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# REBALANCING A LOPSIDED GLOBAL ECONOMY

Adam Triggs

**Adam Triggs** is a visiting researcher at the Global Economy and Development program at the Brookings Institution, and a Ph.D. candidate at the Crawford School of Public Policy at the Australian National University. ([Adam.Triggs@anu.edu.au](mailto:Adam.Triggs@anu.edu.au))

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## ABSTRACT

The growth in global current account imbalances has produced a lopsided global economy, characterised by large lenders and large borrowers, large savers and large consumers, and large exporters and large importers. For many years, the G-20 has committed to reducing these imbalances. But has it been successful? Are the G-20's policy prescriptions for reducing these imbalances the right ones? And have countries altered their policies because of the discussions and commitments in the G-20 or not? The paper assesses whether the G-20 has achieved its goal of reducing global current account imbalances. It then uses the G-Cubed (G-20) model—a multi-country, multi-sector, intertemporal general equilibrium model—to assess the impacts of the G-20's proposed policy agenda. It shows that the G-20's policy prescriptions—reducing the fiscal deficit in the United States, increasing public infrastructure investment in Germany and increasing domestic consumption in China—are not necessarily effective in reducing current account imbalances and, when imbalances are reduced, it often comes at the cost of the real economy. Finally, the paper uses the results from in-depth interviews with 61 policymakers from across all G-20 countries—including Janet Yellen, Kevin Rudd, Ben Bernanke, Haruhiko Kuroda, Jack Lew, Mark Carney, and 55 others—to explore whether the G-20's focus on current account imbalances influences domestic policies. It finds that while the G-20's influence has been marginal, there are ways in which it could be strengthened. The paper concludes with a discussion on how the G-20's agenda could be reformed to help reduce current account imbalances in the future.

**Keywords:** Macroeconomics, international trade and finance, computable general equilibrium models, econometric modelling, mathematical methods, intertemporal choice, fiscal policy, structural reform.

**JEL Codes:** F4, C68, C5, C02, E17, D9, D58, E62

## I. INTRODUCTION

In 2010, the U.S. Treasury Secretary Timothy Geithner wrote a letter to G-20 finance ministers. Concerned about the growth in current account imbalances between 2000 and 2007, he recommended a radical approach: that each G-20 country pledge to keep current account surpluses and deficits within 4 percent of GDP (Davies, 2010).

Geithner's idea was politely rejected. But what he tried to do highlighted the level of concern among policymakers over the growth in global current account and trade imbalances since 2000. These political concerns have intensified significantly since the election of Donald Trump as President of the U.S. (see Donnan, 2017).

International discussions on global imbalances are helpful to policymakers in understanding the overall effects of their policies, how others view their policies, how policies affect one another and so on. So I think those discussions were useful—*Ben Bernanke, former Chair of the Federal Reserve, United States, interviewed August 7, 2017.*

The current account measures the difference between the level of domestic savings and investment in an economy. Many East Asian and European economies have large current account surpluses because they generate more savings than investment opportunities, the former in periods of exceptional growth, the latter in maturity. This surplus of savings goes overseas and finances investment in economies that are in the opposite situation: Economies that have more investment opportunities than they have domestic savings to finance them. These economies, such as the U.S., United Kingdom, and Australia, have current account deficits.

Having a current account deficit or surplus is not necessarily a bad thing. A country might run a current account deficit because it has strong future development prospects, encouraging its citizens to smooth consumption by borrowing today in anticipation of a prosperous tomorrow. Conversely, a country might run a current account surplus because it has an aging population saving for retirement or because it has a mature economy with fewer investment opportunities such that its savers explore opportunities offshore.

But economists such as Maurice Obstfeld,<sup>1</sup> Kenneth Rogoff,<sup>2</sup> Ben Bernanke,<sup>3</sup> and Mervyn King<sup>4</sup> argue that the rise in global imbalances (Figure 1) was intimately linked, if not a key cause of, the global financial crisis by fueling unsustainable booms in credit and asset prices. More recently, Brad Sester from the Council on Foreign Relations has suggested that global imbalances might be a critical contributor to depressed global interest rates, with implications for long-run stability (Sester, 2016). Current account imbalances can be particularly problematic for deficit economies. Growing deficits raise the risk of a “sudden stop”—a change in sentiment where investors suddenly become unwilling to finance a country's deficit. International linkages and poor cross-border processes for the resolution of troubled banks and financial institutions mean sudden stops can quickly become global events.

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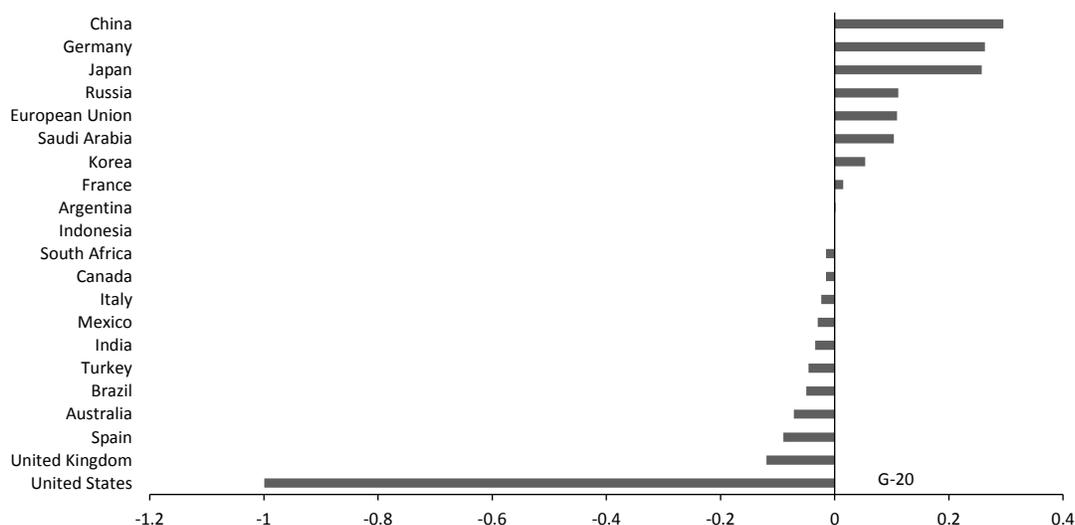
<sup>1</sup> See Obstfeld and Rogoff (2009).

<sup>2</sup> See Obstfeld and Rogoff (2009).

<sup>3</sup> See Bernanke (2009).

<sup>4</sup> See King (2016).

**Figure 1. Average current account balance from 2000 to 2016 as a percent of G-20 GDP**



Source: IMF world economic outlook database, October 2017.

Similarly, Olivier Blanchard and Gian Maria Milesi-Ferretti (2011) have warned that current account imbalances are, in many instances, not benign because they are being driven by domestic distortions. For deficit economies, these distortions can include poorly regulated financial systems that fuel asset price bubbles or irresponsible fiscal authorities reducing national savings through excessive spending. For surplus countries, distortions can take the form of a lack of social insurance driving up precautionary saving or inefficient financial intermediation leading to low investment.

Concerns around global imbalances have been prominent in international forums since 2000.<sup>5</sup> In 2008, the newly-minted G-20 leaders’ forum picked up this agenda and has continued it ever since. Leaders identified “unsustainable global macroeconomic outcomes” as a root cause of the crisis and committed to move toward “a more balanced pattern of global growth” and “adequate and balanced global demand” (G-20, 2008 and 2010). They developed the G-20 framework for strong, sustainable, and balanced growth and a Mutual Assessment Process, with a focus on addressing global imbalances. They described it as “a compact that commits us to work together to assess how our policies fit together” and to “establish a pattern of growth across countries that is more sustainable and balanced.”

The G-20 has been largely ineffective on global imbalances. It failed to create a new political consensus that you cannot simply have permanently exporting countries without creating significant imbalances for the rest of the world, which, ultimately, creates problems in financial, trade and political systems—Kevin Rudd, 26th Prime Minister of Australia, interviewed September 8, 2017.

Our argument at the Bank of England for reducing global imbalances is that countries could focus more on liberalizing trade in services. The countries that tend to have the largest trade deficits in

<sup>5</sup> In 2003, the G-7 warned there were significant risks posed by large imbalances between countries. In 2004, the European Central Bank voiced concern that the large and growing current account deficit in the United States posed significant risks for global financial stability. In 2005, Alan Greenspan added his voice to these concerns, warning that the United States current account deficit “could not widen forever.” In June 2007, the IMF’s first multilateral consultation looked at this issue. Talks included China, the euro area, Japan, Saudi Arabia and the United States. All countries agreed that reducing global imbalances was a multilateral challenge, and that resolving them in a manner compatible with sustained growth was a shared responsibility. They stressed that an orderly unwinding of imbalances was in the interest of the world economy, including because sustained imbalances in trade and current accounts could result in a sharp rise in protectionism.

goods, such as the United States, also tend to have a comparative advantage in the export of services. Liberalization of services trade would help some economies reduce their trade deficits—*Mark Carney, Governor of the Bank of England and Chair of the Financial Stability Board, interviewed February 16, 2018.*

G-20 leaders tasked finance ministers and central bank governors to develop indicative guidelines to identify the nature and root causes of global imbalances. They used the G-20's mutual assessment process to develop and monitor country-specific commitments to reduce these imbalances overtime. The imbalances they identified included public debt and deficits as well as private saving and private debt.<sup>6</sup> But over time, the G-20's concern has been primarily focused on current accounts and, more specifically, on three countries, and three policy recommendations, in particular (G-20, 2010).

I set out to President Obama what I meant by a global compact to which each continent would sign up. That would require coordinated action: first on imbalances, then on currency reserves, then on monetary and fiscal policies, and then, if possible, on trade—*Gordon Brown, former Prime Minister of the United Kingdom.*<sup>7</sup>

The first is the U.S. and its growing fiscal deficit. Among other things, it was argued that the fiscal deficit has acted to reduce national savings in the U.S., worsening its large current account deficit (Figure 1).

The second is Germany and what the IMF (2017) argues is insufficient government spending on infrastructure. Reduced government spending means higher national savings, lower investment and a larger current account surplus. Many have also argued that increased spending in Germany would help with the economic recovery in the eurozone periphery (see Krugman, 2017).

The third is China and its low level of consumption as a percent of GDP. While China's current account surplus has narrowed significantly since 2007 (discussed in the following section), the Chinese government and the G-20 remain focused on the need to rebalance the Chinese economy to increase domestic consumption and reduce savings that, in turn, means a smaller current account surplus.

But how successful has the G-20 been in reducing global imbalances? Have the discussions and commitments in the G-20 changed the domestic policies of G-20 countries or did countries simply do what they would have done anyway? And, if the G-20 did implement its agenda, has it identified the right policies? Would these policies reduce global current account imbalances if they were implemented and, if so, at what cost?

To answer these questions, Section 2 starts by looking at the trends in global current account imbalances since 2000. It looks at whether the G-20 has been successful in reducing global current account imbalances and which countries have done the heavy lifting.

Section 3 explores whether the G-20's policy agenda is the right one for reducing global imbalances and whether it might result in any unintended consequences. It introduces the G-Cubed (G-20) model: a multi-country, multi-sector, intertemporal computable general equilibrium model, detailed in McKibbin and Triggs (2018). Using this model, Section 3 simulates the impact of fiscal consolidation in the U.S., increased infrastructure investment in Germany, increased consumption in China and the impact of all three policies occurring simultaneously. It shows that the G-20's agenda does not necessarily achieve the desired outcome

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<sup>6</sup> The also identified the key culprits in each of these areas. These were China (high private saving and external surplus), France (high external deficit and public debt), Germany (high public debt and external surplus), India (high private saving and fiscal deficits), Japan (high public debt and private saving), the United States (large fiscal and external deficits), the United Kingdom (low private saving and high public debt), the euro area (external surplus and public sector debt), and Spain (external surplus and high public sector debt).

<sup>7</sup> Brown (2010).

of reducing global current account imbalances, depending on how the reforms are sequenced. Furthermore, when imbalances are reduced, this often comes at the cost of the real economy. The results also provide a compelling explanation for some of the shifts in global current accounts that have been observed since 2007.

Section 4 then uses the results from in-depth interviews with 61 politicians and officials from across all G-20 countries to explore whether the G-20's agenda on global imbalances has influenced domestic policies or not. 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 results suggest the G-20's influence has not been strong. However, the results highlight several ways in which the G-20's influence could be strengthened. Section 5 concludes with a discussion on how the G-20's agenda could be reformed to reduce global imbalances into the future.

## II. HAS THE G-20 REDUCED GLOBAL CURRENT ACCOUNT IMBALANCES?

Countries agreed that trade imbalances were a potential source of instability, and economic reforms were needed to bring them down before markets took fright or politicians decided to enter the fray with protectionist measures. But each economy was quick to point out why it was not responsible for the imbalances and why it would be so much easier for some other country to push a magic button to make them disappear. The truth was that everyone contributed in some way to the problem, but no one wanted to be part of the solution—*Raguram Rajan, former Governor of the Reserve Bank of India.*<sup>8</sup>

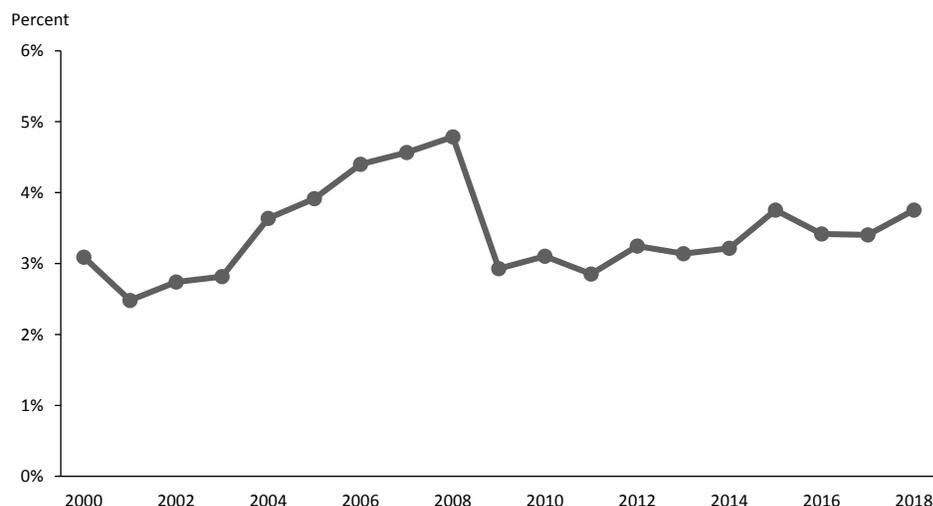
By definition, the value of the world's current account surpluses will equal the value of the world's current account deficits. The size of current account imbalances among G-20 economies can therefore be measured by summing-up the absolute values of each economy's current account balance. A large number implies a large imbalance. A small number implies a small imbalance.

The results are shown in Figure 2, which are presented as a percent of G-20 GDP since the concern is around the size of current account balances relative to the G-20 as a whole rather than each economy domestically. Figure 2 shows that global current account imbalances grew by more than 50 percent from 2000 to 2008. But the onset of the global financial crisis saw them reduce significantly. From the start of the crisis in 2008 through to 2011, these imbalances fell by 40 percent. Since then, however, these imbalances have grown once again. From their lowest point in 2011 through to 2018, global current account imbalances have grown by 32 percent.

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<sup>8</sup> Rajan (2010).

**Figure 2. The sum of the absolute value of current accounts across the G-20 (% of G-20 GDP)**

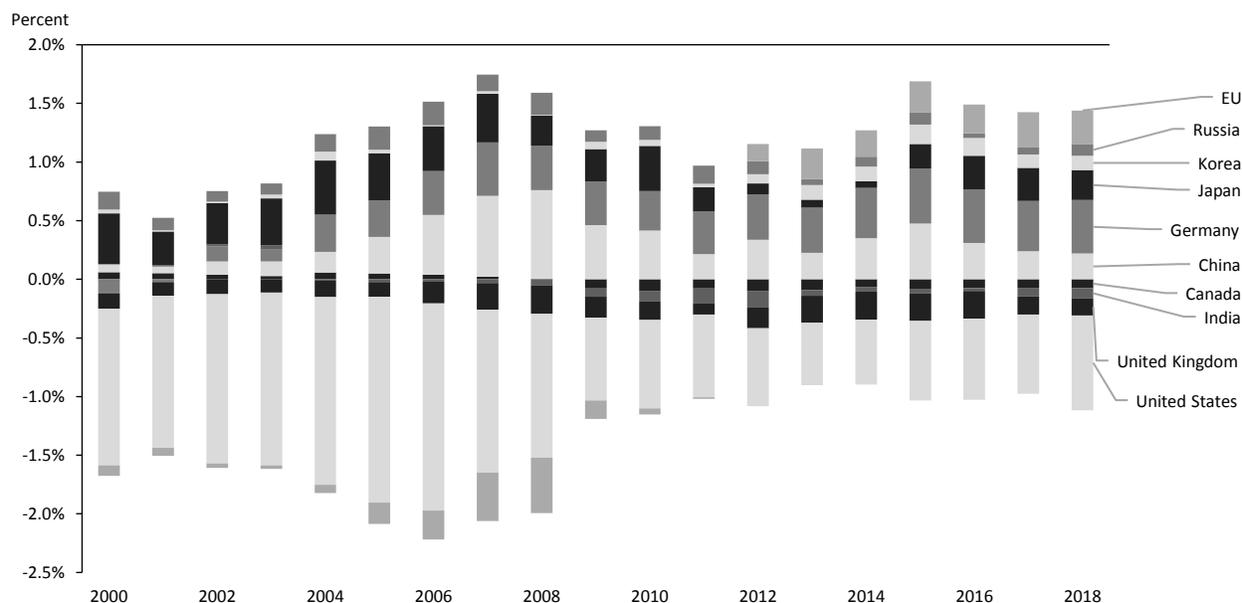


Source: IMF world economic outlook database, April 2018.

Figure 3 shows the current account balances for the G-20 countries that have the top 10 largest surpluses or deficits as a percent of G-20 GDP. It shows that the composition of the G-20's current account imbalances has shifted significantly since 2000. Before the crisis, the U.S. had a dominant current account deficit. In 2006, the U.S. deficit was, in absolute terms, larger than the current account surpluses of China, Japan, Germany, Russia, and Canada, combined. The world economy also saw a significant increase in current account surpluses from 2000 to 2008. China's current account surplus grew more than 10-fold over this period and Germany's surplus grew by more than four-fold.

The crisis not only saw a sizeable shrinking in the current accounts in many countries, but also a shift in composition in the imbalances between G-20 economies. The deficit of the U.S. shrunk by more than a third from 2008 to 2018 and China's surplus shrank by two-thirds. The surplus in Germany, however, did not shrink at all. Rather, it grew a further 20 percent. Germany now has the largest current account surplus of any G-20 economy. The world's major current account surpluses have also shifted geographically. In 2007, the largest surpluses were in East Asia whereas, in 2018, they are in Europe.

**Figure 3. G-20 countries with the 10 largest current account surpluses or deficits (% G-20 GDP)**



Source: IMF world economic outlook database, April 2018.

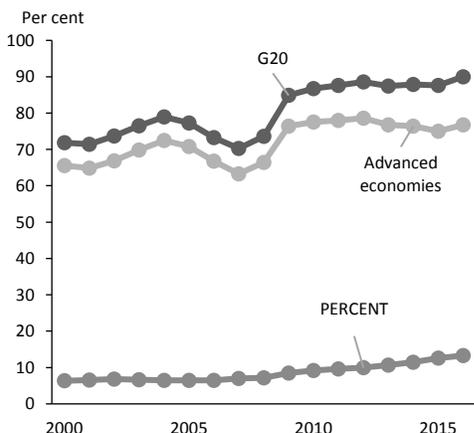
So was the G-20 successful in reducing global imbalances? Figures 2 and 3 show that global current account imbalances were indeed reduced following the global financial crisis. But there are two reasons why this does not necessarily mean the G-20 has been successful.

The first is that, as shown in Figure 2, global current account imbalances have re-emerged since 2011. While they are not quite at their pre-crisis levels, they have grown by around a third and are forecast to grow further. Sester (2016) shows that, if the world's major current account surplus and deficit economies are included (rather than the G-20 economies as in Figure 2), global current account imbalances are already back at their pre-crisis levels.

The second issue is that, even if global imbalances were reduced following the crisis, it is not clear that the G-20 was responsible for this. The IMF has been tracking the policy progress of G-20 economies in reducing current account imbalances since the early 2000s. It concluded in 2017 that much of the reduction in global current account imbalances since 2008 was the result of compressed demand in the advanced economies caused by the global financial crisis, rather than being result of policy changes among G-20 economies (IMF, 2017a). The IMF notes that, despite some progress, public debt and/or deficits remain high in many advanced economies (Figures 4 and 5) and most economies are moving in the wrong directions on household savings (Figure 6) and household debt (Figure 7). The IMF (2017) notes, however, that some individual economies have made progress in policy reform, particularly China through the rebalancing of its economy.

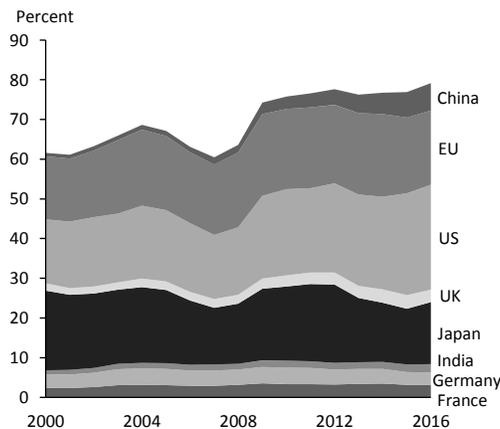
Some of the biggest external imbalances did adjust in the context of the slowdown in major economies: imports collapsed. So, the problem went away, but not for a good reason, and now we have imbalances widening again. Unfortunately, the major players don't really like the issue to be discussed in the context of the G-20—*Catherine Mann, former Chief Economist of the OECD, interviewed April 11, 2017.*

**Figure 4. Gross debt as a percent of world GDP**

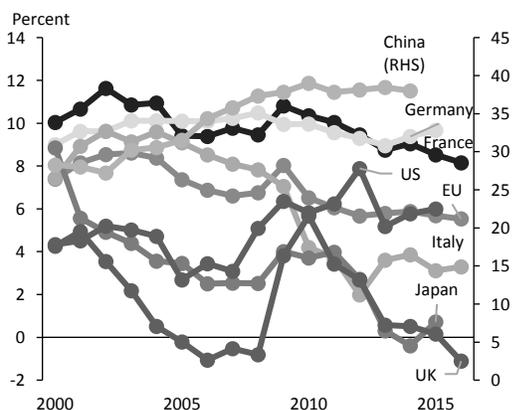


Source: IMF World Economic Outlook database October 2017.

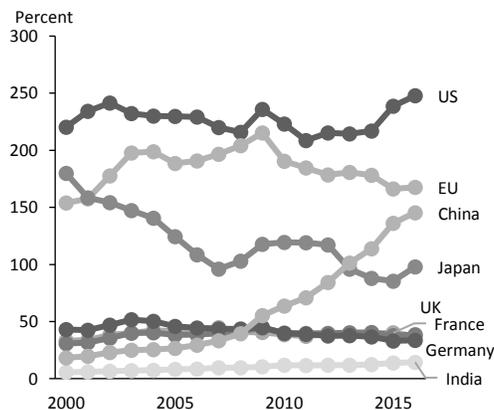
**Figure 5. Gross debt of eight IMF-identified economies as a percent of world GDP**



**Figure 6. Savings as a percent of household disposable income**



**Figure 7. Household debt: Total credit to the Non-financial sector as % of world GDP**



Source: OECD, Household savings, 2016; Bank for International Settlements, Credit to the non-financial sector, 2016.

In sum, while global current account imbalances were reduced after the crisis, they are on the rise once again. Furthermore, the reduction that was achieved post-crisis appears to be primarily because of compressed demand rather than G-20 policy changes. While some countries, such as China, have adjusted their policies, there is less evidence of this from the G-20 as a whole. The question for the following section is whether the G-20's policy prescriptions for reducing these global imbalances are the right ones in the first place.

### III. POLICIES TO REDUCE GLOBAL IMBALANCES<sup>9</sup>

The G-20's policy prescriptions for reducing global current account imbalances has tended to focus on three issues and three countries in particular: fiscal consolidation in the U.S., increased public infrastructure investment in Germany and increased domestic consumption in China. This section uses the G-Cubed (G-20) model to simulate each of these policies individually, and then the implementation of these policies collectively, to explore whether they are effective in reducing global current account imbalances and, if so, at what cost. First, however, Section 3.1 gives an overview of the model, further details on which are available in McKibbin and Triggs (2018).

#### ***3.1 Overview of the G-Cubed model***

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 Reaganomics, 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.<sup>10</sup> It has also proven useful in understanding the 2009 Global Financial Crisis.<sup>11</sup>

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, which 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 catchall “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.

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<sup>9</sup> The analysis in this section is extracted from McKibbin and Triggs (2018)

<sup>10</sup> See McKibbin and Vines (2000). Those six puzzles were: (1) the bias in trade toward 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.

<sup>11</sup> See McKibbin and Stoeckel (2018).

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

<b><u>Countries (20)</u></b>	<b><u>Regions (4)</u></b>
Argentina	Rest of the OECD
Australia	Rest of Asia
Brazil	Other oil producing countries
Canada	Rest of the world
China	
Rest of Eurozone	
France	<b><u>Sectors (6)</u></b>
Germany	Energy
Indonesia	Mining
India	Agriculture (including fishing and hunting)
Italy	Durable manufacturing
Japan	Non-durable manufacturing
Korea	Services
Mexico	
Russia	<b><u>Economic Agents in each Country (3)</u></b>
Saudi Arabia	A representative household
South Africa	A representative firm (in each of the 6 production sectors)
Turkey	Government
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 behavior is a weighted average of neoclassical optimizing behavior 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 sections will elaborate further on some of these key features of the model, and further details are available in McKibbin and Triggs (2018). Sections 3.2, 3.3, and 3.4 will consider each the G-20's policies for reducing global current account imbalances individually. Section 3.5 will then consider the collective impact of these policies should they be implemented simultaneously. Section 3.6 will summarize some of the key conclusions that flow from this analysis.

### ***3.2 The United States: A reduction in the fiscal deficit***

The tax cuts and proposed infrastructure plan from the Trump administration in 2017 and 2018 has brought the U.S. fiscal deficit into sharp focus. Although the fiscal deficit is forecast to worsen (see Congressional Budget Office, 2017), fiscal sustainability in the U.S. has been an issue and concern for many years. It has also been a consistent focus of the G-20, particularly on the issue of reducing global current account imbalances (G-20, 2010).

This section simulates the implications of having the U.S. reduce its fiscal deficit. It is assumed that the smaller deficit is achieved by a 5 percent reduction in government spending, rather than tax increases. It is assumed that spending is reduced on goods and services, rather than infrastructure and that the cut to spending is both immediate and permanent. The implications of these assumptions are discussed below.

Figures 8 to 13 highlight the key results. As would be expected, the reduction in government spending has a significant effect in reducing the size of the U.S. fiscal deficit, which is 4.5 percent below the baseline or the "business-as-usual" case (Figure 8). However, there are significant short-term and long-term effects from this policy for the U.S. economy.

Investment contracts by 1 percent in the first year as firms respond to weaker aggregate demand caused by the sudden fiscal withdrawal (Figure 9). But the long-term implication of this policy is a more favorable, lower-tax environment for business into the future. Forward-looking firms respond by increasing investment above the baseline by the third year, with investment 1.5 percent higher in the longer-term. Lower real interest rates (Figure 10) also boost investment as savings previously locked-up in government debt are now available to finance the supply-side of the economy.

Consumption is higher because of reduced government spending: by 0.75 percent in the second year and up to 2.5 percent by 2030 (Figure 11). Forward-looking households anticipate higher wealth in the future due to lower future taxes and a stronger economy. They adjust their intertemporal consumption decisions and bring forward future-consumption, facilitated by lower real interest rates, which encourages higher consumption today.

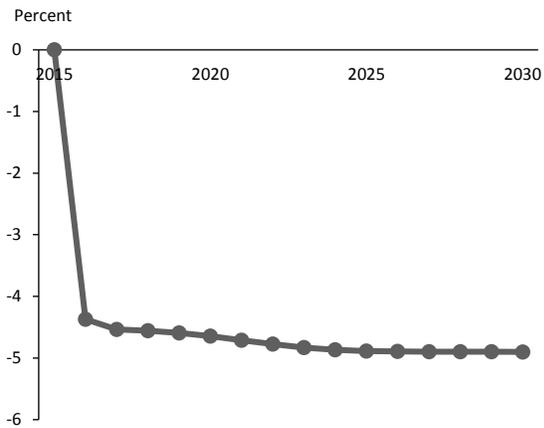
Since consumption and investment are its largest components, the response of U.S. GDP is not surprising. Figure 12 shows a familiar Keynesian response from reduced government spending. GDP initially contracts by 1.75 percent as government spending is withdrawn from the economy. But as savings are released from government debt to finance the supply-side of the economy, GDP is 1 percent larger in the longer-term relative to the baseline, with a permanently larger capital stock.

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 U.S.

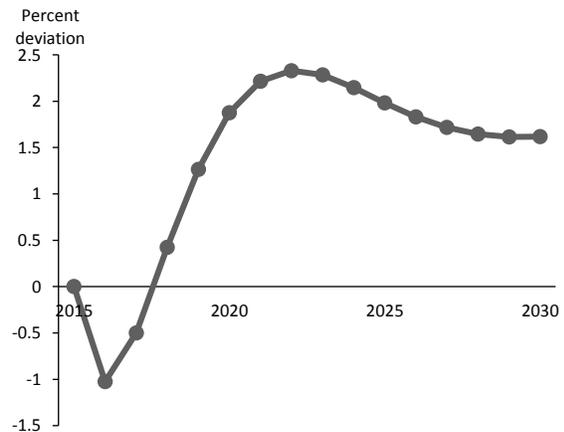
results in financial capital flowing out of the U.S. to obtain higher returns overseas. This helps explain the fall in U.S. investment, but also acts to depreciate the U.S. exchange rate.

For the U.S., because its exports are now relatively cheaper to those of other countries, a depreciated exchange rate means an improved trade and current account balance of 4.5 percent in the first year (Figure 13). However, for other countries, a weaker U.S. exchange rate means a weakened trade and current account balance since these countries now have a relatively appreciated currency against the U.S.

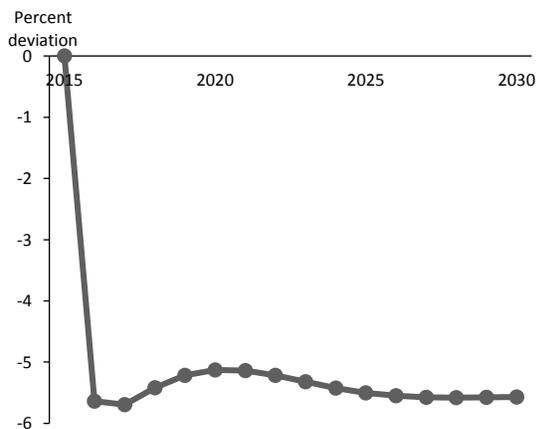
**Figure 8. U.S. fiscal deficit**



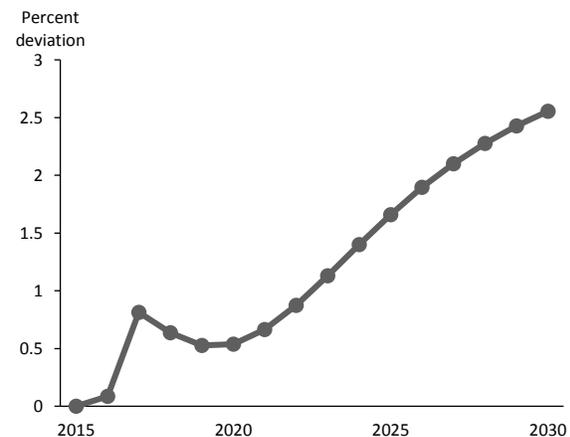
**Figure 9. U.S. investment**



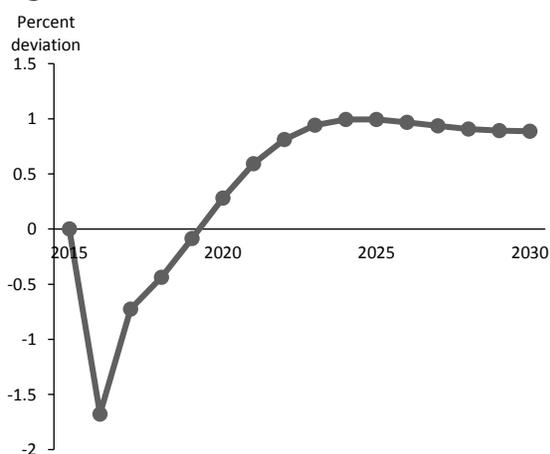
**Figure 10. U.S. real interest rates, short-run**



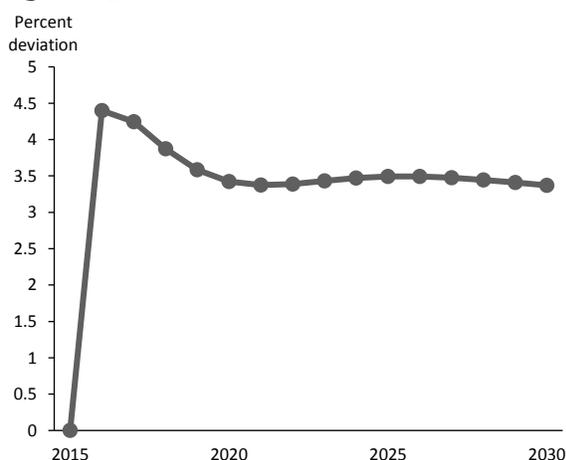
**Figure 11. U.S. consumption**



**Figure 12. U.S. real GDP**



**Figure 13. U.S. current account balance**



The impacts on other G-20 economies are similar to what you would expect from a gravity model: The countries that trade the most with the U.S. tend to be the most significantly impacted. The exchange rates of Canada and Mexico, for example, appreciate by 3.5 percent in the first year (Figure 14). As a result, their trade balances worsen by between 1 and 2 percent (Figure 15).

The effects for China, the largest trading partner of the U.S., are more muted because of its exchange rate policy. This is where G-Cubed is particularly useful in understanding differentiated impacts on economies based on their relative differences. China manages its exchange rate against a basket of currencies, which is reflected in the Henderson-McKibbin-Taylor rule for China in G-Cubed. As the U.S. 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 boosts GDP more than other countries, (see Figure 18).

For countries negatively affected by a weaker U.S. currency, some of the negative impacts on their trade balance is offset by improvements in investment (Figure 16). Investment in Germany, Canada, and Mexico increase by 0.9, 1, and 1.4 percent, respectively, as capital flows into these economies from the U.S. 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 U.S., but for different reasons (Figure 17). There is an initial drop in GDP for most G-20 economies which is 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 which boosts GDP in the long-run.

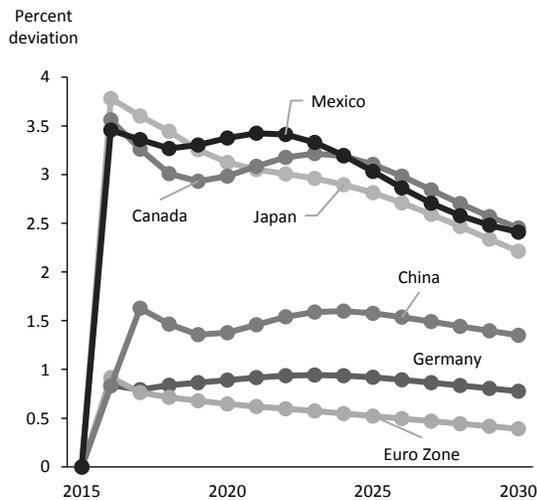
Of key importance for the G-20's agenda is what happens to current accounts, particularly for Germany and China. The current account balances of both China and Germany decline from the U.S. reducing its deficit. For Germany, it declines by 0.4 percent in the first year and steadily declines thereafter: it is up to 0.7 percent below the baseline by 2030. China sees a 1 percent reduction in the first year, which rebounds through exchange rate and investment effects, but then settles back to be 1 percent below the baseline in 2030 (Figure 19).

Several important insights flow from this analysis. The first is that the U.S. fiscal deficit plays a critical role in both the size of the U.S. trade deficit and global current account imbalances. This is an important consideration in the current political climate where the Trump administration is undertaking fiscal stimulus

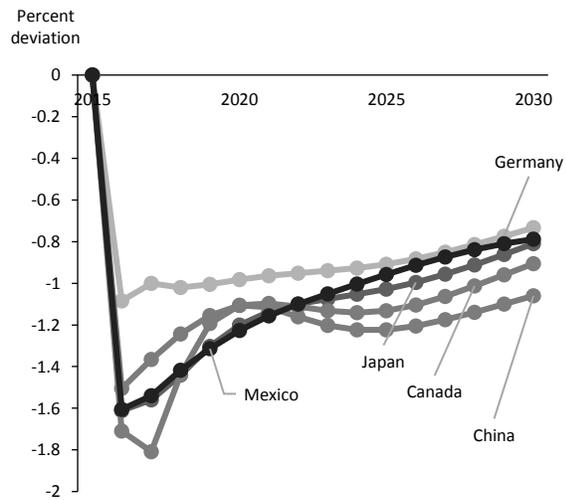
while simultaneously lamenting the size of the U.S. trade deficit. This analysis highlights the links between these two variables: that increasing the size of the U.S. fiscal deficit will not only increase the size of the U.S. trade deficit but will also increase the size of the trade surpluses in Germany and China.

The second insight, which flows logically from the first, is that the U.S. can do a lot to reduce its trade and current account imbalances with Germany and China by acting unilaterally. Although these imbalances are referred to as being “global,” the U.S. could do much to reduce its contribution to them, as well as the contributions of Germany and China, by reducing its fiscal deficit.

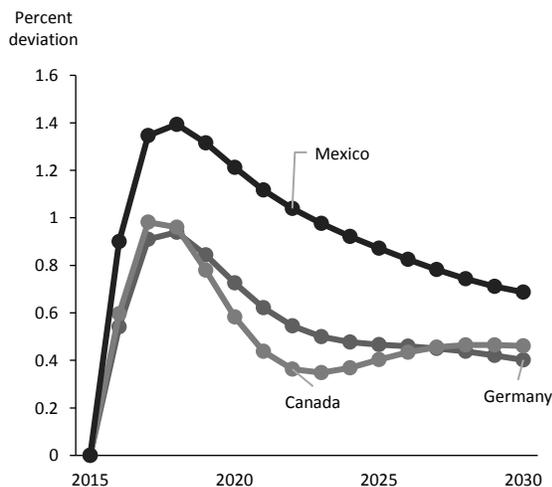
**Figure 14. Real effective exchange rates**



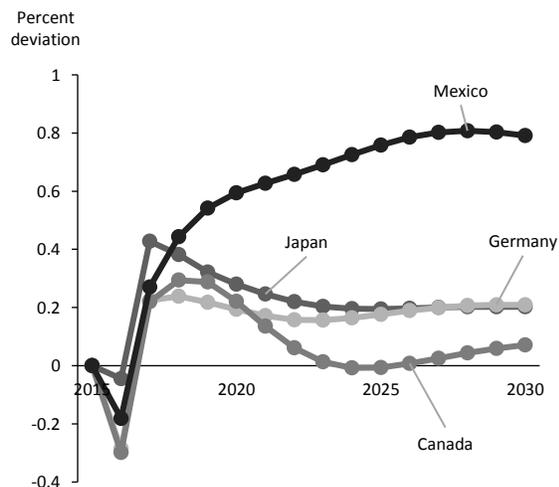
**Figure 15. Trade balance**



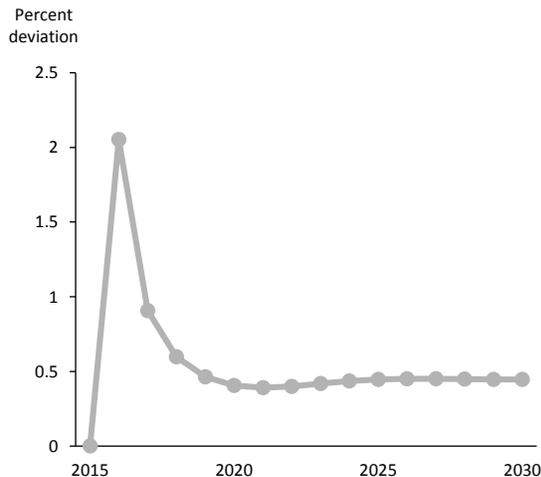
**Figure 16. Investment**



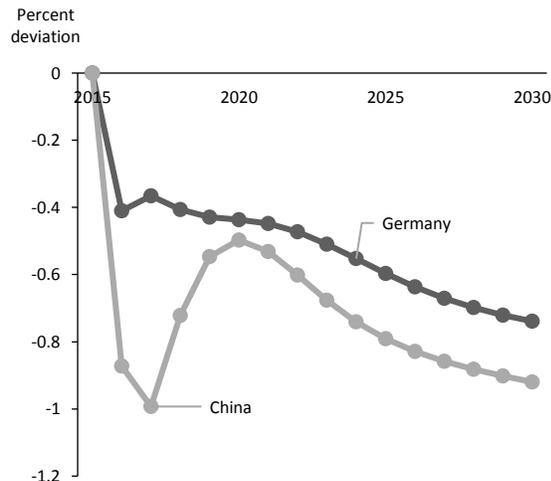
**Figure 17. Real GDP**



**Figure 18. China GDP**



**Figure 19. Germany and China current accounts**



### **3.3 Germany: An increase in public investment**

Figure 3 showed that Germany has the largest current account surplus in the G-20. This has prompted many, particularly the IMF (2017), to recommend that Germany increase its public investment in infrastructure to boost growth, raise productivity and help reduce its contribution to global current account imbalances.

The empirical evidence suggests that increasing the stock of quality infrastructure increases the marginal product inputs into private sector production (see McKibbin et al, 2012). In the G-Cubed model, an increase in infrastructure investment would show up as an increase in labor augmenting technical change, coupled with a commensurate increase in government spending (assuming the infrastructure is publicly financed) to pay for it.

The simulation below is based on an econometric finding from Calderon, Moral-Benito, and Servén (2011). They found that for every 10 percent increase in the stock of infrastructure capital, productivity in private sector output rises by 0.8 percent. This section uses the IMF's Investment and Capital Stock database to calculate the size of Germany's infrastructure capital stock as well as the fiscal implications of increasing it. It then models a scenario where Germany increases the size of its infrastructure capital stock by 10 percent over 15 years. For simplicity, this section assumes the 0.8 percent improvement in productivity and the fiscal cost incurred by the government occur simultaneously. This means that, in each year for 15 years, productivity is immediately 0.8 percent higher than the baseline and that government spending as a percent of GDP is 1.4 percent higher than the baseline (such that, after 15 years, the infrastructure has been completely paid-off and government spending returns to normal).

The results for Germany from this productivity and spending shock are illustrated in Figures 20 to 23. The most notable impact is the increase in private sector investment, which does not include the increase in government investment (Figure 20). Investment increases by over 3 percent in the second year and, in the longer-term, is around 0.5 percent higher than the baseline.

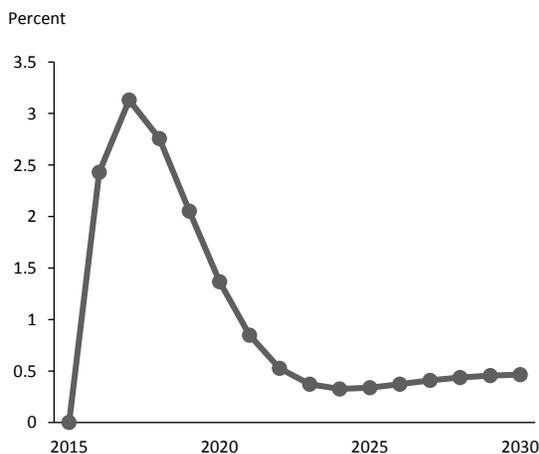
It is useful to breakdown this shock into its two components. The effect of an increase in government spending, alone, would see a temporary increase in investment as firms respond to higher growth in the

short-term but, in the longer-term, would see investment below the baseline due to a less favorable future business environment and higher taxes to fund the increase in spending (essentially the reverse of the U.S. fiscal consolidation scenario discussed above). But this is not the case when the increase in government spending also boosts productivity. Higher productivity means firms can now produce more with less, are more profitable, and more internationally competitive. This means the short-term increase in investment is larger, but investment also remains above the baseline into the longer-term.

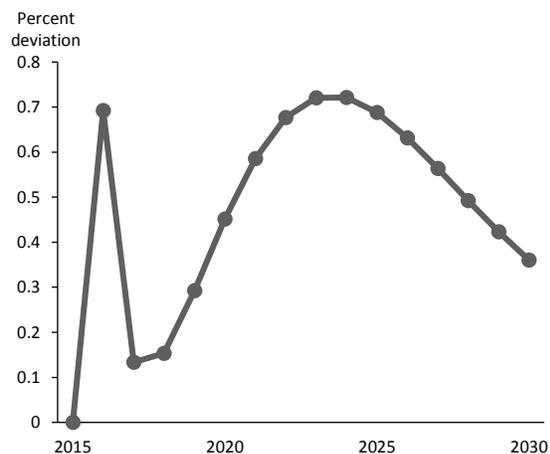
As the demand for investment rises, so too does demand for workers, which, along with higher productivity, results in higher real wages. Both backward-looking (rule of thumb) and forward-looking households respond to higher wages by increasing consumption, and forward-looking consumers bring-forward more consumption from the future to the present. Consumption is 0.7 percent higher in the first year and permanently higher in the longer-run (Figure 21).

But the savings to finance this increase in investment must come from somewhere. Perfectly mobile financial capital means savings flow in from overseas. But the inflow of this capital appreciates Germany's real exchange rate by 0.7 percent in the first year and Germany's overall trade balance declines by 2.5 percent, steadily returning to around 0.5 percent below the baseline (Figure 22). Hence the boost in investment in Germany is partially offset by the weakening trade balance.

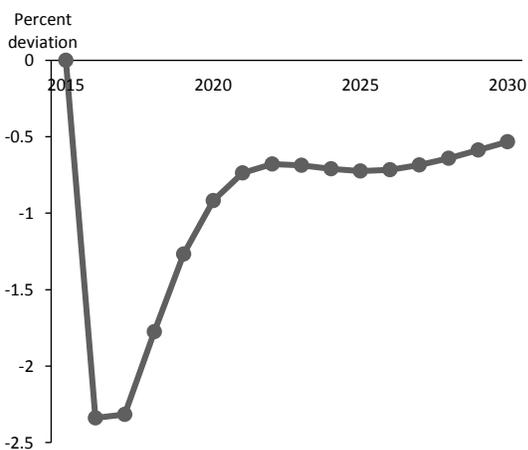
**Figure 20. German investment**



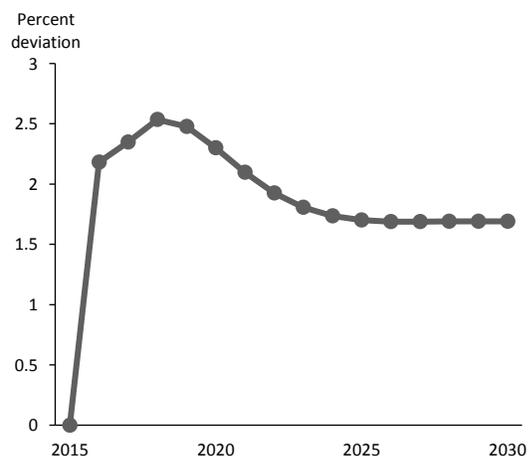
**Figure 21. German consumption**



**Figure 22. German trade balance**



**Figure 23. German real GDP**

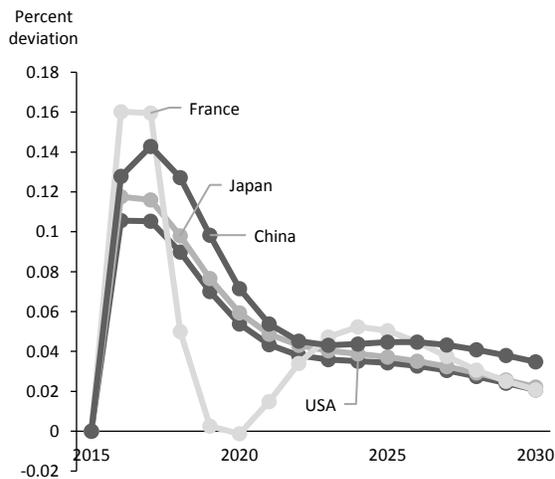


The overall effect on Germany's GDP is, unsurprisingly, positive given productivity is permanently higher (Figure 23). GDP is 2.5 percent larger in the third year and 1.75 percent larger than the baseline in the longer term. Had this been only a fiscal stimulus shock, GDP would have looked more like the inverse of the U.S. case discussed above: a short-term sugar-hit for increased government spending but a longer-term negative effect as savings are taken from the supply-side of the economy to finance government debt. But because the increased spending boosts productivity, longer-run GDP remains above the baseline.

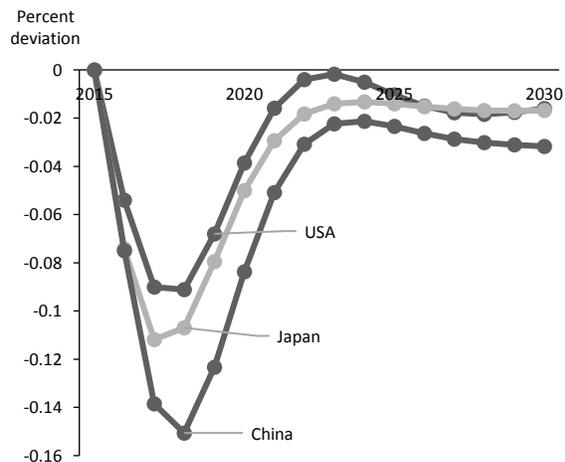
But the critical question is what effect this policy has on other countries and on global imbalances. The immediate effect is through the exchange rate. An appreciated euro means relatively weaker currencies for Germany's trading partners that, as a result, enjoy a boost to their trade balance (Figure 24).

But the consequence of savings flowing out of their economies and into Germany means higher real interest rates and a contraction in investment (Figure 25). The overall effect on GDP for other countries is mostly negative (Figure 26). The negative effect on GDP is particularly pronounced for France, Italy, and the rest of the eurozone (Figure 27). Due to the common currency they share with Germany, these countries also experience an appreciated exchange rate and a sharper outflow of capital but, unlike Germany, do not receive the benefits of higher productivity and fiscal stimulus (Figure 27).

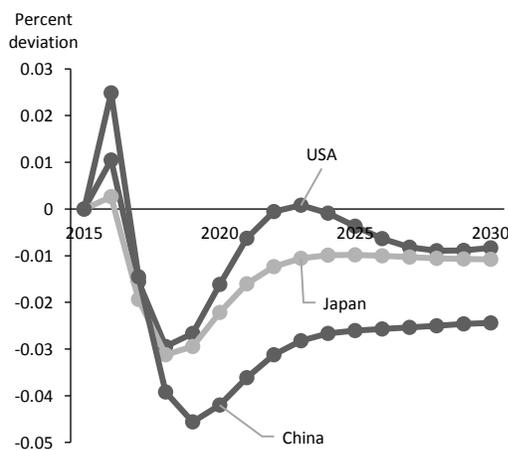
**Figure 24: Trade balance**



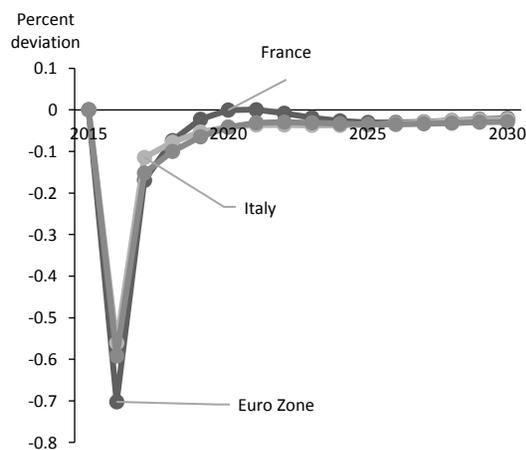
**Figure 25: Investment**



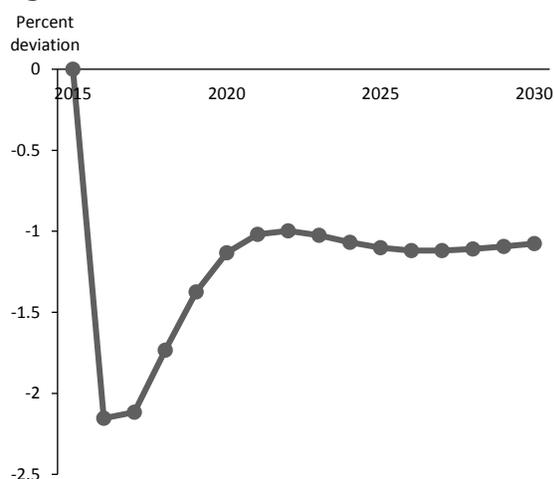
**Figure 26: Real GDP**



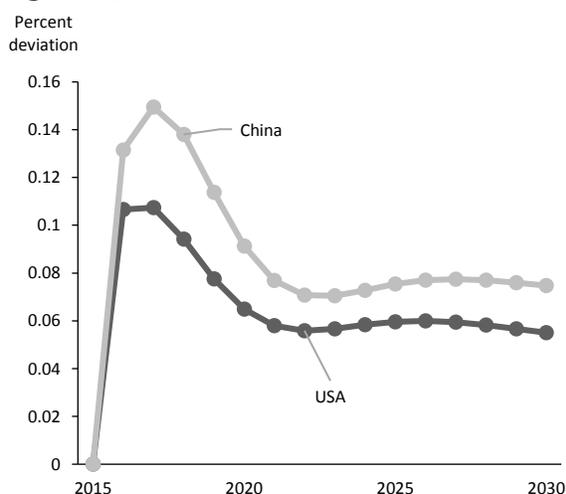
**Figure 27: France, Italy, Eurozone GDP**



**Figure 28: German current account**



**Figure 29: Current account: US and China**



The story for global current account imbalances is one in which Germany’s current account balance worsens by more than 2 percent in the near-term and is permanently 1 percent below the baseline in the long-term (Figure 28). While the current account balance of the U.S. improves, it does so only marginally, and so does China’s (Figure 29).

The critical insight that flows from this analysis is that, while Germany’s current account surplus may be successfully reduced by this policy, this reduction has not come at the benefit of the U.S.—a key advocate for this policy in the G-20. Not only is the benefit to the U.S. current account marginal, U.S. GDP, investment and consumption contract because of this policy. While the U.S. may celebrate a political victory for a reduced German current account balance, it does so at the cost of the U.S. economy. This insight flows from the general equilibrium nature of the G-Cubed model in which there are “no free lunches.” When resources are reallocated from one part of an economy to another, there are financial and real economic consequences, which tend to be ignored by partial equilibrium analysis, or models that do not reflect both the real and financial sectors of the economy.

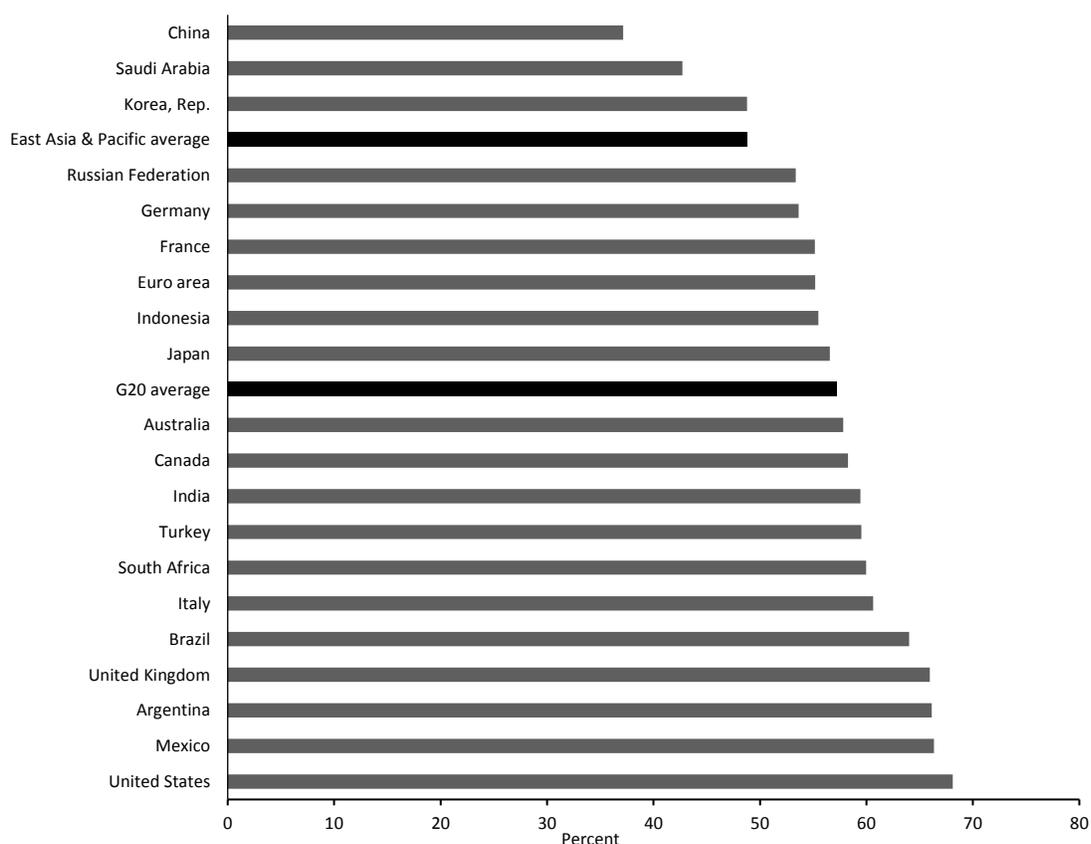
### **3.4 Increased domestic consumption in China**

Now consider the final reform often advocated by the G-20 to reduce global current account imbalances: increasing domestic consumption in China.

Consumption as a percent of GDP is lower in China than any other G-20 country (Figure 30). Given China is a full 15 percentage points below the G-20 average, this section simulates a less dramatic policy shock where consumption in China increases to the average level among East Asian and Pacific countries (implying a 10 percentage point increase).

This is modelled as an exogenous shock to consumption, which can be thought of as the result of some undefined policy in China. This allows us to explore how consumption shocks are reflected in the G-Cubed model as well as the pertinent question of whether this achieves the G-20’s objective of reducing current account imbalances. It also allows us to explore what unintended consequences might flow from such a policy.

**Figure 30. Consumption as a percent of GDP for G-20 countries**

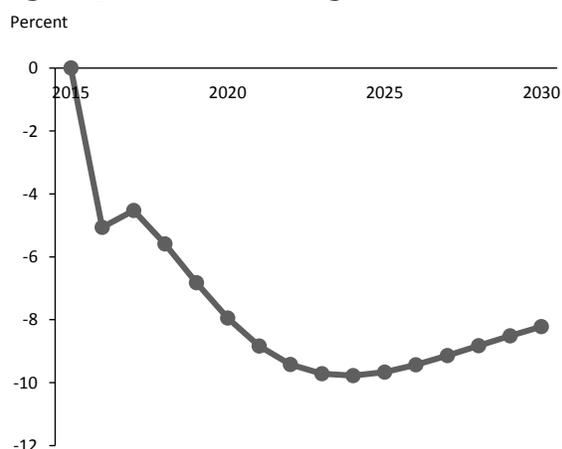


Source: IMF world economic outlook database, October 2017.

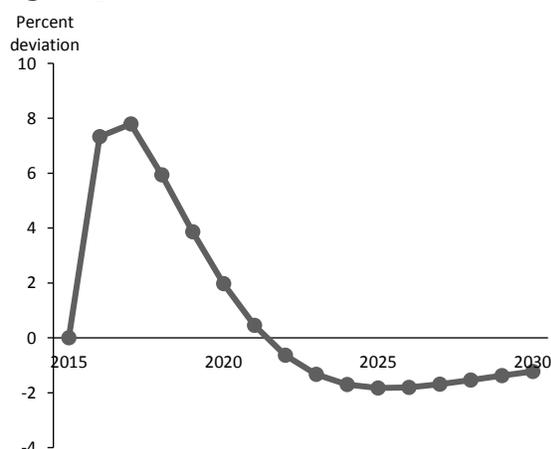
The results of this consumption shock for China are shown in Figures 31 to 34. An increase in consumption necessarily implies a decrease in savings—up to 10 percent by 2022 (Figure 31). The increased demand for goods and services because of higher consumption sees an increase in investment in the short-term as firms expand to meet demand. But the increased demand placed on savings and the reduction in savings that follows from higher consumption means higher interest rates that, in turn, act to reduce investment in the longer-term (Figure 32). As capital flows into China to enjoy these higher interest rates and finance increased investment, China’s real effective exchange rate appreciates by a substantial 16 percent. Among other things, this sees a weakening of China’s trade balance by 11 percent in the first year (Figure 33). This effect, of course, is muted by China’s managed exchange rate and capital controls framework.

The overall effect for China’s GDP is significant, increasing by 4.1 percent above the baseline in the first year. But as higher interest rates, weaker investment and a weaker trade balance start to bite, longer-run GDP is below the baseline after 2026 (Figure 34).

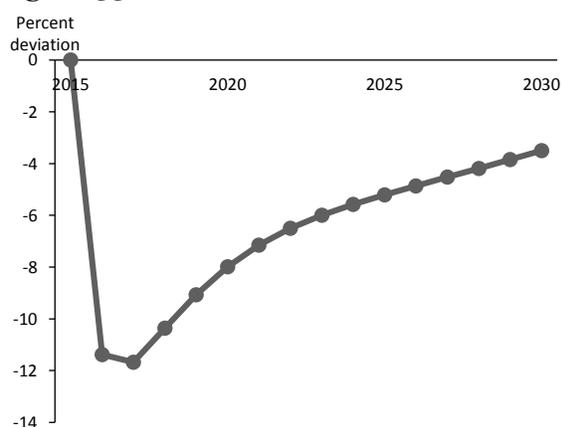
**Figure 31: Chinese savings**



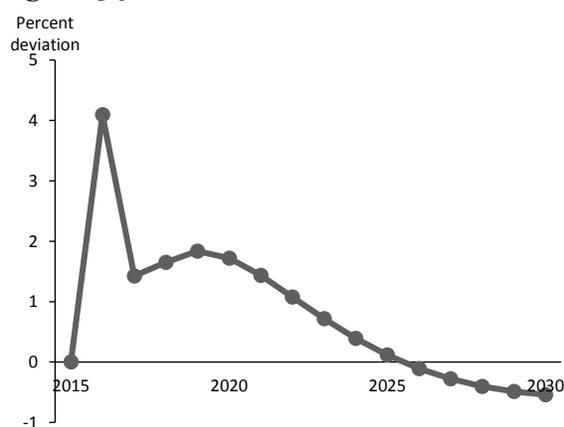
**Figure 32: Chinese investment**



**Figure 33: Chinese trade balance**



**Figure 34: Chinese GDP**



As in the previous scenario, an appreciated real effective exchange rate in the shocked economy means a relatively depreciated exchange rate for its trading partners. The U.S. and Japan both see their real effective exchange rates depreciate by around 5 percent, boosting the trade balances for most advanced and emerging market economies by around 1.4 percent (Figure 35).

This export-boost, however, is offset by a sharp decline in investment in most economies (Figure 36). Investment falls by 1.5 percent in the U.S. and 1.6 percent in Japan below the baseline in years two and three. Consumption also falls as the price of imports from China increases. Consumption falls by up to 0.6 percent in the first year in the U.S., Japan, and the eurozone in the first year (Figure 37).

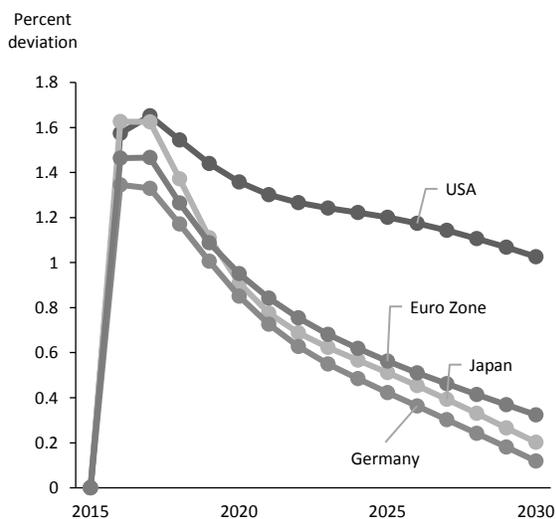
The overall GDP effect is negative for most G-20 countries (Figure 38). Japan's GDP, for example, is 0.4 percent smaller in the third year after the shock. Australia's and Germany's GDP are initially boosted by the trade balance but the reduced investment in the long run means below-baseline GDP after the second-year.

This is a striking conclusion given it is often assumed that increased domestic consumption in China would be a benefit to its trading partners. By bringing together the real and financial sectors of the economy, G-Cubed shows that while countries do benefit through the trade balance, the impact of investment and capital flows produces a more complex story over the longer-term.

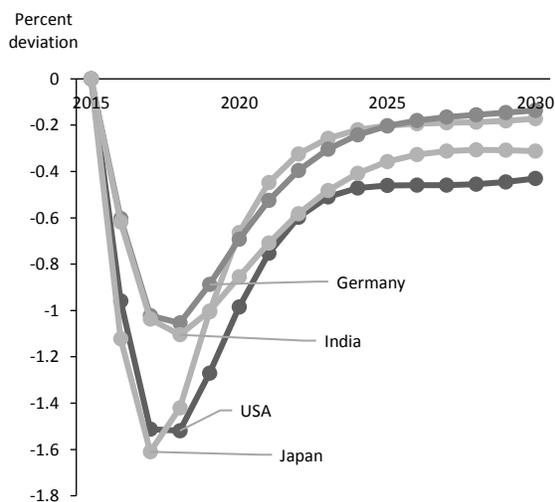
But does the G-20 achieve its goal of reduced global imbalances? China's current account deteriorates by 11 percent in the first year and is around 7 percent below the baseline in the longer-term, which is, indeed, a significant reduction. The current account also improves for the U.S. (by 1.6 percent in the first year and 1.2 percent in the longer-term—Figure 39) which helps further reduce global imbalances.

But Germany's current account surplus also increases because of this shock—by around 1.6 percent in the second year (Figure 40). It follows that, to some extent, progress in reducing the current account surplus in China might merely transfer that surplus across to Germany.

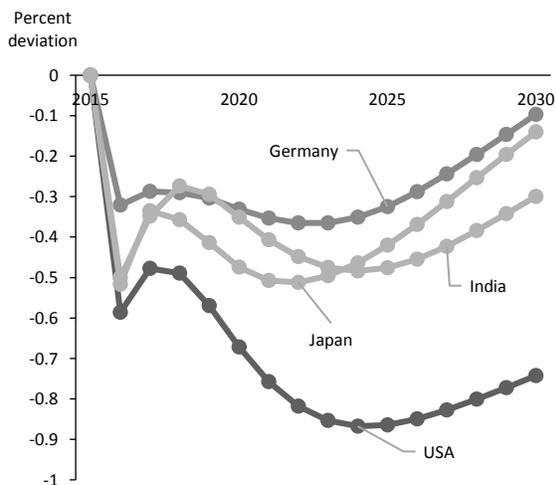
**Figure 35. Trade balance**



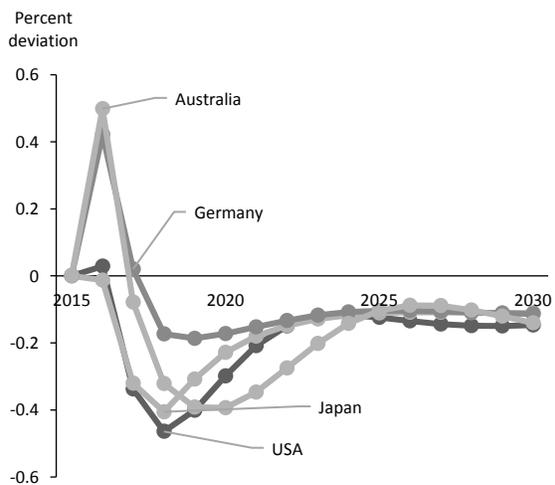
**Figure 36. Investment**



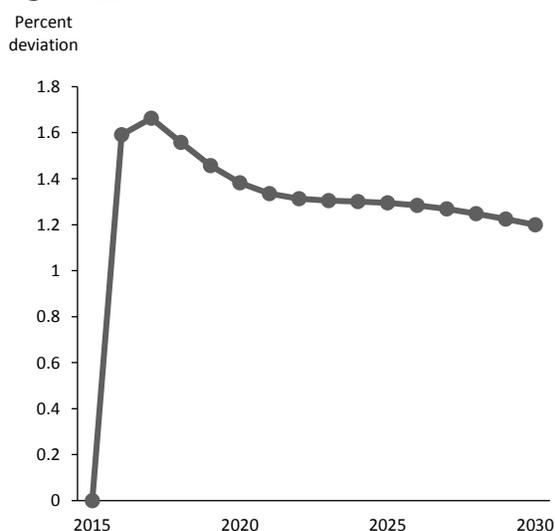
**Figure 37. Consumption**



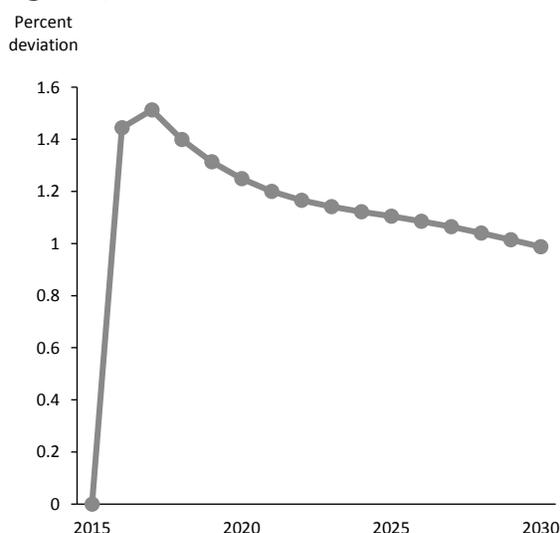
**Figure 38. Real GDP**



**Figure 39. U.S. current account**



**Figure 40. German current account**



The first insight from this simulation is similar to that from the German simulation: these policies can reduce global current account imbalances, but they come at a cost to the real economies of most G-20 countries. In the case of increased consumption in China, while countries benefit through their trade accounts, these benefits do not necessarily outweigh the cost to their economies of weaker investment and reduced purchasing power, which ultimately sees their GDP lower than it otherwise would have been.

The second insight is that, while China's contribution to global imbalances can be reduced by increased Chinese consumption, it also increases the current account surpluses of some of its trading partners, notably Germany. This is discussed further in the final section, below, which considers the collective impact of these reforms.

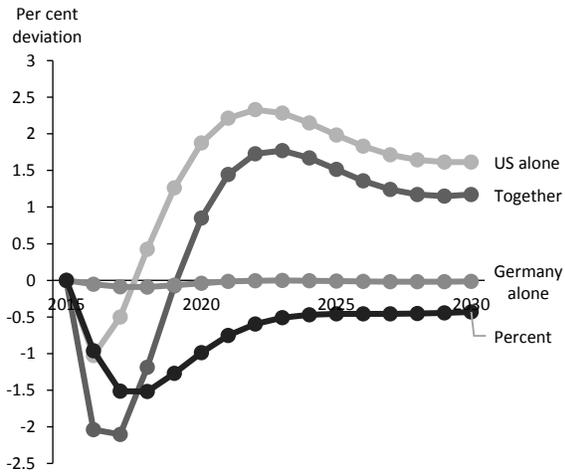
### ***3.5 The collective impact of all three reforms implemented simultaneously***

The G-20's focus and commitments on global imbalances envisages a "grand bargain." In return for the U.S. reducing its fiscal deficit, China would increase domestic consumption and Germany would increase public investment. This section considers the collective impact of this grand bargain, should it be implemented.

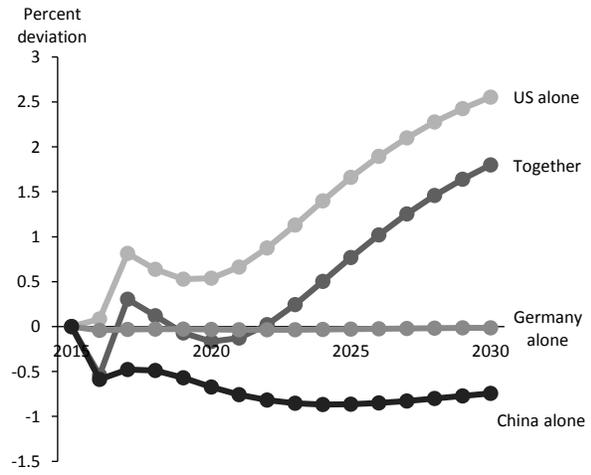
Consider the perspective of the U.S. first. In terms of investment, consumption and GDP, Figures 41 to 44 show that the U.S. is better off undertaking its policy reform (fiscal consolidation) alone. Fiscal consolidation boosts consumption and, despite contracting in the first three years relative to the baseline, investment and GDP are higher when the U.S. undertakes fiscal consolidation without simultaneous reforms from Germany or China. When Germany and China undertake their reforms at the same time, the U.S. is worse off in terms of investment, consumption, and GDP.

However, the U.S. does enjoy a larger boost to its current account balance if all countries act together. If an improved current account is the only objective of the U.S. then it will prefer the "grand bargain" cooperative outcome. However, as highlighted above, this improvement in the current account comes at the cost of the real economy. Furthermore, almost two-thirds of this improvement in the current account can be obtained by the U.S. from acting alone anyway. The key message for the U.S., therefore, is that this grand bargain will give it an improved current account balance but will come at the cost of its real economy, with lower investment, consumption, and GDP as a consequence.

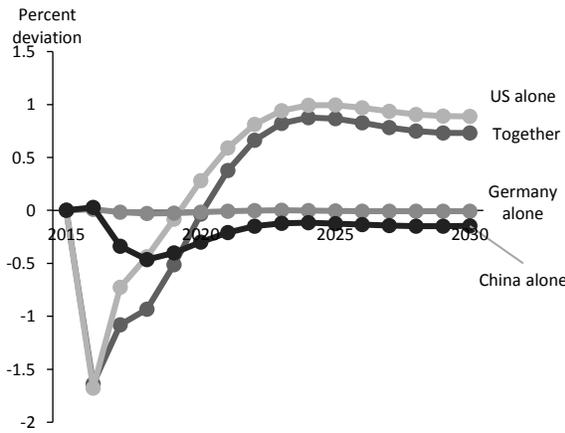
**Figure 41. U.S. investment**



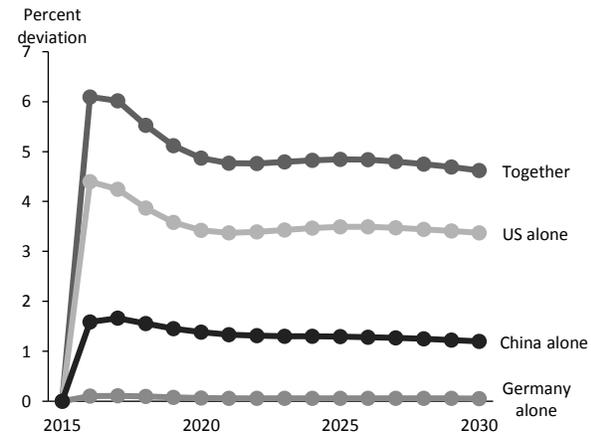
**Figure 42. U.S. consumption**



**Figure 43. U.S. GDP**



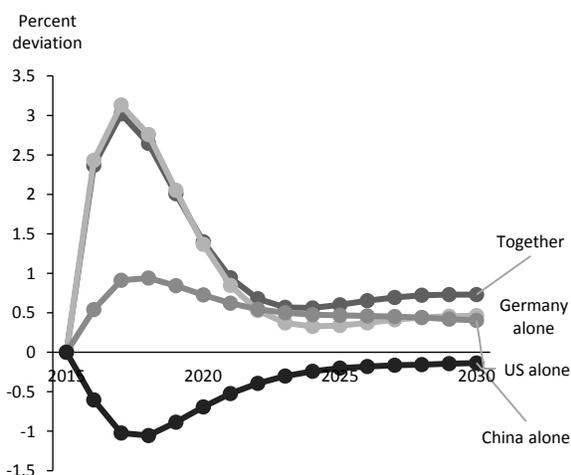
**Figure 44. U.S. current account**



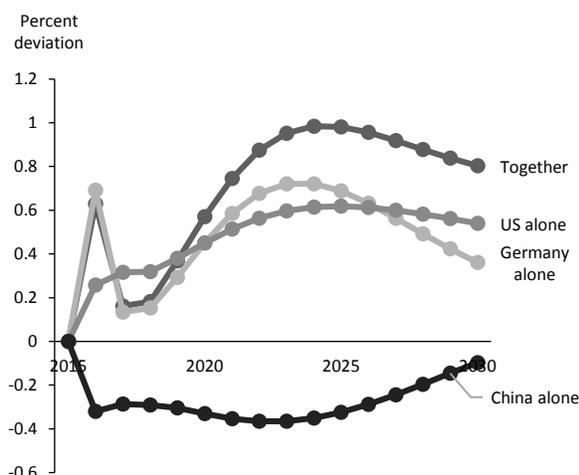
Now consider Germany (Figures 45 to 48). In terms of investment and GDP, Germany is marginally better off undertaking reforms together rather than alone, but not significantly so. German consumption is higher if it acts together with the U.S. and China, but only in the longer-term.

In terms of reducing Germany’s contribution to global imbalances, Germany, unlike the U.S., is better off acting alone. Reforming alone has a larger effect in reducing Germany’s current account surplus than reforming along with the U.S. and China. The key message for Germany, therefore, is generally one of relative indifference between acting together and acting alone.

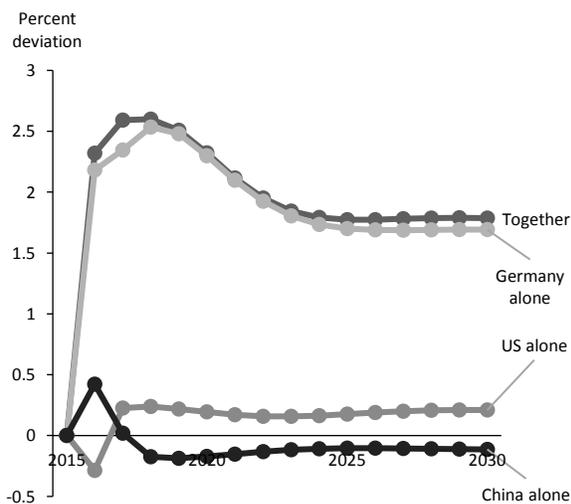
**Figure 45. German investment**



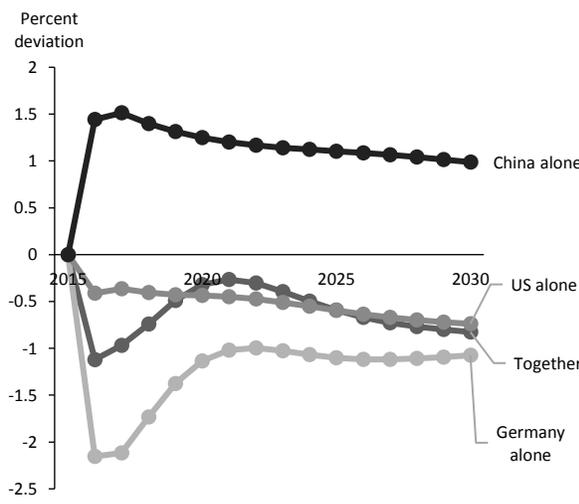
**Figure 46. German consumption**



**Figure 47. German GDP**



**Figure 48. German current account**



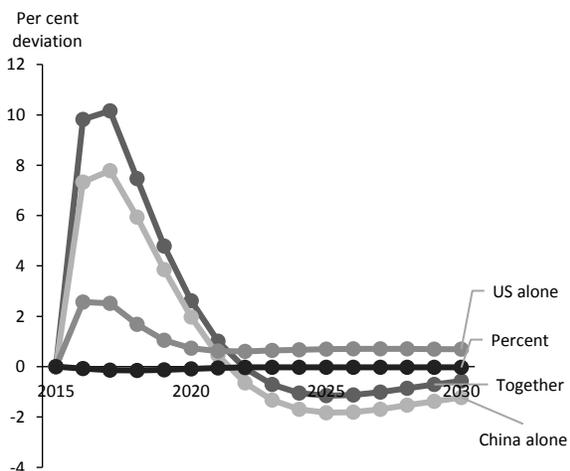
The most interesting result, however, is for China (Figures 49 to 52). In terms of investment, consumption, and GDP in the near term, China is better off implementing its policies (increasing domestic consumption) together with Germany and the U.S., rather than alone. And in terms of reducing its contribution to global current account imbalances, China is better off acting together with the other countries.

But there is an important observation when it comes to the impact of China acting alone for other countries. China's policies, if implemented alone, would have a significant effect in reducing China's current account surplus. But, as discussed earlier, it would also make Germany's current account surplus larger, thus worsening global current account balances. This finding is perhaps instructive as to what has been witnessed in the global economy since 2007. Illustrated earlier in Figure 3, the narrowing of China's current account surplus has occurred while Germany's current account surplus has widened considerably. This is precisely what the G-Cubed model would predict to happen as China continues its efforts to rebalance its economy toward higher domestic consumption.

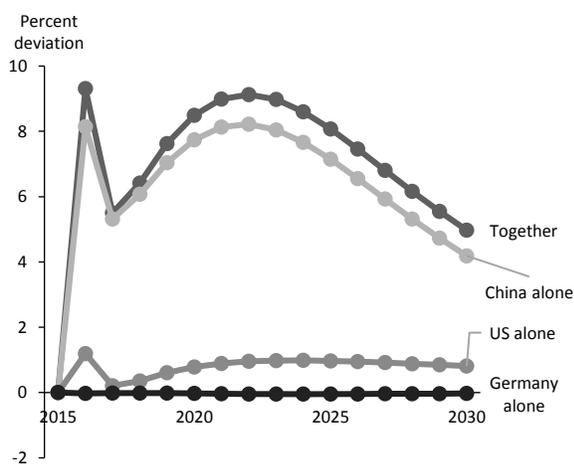
Overall, the key message for China is that it is better off implementing its policies together with the U.S. and Germany. The key message for the U.S. and Germany is that, if they are primarily interested in reducing

current account imbalances, they will also want to ensure they work together since, if China acts alone, global current account imbalances will worsen. This cooperation, however, comes at a cost for the U.S. in terms of lower investment, lower consumption and lower GDP.

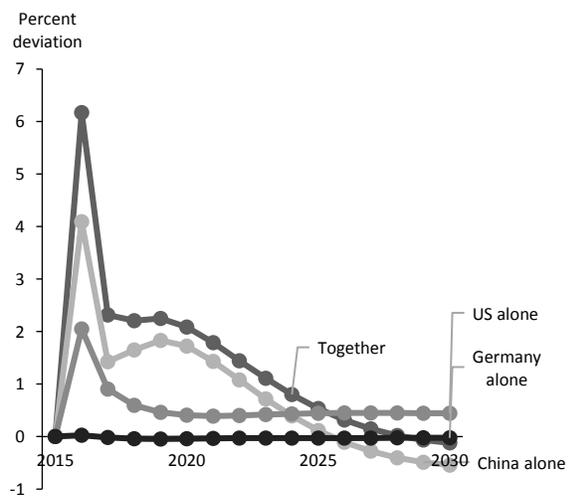
**Figure 49. Chinese investment**



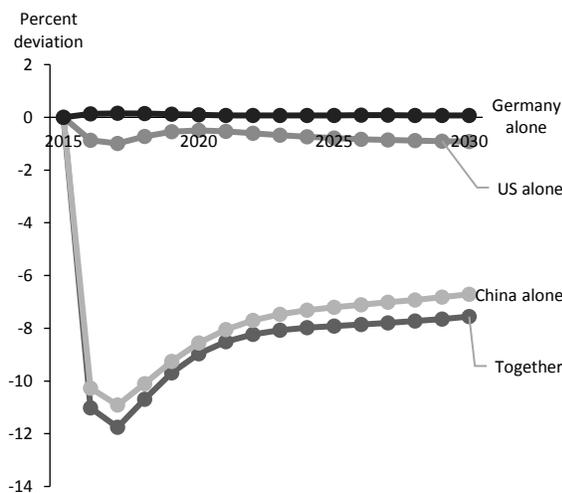
**Figure 50. Chinese consumption**



**Figure 51. Chinese GDP**



**Figure 52. Chinese current account**



### 3.6 Key insights from the G-Cubed (G-20) model

The contribution of this paper to the G-20 discussion is a simple warning: there is no such thing as a free lunch. For the U.S., a lowering of current account imbalances from Germany and China comes at a cost of the real economy and, in any event, the U.S. could do much to improve its trade balance (and reduce those of Germany and China) through policies to reduce the size of its fiscal deficit. While the same is broadly true for Germany, the critical issue is around Chinese reform. If domestic consumption in China increases without action from the U.S. and Germany, not only is China worse off but the current account surplus of Germany in fact increases.

It follows that, while the G-20 has identified policies that will be effective in reducing global current account imbalances, the coordinated implementation of those imbalances is critical. Imbalances can in fact be worsened if there is inadequate coordination between these three countries.

#### IV. HAS THE G-20 INFLUENCED DOMESTIC POLICIES?

Thus far, the paper has argued that the G-20 has not managed to significantly reduce global current account imbalances but, if the U.S., Germany, and China work together, there is much the G-20 could do to reduce them. The final question for the paper is whether the G-20 has influenced, or can influence, domestic policies in the first place. This is critical for thinking about what role the G-20 could play in the future.

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 their domestic policies 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 are the individuals who make up the G-20 and are responsible for shaping the policies in their countries. A break-down of the sample and the methodology used for these interviews is available in Attachment A. Participants were asked whether they believed the G-20 had been successful in its focus on global imbalances—leaving them to define what constitutes “success” in this context—and whether this sustained focus by the G-20 had resulted in any changes in domestic policies.

##### **4.1 Was the G-20 successful in focusing on global imbalances?**

The G-20’s discussion of global imbalances has, at times, been politically heated.

It was in the context of global imbalances that the politics around the currency war between China and the USA played out. The American and indeed global complaint was that China was obtaining an ongoing economic advantage by keeping its currency low and this was fueling its surplus of money to invest—*Julia Gillard, former Prime Minister of Australia.*<sup>12</sup>

Part of the problem was that at some point the U.S. and Europe, and the G-7 more generally, were trying to shift the responsibility for the crisis from themselves to China and emerging economies. This was shameful, incorrect and counterproductive—*Cecilia Nahón, Former Sherpa, Argentina, interviewed October 2, 2017.*

When asked whether the G-20’s focus on global imbalances had been “successful” or not, countries were split. The policymakers from nine economies felt that the G-20 had been successful (a roughly even mix of advanced and emerging economies) while 11 felt it had not been successful.

Those which felt it had been successful argued that the G-20 brought attention to an important issue (eight economies gave this response) and because it helped shift the policies of some countries, discussed below (seven economies gave this response).

The G-20 is a useful forum for central banks for understanding the broader policy context in other economies. It is also a useful forum in which central banks can explain the reasons for their policy decisions—*Mark Carney, Governor of the Bank of England and Chair of the Financial Stability Board, interviewed February 16, 2018.*

I think going over the issue of global imbalances 50 times over many years made a difference. Ultimately countries make decisions based on what is in their best interest, but on the margin, it

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<sup>12</sup> Gillard (2014).

makes a difference to clear up any issues that are causing international tensions—*Jacob Lew, former Treasury Secretary, United States, interviewed September 7, 2017.*

I think it has been mixed in terms of success. On the one hand, it has been effective in identifying and monitoring the issues and problems, but I can't say it has been successful in terms of outcomes because these imbalances continue to grow. It has been good at diagnosing the problems but we are short of delivering solutions—*Mahendra Siregar, former sherpa, Indonesia, interviewed May 22, 2017.*

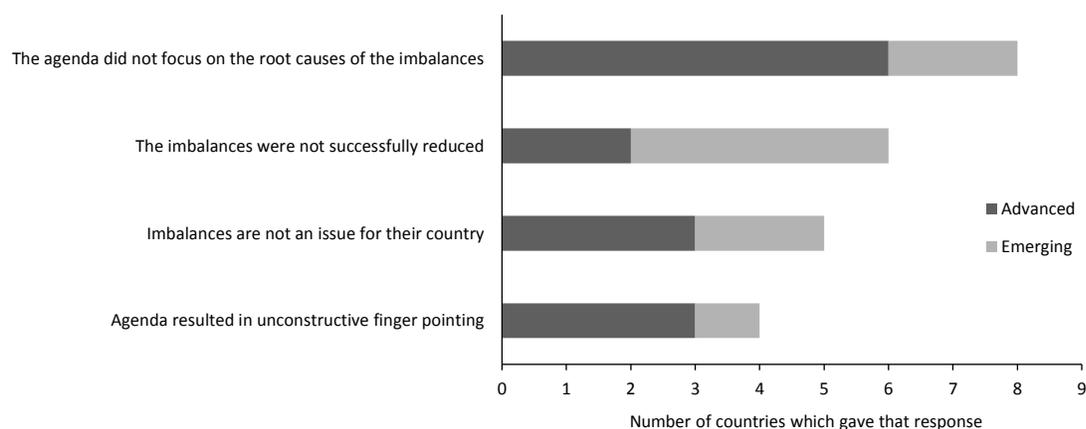
Certainly, in hindsight, the G-20's approach was useful in putting a spotlight on the issue and seeing it as a multilateral issue and not just a bilateral issue between particular countries. But at the same time, I don't think it really addressed the whole range of drivers that are underlying these imbalances—*Central Bank official, advanced economy, interviewed August 17, 2017.*

When it comes to global imbalances, there are arguments in defense of imbalances and arguments in favor of reducing them. It is a very sensitive issue because it implies the questioning of other countries' national policies. Being able to explain these arguments and have these discussions already helps to reduce tensions. At least you can understand each other's position and say "well they have a point here." That is the first step on the way to find common ground—*Hugo Gobbi, former sous sherpa, Argentina, interviewed May 12, 2017.*

The discussion maintains pressure and visibility and interest in the nature of exchange rate policies, tariffs and trade policies. The G-20 is a useful device for that. But I don't know if it has had any material effect on domestic policies to improve external imbalances—*Gordon de Brouwer, former sherpa, Australia, interviewed February 23, 2017.*

Those who felt it had been unsuccessful (Figure 53) argued that the agenda did not focus on the root causes of the imbalances. They argued that the imbalances themselves were not successfully reduced, that the imbalances were not an issue for their economy or that the agenda resulted in unconstructive finger pointing.

**Figure 53. The perceived challenges in the G-20's focus on global imbalances**



The G-20 has been largely ineffective on global imbalances. It failed to create a new political consensus that you cannot simply have permanently exporting countries without creating significant imbalances for the rest of the world which, ultimately, creates problems in financial, trade and political systems—*Kevin Rudd, 26th Prime Minister of Australia, interviewed September 8, 2017.*

What we need is more analysis on the reasons for the underlying imbalances, which refer to structural factors, such as demographics. It would be useful for the G-20 to explore these core drivers in more detail—*Giuseppe Parigi, Head of International Relations and Economic, Bank of Italy, interviewed April 12, 2017.*

Global imbalances can be considered a risk for the smooth development of the global economy. Nevertheless, current account balances are not bad per se. It depends on their root causes. If, for example, the loss of competitiveness due to excessive wage growth is the reason for a persistent current account deficit, this issue should be addressed. The same is true if a persistent current account surplus results from encapsulated domestic markets—*Jalena Stapf, G-20 representative, Head of G-20 presidency coordination team, Bundesbank, Germany, interviewed October 11, 2017.*

In Korea's case, there are many products we export into global markets in which we have a competitive advantage—semi-conductors for example. Our surplus is not based on a competitively devalued exchange rate or anything of that nature so it is very hard to artificially reduce your current account surplus—*Heenam Choi, former finance deputy, Korea, interviewed August 21, 2017.*

In a globalized world, there is a lot of noise in the data. Often imbalances are driven by residency issues of corporates or accounting issues. The prevalence of distortions and the extent to which these are driving imbalances should receive more of the focus—*Frank Moss, Acting G-20 central bank deputy, European Central Bank, interviewed February 20, 2017.*

The G-20 may have had some influence at the margin, but broadly the problems are more far-reaching. Some of the earlier rounds of thinking about global imbalances were focused on the exchange rate element. But some of the deeper structural issues were not really addressed—*Central Bank official, advanced economy, interviewed August 17, 2017.*

I'm not sure about success. On the one hand, after the GFC there was a recognition that current account balances are not that good at predicting crises. It was better to look at financial risks, debt levels and so on. I think the current account balance is now of secondary importance compared to the 1980s and 1990s—*Kazou Momma, former central bank deputy, Japan, interviewed June 19, 2017.*

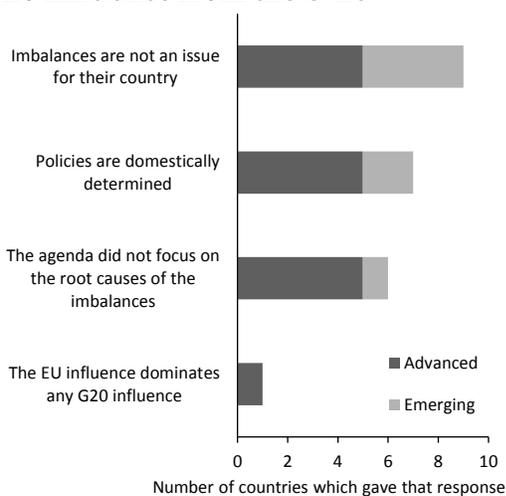
It follows that the majority of G-20 countries (11 of them) considered the G-20's agenda on global imbalances to be unsuccessful, and those which considered the agenda to be successful argued, primarily, that this was because it brought attention to an important issue. The critical question, however, is whether countries altered their policies in response to the G-20's discussion and commitments or not.

#### 4.2 Did countries alter their policies?

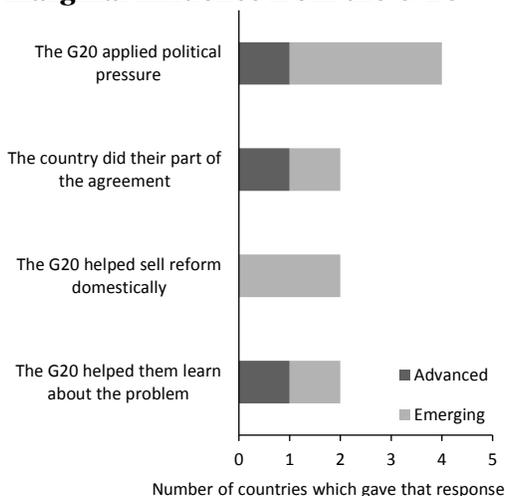
Given the majority of countries felt the G-20's agenda has not been successful, and given the IMF's analysis suggests that much of the reduction in global current account imbalances was not driven by substantive policy change, it is perhaps not surprising that few countries reported changing their policies because of the G-20.

Policymakers in fifteen countries said the G-20 had no influence over their domestic policies. Only five countries said it had a marginal impact (Figures 54 and 55).

**Figure 54. Countries which reported no influence from the G-20**



**Figure 55. Countries which reported a marginal influence from the G-20**



Policymakers cited several reasons for the G-20's lack of influence. The critical reason given was that the G-20 failed to explore the root-causes of these imbalances, focusing instead only on the imbalances themselves. Many smaller economies felt that the issue of global imbalances was one for the larger economies and did not apply to them. Some euro area economies said that the influence of the EU on their policies crowded-out any G-20 influence.

For the G-20 to have maximum impact it has to lead to changes in domestic policy. I don't think the G-20 has influenced domestic policies as much as it could have because the G-20's discussions on global imbalances haven't really gone to the heart of what those issues are, except perhaps for the domestic tax treatment of multinational firms. So, on macro coordination and cooperation: a good result. On other more domestic, more micro-oriented policies, still a work in progress—*Martin Parkinson, Secretary of the Department of the Prime Minister and Cabinet, Australia, interviewed May 30, 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 September 7, 2017.*

The G-20's discussion on global imbalances did not change our policies. We knew our fiscal deficit was too high and that it needed to come down. We were not in any intellectual dispute with anyone on this issue. Since there was a global lack of demand no one was going to object if we did not contract as much as we were expected to—*Montek Ahluwalia, former Sherpa, India, interviewed June 10, 2017.*

The debate on global imbalances continues and the G-20 has tried many ways to solve this problem. It was a good forum to talk about it but there was often no common ground—*Bruno Cabrillac, central bank deputy, France, interviewed April 11, 2017.*

In Germany, our surplus is also strongly influenced by another policy, which others have advocated: the strongly expansionary monetary policy of the ECB. The ECB has been urged consistently from many quarters to loosen its monetary policy. This pushed the euro down and makes eurozone products more competitive and results, *ceteris paribus*, in a higher surplus. Little wonder the German surplus remains high—*Holger Fabig, senior G-20 official, Germany, interviewed April 7, 2017.*

For Italy, the problem is debt. This is a complex domestic issue, which is also heavily influenced by the EU—*Giuseppe Parigi, Head of International Relations and Economic Directorate, Bank of Italy, interviewed April 12, 2017.*

A critical difficulty in getting traction on the issue of global imbalances is that economies can always put up some argument, either plausible or not, to justify their surplus or deficit—*Logan Rangasamy, central bank deputy, South African Reserve Bank, interviewed June 27, 2017.*

The policymakers that did cite a G-20 influence (Figure 55) suggested there was some marginal pressure emanating from G-20 discussions to alter their policies. The discussion was also informative on the scale of the problem, how policies fit together and the experiences of other countries. Although rare, some suggested the G-20 encouraged them to “do their part” in the global agreement. Some also suggested the G-20's discussions helped them to sell policies domestically.

We are taking measures to do our part on reducing our internal imbalances and thereby global imbalances. The concerted international efforts on this front add to the arsenal of our policies—*Senior central bank official, emerging market economy, interviewed May 17, 2017.*

The G-20 discussion has had a notable impact in China, we no longer export as much as possible and have focused on rebalancing the Chinese economy. The G-20 played a role in this—*Lyu Jin, Counsellor, Deputy Chief of Policy Section, Embassy of China in the USA, interviewed November 13, 2017.*

Focusing on global imbalances can be a useful political tool. The idea of current account targets were, I believe, used by Timothy Geithner as a way to pressure China on its exchange rate—*Gordon de Brouwer, former sherpa, Australia, interviewed February 23, 2017.*

I tried as best I could to use the G-20 as an additional reason for domestic action in the US. But the American system is hard to drive that way, and you need to be careful in how you make the case. In

the U.S., there can be a backlash if you make the argument that you're doing something to comply with international rules rather than as a domestic choice. But the consensus from the G-20 was not unwelcome—it certainly helped in getting action from other countries—*Jacob Lew, former Treasury Secretary, United States, interviewed September 7, 2017.*

As was often the case in these interviews, policymakers considered the G-20 to have a more substantial impact on the policies of other countries compared to their own. The “others” in the context of global imbalances was typically China and Germany. Interviews with policymakers in China and Germany suggest that, to some extent, this was correct.

Germany is a sovereign country 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 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 April 7, 2017.*

Global imbalances are a very old discussion. Though whether global balance ever existed or not is still in doubt, G-20 discussion has had a notable impact and China has been addressing the issue of global imbalances seriously. In response to both the international concerns and the domestic need to shift the growth model, we no longer pursue trade surplus and have focused on rebalancing the Chinese economy. The G-20 played a role in this—*Lyu Jin, Counsellor, Deputy Chief of Policy Section, Embassy of China in the USA, interviewed November 13, 2017.*

Our primary focus was on having the Chinese let the exchange rate appreciate, which they ultimately did. They did it because they perceived, correctly, that it was in their interests to do that – artificially holding it down was preventing the rebalancing of their economy. We put a lot of pressure on them for that but ultimately they did it because they thought it was necessary for them to do it. Was the G-20 important? Yes, at the margin. Was that important for addressing imbalances globally? Absolutely—*Former senior official, United States, interviewed September 12, 2017.*

In sum, for most countries, the G-20's focus on global imbalances has not influenced domestic policies. The primary reason for this appears to be that the G-20 failed to delve into the root causes of the imbalances, suggesting a clear area for improvement. This weakened the G-20's ability to make progress on these discussions and meant it lacked tangible policy recommendations that could be agreed upon by the membership. This result is consistent with the IMF's observation, explored in Section 2, that much of the reduction in global current account imbalances after the crisis was due to compressed aggregate demand rather than deliberate changes in policies.

## V. CONCLUSION

Globalization has brought extensive benefits and new risk. The G-20, at its best, can be the forum that helps heighten those benefits and mitigate the risk—*Julia Gillard, former Prime Minister of Australia.*<sup>13</sup>

Current account imbalances between G-20 countries increased by more than 50 percent from 2000 to 2007. Over the same period, savings as a percentage of disposable income increased by almost a half in many emerging market economies while sharply contracting in many advanced economies. Increased spending, tax cuts, bank bailouts and the impact of automatic stabilizers in the wake of the global financial crisis saw a \$13 trillion increase in debt among G-20 economies, particularly the advanced economies.

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<sup>13</sup> Gillard (2014).

These forces have created a lopsided global economy, characterized by large lenders and larger borrowers, large savers and large consumers, and large exporters and large importers. Many economists and studies have suggested that these imbalances create a complex set of economic, financial and political problems.

When it was created as a leaders' forum in 2008, the G-20 committed to reducing the size of these global current account imbalances. This paper asked three questions: has the G-20 been successful in reducing these imbalances? Did the discussions and commitments in the G-20 result in countries doing anything different? And has the G-20 identified the correct policy prescriptions for reducing them and, if so, what might the costs of reducing global current account imbalances be?

Global imbalances were indeed reduced following the global financial crisis. From the start of the crisis in 2008 through to 2011, these imbalances fell by 40 percent. But the paper outlined two reasons why this does not necessarily mean the G-20 has been successful. The first was that, among G-20 economies as well as globally, global imbalances have increased again since 2011 by more than a third. They are not quite at their pre-crisis levels, depending on which economies are included in the analysis, but they have re-emerged to a significant extent.

The second issue is that, even if global imbalances were reduced following the crisis, the evidence suggests that policy change by G-20 countries was unlikely to have been the primary reason for this. The IMF (2017a) concluded that much of the reduction in global current account imbalances since 2008 was the result of compressed demand in the advanced economies caused by the global financial crisis. It notes that, despite some progress, public debt and/or deficits remain high in many advanced economies and most economies are moving in the wrong directions on household savings and debt.

This conclusion is reinforced by the second finding of this paper: That, for most G-20 countries, policymakers did not alter or change their policies because of the discussions of commitments in the G-20. Through in-depth interviews of 61 politicians and officials from across all G-20 countries, only five countries reported changing their policies because of the G-20 and these changes were, in any event, marginal. Policymakers generally felt the G-20 was successful in its focus on global imbalances, but this success took the form of bringing attention to an important issue, rather than catalyzing policy changes that reduced the size of global current account imbalances.

Finally, the paper looked at whether the G-20's primary policy prescriptions for reducing global current account imbalances are the right ones: reducing the fiscal deficit in the U.S., increasing public infrastructure investment in Germany and increasing domestic consumption in China. Using the G-Cubed (G-20) model, it simulated the impact of each reform when undertaken individually and when undertaken simultaneously.

The results provide two critical insights, and one warning, for the G-20.

The first insight is that there is no such thing as a free lunch. Reducing global current account imbalances typically comes at a cost to the real economy. For the U.S., for example, the modelling shows that policy action from Germany and China will help narrow the current account deficit in the U.S. (and reduce the current account surpluses in Germany and China) but will come at the cost of investment, consumption and GDP, which are all reduced because of these policies. While the U.S. gets a boost to its trade balance from these policies, the impact on capital flows, interest rates, and exchange rates result in a net-negative result for real GDP.

The second insight is that coordination is critical. The U.S. can achieve much to narrow its current account deficit and narrow the current accounts surpluses of Germany and China by reducing its fiscal deficit. However, if the goal is to reduce current account surpluses, coordination between all three countries is key. The results showed that if domestic consumption in China increases without action from the U.S. and

Germany, not only is China worse off but the current account surplus of Germany in fact increases—worsening global current account imbalances rather than improving them.

Finally, the warning for the G-20 is as follows. Current IMF forecasts suggest that the direction the G-20 is currently heading is one in which China continues to rebalance its economy, Germany does little to increase infrastructure investment and the U.S. increases its fiscal deficit rather than improves it. The findings in this paper suggest that, with this combination of policies, the G-20 had better get used to a world characterized by large current account imbalances.

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## ATTACHMENT A: IN-DEPTH INTERVIEWS METHODOLOGY

The population for this research—referring to the group that the research intends to generalize its findings across—is summarized in Table A1. It can be organized 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 minimizes 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**

<b>Leaders stream</b>	<b>Finance ministers stream</b>	<b>Central bank governors stream</b>
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 work streams. 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 specialized nature of this research and the unique position of the policymakers.<sup>14</sup>

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.<sup>15</sup>

Finally, a challenge of any qualitative research is in standardizing 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 Diccio-Bloom and Crabtree (2006), referred to as an “editing approach.” This is where the investigator

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<sup>14</sup> As summarised 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).

<sup>15</sup> 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.

reviews and identifies themes and text segments much as an editor does in organizing text.<sup>16</sup> This allows the results, reported in the sections that follow, to be partially standardized, 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

<sup>16</sup> 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 Dickey-Bloom and Crabtree, 2006).



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