a global ‘grand bargain’) between G-20 countries that could help? Is this politically feasible? And does the G-20 influence the fiscal policies of its members in the first place? The paper explores these questions using data analysis, a new multi-country, multi-sector, intertemporal computable general equilibrium framework called the G-Cubed (G-20) model, and the results from in-depth interviews with 61 politicians and officials from across all G-20 countries, including Kevin Rudd, Janet Yellen, Haruhiko Kuroda, Ben Bernanke, Jack Lew, Mark Carney, and 55 others. The paper finds that G-20 coordination can indeed help countries to reduce their debt and deficits, but only in the medium-term and only if there is a fundamental shift in thinking among G-20 policymakers in favour of the longer-term.

¹ I would like to thank Peter Drysdale, Warwick McKibbin, Shiro Armstrong, Gordon de Brouwer, David Vines, Barry Sterland, and Homi Kharas for their comments. All errors are mine. I am grateful to the 61 politicians and officials who generously gave their time to be interviewed for this research.

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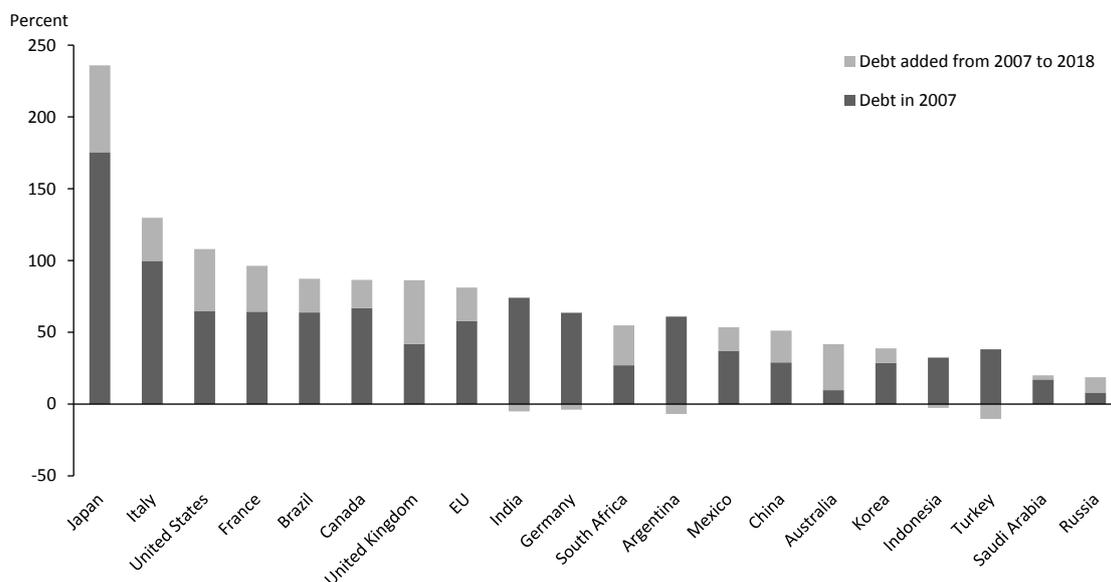
1. Introduction

G-20 leaders had one thing on their minds when they gathered in Toronto in June 2010: debt. Their response to the crisis over the preceding three years was effective in stabilising markets, buttressing the global financial system, and supporting growth through coordinated fiscal stimulus. But these bold actions took their toll.

Increased spending, tax cuts, bank bailouts, and the impact of automatic stabilizers saw a sharp increase in debt and deficits. From 2007 to 2018, G-20 countries added \$33 trillion to the global stock of debt. The weighted-average debt-to-GDP ratio of G-20 countries increased by more than 40 percent from 2007 to 2018 (Figure 1 gives the unweighted gross debt-to-GDP ratio for each G-20 economy). In Europe, ballooning debt and deficits in the context of a single currency and monetary policy sapped-confidence, triggered a debt crisis that spread across the continent.

G-20 leaders warned of a global debt problem when they met in Toronto. They declared that ‘recent events highlight the importance of sustainable public finances’ and G-20 countries needed ‘to put in place credible, properly phased and growth-friendly plans to deliver fiscal sustainability’ (G-20, 2010).

Figure 1: Gross debt-to-GDP ratios of G-20 countries



Source: IMF World Economic Outlook database, October 2017

The result was the Toronto commitments. Most G-20 advanced economies committed to halve their deficits by 2013 and stabilize their debt-to-GDP ratios by 2016. The commitments excluded the emerging markets.¹ They also excluded Korea, which was in surplus, and Japan, which was deemed to have special fiscal circumstances given its substantial stock of debt, most of which was held domestically.

The G-20 was an institution designed to manage both the crisis and the post crisis recovery, including how to return national balance sheets to something that was sustainable over time. This was always a critical part of its mandate – *Kevin Rudd, 26th Prime Minister of Australia, interviewed 8 September 2017.*

The G-20 faced criticism for its dramatic switch from stimulus to consolidation. Many argued, particularly with the benefit of hindsight, that the G-20 began consolidating too early and that inflexible targets were inappropriate. Debates were heated within the G-20, too. There was strong disagreement between leaders that wanted consolidation—led by Angela Merkel and Stephen Harper—and those that did not—led by Barack Obama and Naoto Kan.

When I came in as Treasury Secretary there was a long-running debate in the G-20 between austerity and growth, which I would say ended pretty clearly in favour of growth, but with some different ideas of how to get there—*Jacob Lew, former Treasury Secretary, United States, interviewed 7 September 2017.*

The support for fiscal consolidation among G-20 countries was buoyed by forecasts of a quick ‘U-shaped’ recovery from both international organizations and many domestic finance ministries. But these forecasts failed to materialize. The IMF’s World Economic Outlook report for October 2012 conceded that the fiscal multipliers being used for its post-crisis forecasts, which helped underpin policy advice for fiscal consolidation, were underestimated. Rather than being between 0.4 to 1.2, they were up to twice that: between 0.9 to 1.7. This meant the withdrawal of government spending would have a more pronounced negative short-run effect on the economy than anticipated (IMF, 2012).

From 2010 to 2013, it became clear to the G-20 that the cost of its original commitments would be higher than initially thought and many countries would struggle to achieve the Toronto commitments. A growing number of finance ministers argued the recovery was too weak to warrant the consolidation implied by the Toronto commitments.

In essence the eurozone agreed [in 2012] to pursue policies that promote growth and austerity, not growth or austerity. This statement marked the beginning of recognition that austerity needed to be scaled-back – *Julia Gillard, former Prime Minister, Australiaⁱⁱ*

Although it was never formally announced, in 2013 the G-20 abandoned the Toronto commitments and replaced them with the St. Petersburg fiscal strategies (G-20, 2013). Each G-20 country, now including Japan, Korea, and the emerging economies, drafted a strategy with specific fiscal policy commitments (such as infrastructure investment and expenditure and revenue measures), as well as a broad strategy for medium-term fiscal sustainability.

Despite the G-20’s efforts, however, debt and deficits remain high. The question explored in this paper is whether G-20 coordination could help reduce them. The answer to this question, however, critically depends on the answers to several other questions: Has the G-20 been successful in its previous attempts to coordinate the reduction of debt and deficits? Is there a case for coordinated fiscal consolidation in the first place? Does coordination ease the pain of fiscal consolidation or does it make it worse? If the latter, is there another

form of coordination between G-20 countries, some kind of ‘grand bargain’ scenario, that could help? Is this politically feasible? And, finally, does the G-20 influence the policies of its members or are claims of coordination merely a façade?

The paper explores these questions using data analysis, a new multi-country, multi-sector, intertemporal computable general equilibrium framework called the G-Cubed (G-20) model (detailed in McKibbin and Triggs, 2018) and the results from in-depth interviews with 61 leaders, finance ministers, central bank governors, and officials from across all G-20 countries. These individuals make up the G-20 and are responsible for shaping the policies in their countries. The findings of this paper are a testament to the generosity and openness of these policymakers in discussing their experiences in global economic cooperation. Participants included Kevin Rudd, Janet Yellen, Haruhiko Kuroda, Ben Bernanke, Jack Lew, Mark Carney, and 55 other politicians and officials to whom I am deeply grateful.

Section 2 of the paper begins by exploring whether the G-20 been successful in its previous attempts to coordinate the reduction of debt and deficits. It shows that only three countries achieved the Toronto commitments, although several came close.

Section 3 explores whether there is an economic case for coordinated consolidation in the first place. Using the G-Cubed (G-20) model, it simulates five scenarios. The first scenario looks at the impacts of fiscal consolidation when undertaken alone, exploring the effects for both the consolidating country and for the rest of the G-20. These results are then compared to the second scenario, which looks at the impacts of fiscal consolidation when undertaken by all G-20 countries together. Comparing these two scenarios reveals that the first-year contraction in GDP is twice as severe for G-20 countries on average when they consolidate at the same time.

Given this result, the remaining simulations look at whether any form of cooperation could reduce this short-term contraction. The third scenario looks at whether a boost in investor confidence, which could flow from lower debt and deficits, could help. The fourth scenario looks at what happens if only relatively indebted countries undertake consolidation, thus reducing the size of the fiscal withdrawal globally. The fifth scenario looks at what happens if only relatively indebted countries undertake consolidation while the rest of the G-20 undertakes fiscal stimulus.

Section 4 reports the results from the in-depth interviews. It explores whether the G-20’s focus on fiscal consolidation resulted in countries changing their policies and what policymakers perceived to be the benefits of coordinated consolidation, both economically and politically.

Section 5 summarizes the findings of the paper. Drawing together the results from the commitment analysis, modelling and in-depth interviews, it finds that G-20 coordination can indeed help countries to reduce their debt and deficits. But achieving this coordination, it argues, will require a fundamental shift in thinking among G-20 policymakers.

2. Did the G-20 deliver on its promises?

For all the rhetoric and controversy around the G-20's commitments to coordinated fiscal consolidation, only three countries ended up achieving them.

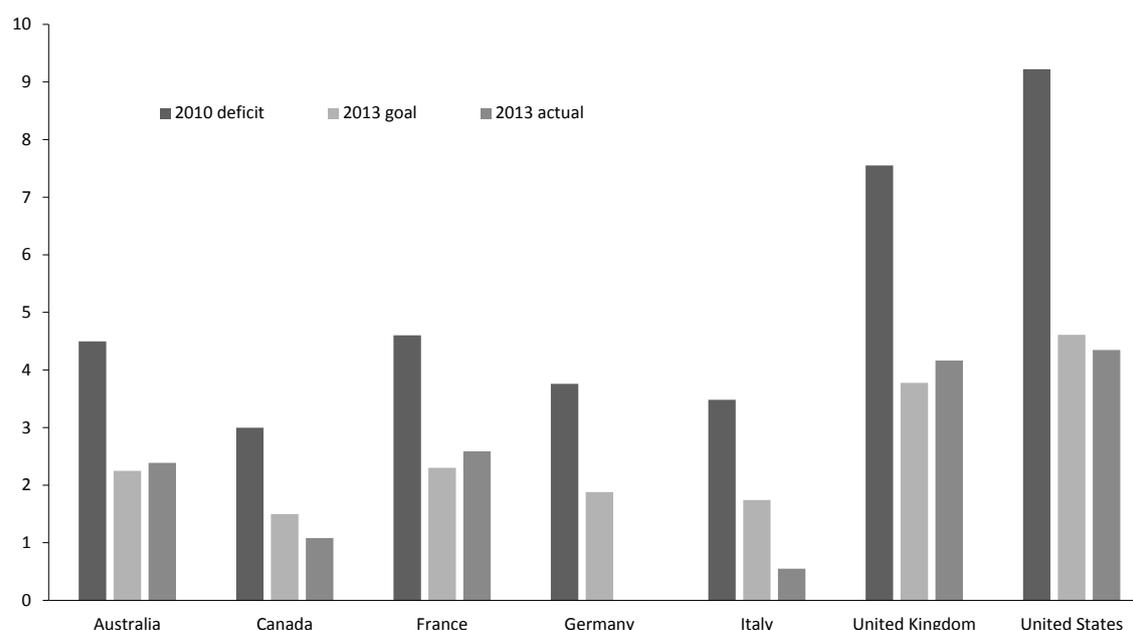
In the end, the Toronto commitments were not achieved and this continues to be a credibility problem for the G-20 – *Bruno Cabrillac, central bank deputy, France, interviewed 11 April 2017.*

The deadline for implementing the Toronto commitments passed in 2016. The commitments required G-20 advanced economies—excluding Korea and Japan—to halve their deficits by 2013 and stabilize debt-to-GDP ratios by 2016.

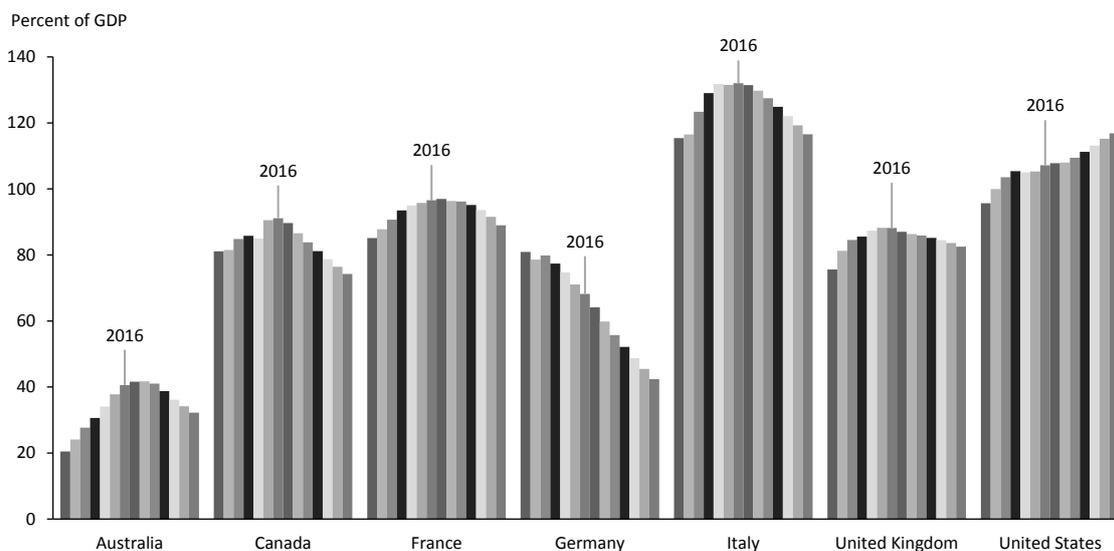
Figures 2 and 3 show how countries performed on both limbs of the commitment. While many economies came close, all but three ended up falling short. For the first limb, Canada, Germany, Italy, and the United States all managed to halve their deficits. Australia, France, and the United Kingdom fell short (Figure 2). For the second limb, several countries managed to stabilize their debt-to-GDP ratios by 2016. Canada, Germany, Italy and the United Kingdom all had debt-to-GDP ratios that were either constant or falling by 2016 (Figure 3). The remaining countries—Australia, France, and the United States—did not managed to stabilize their debt-to-GDP ratios by 2016, although Australia and France came close to achieving the commitment.ⁱⁱⁱ

We spent less in total dollars in the 2012-2013 financial year than the year before. We were engaged in substantial consolidation until the weakness in the rest of the world dragged down our revenues – *Wayne Swan, former Treasurer, Australia, interviewed 21 March 2017.*

Figure 2: The Toronto commitment to halve deficits by 2013 (structural balance, % of GDP)



Source: IMF WEO database April 2010 and April 2017

Figure 3: The Toronto commitment to stabilize debt by 2016 (gross debt, % of GDP)

Source: IMF WEO database April 2017

It follows that the only countries that achieved both limbs of the Toronto commitments were Canada, Germany, and Italy. Although it should be noted that, despite many countries falling short of the Toronto commitments, most countries came close to achieving them. Furthermore, the progress made by these countries was not ‘business as usual’. These were ambitious commitments back in 2010. Based on the IMF’s forecasts at the time of the Toronto summit, only two countries were forecast to comply with the commitments on their existing trajectory: Australia and Canada. Ironically, Australia ended up being one of the countries that fell short. But all other countries were forecast to fall short unless they changed their policies and shifted the trajectory of their deficits.

2.1 After Toronto

It became clear by 2013 that many G-20 countries would struggle to achieve the Toronto commitments. Forecasts of a quick recovery after the crisis did not materialize. Budgets suffered as a result. An increasing number of finance ministers argued the recovery was too weak to warrant the consolidation implied by the Toronto commitments. One of them was former US Treasury Secretary, Jack Lew. In his interview for this research, he remarked:

Everyone agreed with the importance of fiscal responsibility and fiscal consolidation, the difference in views was on when that consolidation should occur. If you look at the last communiques, the language is strikingly different than it was a few years ago – it is much more pro-growth and focuses on using all tools necessary, including fiscal policy. We left that debate in a much better place - *Jacob Lew, former Treasury Secretary, United States, interviewed 7 September 2017.*

Although it was never formally announced, in 2013 the G-20 abandoned the Toronto commitments and replaced them with the St. Petersburg fiscal strategies. Each G-20 country, now including Japan, Korea, and the emerging economies, drafted a strategy with

specific fiscal policy commitments (such as infrastructure investment and expenditure and revenue measures) as well as a broad strategy for medium-term fiscal sustainability.

The St. Petersburg Fiscal strategies were needed for the markets. Without clear statements that G-20 countries would promote fiscal sustainability you would lose the trust of the markets, particularly having seen the debt problems of southern Europe – *Sergey Storchak, finance deputy, Russia, interviewed 27 March 2017.*

It appears that G-20 countries have done well in implementing the specific fiscal commitments laid out in their fiscal strategies, but less well on the broader goal of fiscal sustainability.

Compliance reports from the University of Toronto found that in 2015 (the last time fiscal commitments were reviewed), 13 countries have fully implemented the commitments in their fiscal strategies while the remaining seven^{iv} have implemented some but not all of their commitments (G-20 Research Centre, 2015).

But on the broader goal of fiscal sustainability, the IMF^f warns that, despite appreciable consolidation efforts, public debt is not on a sustainable path in advanced economies and many of them do not have a credible medium-term plan for fiscal sustainability. The IMF raises particular concerns for the United States,^v Japan,^{vi} Italy^{vii} and France^{viii} as well as some emerging economies, such as Brazil.^{ix} Even though debt-to-GDP is forecast to fall by 2023 for many of these economies, the IMF^f expects them to increase once again due to medium-term fiscal challenges, such as ageing populations.

3. Is there a case for coordinated fiscal consolidation?

The dominant finding in the literature is that, when undertaken unilaterally, fiscal consolidation results in a near-term contraction in GDP and a long-term expansion (see IMF, 2010; OECD, 2010; Blanchard and Cottarelli, 2010; McKibbin et al, 2014).

The findings from the IMF (2010) are typical of this finding. Looking at episodes of consolidation across advanced and developing countries, it finds that a fiscal consolidation of 1 percent of GDP is generally associated with a 0.5 percent contraction of GDP within the first two years while, over the longer-term, every 10-percentage point reduction in the debt-to-GDP ratio sees output rise by 1.4 percent.

The literature identifies a range of transmission mechanisms that influence this result. While fiscal withdrawal acts to dampen aggregate demand (IMF, 2010), this can be offset by the responses of central banks (if they have the capacity to respond – see IMF, 2010; McKibbin and Bagnoli, 1993); a boost to the trade balance through a weaker currency (McKibbin and Bagnoli, 1993); and potentially through reduced risk or increased confidence, particularly in countries with a higher perceived risk of default (see OECD, 2015; Veld and Roeger, 2013, Ardagna et al, 2004; Laubach, 2009; Poghosyan, 2012).

Other factors that influence these effects include the composition of consolidation between tax increases and spending cuts (IMF, 2010); whether there is a reduction in government investment (McKibbin and Stoeckel, 2011); whether complementary structural reforms are implemented (OECD, 2010; IMF, 2010; Blanchard and Cottarelli, 2010); the pace of consolidation (McKibbin et al, 2014); and the perceived credibility of the consolidation commitment (OECD, 2010; Blanchard and Cottarelli, 2010; McKibbin et al, 2014).

But not all studies support the general finding of IMF (2010). Some have found that fiscal consolidation can be entirely expansionary, with no short-term GDP contraction (see Taylor, 2015; Alesina, 2010; and Giavazzi and Pagano, 1990). Often referred to as the expansionary fiscal contraction hypothesis, these studies argue that the boost to household and business confidence that comes from fiscal consolidation can be so large that the net-effect is positive (see Taylor, 2015; Alesina, 2010; and Giavazzi and Pagano, 1990). However, cross-country analysis by the IMF and others suggests this is a rare occurrence, generally limited to countries with a high perceived risk of sovereign default (IMF, 2010; OECD, 2010). Only one country in the modelling in Section 3 experiences an expansionary fiscal contraction, and that is Mexico.

Some authors advocate a grand bargain approach. They suggest that the negative short-term effects in consolidating economies could be offset by more expansionary policies in other economies. Vines (2016), McKibbin et al (2014) and Adam et al (2013) argued that a coordinated agreement on fiscal consolidation in advanced economies, particularly in a world of low interest rates, should include an increase in spending in surplus countries to help offset the reduction in global aggregate demand from fiscal consolidation.

This section explores these issues and explores whether there is a case for coordinated consolidation in the G-20. It uses a new computable general equilibrium model called the G-Cubed (G-20) model, detailed in McKibbin and Triggs (2018) and summarized below, to compare the outcomes from five scenarios.

The first scenario looks at the impacts of fiscal consolidation when undertaken alone, exploring the effects for both the consolidating country and the rest of the G-20. To explore whether there is a case for coordinated consolidation, these results are then compared to the second scenario, which looks at the impacts of fiscal consolidation when undertaken by all G-20 countries together.

The third scenario looks at what the implications might be of the findings from authors such as the Veld and Roeger (2013), Ardagna et al (2004) and others^x that fiscal consolidation can also boost investor confidence. This is modelled as a reduction in country risk premia. Does it alter the case for coordination? Does it reduce the short-term cost of fiscal consolidation?

The final two scenarios look at whether the economic outcomes for countries can be improved through some sort of ‘grand bargain’. The fourth scenario looks at what happens if only relatively indebted countries undertake consolidation, thus reducing the size of the fiscal withdrawal globally. The fifth scenario looks at what happens if only relatively indebted countries undertake consolidation while the rest of the G-20 undertakes fiscal stimulus.

First, however, section 3.1 begins with an overview of the G-Cubed (G-20) model, with further details in McKibbin and Triggs (2018).

3.1 The G-Cubed (G-20) model

Fiscal consolidation impacts many variables in the economy. Some of these effects are positively signed, some are negatively signed, and most are of differing magnitudes. This occurs within a complex set of trade and financial linkages between countries. A general equilibrium framework is therefore critical to understand these complex interactions.

The G-Cubed (G-20) model is a multi-country, multi-sector, intertemporal general equilibrium model. It is designed to bridge the gaps between three areas of research – econometric general equilibrium modelling, international trade theory, and modern macroeconomics – by incorporating the best features of each.

Several versions of the model have been developed, which have been incrementally improved and built-on over many years. The version presented in this paper is the newest, and largest, version of the G-Cubed model, designed specifically to study the G-20 and the implications of its policy agenda. Previous versions of G-Cubed have been used to study a range of policy areas, including macroeconomic cooperation, international trade, monetary policy, fiscal policy, tax reform, and environmental regulation. Studies have shown the effectiveness of G-Cubed in explaining the adjustment process in a number of historical

episodes, including Reagonomics, German reunification, European fiscal consolidation in the 1990s, the formation of NAFTA, and the Asian financial crisis. G-Cubed has also proven successful in helping to explain the ‘six major puzzles in international macroeconomics’ highlighted in Obstfeld and Rogoff in a 2000 paper.^{xi} It has also proven useful in understanding the 2009 Global Financial Crisis.^{xii}

The G-Cubed (G-20) model represents the world as 24 autonomous blocks: one for each G-20 economy (including the rest of the eurozone) and four regions that represent the world’s non-G-20 economies. These are the other economies of the OECD, the other economies of Asia, the other oil-producing economies, and a catch-all ‘rest of the world’ (Table 1). Each region in G-Cubed is represented by its own multi-sector econometric general equilibrium model with highly disaggregated, multi-sectoral flows of goods and assets between them.

Table 1: Overview of the G-Cubed (G-20) model

<u>Countries (20)</u>	<u>Regions (4)</u>
Argentina	Rest of the OECD
Australia	Rest of Asia
Brazil	Other oil producing countries
Canada	Rest of the world
China	
Rest of eurozone	<u>Sectors (6)</u>
France	Energy
Germany	Mining
Indonesia	Agriculture (including fishing and hunting)
India	Durable manufacturing
Italy	Non-durable manufacturing
Japan	Services
Korea	
Mexico	<u>Economic Agents in each Country (3)</u>
Russia	A representative household
Saudi Arabia	A representative firm (in each of the six production sectors)
South Africa	Government
Turkey	
United Kingdom	
United States	

Each region has six industries, which correspond to the production of six goods: energy, mining, agriculture (including fishing and hunting), durable manufacturing, non-durable manufacturing, and services. Each good in a region is an imperfect substitute for goods from other regions. Thus, there are effectively 144 goods.

Each country consists of six representative firms, a representative household, and a government. The model also includes markets for goods and services, factors of production, money, and financial assets (bonds, equities, and foreign exchange). Finally,

each country or region is linked through the flows of goods and assets. Some of the key features of the G-Cubed (G-20) model are:

- Specification of the demand and supply sides of economies.
- Integration of real and financial markets of these economies with explicit arbitrage linking real and financial rates of return.
- Inter-temporal accounting of stocks and flows of real resources and financial assets.
- Imposition of inter-temporal budget constraints so that agents and countries cannot borrow or lend forever without undertaking the required resource transfers necessary to service outstanding liabilities.
- Short-run behaviour is a weighted average of neoclassical optimizing behaviour based on expected future income streams and Keynesian current income.
- The real side of the model is disaggregated to allow for production of multiple goods and services within economies.
- International trade in goods, services, and financial assets.
- Full short-run and long-run macroeconomic closure with macro dynamics at an annual frequency around a long-run Solow-Swan-Ramsey neoclassical growth model.
- The model is solved for a full rational-expectations equilibrium (consisting of a mix of rational and rule of thumb agents) at an annual frequency from 2015 to 2100.

The following simulations elaborate further on some of these key features of the model, and further details are available in McKibbin and Triggs (2018).

3.2 Fiscal consolidation: alone versus together

This section explores the case for coordinated fiscal consolidation by comparing the scenario where G-20 economies undertake consolidation on their own to the scenario where they undertake consolidation together.

The fiscal consolidation undertaken in the scenarios throughout this paper is assumed to be an immediate reduction in government spending equal to 1 percent of GDP each year for three years (the same length of time as the G-20 Toronto commitment to halve deficits). It is assumed that the reduction in spending is spending on goods and services rather than government investment. All results are expressed as the change relative to a baseline or 'business as usual' scenario unless otherwise indicated.

Consolidation when undertaken alone

The scenario where countries implement consolidation alone implies 20 simulations: where Japan undertakes consolidation and the others do not, when Brazil undertakes consolidation and the others do not, and so on.

To understand the mechanics behind the results, it is useful to consider one example of unilateral consolidation in detail: where the United States undertakes consolidation equal to 1 percent of GDP and the other G-20 countries do not. This is also a pertinent simulation.

The tax cuts and proposed infrastructure plan from the Trump administration in 2017 and 2018 have brought the United States fiscal deficit into sharp focus. The United States fiscal deficit is likely to worsen because of these policies (see Congressional Budget Office, 2017) such that fiscal sustainability will remain an issue in the United States in the coming years. It has also been a consistent focus of the G-20, particularly on the issue of reducing global imbalances (see G-20, 2010).

Figures 4 to 9 highlight the key results for the United States. As would be expected, the reduction in government spending reduces the size of the United States fiscal deficit, which is almost 1 percent smaller than the baseline in the third year (Figure 4). However, there are significant short-term and long-term effects from this policy for the American economy.

Investment initially contracts slightly as investors respond to the withdrawal of government spending from the economy (Figure 5). But over time, this policy means a more favourable, lower-tax environment for business. Forward-looking firms respond to this by increasing investment by 0.8 percent above the baseline in the third and fourth years. Lower real interest rates (Figure 6) from the release of savings into the economy that were previously locked-up in government debt also act to boost investment. In the long-run, investment settles back to the baseline by 2030. But the period of higher investment means a permanently larger capital stock in the United States.

Like investment, consumption initially drops as consumers respond to a temporarily weaker economy caused by the fiscal withdrawal. But by the fourth year, consumption is 0.25 percent above the baseline and 0.2 percent above the baseline by the eighth year (Figure 7). Forward-looking households anticipate higher wealth in the future due to lower taxes and a stronger economy. They adjust their intertemporal consumption decisions and bring forward future-consumption, facilitated by lower real interest rates that encourage higher consumption today.^{xiii} Backward-looking, rule-of-thumb consumers adjust more slowly.

With government spending, consumption, and investment all contracting in the short-term, the response of United States GDP is not surprising. Figure 8 shows a familiar Keynesian response from reduced government spending. GDP initially contracts by 0.7 percent as government spending is abruptly withdrawn from the economy. But as savings are released from government debt to finance the supply-side of the economy, GDP is almost 1 percent higher by the fourth year, before settling back to its longer-run trajectory.

Much of the transition from this policy, particularly the impact on other countries, can be explained by what happens to interest rates, capital flows, and exchange rates. Permanently lower interest rates in the United States results in financial capital flowing out of the United States to obtain higher returns overseas. This acts to depreciate the United States exchange rate that, in turn, improves the trade balance by 0.6 percent in the first year (Figure 9).

Figure 4: US fiscal deficit

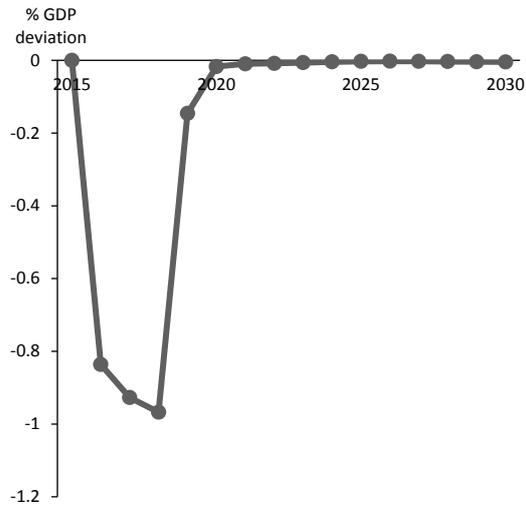


Figure 5: US investment

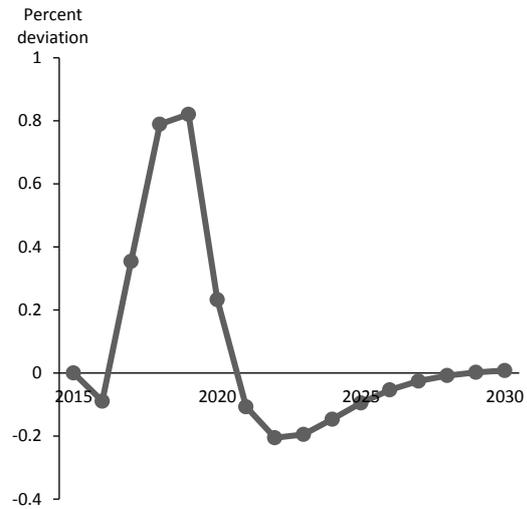


Figure 6: US real interest rates, short-run

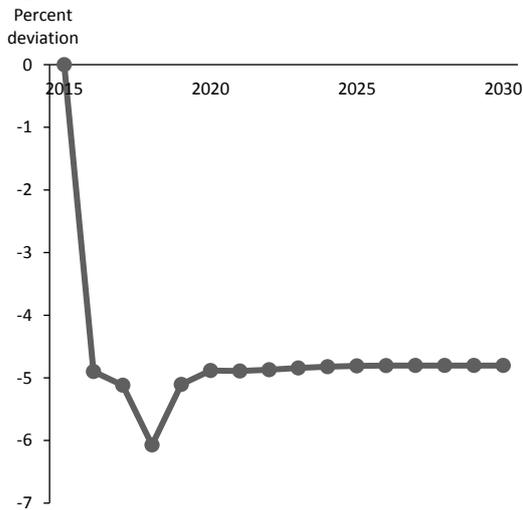


Figure 7: US consumption

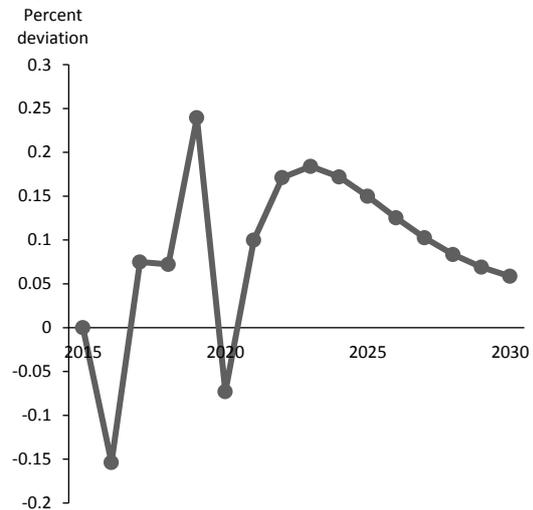


Figure 8: US real GDP

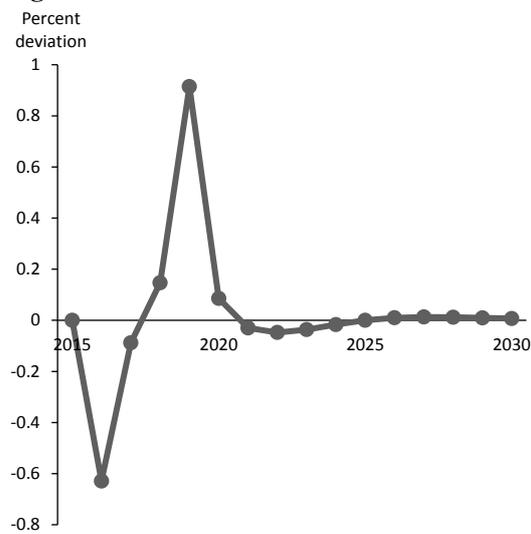
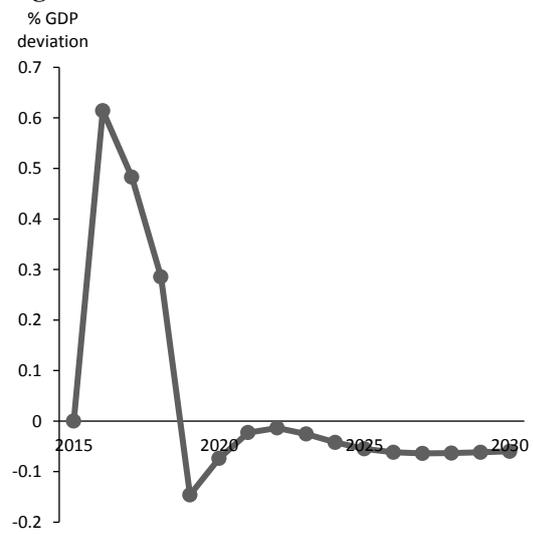


Figure 9: Trade balance



From the perspective of other G-20 countries, however, a weaker U.S. dollar means their exports are now relatively more expensive than those from the United States. This, in turn, acts to weaken their respective trade balances.

The results for other G-20 economies are similar to what you would expect from a gravity model: the countries that trade the most with the United States tend to be the most significantly impacted. The trade balances of Mexico and Canada, for example, are 0.4 and 0.35 percent lower in the first year after the shock (Figure 10).

Some of the negative impacts on these countries' trade balances are offset by improvements in investment (Figure 11). Investment in Canada and Mexico is 0.3 percent higher in the second year and 0.15 percent higher in Japan, as capital flows into these economies from the United States to enjoy higher returns and as the firms in these countries respond to lower global interest rates.

The overall impact on other countries' GDP is generally similar to that of the United States, but for different reasons (Figure 12). There is an initial drop in GDP for most G-20 economies driven by a weakened trade balance, but the increase in investment from capital inflows and lower real interest rates means a permanently larger capital stock that boosts GDP in the long-run.

The effects for China, the largest trading partner of the United States, are more muted because of its exchange rate policy. China manages its exchange rate against a basket of currencies, which is reflected in the Henderson-McKibbin-Taylor rule for China in the G-Cubed (G-20) model.^{xiv} As the United States dollar depreciates, Chinese authorities loosen monetary policy to achieve their exchange rate target that, in turn, stimulates investment in China through lower interest rates and thus boosts GDP more than other countries (Figure 13). The same is true for Saudi Arabia that maintains a pegged exchange rate against the U.S. dollar. Figure 14 summarizes these cross-country spillovers by showing the first-year impact of fiscal consolidation in the United States on each G-20 economy's GDP. The economies that suffer the largest first year contractions are Canada, Mexico, Germany, and the eurozone—the largest trading partners of the United States.

Figure 10: Trade balance

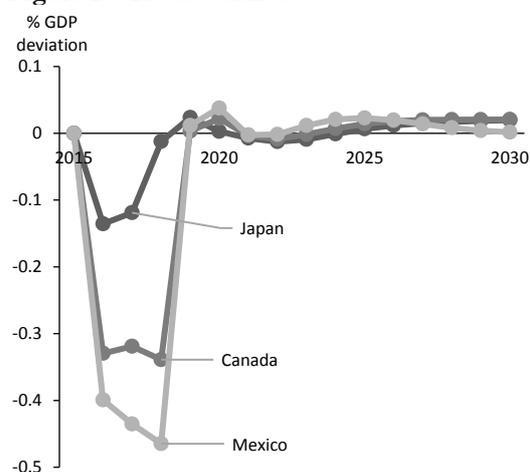


Figure 11: Investment

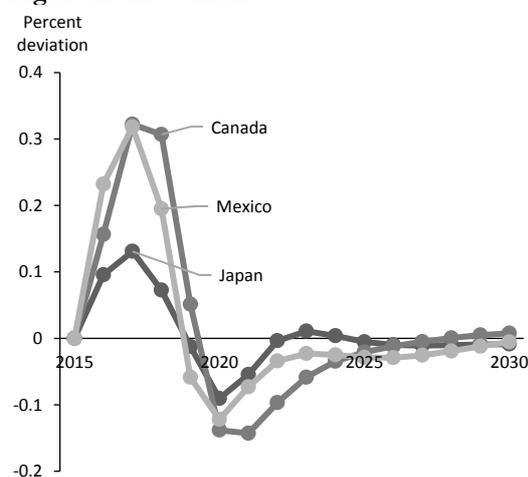


Figure 12: Real GDP

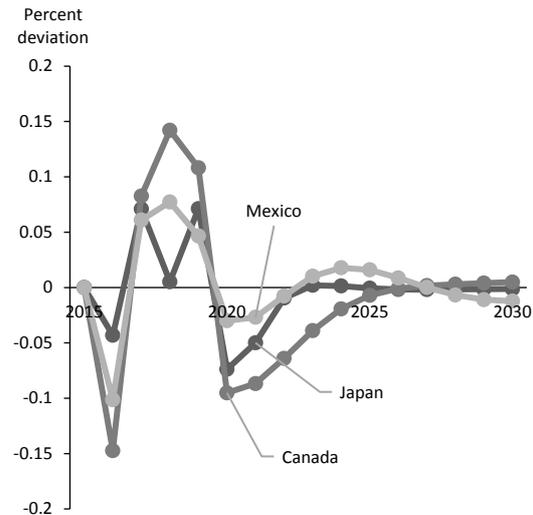


Figure 13: China GDP

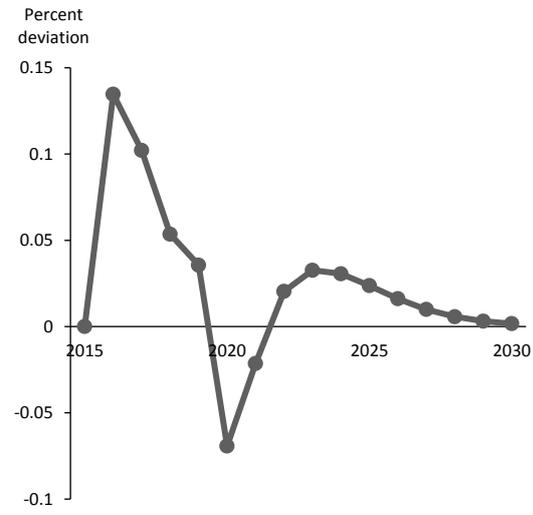
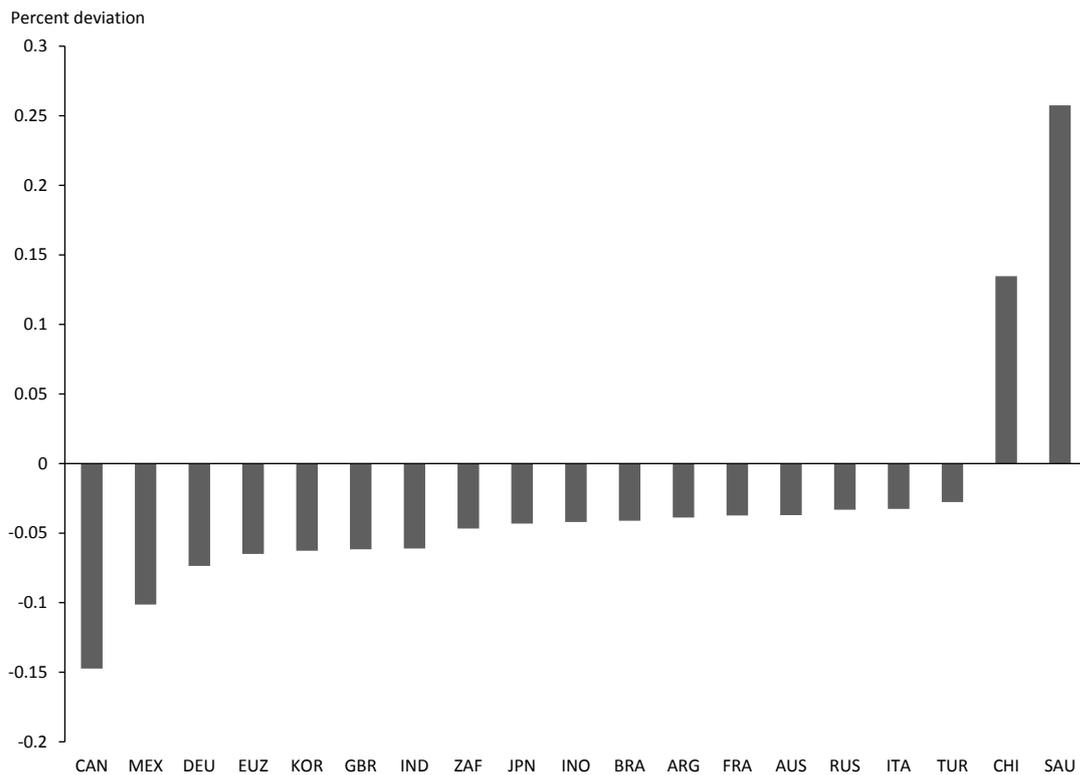


Figure 14: The impact of fiscal consolidation in the United States on G-20 economies

The impact on GDP in each G-20 economy in the first year after an expansion in US fiscal policy



Now consider how consolidation from other G-20 countries impacts one another. Table 2 shows how each G-20 country’s fiscal consolidation (x-axis) impacts the other G-20 countries (y-axis). This is still assuming unilateral consolidation, meaning that only one country is consolidating at a time. For example, when Japan consolidates without any other G-20 country (x-axis), the impact on United States GDP in the first year (y-axis) is -0.02 percent. For Germany (‘DEU’), it is -0.03. For the United Kingdom (‘GBR’), it is -0.01.

Table 2: GDP impact of consolidation in one G-20 economy (x-axis) on the others (y-axis)

	USA	JPN	DEU	GBR	FRA	ITA	EUZ	CAN	AUS	KOR	TUR	CHI	IND	INO	MEX	ARG	BRA	RUS	SAU	ZAF
USA	-0.63	-0.02	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01	0.00	-0.01	0.00	-0.02	-0.01	0.00	0.00	0.00	-0.01	0.00	0.00	0.00
JPN	-0.04	-0.43	-0.01	-0.01	-0.01	0.00	-0.01	0.00	0.00	0.00	0.00	-0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
DEU	-0.07	-0.03	-0.27	-0.02	0.07	0.05	0.00	-0.01	-0.01	-0.01	-0.01	-0.04	-0.01	0.00	-0.01	0.00	-0.01	0.00	0.00	0.00
GBR	-0.06	-0.01	-0.02	-0.22	-0.02	-0.02	-0.03	-0.01	-0.01	-0.01	0.00	-0.03	-0.01	0.00	0.00	0.00	-0.01	-0.01	0.00	0.00
FRA	-0.04	-0.01	0.18	-0.02	-0.68	0.05	0.01	0.00	0.00	0.00	0.00	-0.01	0.00	0.00	0.00	0.00	-0.01	0.00	0.00	0.00
ITA	-0.03	-0.01	0.16	-0.01	0.06	-0.48	0.02	0.00	0.00	0.00	0.00	-0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EUZ	-0.06	-0.02	0.14	-0.03	0.06	0.04	-0.42	-0.01	-0.01	-0.01	0.00	-0.03	-0.01	0.00	0.00	0.00	-0.01	0.00	0.00	0.00
CAN	-0.15	-0.02	-0.02	-0.01	-0.01	-0.01	-0.02	-0.24	0.00	-0.01	0.00	-0.03	-0.01	0.00	-0.01	0.00	-0.01	0.00	0.00	0.00
AUS	-0.04	-0.03	-0.01	-0.01	-0.01	-0.01	-0.02	0.00	-0.26	-0.01	0.00	-0.05	-0.01	0.00	0.00	0.00	-0.01	0.00	0.00	0.00
KOR	-0.06	-0.04	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01	0.00	-0.10	0.00	-0.04	-0.01	0.00	0.00	0.00	-0.01	0.00	0.00	0.00
TUR	-0.03	-0.01	-0.02	-0.01	-0.01	-0.01	-0.02	0.00	0.00	0.00	-0.16	-0.02	-0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
CHI	0.13	-0.04	-0.01	-0.01	-0.01	-0.01	-0.01	0.00	0.00	-0.01	0.00	-0.50	-0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
IND	-0.06	-0.02	-0.01	-0.02	-0.01	-0.01	-0.02	-0.01	0.00	-0.01	0.00	-0.04	-0.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00
INO	-0.04	-0.03	-0.01	-0.01	-0.01	-0.01	-0.01	0.00	0.00	-0.01	0.00	-0.03	-0.01	-0.22	0.00	0.00	0.00	0.00	0.00	0.00
MEX	-0.10	-0.03	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01	0.00	-0.01	0.00	-0.03	0.00	0.00	0.06	0.00	-0.01	0.00	0.00	0.00
ARG	-0.04	-0.01	-0.02	-0.01	-0.01	-0.01	-0.02	0.00	0.00	0.00	0.00	-0.03	-0.01	0.00	0.00	-0.26	-0.03	0.00	0.00	0.00
BRA	-0.04	-0.01	-0.01	-0.01	-0.01	-0.01	-0.02	0.00	0.00	0.00	0.00	-0.03	-0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
RUS	-0.03	-0.02	-0.02	-0.01	-0.01	-0.01	-0.03	0.00	0.00	0.00	0.00	-0.02	-0.01	0.00	0.00	0.00	0.00	0.00	-0.17	0.00
SAU	0.26	-0.02	-0.01	-0.01	-0.02	-0.02	-0.01	0.00	0.00	-0.01	0.00	-0.03	-0.01	0.00	0.00	0.00	-0.01	-0.01	-0.22	0.00
ZAF	-0.05	-0.02	-0.02	-0.01	-0.01	-0.01	-0.03	0.00	-0.01	-0.01	0.00	-0.04	-0.01	0.00	0.00	0.00	-0.01	0.00	0.00	-0.18

Red numbers denote the five countries most significantly affected

The red numbers in Table 2 represent the top five G-20 economies most negatively impacted by the consolidation. They are typically those that have the strongest trade links with the consolidating country. Discussed further below, openness to trade, monetary policy rules, and exchange rate frameworks play a critical role in these results.

Table 1 can also be read from left to right to see which economy's consolidation impacts which economies the most. Australia, for example, is impacted most heavily when there is consolidation in China, the U.S., Japan, and Korea (Australia's biggest trading partners). Similarly, the United States is most impacted by consolidation in Canada and Mexico.

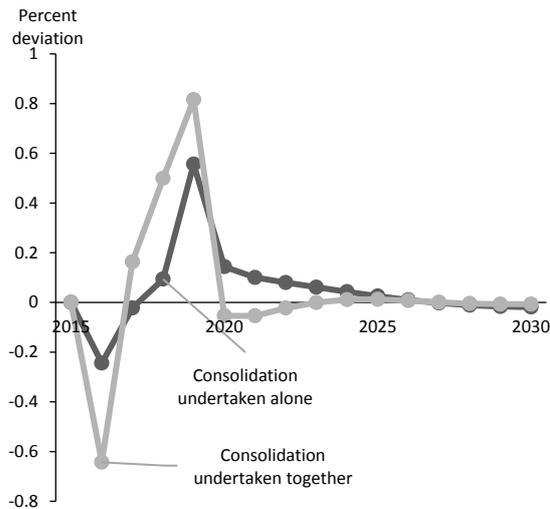
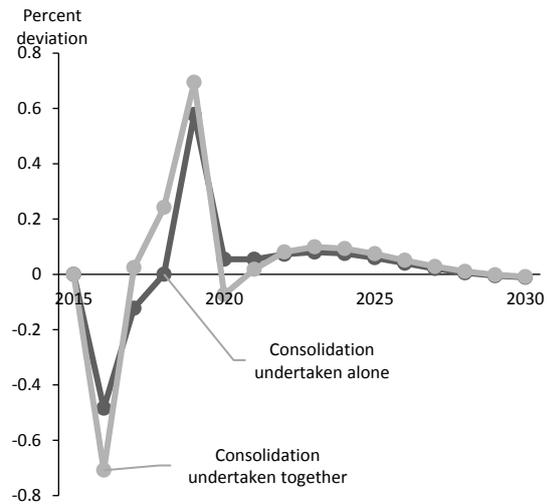
Consolidation when undertaken together

So far, the focus has been on when consolidation is undertaken by a G-20 country on its own. The question for this section is what happens when all G-20 economies consolidate at the same time. Are countries better off consolidating together or are they better off consolidating alone?

The answer, it seems, will depend on whether policymakers are concerned about the short-run or the long-run.

In the short-run, consolidating together tends to make things worse. On average, the first-year contraction in GDP is more than twice as severe (106 percent) when G-20 economies consolidate together than when they consolidate alone.

In the long-run, however, countries are better off consolidating together. Figures 15 and 16 show the results for Canada and Brazil, which are broadly typical for most G-20 economies. While coordination results in a sharper initial contraction in GDP, it results in a larger longer-term expansion, too. Coordination essentially exacerbates the dynamic Keynesian path described above.

Figure 15: GDP in Canada: Consolidating alone compared to consolidating together**Figure 16: GDP in Brazil: Consolidating alone compared to consolidating together**

The sharper initial contraction in GDP is primarily from the effects on exchange rates. When a country consolidates on its own, interest rates fall, which through capital outflows depreciates the exchange rate. This boosts its trade balance that, in turn, partially offsets the negative effects of the fiscal withdrawal. But when consolidation is coordinated, this exchange rate effect is more muted given that trade and investment partners are doing the same thing. As a result, the offsetting boost to the trade balance is smaller and thus the short-term contraction in GDP is more severe.

The faster recovery and higher long-run trajectory of GDP can be explained by capital flows and investment. Because more countries are consolidating, the stock of global savings (that would otherwise be locked-up in government debt) is increased. This pushes down global interest rates, which lifts investment and grows capital stocks, all of which result in higher long-run GDP.

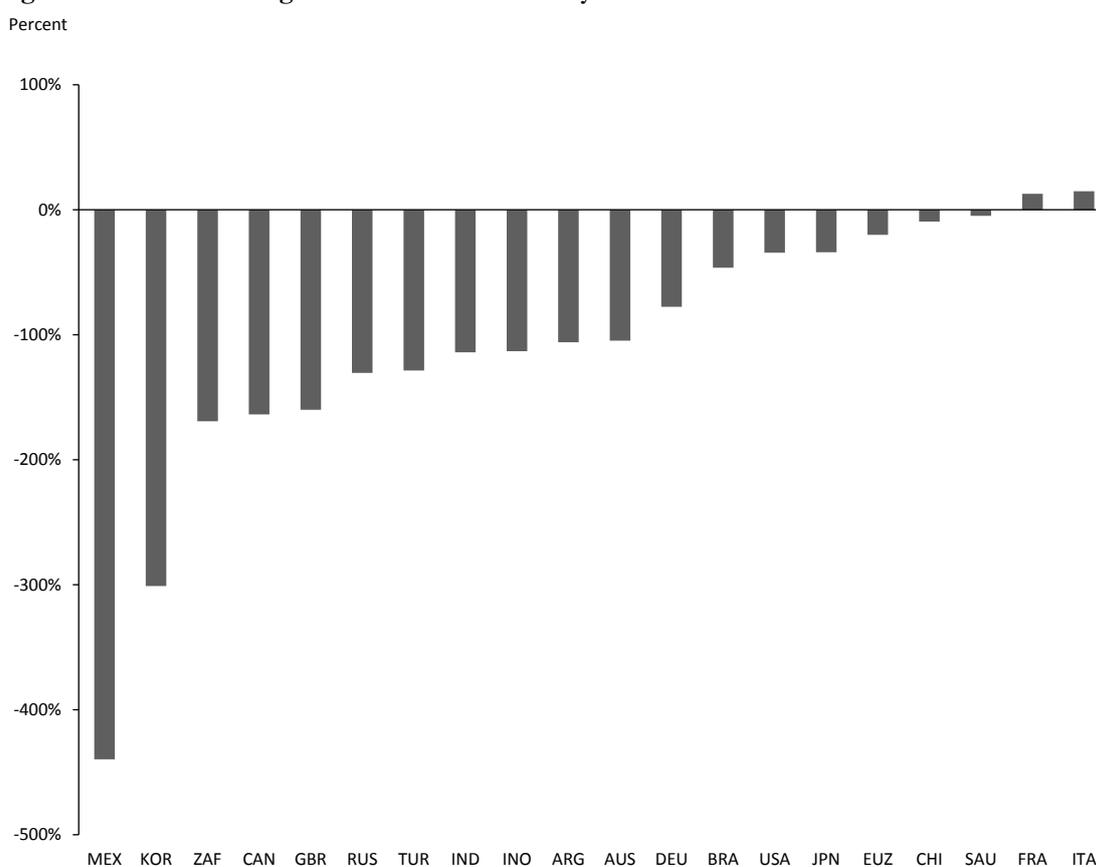
However, as mentioned earlier, the strength and direction of these transmission mechanisms differ between countries depending on a variety of economy-specific characteristics. As a result, countries will not necessarily be impacted by coordination in the same way.

Figure 17 shows how much each country benefits or loses from coordination in the short-run. It shows, as a percentage, how much larger the contraction in first year GDP is when consolidation is coordinated. The only countries that benefit from coordinated consolidation are France and Italy, although the impact on Saudi Arabia and China is comparatively marginal. For each of these four countries, this is because of their different monetary policy and exchange rate frameworks. France and Italy benefit from coordination because they share a common currency. The cost of unilateral consolidation in Italy and France is relatively high (see Table 2) because they do not experience an offsetting depreciation in their currency since it is shared with other economies which are not consolidating. But when consolidation is coordinated across other euro zone countries, the

effect is powerful enough to depreciate the exchange rate more significantly which, in turn, acts to offset the short-term cost of consolidation. As a result, France and Italy are better off in the short-term from coordination compared to acting alone.^{xv}

There is a similar result for China and Saudi Arabia. As discussed earlier, China pursues a managed exchange rate against a basket of currencies, most prominently the U.S. dollar, and Saudi Arabia maintains a conventional exchange rate peg against the U.S. dollar. Similar to France and Italy, this means that unilateral consolidation imposes a larger cost for them than is the case for other countries. Coordination therefore helps alleviate some of this short-term contraction through the effect on the exchange rate.

Figure 17: How much larger the contraction in first year GDP is when consolidation is coordinated



The rest of the G-20, however, experiences a sharper contraction in GDP in the first year because of coordination. The countries that suffer the most from coordination tend to be the more open, trade-exposed economies with floating exchange rates. As discussed earlier, this is because they suffer more from losing the offsetting depreciation of their currencies that comes with coordination. Korea, South Africa, and Canada are examples. The larger advanced economies like Japan, the United States, and Germany tend to experience a smaller short-term contraction because the size of their economies means they are less impacted on global shifts.

Mexico stands out as experiencing the largest first-year GDP loss from coordination. This is because capital flows tend to be highly sensitive to changes in Mexico's fiscal policy. Mexico is the only G-20 economy that, when it consolidates alone, experiences an increase in GDP—an expansionary fiscal contraction—that is driven by a large increase in investment and a sharp improvement in the trade balance. However when the rest of the G-20 is consolidating too, Mexico suffers a contraction in first year GDP. The result is that Mexico is comparatively worse off from coordination than is the case for countries that suffer a loss both when consolidating alone and together.

Is there a case for coordination?

In sum, whether there is a case for coordination or not depends on whether policymakers are more interested in the short-run or the long-run. Coordination generally makes the short-term contraction in GDP more severe but makes the medium-term boost to GDP more significant as a larger pool of savings is released into the global economy, depressing interest rates and boosting investment.

The question, therefore, is whether policymakers are more interested in the short-term or the long-term. There are many ways a researcher could explore this question. These could include event-analysis of policy decisions or textual analysis of public announcements and speeches. An alternative approach, however, is to ask policymakers directly.

This was the approach taken in this paper. Section 4 reports the detailed findings from in-depth interviews with 61 policymakers and officials. Without repeating those conclusions here, a key finding is that policymakers are typically more focused on the short-term than the long-term when it comes to the impact of fiscal consolidation. Policymakers from 15 of the G-20 countries, for example, considered the economic benefits of coordinated consolidation to be either zero or negative, which, according to the above analysis, suggests a short-term focus.

But before moving on to consider the results from these in-depth interviews in more detail, it is worth using the G-Cubed (G-20) model to explore whether there is a way to reduce the short-term costs of consolidation, given they appear to be of particular concern to policymakers.

Section 3.3 considers what role investor confidence might play. It simulates a proportional reduction in risk premia, which occurs simultaneously with reductions in deficits (as observed by Veld and Roeger, 2013; Laubach, 2009; Poghosyan, 2012). It explores whether this acts to reduce this short-term cost enough so that coordination produces a better outcome than acting alone.

Section 3.4 then considers whether the short-term costs of consolidation can be reduced by being more selective about which countries undertake consolidation. It looks at whether G-20 countries are better off if fiscal consolidation is only undertaken by economies that are relatively indebted. This, in turn, means the overall fiscal withdrawal from the global economy is less severe and, perhaps, could reduce the short-run cost of consolidation.

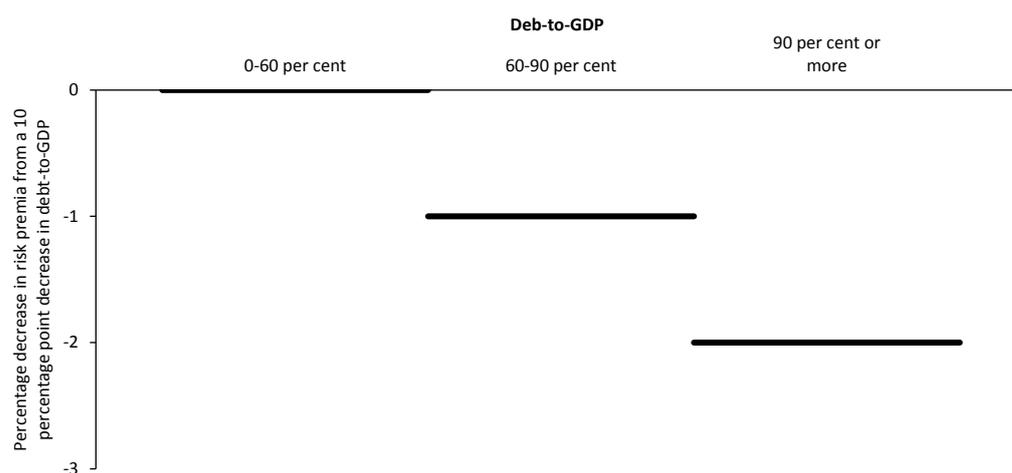
Section 3.5 takes this a step further. It explores the implications of a G-20 ‘grand bargain’ where relatively indebted countries undertake fiscal consolidation while countries with relatively little debt undertake offsetting fiscal stimulus. Will this be enough to eradicate the short-term cost of fiscal consolidation? And would all G-20 economies have an incentive to participate in such a grand bargain?

3.3 The confidence effects of reducing deficits

If Veld and Roeger (2013), Ardagna et al (2004) and others^{xvi} are correct, then reducing the size of a country’s fiscal deficit may also see a boost in confidence whereby investors become more willing to invest in that country. In both the G-Cubed and G-Cubed (20), this is modelled as a reduction in country risk premia. This means that, all else equal, investors now demand a smaller risk premium for investing in that country because it has a smaller deficit.

For the studies that find such a relationship, the literature gives different estimates of the impact of reduced debt and deficits on risk premia (see Ardagna et al, 2004; Laubach, 2009; Poghosyan, 2012). Veld and Roeger (2013) found that increased debt had no effect on risk for countries with debt-to-GDP less than 60 percent. But for countries with debt-to-GDP between 60 and 90 percent, they found that a 10 percentage point increase in debt-to-GDP increased risk premia by 1 percent. For countries with debt-to-GDP exceeding 90 percent, they found that a 10 percentage point increase in debt-to-GDP increased risk premia by 2 percent. A stylised representation of the relationship from Veld and Roeger (2013) is shown in Figure 18.

Figure 18: The assumed increase in risk premia from a 10 percentage point increase in debt-to-GDP for economies, based on their existing debt-to-GDP ratio



Source: Based on Veld and Roeger (2013)

Although some studies produce different estimates than Veld and Roeger, it nevertheless provides a starting point – the results from which can then be scaled according to alternative estimates. Applying these findings in a linear fashion to G-20 countries suggests that a 1 percent decrease in spending for three years will have the effects on country risk

shown in Table 3. Half of G-20 economies experience no change because their debt-to-GDP is under 60 percent. A quarter of economies experience a moderate reduction in risk because their debt-to-GDP is between 60 and 90 percent. Another quarter of G-20 countries experience a large reduction in risk because their debt-to-GDP is over 90 percent of GDP.

Table 3: Cumulative percentage increases in country risk premia from fiscal expansion

	Year 1	Year 2	Year 3 and beyond
Argentina	0	0	0
Australia	0	0	0
Brazil	-0.01	-0.02	-0.03
Canada	-0.02	-0.04	-0.06
China	0	0	0
France	-0.02	-0.04	-0.06
EU	-0.01	-0.02	-0.03
Germany	-0.01	-0.02	-0.03
India	-0.01	-0.02	-0.03
Indonesia	0	0	0
Italy	-0.02	-0.04	-0.06
Japan	-0.02	-0.04	-0.06
Korea	0	0	0
Mexico	0	0	0
Russia	0	0	0
Saudi Arabia	0	0	0
South Africa	0	0	0
Turkey	0	0	0
United Kingdom	0.02	0.04	0.06
United States	0.02	0.04	0.06

Source: Calculations based on Veld and Roeger (2013) and IMF World Economic Outlook database, Oct 2017

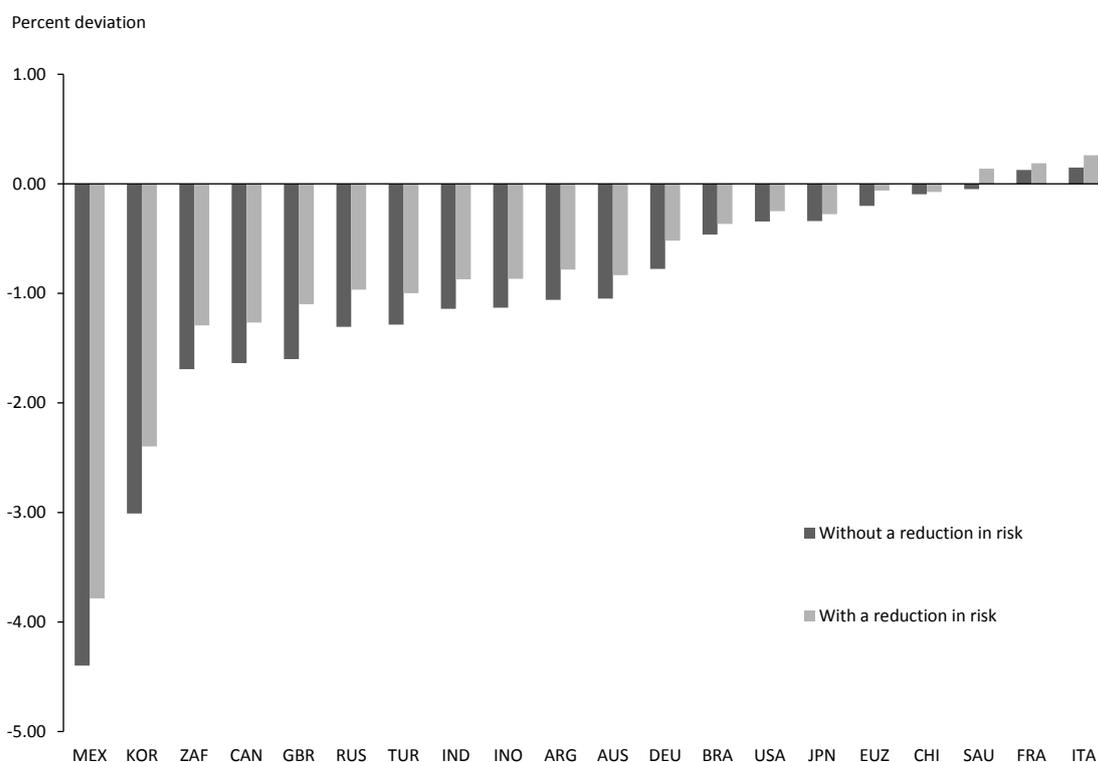
The effect of a reduction in risk premia in the G-Cubed (20) model is to cause a global reallocation of capital. Because investors perceive these economies to be less risky than before, they are more willing to hold assets in those countries. Because of this risk reappraisal, capital pours into the economies to obtain higher (risk-adjusted) returns. Importantly, this reduction in risk is assumed to be staggered, but permanent. Risk falls as deficits are reduced, but risk remains lower for the rest of time.

This reduction in risk acts to offset some of the negative short-term effects in those economies. While the effect of fiscal consolidation is to push-out capital, the effect of increased risk is to pull it in. The net impact is to reduce the size of the short-term contraction in GDP.

When there is no reduction in risk, the impact of coordinated fiscal consolidation was, on average, to make the first-year reduction in GDP twice as severe (106 percent). When a reduction in risk is factored in, the contraction in first-year GDP is around one-fifth less severe (81 percent). This is illustrated in Figure 19 for each economy. The countries that suffer a larger first-year contraction because of coordination now suffer a slightly smaller one. The countries that benefit from coordination now benefit slightly more.

Figure 19: Coordinated fiscal consolidation with and without a reduction in risk

How much larger the contraction in first year GDP is when consolidation is coordinated with an increase in risk, compared to when consolidation is coordinated without an increase in risk.



It follows from Figure 19 that, although a boost in investor confidence acts to reduce the size of the first-year contraction in GDP, the increase in confidence would need to be very large – much larger than the estimates in the literature – to offset it completely. Factoring in a boost to confidence does not reduce the short-term cost of consolidation that occupies the concerns of policymakers.

3.4 Asymmetric consolidation

This raises the question of whether asymmetric consolidation or consolidation with offsetting stimulus could achieve this goal.

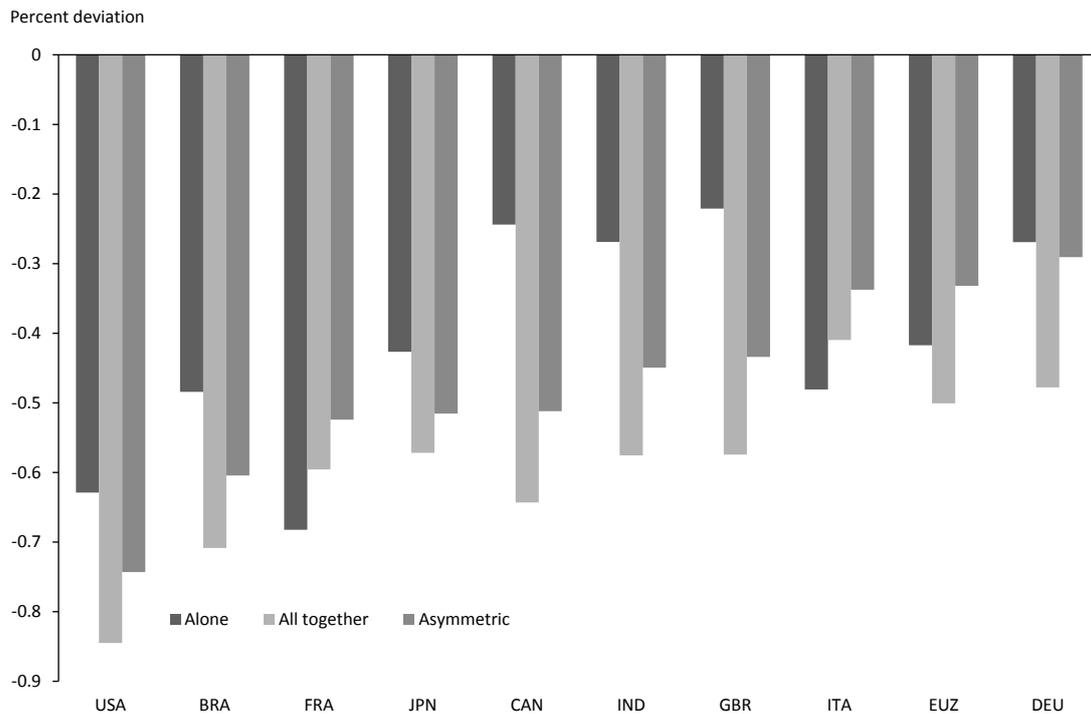
Using the results in Table 3 from Veld and Roeger (2013) as a benchmark, this section assumes that the only G-20 countries that are undertaking fiscal consolidation are those with debt-to-GDP ratios above 60 percent. This splits the G-20 in half where half of the G-20 is consolidating and the other half is not.

For the relatively indebted countries that are undertaking the consolidation, the effect of this policy is not surprising (Figure 20). The overall contraction in their first-year GDP is now smaller when only some G-20 economies are consolidating compared to when all G-20 economies are consolidating. But these economies are still better off consolidating on their own than consolidating together. Having asymmetric consolidation, therefore, does not eliminate the short-term cost to consolidation from coordinating (the exception, as was

the case earlier, is the eurozone economies). The rest of the G-20 also sees a contraction in first year GDP but, given they are not consolidating themselves, it is obviously smaller than in the previous scenarios since it is purely from spillovers from the consolidating countries.

Figure 20: Asymmetric consolidation compared to consolidating alone and all together

How much larger the contraction in first year GDP is when consolidation is coordinated with an increase in risk, compared to when consolidation is coordinated without an increase in risk, compared to when consolidation is asymmetric.



3.5 Asymmetric consolidation

Finally, the above results can be extended to see what happens in a global grand bargain scenario where the relatively indebted countries undertake consolidation and the rest of the G-20 undertakes fiscal stimulus. Does it offset the short-term contraction caused by consolidation?

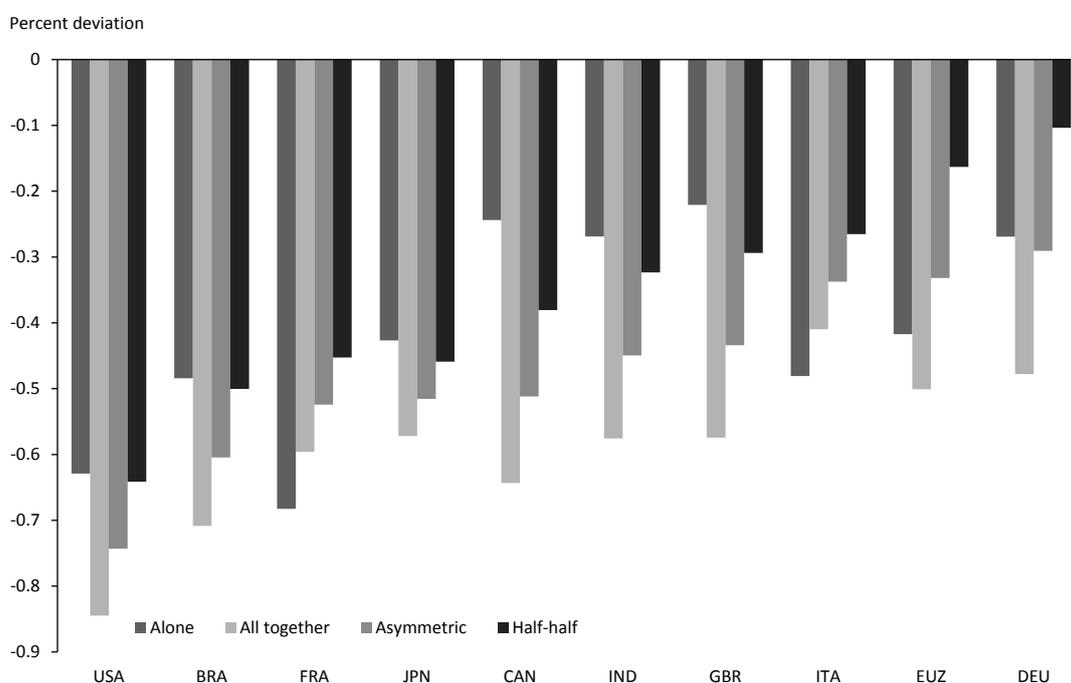
The answer still appears to be: no. Even with the rest of the G-20 undertaking fiscal stimulus, the net effect for first year GDP for the countries undertaking fiscal consolidation is still negative. They are still better off (albeit only marginally) undertaking consolidation alone than undertaking it together. The eurozone countries are, again, the exception due to the effects of their common currency.

It is also questionable whether the rest of the G-20 would agree to undertake fiscal stimulus in the first place. Putting aside the political feasibility of countries undertaking fiscal stimulus to help another country reduce their deficit (discussed in Section 4), the stimulating economies do not have strong incentives to participate in this grand bargain. The consolidation by the relatively indebted countries acts to reduce the benefits of fiscal stimulus in these economies. Hence, if the goal of these economies were to stimulate their

economies, then they would prefer to act alone, rather than as part of a global grand bargain where the other half of the G-20 undertakes consolidation that, in turn, offsets some of the domestic benefits of stimulus. The key outcome of this grand bargain is to essentially shift some of the global stock of debt from the balance sheets of the relatively indebted countries to the balance sheets of the countries that have less debt. In sum, while some consolidating countries (such as Germany) may have a strong incentive to participate in this grand bargain, the stimulating countries do not share this incentive.

Figure 21: When half the G-20 consolidates and the other half stimulates: The results for consolidating countries

How much larger the contraction in first year GDP is when consolidation is coordinated with an increase in risk, compared to when consolidation is coordinated without an increase in risk, compared to when consolidation is asymmetric, compared to when half the G-20 consolidates and the other half implements fiscal stimulus



3.6 Conclusion: Is there a case for coordination?

The preceding analysis shows that whether there is a case for coordinated consolidation fundamentally hinges on the time preference of policymakers. If they are focused on the long-term, then there is a strong case for coordination. If they are focused on the short-term, the case for coordination is weaker given that coordination makes the short-term contraction in GDP twice as severe. This hinges on intertemporal effects of fiscal consolidation highlighted in this analysis: it reduces GDP in the short-term and increases it in the long-term. Hence, if policymakers are focused on the short-term then their preference will be to consolidate on their own rather than having the rest of the G-20 consolidate at the same time as them.

This section showed that if consolidation simultaneously acts to boost investor confidence then the short-term contraction in GDP is around one-fifth smaller but is far from entirely offset. The analysis suggests that for the short-term contraction to be completely offset—resulting in an expansionary fiscal contraction – the increase in confidence would need to be very large—far larger than what the empirical estimates reported in most studies suggest is likely.

Finally, this section explored whether this short-term contraction in GDP might be removed by having consolidation limited to the G-20 economies that are relatively indebted or, going further than this, having offsetting fiscal stimulus in other G-20 economies. In both instances, this section found that countries are still better off consolidating alone. Having asymmetric consolidation or having offsetting stimulus from non-consolidating countries is insufficient to mitigate the short-term contraction in GDP.

Much of this analysis, however, hinges on the critical assumption alluded to earlier: that policymakers are more concerned about the short-run than the long-run. The following section looks at whether this is true. It reports the results from in-depth interviews with G-20 politicians and officials. It explores not only whether policymakers are focused on the short-run or long-run, but also whether the G-20's focus on fiscal consolidation resulted in them changing their policies and what they perceived to be the benefits of coordinated consolidation, both economically and politically.

Box 1: Incentives and negotiating strategies: do they align?

The policy positions of some countries in the G-20 strongly align with their economic incentives while, for other countries, they do not.

Germany, the EU, and China, for example, all benefit significantly from coordinated fiscal consolidation when: (1) they are not required to undertake consolidation themselves; and (2) consolidation is undertaken by the five most heavily indebted G-20 countries. This was largely the outcome of the Toronto commitments for which Germany, the EU, and China advocated. Under the Toronto commitments, Germany, the EU, and China were not required to undertake much consolidation, if any, while the five most heavily indebted G-20 countries were. Whether coincidental or not, the economic incentives of these countries strongly aligned with their policy positions in the G-20. Germany and the EU, in particular, have been vocal advocates for fiscal consolidation in both the G-20 and in the European periphery and both, according to this analysis, have benefited from it.

Canada, on the other hand, was also a major advocate of the Toronto commitments, particularly its former Prime Minister, Stephen Harper. But, interestingly, Canada suffers most when its largest trading partner, the United States, decides to undertake fiscal consolidation. The best scenario for Canada is where it undertakes consolidation alone and encourages stimulus from the United States. If achieved, this delivers Canada an expansionary fiscal consolidation. But, instead, Canada used its G-20 host year in 2010 to encourage consolidation in the United States, something which runs counter to its economic incentives.

4. Why G-20 countries did what they did

The G-20 provides a framework for politicians to argue domestically to do things that they otherwise couldn't do but want to do. It provides political backup – *Wayne Swan, former Treasurer, Australia, interviewed 21 March 2017.*

This paper has argued that the G-20 fell short of its goals around coordinated fiscal expansion and that the case for coordinated fiscal consolidation is not strong in the first place, assuming policymakers are more concerned about the short-term than the medium-term. But these results raise several questions.

First, were the G-20's efforts on fiscal consolidation genuinely coordinated? Did countries change their policies because of the G-20? Or was it business-as-usual masquerading as coordination?

It depends on how you define coordination. In response to a sound everyone turns their head. We might say 'oh look, everyone coordinated in turning their heads' but in reality it was a similar response to a common shock. During the crisis, some countries would have had a similar fiscal policy response regardless of the G-20 – *Phil Lowe, Governor of the Reserve Bank of Australia, Australia, interviewed 29 April 2017.*

Second, are policymakers more concerned about the short-term or the medium-term when it comes to issues around debt and deficits? Did policymakers perceive there to be economic benefits from coordinated consolidation?

And, third, if countries did not perceive there to be economic benefits from coordination (which the modelling above suggests is true in the short-term), why did they make these commitments in the first place? Are there political benefits from announcing coordinated fiscal consolidation in the G-20?

The answers to these questions are just as important for thinking about policy in the future, as they are about understanding the past. The answers to these questions, combined with the coordination modelling in Section 3 and the commitment analysis in Section 2, will help answer the critical question explored in the conclusion: Can the G-20 play a role in helping countries to reduce the global stock of debt?

The answers to these questions fundamentally hinge on how the G-20 influences domestic policies. This paper argues that there is only one *ex ante* transmission mechanism between the G-20 and the domestic policies of its members, and that is the policymakers themselves. If policies are directly influenced by the G-20, it is because the politicians and officials who attended those meetings changed the domestic policies of their country because of what was agreed and discussed. As the old saying goes: if you want answers, go to the source.

This paper has done exactly that. It reports the results from in-depth interviews with 61 leaders, central bank governors, ministers, and officials from across all G-20 countries. These individuals make up the G-20 and are responsible for shaping the policies in their countries. The findings of this paper are testament to the generosity and openness of these

policymakers in discussing their experiences in global economic cooperation. Participants included Kevin Rudd, Janet Yellen, Haruhiko Kuroda, Ben Bernanke, Jack Lew, Mark Carney, and 55 other politicians and officials to whom I am deeply grateful. The methodology used for this research and a breakdown of the sample is extracted to Appendix A.

4.1 Did countries change their policies because of the G-20?

Overall, the G-20's focus on fiscal consolidation appears to have had little effect on the policies of its members. The results below suggest that most countries came to the G-20 with the fiscal consolidation policies that they were already undertaking. Those that wanted to undertake consolidation, did. Those that did not, did not.

Policymakers from only two G-20 countries said they altered their domestic policies because of the G-20 and, even then, reported only a marginal influence. All other economies said the G-20 had no effect on their policy settings.

There were political advantages for Australia in the sense that we had already put down a set of fiscal rules irrespective of what they came up with at Toronto. We always accepted that you'd bring the Budget back to balance over the cycle and we were clearly in a growth cycle over that period - *Wayne Swan, former Treasurer, Australia, interviewed 21 March 2017.*

The fiscal commitments we made in 2014 reflected what we were trying to do anyway. In terms of outcomes, we eased up on some tax provisions, and reached a short-term agreement on annual appropriations – but I don't think it was principally because of the G-20. Those things had their own domestic momentum – *Jacob Lew, former Treasury Secretary, United States, interviewed 7 September 2017.*

Germany is a sovereign country which is sovereign like all others but we are also listening to what our partners are saying. What you see now is a boost in public investment in Germany. This is at least partly, not fully, but partly the result of discussions in the G-20 where our partners have asked us to use at least a little of our fiscal space to boost growth - *Holger Fabig, senior G-20 official, Germany, interviewed 7 April 2017.*

Many countries were already moving in the direction of fiscal consolidation. Toronto read the mood – *Gordon de Brouwer, former Sherpa, Australia, interviewed 23 February 2017.*

Do we ever think about G-20 commitments when setting fiscal policy? No, we don't. Fiscal policy is hard enough without another factor to consider. It's the other way around – we set fiscal policy and then we go off to the G-20 and try to make sure that the G-20 describes whatever it is that we've already done – that's what every country does – *Tom Scholar, former Sherpa, United Kingdom, interviewed 29 March 2017.*

To some extent, this finding is not surprising given the results from Section 2. Section 2 showed that most countries fell short of their G-20 commitments. But more importantly, Section 2 showed that the countries which signed-up to those commitments, particularly the Toronto commitments in 2010, were somewhat arbitrary. Japan, the country with the largest debt-to-GDP ratio in the world, was excluded from the commitment, as were all emerging market economies, including many of which have been identified by the IMF as

having a problem with debt and deficits. In the end, only seven out of twenty countries made commitments in 2010, and only three of them achieved them.

Policymakers gave various reasons as to why the G-20 did not influence their domestic policies. Many European policymakers said that the EU's rules under the Stability and Growth Pact leave no room for G-20 influence. Compliance with the EU's Stability and Growth Pact, they argued, meant complying with the G-20's commitments anyway.

For fiscal consolidation, most of the pressure was coming from the markets and the EU rather than the G-20 - *Giuseppe Parigi, Head of International Relations and Economic, Bank of Italy, Italy, interviewed 12 April 2017.*

Two of the 10 emerging market economies (which made commitments after 2010) said that they altered their policies because of the G-20, albeit only marginally. They said they did more to reduce debt and deficits because the G-20 helped their ministers and leaders to sell the policy domestically. The remaining eight said the G-20 had no effect and their policies were determined purely domestically.

The momentum from the G-20 was used to support fiscal sustainability measures in Indonesia, particularly the President's focus on phasing out fossil fuel subsidies. This linked well with the priorities of Indonesia – *Mahendra Siregar, former Sherpa, Indonesia, interviewed 22 May 2017.*

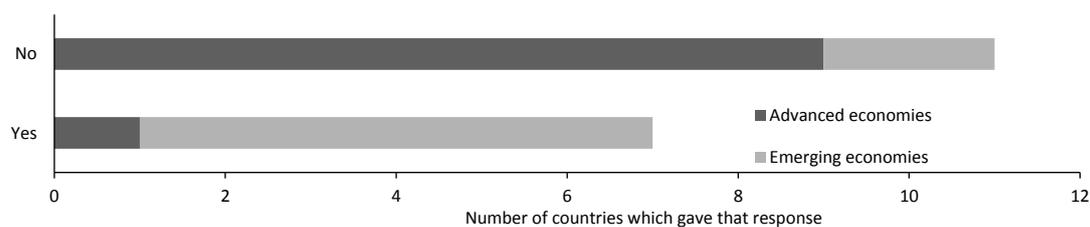
At any given time, there are hundreds of things at play in fiscal policy decisions. It would never have been an advantage to do something that is otherwise resented by the public and try to justify it by saying we are doing it as part of an international agreement. I don't think the G-20 had much effect on fiscal consolidation in India at the time – *Montek Ahluwalia, former Sherpa, India, interviewed 10 June 2017.*

The other reasons policymakers gave as to why domestic policies were not influenced by the G-20 relate to a variety of perceived economic and political considerations, discussed below.

4.2 Did policymakers see any economic benefits in coordinating consolidation?

Policymakers from 15 countries considered the economic benefits of coordinated consolidation to be zero or negative (Figure 22). The advanced and emerging market economies took opposing positions. All advanced economies, except one, considered there to be no economic benefits from coordinated fiscal consolidation while all emerging market economies, except two, considered that there were economic benefits.

Figure 22: G-20 countries that perceived there to be economic benefits from coordinated consolidation



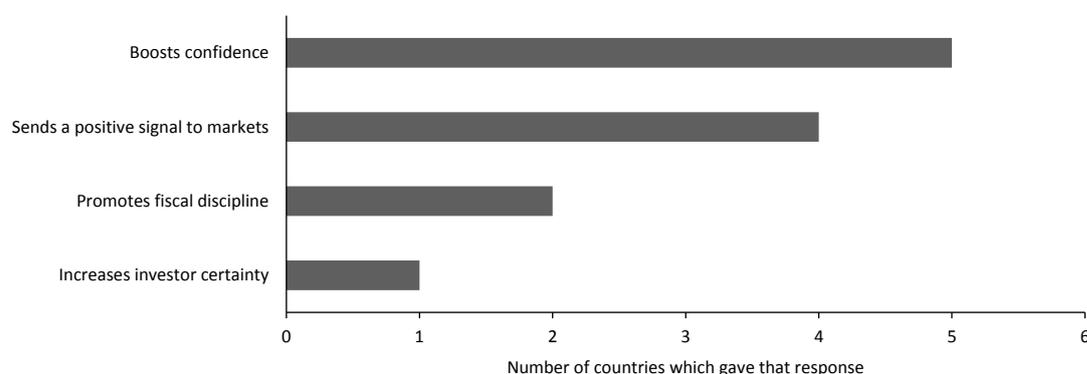
Policymakers in countries that considered there were economic benefits gave several reasons (Figure 23). The two most common reasons were that it promoted confidence and sent an important signal to the markets of recognition that deficits and debt were a problem. Other reasons were that a coordinated commitment puts greater discipline upon governments and that it improves investor certainty.

Sound public finances boost confidence so we would see a strong counterweight to this pure macroeconomic accounting approach that only considers the drop-in demand. The confidence channel is also very important, as highlighted, *inter alia*, by the Bank for International Settlements – *Holger Fabig, senior G-20 official, Germany, interviewed 7 April 2017.*

For the private market participants and investors – they need to have certainty. You need to reduce the uncertainty around the countries fiscal prospects. If they do not know how deep into debt the government will go they cannot calculate the risks or returns for their investments – *Jianxiang He, Central Bank Deputy, China, interviewed 13 June 2017.*

Why did they do it? There were lots of countries who were very concerned about financial market responses to large budget positions. A confidence concern. If you are worried about financial markets' negative response to fiscal action, then you don't want to be the one country standing out and no undertaking consolidation – *Catherine Mann, Former Chief Economist of the OECD, interviewed 11 April 2017.*

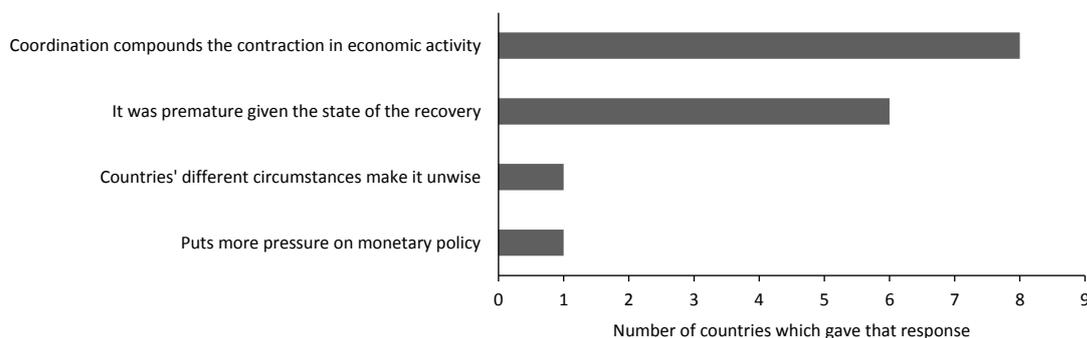
Figure 23: The perceived economic benefits of coordinated consolidation



The countries that considered there to be no economic benefits from coordinated consolidation (Figure 24) overwhelmingly focused on the short-term effects of fiscal consolidation. They argued, as shown in the modelling in Section 3, that coordination compounds the negative effects of consolidation. Less common responses were that it puts excessive pressure on monetary policy and that the different economic contexts of countries meant coordination was not appropriate.

The shift towards fiscal consolidation was a major mistake of the G-20 – *Senior G-20 official, Italy, interviewed 18 February 2017.*

With a coordinated expansion you get more stimulus than if a country does it on its own. The same is true in the other direction. So the coordinated nature of the consolidation meant that its effects were worse – *David Gruen, Sherpa, Australia, interviewed 7 March 2017.*

Figure 24: The perceived economic costs of coordinated consolidation

Given so many countries did not perceive there to be economic benefits from coordinated consolidation, the natural question that follows is why they made the commitment in the first place. The answer, it appears, is that policymakers were primarily pursuing political objectives.

4.3 Why did the G-20 make the commitment in the first place?

There were no economic advantages of coordinated fiscal consolidation. The commitment was for political purposes - *Bruno Cabrillac, central bank deputy, France, interviewed 11 April 2017.*

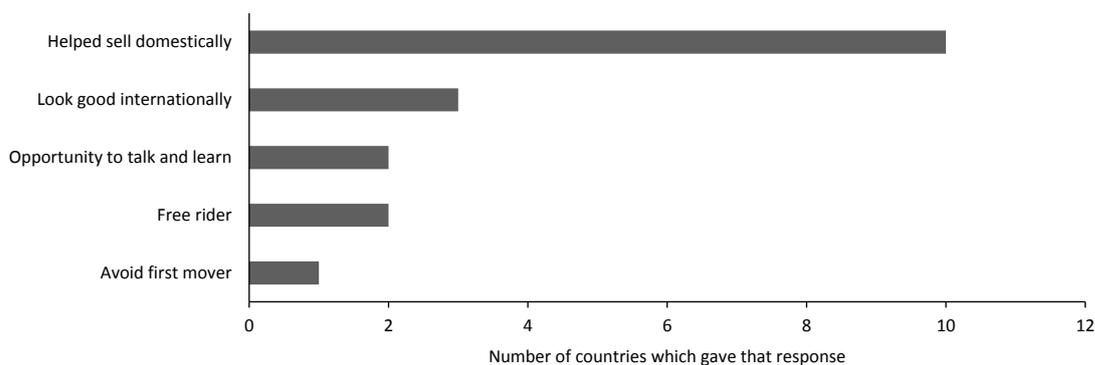
It was perhaps only coordinated in the sense that the circumstances changed and then everyone independently thought we should be moving in a different direction – *Phil Lowe, Governor of the Reserve Bank of Australia, Australia, interviewed 29 April 2017.*

Policymakers from 12 economies, predominantly advanced economies, said that the G-20's message of coordinated consolidation had a variety of political benefits. They said that the G-20 commitment helped them to sell the policy domestically and look fiscally responsible internationally. Those that saw no political benefits said that domestic or EU pressures dominated any G-20 influence.

Of course it made it politically easier. This is why countries struggled so much to get it in the declaration. They wanted to legitimize their policies – *Hugo Gobbi, former sous sberpa, Argentina, interviewed 12 May 2017.*

In Germany there is a strong constituency and strong public support for fiscal consolidation. So this makes our arguments stronger in the G-20 and it helps us domestically because the public can see us doing this domestically and internationally - *Holger Fabig, senior G-20 official, Germany, interviewed 7 April 2017.*

Policymakers from emerging market economies were split. Half said there were political benefits and half said there were not. The benefits (Figure 25) were that it helped to sell fiscal consolidation domestically, but also helped avoid free-rider concerns. Those that saw no benefit said that domestic political issues dominated any G-20 influence. Across advanced and emerging economies alike, it was the smaller economies that were more likely to suggest there were political benefits from the G-20. Larger economies were more likely to report that the G-20 provided fewer political benefits.

Figure 25: The perceived political benefits of coordinated consolidation

It would be hard for a politician to say to someone ‘we have to cut your benefits because the G-20 says so’. I suspect the response would be ‘Who? What? I thought you were the government of this country?’ – *Tom Scholar, former Sherpa, United Kingdom, interviewed 29 March 2017.*

Fundamentally, policy in the United States won’t be pulled by international consensus, it will be driven by domestic policy considerations and domestic politics. There can be a backlash in the United States if you make the argument that you are doing something to comply with international rules. I faced an enormous challenge from Congress with regards to the FSB. I mean, for goodness sake, we created the FSB! It was trying to extend our policies as best practices! – *Jacob Lev, former Treasury Secretary, United States, interviewed 7 September 2017.*

The political impact of the G-20 was not significant. There are lots of economists in Japan who are already pressuring the government to reduce debt so we don’t need outside voices – we have enough voices already – *Kazuo Momma, former central bank deputy, Japan, interviewed 19 June 2017.*

The biggest advantage of coordinated consolidation is political. Countries may be able to defend tightening their belt if they could argue that others that should expand are expanding. Thus being part of a coordinated international action can be helpful but you have to do a lot of domestic advocacy to be sure the action is properly understood. People have to understand that they will benefit from the action of others as part of a coordinated international action plan that raises growth. It is not easy – *Montek Ahluwalia, former Sherpa, India, interviewed 10 June 2017.*

If you undertake consolidation in a non-coordinated way there is a free-rider problem. If it is not done collectively then the risk is that it is not done at all – *Ksenia Yudaeva, Deputy Governor of the Bank of Russia, Russia, interviewed 27 March 2017.*

Overall, the story that emerges from these in-depth interviews is that, in most cases, the G-20 did not influence the domestic policies of its members. Most policymakers focused on the short-term and, as such, did not perceive there to be economic benefits from coordinated consolidation. Rather than being coordinated, countries were coincidentally moving in the same direction in their respective policies to reduce deficits. The reason for making the G-20 commitment on coordinated consolidation appears to have been political: it helped countries to sell their consolidation policies domestically, as well as internationally. It follows that, overall, it appears that the G-20 ‘read the mood’ of fiscal consolidation rather than catalyzed action.

5. Conclusion: does the G-20 have a role in helping countries to reducing debt?

An unfortunate legacy of the Great Recession has been a substantial increase in public debt. G-20 countries added \$33 trillion to the global stock of debt from 2007 to 2018. The weighted-average debt-to-GDP ratio of the G-20 increased by over 40 percent.

The question explored in this paper is whether G-20 coordination could help countries to reduce their debt and deficits. The answer to this question, however, critically depends on the answers to several other questions: has the G-20 been successful in its previous attempts to coordinate the reduction of debt and deficits? Is there a case for coordinated fiscal consolidation in the first place? Does coordination ease the pain of fiscal consolidation or does it make it worse? If the latter, is there another form of coordination between G-20 countries, some kind of ‘grand bargain’ scenario, that could help? And, finally, does the G-20 actually influence the policies of its members in the first place? Or are claims of coordination merely a façade?

This paper has sought to answer these questions using data analysis, a multi-country, multi-sector, intertemporal new computable general equilibrium framework called the G-Cubed (G-20) model and the results from in-depth interviews with 61 leaders, finance ministers, and central bank governors from across all G-20 countries. It finds that G-20 coordination can help countries to reduce their debt and deficits, but achieving this coordination requires a fundamental shift in thinking among G-20 policymakers.

The paper found that only three countries—Canada, Germany, and Italy—achieved the G-20 commitment to halve deficits from 2010 to 2013 and stabilize debt-to-GDP ratios by 2016. But while many countries fell short of the Toronto commitments, most countries came quite close to achieving them. Furthermore, the progress made by these countries was not ‘business as usual’. These were ambitious commitments back in 2010.

On whether there is a case for coordinated consolidation in the first place, the paper finds that it depends on your time horizon. The paper showed that coordinated consolidation makes the short-term contraction in GDP twice as severe, but also makes the medium-term expansion in GDP more significant as a larger pool of savings is released into the global economy, depressing interest rates and boosting investment.

The paper then explored whether the size of this short-term contraction could be reduced. Several studies suggest that a reduction in a country’s fiscal deficit can boost investor confidence. The paper modelled this scenario. But it found that, although a boost in investor confidence acts to reduce the size of the average first-year contraction in GDP by around one-fifth, the increase in confidence would need to be very large—much larger than the estimates in the literature—to completely offset it.

Given this, the paper looked at whether the short-term contraction could be reduced if only the relatively indebted G-20 countries undertook consolidation, meaning a smaller

fiscal withdrawal globally. Similar to the above, the paper found that the overall contraction in their first-year GDP was indeed smaller when only some G-20 economies are consolidating compared to when all G-20 economies are consolidating. But it still found that these economies are better off consolidating on their own than consolidating together. Having asymmetric consolidation, therefore, does not eliminate the short-term cost to consolidation from coordinating.

The paper then looked at whether a broader grand bargain might help. This involved having only relatively indebted countries undertake consolidation while the rest of the G-20 undertook fiscal stimulus. Even this, however, was found to be insufficient to mitigate the short-term contraction in GDP or to result in consolidating countries being better off than they would be if they consolidated alone. The paper also showed that the odds of the rest of the G-20 agreeing to this is unlikely. Other than the political infeasibility of countries undertaking fiscal stimulus to help another country reduce their deficit, the stimulating economies do not benefit from this grand bargain. The consolidation by the relatively indebted countries acts to reduce the benefits of fiscal stimulus in these economies. Hence, if the goal of these economies were to stimulate their economies, then they would prefer to act alone, rather than as part of a global grand bargain.

The paper concludes, therefore, that there is unlikely to be any feasible way to reduce the short-term contraction in GDP that tends to accompany fiscal consolidation. This means that whether there is a case for coordination or not depends on whether policymakers are concerned about the short-term or the long-term.

The story that emerged from the in-depth interviews with G-20 politicians and officials is that the vast majority of policymakers focused on the short-term rather than the long-term. Policymakers overwhelmingly saw the economic benefits from coordinated consolidation to be either zero or negative. Furthermore, the interviews found that, for most countries, the G-20's claims to coordinate fiscal consolidation were more rhetoric than reality. In most cases, the G-20 did not influence the domestic policies of its members and members did not do anything different to what they otherwise would have done. Rather than being coordinated, countries were coincidentally moving in the same direction in their respective policies to reduce deficits. The reason for making the G-20 commitment on coordinated consolidation appears to have been political: it helped countries to sell their consolidation policies domestically, as well as internationally.

Overall, then, this paper concludes that there is a case for coordinated consolidation, but only in the medium-term. Coordination through the G-20 boosts the medium-term benefits to GDP and it provides important political benefits that can sometimes be overlooked by economists. The G-20 can help policymakers to sell their policies domestically, as well as internationally. Whether such coordination is likely to occur in practice will, in turn, hinge on policymakers becoming more concerned about the long-term than the short-term.

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Attachment A – In-depth interviews methodology

The population for this research—referring to the group that the research intends to generalise its findings across—is summarized in Table A1. It can be organised by G-20 stream (left to right) and by seniority (top to bottom), multiplied by 20 countries. The objective of this research was to interview the most senior policymakers possible in each G-20 stream from each G-20 country. This implies a total sample of 60 individuals. This minimises bias by ensuring representation across all countries and streams of the G-20 given different streams often have different areas of responsibility and expertise.

Table A1: The theoretical population for the research

Leaders stream	Finance ministers stream	Central bank governors stream
Leaders	Finance ministers	Central bank governors
Sherpas (advisors to leaders)	Finance deputies	Central bank deputies
Sous-Sherpas	Finance deputy deputies	Central bank deputy deputies
Other officials	Other officials	Other officials

In total, 61 policymakers were interviewed. Table A2 shows the size of the sample and how it is distributed across countries and workstreams. The identities of the policymakers who participated in this research are confidential, except for where they have been directly quoted. All quotes have been approved by those to whom they are attributed.

There are debates in the literature on the appropriate sample size when undertaking in-depth interviews, but a sample of 61 is more than adequate given the specialised nature of this research and the unique position of the policymakers.^{xvii}

Although interviewing multiple policymakers within a country is vital to reducing potential bias (see Baxter and Eyles (2010) on the importance of ‘triangulation’) the downside is that some countries are overrepresented in the sample (E.g. Australia). To address this, the accounts of policymakers are aggregated by country. Aggregation, however, requires that there be no significant disagreement between the policymakers within a country. This turned out to be the case. It was only in rare circumstances that the accounts of policymakers differed within the same country. Where inconsistencies did arise, they were addressed through follow-up conversations and through a weighting system based on the policymaker’s area of expertise (e.g. monetary policy), the time in which they served and their seniority.^{xviii}

Finally, a challenge of any qualitative research is in standardising the data so that it can be reported in a way that is accurate but also digestible. This paper uses the commonly used technique, detailed by Dicicco-Bloom and Crabtree (2006), referred to as an ‘editing approach’. This is where the investigator reviews and identifies themes and text segments much as an editor does in organising text.^{xix} This allows the results, reported in the sections that follow, to be partially standardised, complemented with direct quotes to flesh out what policymakers meant by their responses.

Table A2: Sample distribution for the interviews of G-20 politicians and officials

Country	Total	G-20 work stream		
		Leader	Finance	Central bank
Argentina	2	2		
Australia	9	4	3	2
Brazil	1			1
Canada	3	1	1	1
China	2	1		1
European Union	3	1	1	1
France	2	1		1
Germany	3	1	1	1
India	3	1	1	1
Indonesia	2	1	1	
Italy	4	1	1	2
Japan	2			2
Mexico	1	1		
Korea	2		1	1
Russia	3	1	1	1
Saudi Arabia	1	1		
South Africa	3	1	1	1
Turkey	2	1		1
United Kingdom	7	2	2	3
United States	6	2	2	2
Total	61	23	16	22

ⁱ The paper adopts its definitions from the IMF. The 10 advanced economies are Australia, Canada, the EU, France, Germany, Italy, Japan, Korea, the United Kingdom and the United States. The 10 emerging economies are Argentina, Brazil, China, India, Indonesia, Mexico, Russia, Saudi Arabia, South Africa and Turkey.

ⁱⁱ Gillard (2014)

ⁱⁱⁱ These results are, of course, dependent on the accuracy of these forecasts, which only go to 2022. Medium-term fiscal challenges may see a further increase in debt-to-GDP for these countries in the future. However on current forecasts these countries have achieved their objective.

^{iv} China, Indonesia, Japan, Korea, Russia, Saudi Arabia and the United States.

^v IMF, 2016a

^{vi} IMF, 2016

^{vii} IMF, 2016b

^{viii} IMF, 2016c

^{ix} IMF, 2015

^x Laubach, 2009; Poghosyan, 2012

^{xi} See McKibbin and Vines (2000). Those six puzzles were: (1) the bias in trade towards consuming home goods; (2) the own-country bias in ownership of financial assets; (3) the Feldstein-Horioka result that there is a high correlation between national saving and national investment spending; (4) the international consumption-correlations puzzle – the low correlation between growth in consumption across countries – which is also expressed as the puzzle that output growth seems to be more highly correlated than consumption growth across countries; (5) the apparent breakdown of purchasing power parity in the short to medium-term or the persistence of changes in real exchange rates; and (6) the ‘exchange rate disconnect puzzle’ – shown by the apparent disconnect between exchange rates and underlying macroeconomic variables.

^{xii} See McKibbin and Stoeckel (2018).

^{xiii} An important assumption here is that the government is only reducing spending on goods and services, not on transfers to households.

^{xiv} In G-Cubed, central banks operate according to a Henderson-McKibbin-Taylor rule where interest rates evolve as a function of actual inflation, actual output and actual exchange rates relative to their respective targets. The short-term interest rate then clears the money market. This allows the model to differentiate between the monetary policy regimes of different G-20 countries which, as the simulations below show, can significantly affect how shocks are transmitted.

^{xv} This is not the case for Germany given the much larger impacts its fiscal policy has on the euro.

^{xvi} Laubach, 2009; Poghosyan, 2012

^{xvii} As summarized by Dorkin (2012), the concept of ‘saturation’ is the most important guide in determining the appropriate sample size (see also Mason, 2010). Saturation is defined as the point at which the data collection process no longer offers any new or relevant data or “when gathering fresh data no longer sparks new theoretical insights, nor reveals new properties of your core theoretical categories” (Charmaz, 2006, p. 113). Many factors are important in determining the appropriate size of a sample, including the quality of data, the scope of the study, the nature of the topic, the nature of the individuals being interviewed, the amount of useful information obtained from each participant and the qualitative method and study designed used (Morse, 2000).

^{xviii} First, the accounts of policymakers who worked within the relevant G-20 work-stream were given preference over the accounts of policymakers who did not work in that policy stream. The accounts of central bank governors, for example, were given greater weight on the topic of monetary policy than the accounts of Sherpas. Second, the accounts of policymakers who worked on the G-20 at the time that an issue was discussed were given preference over the accounts of policymakers who did not work on the G-20 at that time. For example, the accounts of finance ministers who were present for the fiscal stimulus discussions in 2009 were given preference over the accounts of finance ministers who worked on the G-20 at a later date. Third, the accounts of more senior policymakers were given preference over the accounts of less senior policymakers. The view of a central bank governor, for example, was given preference over the view of a central bank deputy.

^{xix} A team from Ontario, Canada used this strategy to apply more than 100 codes in a study to understand the smoking experience and cessation process (see Diccio-Bloom and Crabtree, 2006).



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