

## **Why the United States Needs the World to Grow**

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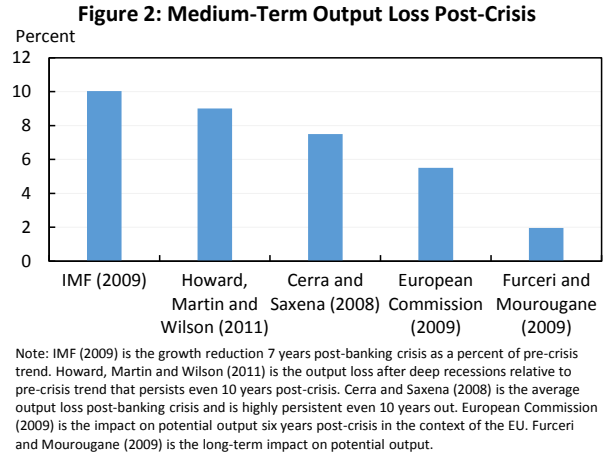
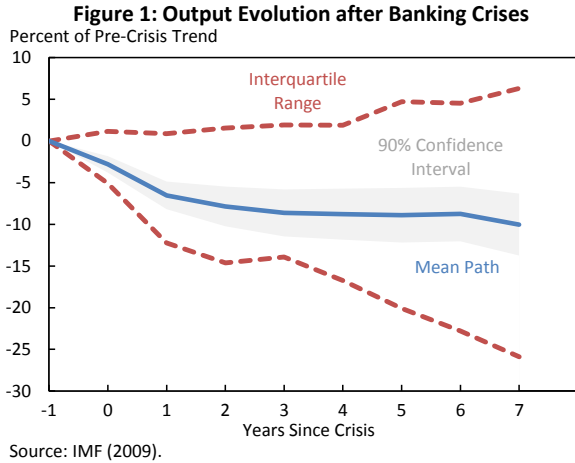
It has been almost seven years since the technical end of the recession in the United States. The economy has added over 14.6 million private-sector jobs over 74 straight months; the unemployment rate has been cut in half to below its pre-recession average; and output has surpassed its pre-recession peak by more than ten percent. While the recovery here has been far quicker than what might have been given the magnitude of the shock – and it certainly surpasses the outcomes following other great financial crises (for example the 1930s or the last seven years in Europe) – the global economy still shows scars from the crisis, and its slower growth is still having an impact on the U.S. economy.

In 2008-9, the world suffered one of the largest global financial crises in history. First in the United States and then in Europe, financial institutions approached collapse, asset prices crashed, and house prices continued the decline they had begun a few years earlier.

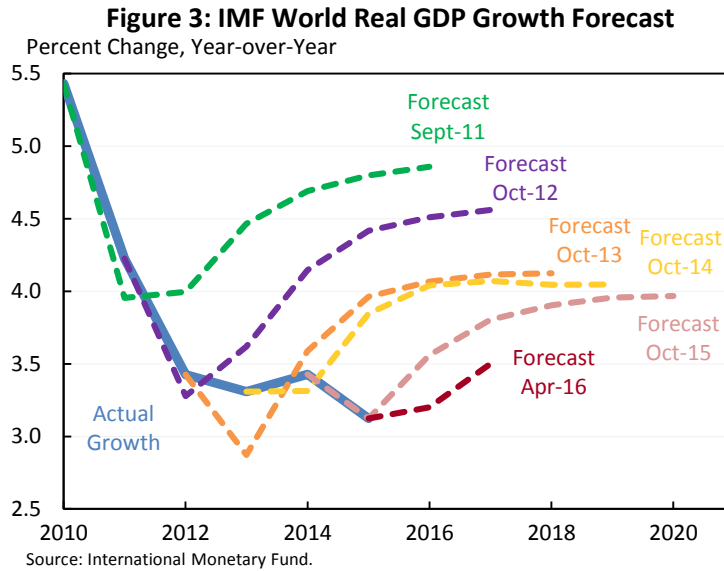
Initial estimates were that damage would be contained since the wealth losses on subprime mortgages did not appear large enough to derail the world economy. Rapidly, though, the compromised nature of financial systems became apparent, risk aversion spiked, and both lending and spending shrank.

Financial crises often have long shadows. Depending on the assumptions one uses, researchers have found sizable output losses from trend for many years later. Others, though, have found little average loss in the medium run, implying that countries do often bounce back out of a crisis. Countries have had a wide array of experiences following crises, some depreciating sharply and then relying on foreign demand to bounce out of a financial crisis rapidly, others taking aggressive policy actions, and others facing extended protracted slowdowns with output never really recovering.

Even the studies that show a loss on average from a financial crisis show a considerable variety of outcomes. A well-known IMF study (2009) suggesting countries faced sizable medium run damage on average also found that roughly one third of countries were growing above their prior trend seven years later. That is, not only did they not face a loss, they were doing better than would have expected before the crisis. Other work (see for example Cecchetti et al. 2009) finds many countries recover to trend after a crisis in the medium term. Recent work by Christina and David Romer (2015) expanded the types of episodes under investigation to look at financial distress, not just recessions that include financial distress. They find a wide range of outcomes that on average are only moderate and are often temporary.



It is important to note that each of these studies examined individual countries' experiences in isolation. A global crisis, however, brings a particular challenge. Not every country can simultaneously rely on foreign demand or depreciation to generate a bounce out of the crisis. After a brief recovery from the crisis, the world has settled into a slower pace of growth. Time and again world economic growth has disappointed expectations. In fact, in each forecast for the last five years, the IMF has had a less optimistic view of global growth, but despite those reduced expectations, every time, global growth has come in even more disappointing. We keep lowering our goals and yet still do not achieve them.



Growth has been slower in both emerging and advanced economies with sizable shortfalls in an array of countries. Relative to expectations in 2010, output in 2015 was lower in all but two of the G20 economies and was substantially lower in many countries. The G20 overall grew 6 percent less than expected, with major disappointments centered in key emerging markets and in parts of Europe.

Global growth is even slower than it looks in some ways. When we think about whether living standards are improving, we often use purchasing-power parity (PPP) exchange rates that adjust for prices. When we think about demand, though, we care more about what a country can buy from the rest of the world, so market exchange rates are more relevant than PPP exchange rates. Using these exchange rates, world growth has been slowing down even more (Fatas, 2016). You can see this from a parochial U.S. perspective by looking at world growth weighted by U.S. trade weights. That growth rate has been slowing down over the last 3 years. Foreign trade-weighted real GDP grew a modest 1.8 percent over the four quarters of 2015, down from growth of 2.5 percent in 2014 and 2.9 percent in 2013.



### Why has global growth disappointed?

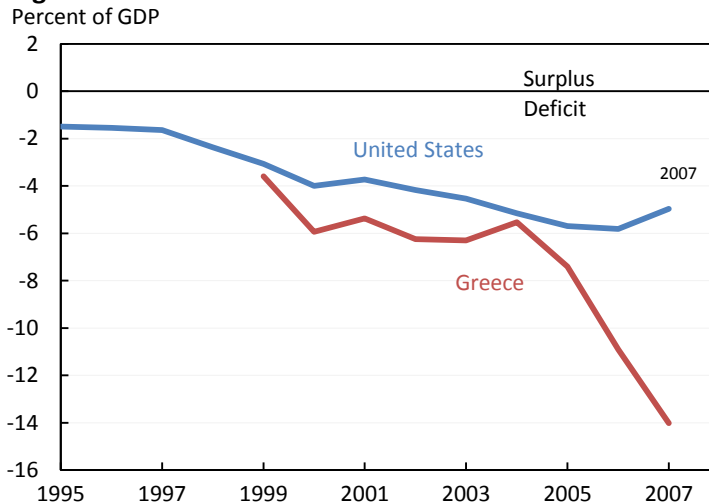
Today, I'd like to talk about what happened to global growth. The question is not academic. If growth has simply settled at a new permanently lower level, the key policy question is how to adjust to this new outlook. If, though, there is substantial demand slack or untapped supply opportunities in the global economy, policy may steer us back toward sustained, robust growth.

While there are a number of reasons we may expect global growth to be lower over time than it was pre-crisis, it is important to emphasize that just because a crisis occurred does not mean output growth was unsustainably fast prior to the crisis.

Some have argued that we – consumers, governments – were simply living beyond our means, and thus output growth must be lower going forward. But, just because some were saving too little or spending too much does not mean that output growth must be lower. It may be – and it was the case – that some were consuming too much. For example, the Greek government was borrowing over 10 percent of GDP prior to the crisis. The Greek economy was borrowing 14 percent of GDP from the rest of the world. Millions of Americans were spending more than they were earning and the personal saving rate in the United States fell to 2.6 percent in 2005, relative to its average in

the 1980s and 1990s of 8.0 percent. As a whole, the U.S. economy borrowed almost 6 percent of GDP from the rest of the world in 2006.

**Figure 5: United States and Greece Current Account Balance**



Source: BEA; Bank of Greece; Hellenic Statistical Authority.

There is a reason to believe that this spending, and this borrowing, was not sustainable. There is no reason, though, that the United States or Greece could not make the same amount of output it did at that time.

The allocation of demand, both within and across economies may have required adjustment, but neither the output nor the pace of output growth necessarily did. The United States was over-consuming, not over-producing. That is, there is no reason that output or production needed to adjust. And yet, when the crisis struck, output fell sharply, output growth during the recovery has not yet reached its trend rate, and world growth has slowed notably.

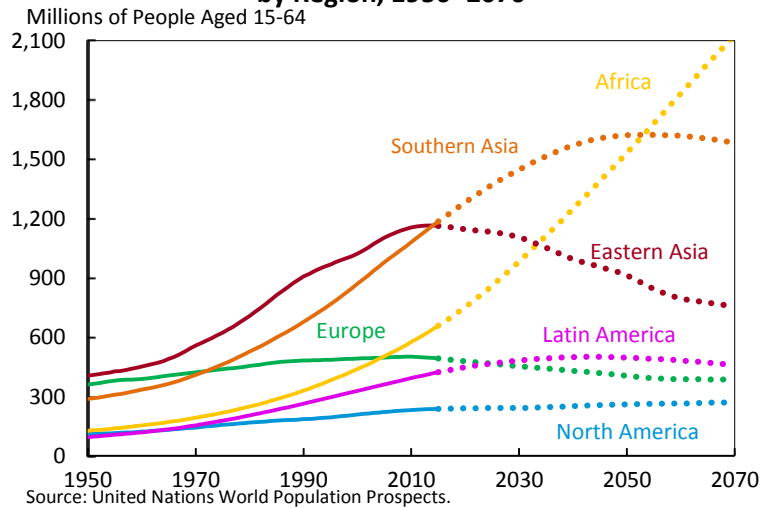
***So, if global growth didn't have to slow down, why did it?***

The first thing to note is that there are in fact perfectly sensible reasons global output growth has slowed. The most notable reason is demographics.

From 1953-2007, the U.S. working-age population grew 1.4 percent a year, fundamentally underpinning substantial output growth by adding new workers and consumers into the economy each year. Added to that was the cultural shift that brought many more women into the labor force; in part as a result of this shift, the U.S. labor force was growing 1.7 percent per year over that time period. Since 2008, the working-age population has grown just 0.5 percent a year. The U.S. fertility rate did not suddenly fall to zero in the last few decades; rather, it was so high during the baby boom 65 years ago that their retirement has substantially slowed the growth of our labor force, creating a headwind for overall economic growth.

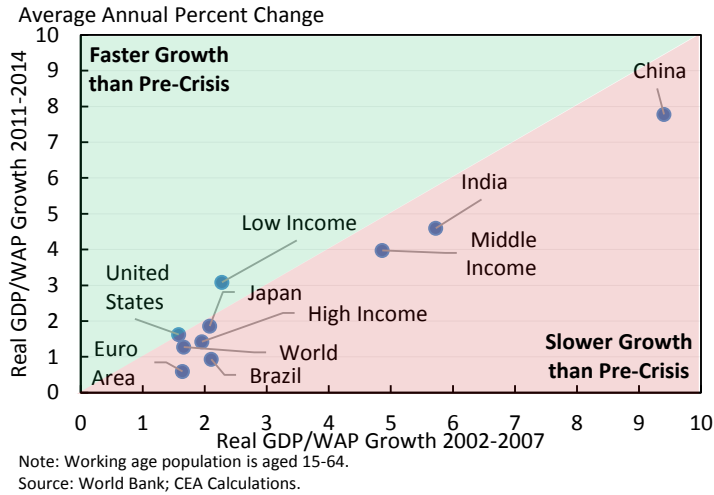
This is not a uniquely U.S. experience. The working-age population is shrinking in Europe, in Japan and in East Asia more broadly. The working-age population is even falling in China. Global working-age population growth has slowed from 1.8 percent in the 1990s to 1.3 percent since 2007. So, yes, growth may be slower and we should not simply draw straight lines extrapolating growth rates from the past. But it's important to keep in mind that growth rates compound over time, so modest differences in annual growth can build into larger gaps over time.

**Figure 6: Actual and Forecasted Working-Age Population by Region, 1950–2070**



But, growth has not simply slowed entirely in line with working-age population growth. In nearly every country, growth *per* working-age population has slowed as well. Europe, China, India, and Middle Income countries have all had growth per working-age population slower in the post crisis period of 2011-2014 than in the pre-crisis era. By this measure, the United States does fairly well, with roughly the same growth in both periods. However, given the hole that the world economy was still in in 2011, providing the potential space for a strong bounce back, one would have expected faster growth since then. Since the unemployment rate was falling over that time, one would have expected growth higher than its typical rate. But world economic growth has just been disappointingly slow.

**Figure 7: Real GDP per Working Age Population, Pre- vs. Post-Crisis**

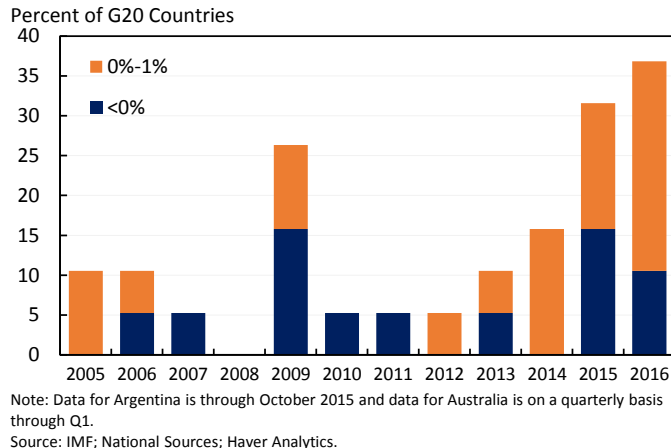


*So, why else, beyond demographics has global growth been slow?*

In some places, there is clear evidence of low demand relative to productive capacity. In the euro area, the unemployment rate is still considerably elevated relative to its pre-crisis level and some major emerging market countries like Brazil are in recession. In other places, the unemployment rate shows less obvious slack in the economy and yet growth has been persistently slower than desired or forecasted. But inflation has been quite low and there appears to be room for more workers to enter the labor force suggesting upside potential for faster growth.

Inflation has not just been low in the in the United States. In fact, inflation in the United States – while below the Federal Reserve’s target – has generally been faster than in many other major advanced economies. All around the world, inflation rates have been stubbornly low. Inflation was less than 1 percent in more than one-third of the G20 economies over the twelve months ended in March. The share of G20 economies with near zero or negative inflation has grown steadily in recent years. It was only around 5 percent in 2012 before jumping up towards 35 percent.

**Figure 8: Consumer Price Inflation in G-20 Countries over the 12 Months Ended in March**

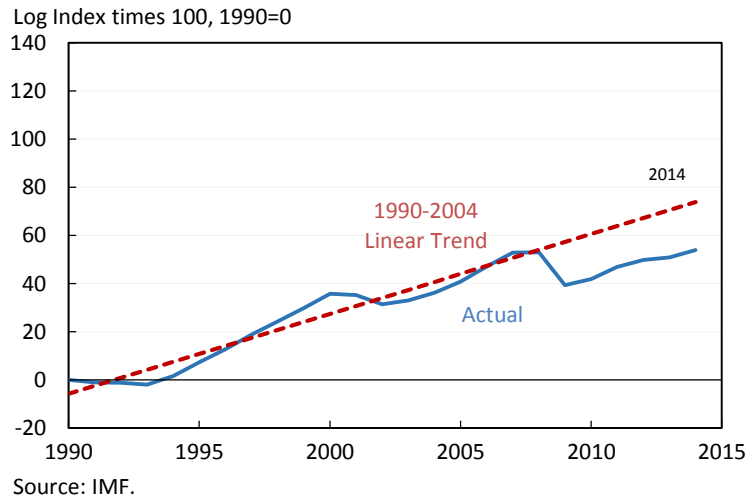


This suggests that demand, not supply, has been the binding constraint on growth. If supply were constrained, but demand surging, we would expect prices of goods and services to face upward pressure. Instead, the price of commodities has been falling sharply and a large number of major countries are facing less-than-desired inflation. Those falling commodity prices are in part due to supply changes in some products (in particular a surge in oil production in places like North America), but they also tend to track industrial production growth worldwide, and as industrial production growth has slowed and economic growth around the world has slowed, commodity prices have fallen.

***Two related phenomenon related to both supply and demand deserve attention***

First, on the demand side, an important component of demand that has not recovered to pre-crisis trends is investment. In the advanced economies, investment is roughly 20 percent below its pre-crisis trend. Even with demographic headwinds and the potential hangover from the financial crisis, it is clear that investment remains below optimal levels.

**Figure 9: Business Fixed Investment Across Advanced Economies**



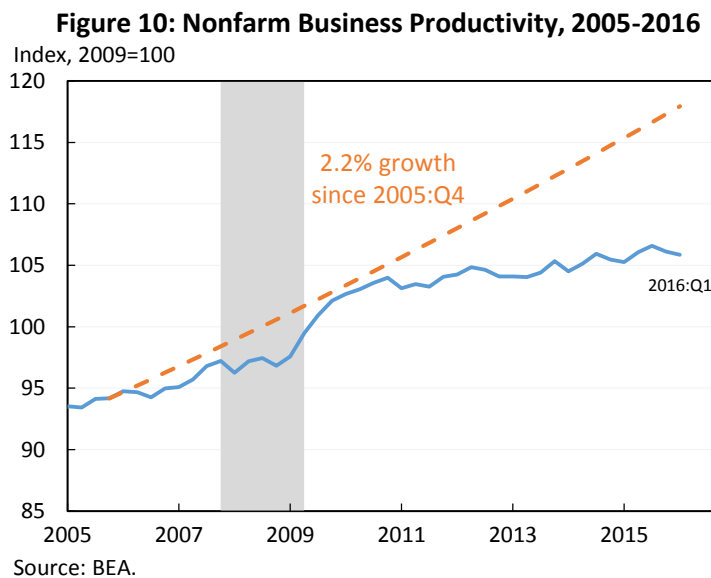
Low investment means less demand for goods and services around the globe. It is part of the lack of spending or expenditure that contributes to growth being below trend.

At the same time, the fact that the unemployment rate has fallen in many countries (including the United States) demonstrates that employment has broadly recovered. So, if more people are working, why has output growth remained low? The answer is that hours worked have recovered to trend much better than GDP. The gap between per-working-age-population GDP and its prior trend is closing more slowly than the gap between hours worked and its prior trend. The caveat, however, is that hours worked per working age person was trending down for many years prior to the crisis (part of a long decline in labor force participation). This is another important issue weighing on output per capita, but has not shown a shift in the post-crisis era.

The connecting issue between both of these phenomena is that output per hour worked is not growing as fast as it had. Output per hour is a measure of labor productivity and productivity growth has been disappointing around the world in recent years.

In the United States, productivity has remained below its trend from 2005 onward. At first in the crisis it remained flat and then bounced back, but has grown more slowly than is typical and thus the level of productivity in the economy overall has fallen farther away from its trend. Since the pre-recession peak in 2007:Q4 productivity growth has averaged 1.1 percent a year, and since 2012, productivity has grown at a 0.5 percent annual rate—well below its historical average of 2.2 percent from 1953 to 2007:Q4 (see Figure 10).

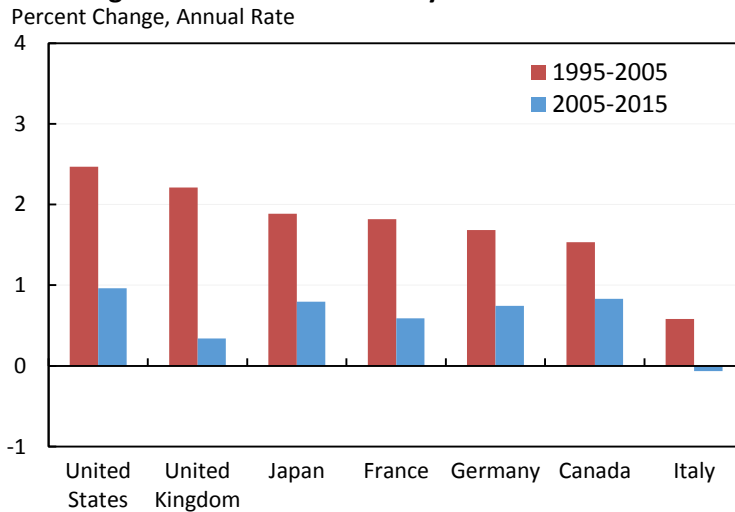
One of the leading experts on productivity growth, John Fernald of the San Francisco Federal Reserve, has argued that productivity growth slowed starting around 2004 as the innovations associated with the information technology revolution dissipated. However, productivity growth statistics are sensitive to measurement of both hours and GDP, and economists do not yet have a strong understanding of the determinants of productivity growth rates and how turning points between below-average and above-average growth occur. More research is needed to resolve this important question.



This productivity slowdown has affected nearly all of the advanced economies: 30 of the 31 advanced economies saw productivity growth slowdowns from 2005-15 relative to 1995-2005. Despite the slowdown in its productivity growth, the United States has had better productivity growth than rest of the G7 over the last decade, shown in Figure 11. The global nature of the productivity slowdown means that no single country or policy can convincingly account for it.



**Figure 11: Labor Productivity Growth in the G-7**



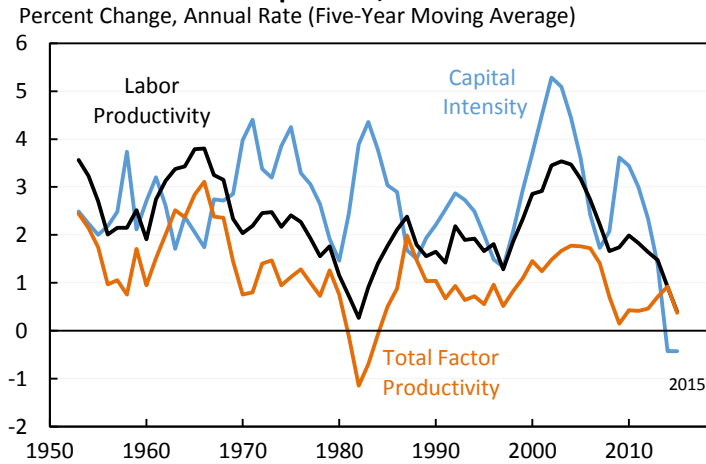
Source: Conference Board Total Economy Database.

### Where has productivity growth gone?

One can break labor productivity growth into three components. Sometimes, workers can do more simply because they are better workers (labor quality). Sometimes workers can do more because of better processes or technology (total factor productivity). And sometimes workers can do more because they have more capital and machinery to work with (capital deepening). In the United States, the major source of the slowdown in productivity growth recently has been a sharp drop in capital deepening. That is, low investment by firms has decreased the growth in the amount of capital per hour worked.

As Figure 12 shows, in the United States in the last 5 years, capital intensity growth was negative. Total factor productivity growth was lower than typical as well, but it is both volatile and tends to mean-revert, with periods of low growth typically followed by periods of faster growth and vice versa. It may be that the rapid employment growth over the last 5 years has meant that incorporating new workers has temporarily slowed productivity at the margin because new entrants tend to be lower productivity workers at least at first. In addition, the low level of investment in recent years may mean that newer innovations that would lift TFP have not been fully put in place yet. Over time, the solid R&D investment currently taking place should help lift TFP growth back to its previous pace. The drop in capital intensity is larger, and the absolute decline in capital per worker over the past five years has not previously occurred in the postwar period. And, it is not, by any means, unique to the United States. The slowdown in capital deepening from its pace in 1994-2004 to 2004-2014 was in fact larger in Germany, Japan, and the UK than it was in the United States.

**Figure 12: Labor Productivity and Major Components, 1950–2015**



Source: Bureau of Labor Statistics.

One way to interpret this lack of investment and capital deepening is as part of a negative cycle. Demand is low, which makes investment low, which generates low productivity. Lower productivity growth feeds back into reduced expectations, lower investment and hence lower demand.

The standard “accelerator” model of investment posits that investment depends on the growth rate of the economy, and hence increases in investment depend on the change in the growth rate. Thus, slowing global growth would slow global investment.

We see evidence that low demand is the brake on investment in surveys of businesses across the world. Concern over sales is consistently one of the top problems cited by U.S. businesses, and surveys of European small businesses note that “Securing demand for their products remains the dominant concern for SMEs” (ECB 2015). Without higher demand, firms simply will not choose to invest.

***There is evidence, in fact, that the slow global growth weighs on investment not just slow national growth.***

Large firms are increasingly global in their orientation. In fact, in a recent survey, global firms ranked insufficient global demand as a more important barrier to investment than insufficient domestic demand (OECD 2015). Hence, these firms’ investment depends not just on their view of the local or national economy, but on the growth rate of the global economy.

Three recent studies by prominent economic organizations suggest this might be the right interpretation. Research from the Bank of France studying 22 advanced economies found that demand deficiency could explain up to 80 percent of the shortfall in investment across countries (Bussiere et al 2016). Uncertainty could explain some as well, but the gap demand was far and away the driving force. The authors relied on growth forecasts as a measure for expected demand and showed how these forecasts drove investment levels. In addition, they looked both at expected

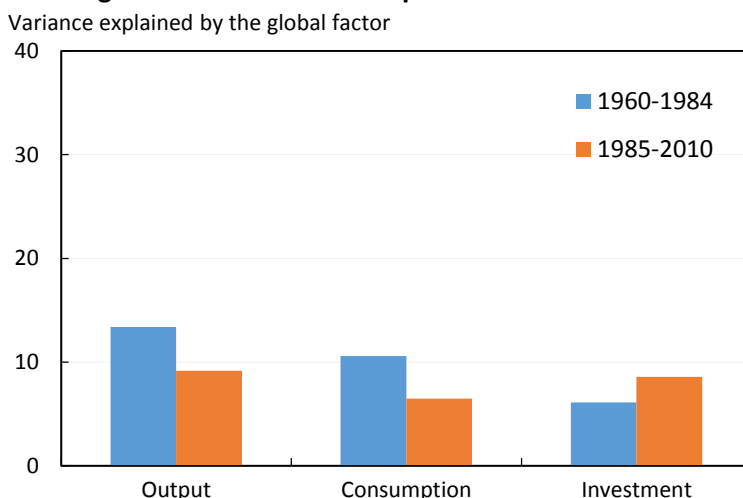
domestic growth and expected growth of imports in a country's trade partners. This measure of global demand is also a significant predictor of investment levels, demonstrating the importance of shortfalls in global growth for investment levels.

The Organization for Economic Cooperation and Development has also considered the importance of global demand recently (OECD 2015). Using a different set of time-series econometric techniques, it too found support for the accelerator model – that demand is a key driver of short-run investment dynamics – and also found that global growth, not just domestic growth, played a significant role.

Looking back further, we see other evidence of this. Researchers for years have been interested in the extent to which there is simply a dominant global GDP cycle or whether regional or individual country factors mattered. The great shock of this most recent financial crisis did not damage emerging-market countries in a way that large recessions in the advanced world did in the past. This led to questions of whether there had been decoupling between economic fortunes across countries or types of economies. This may sound exactly the opposite of the case I have laid out so far insofar as it suggests that countries are not as dependent on global growth as in the past.

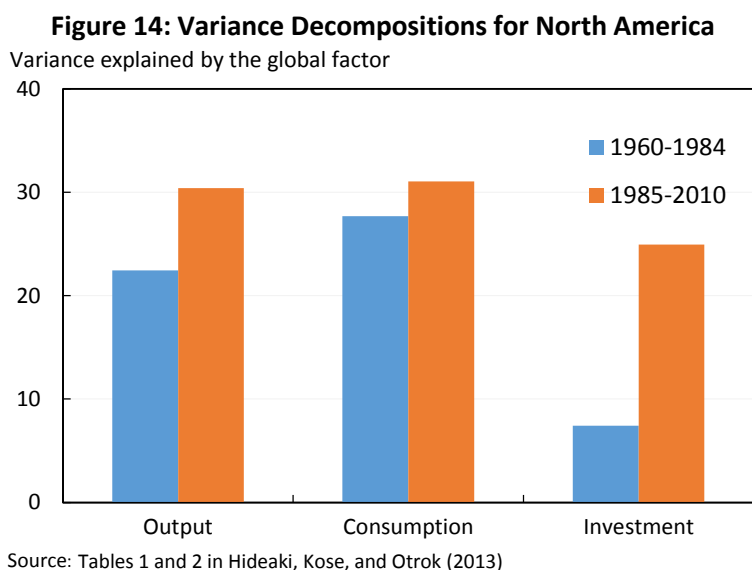
A study by researchers at the IMF (Hirata, Kose, and Otrok, 2013) examines this hypothesis, but also sheds light on how investment is impacted by global influences. This work uses a process called dynamic factor analysis to pick up the common component driving trends in output, consumption, and investment across a wide range of more than 100 countries. In fact, that work does suggest that the amount of output variance that can be explained by a global factor is declining comparing the period from 1960-1984 with 1985-2010. The authors focus on the fact that the global factor explains less of output volatility, but the regional factor explains more. There are two interesting pieces of evidence in that analysis that are relevant to what I am discussing today. The first is while that pattern is true for the world as a whole, it is not true for North America. The global factor has a greater impact on output today than previously for North American countries.

**Figure 13: Variance Decompositions for the World**



Source: Tables 1 and 2 in Hideaki, Kose, and Otrok (2013)

More relevant to today’s talk, though, is the fact that even across the full sample, where the global factor explains less of output growth, the global factor explains more of changes in investment. The notion of a globally influenced investment cycle appears more important even as output is less correlated today than in the past. In addition, this increase in investment sensitivity to the global factor is particularly evident in North America. In fact, the increase in the global factor’s importance is larger in North America than anywhere else and the global factor explains the highest proportion of investment in North America than any other region.



These three studies – all with different methodologies and different data sets – give us a similar picture. Investment in the United States is influenced in important ways by global factors and, more importantly, is increasingly exposed to global growth.

Thus, one way to explain the slowdown in U.S. investment, and in the capital deepening portion of productivity, is to see it as a response to the slowing global growth discussed earlier.

### **Global demand at the zero lower bound**

The global nature of the slowdown in both growth and investment has had a unique aspect for the last few years: not only has global growth been persistently slow, this is happening despite global central banks lowering their policy rates to – or even below – zero. That is, we have been operating at what economists often call the zero lower bound (or more recently the effective lower bound).

A long line of economic research examines how global demand operates differently at the zero lower bound. Literature on this stretches back to Keynes who noted that in a liquidity trap, the allocation of demand across countries becomes more important (Keynes, 1936). The idea is that when demand is in short supply, countries underproviding demand relative to their output are in

some sense acting in a predatory manner by capturing demand from other countries.<sup>1</sup> More recently, Eggertsson, Mehrotra and Summers (2016) have fleshed out these ideas in a fully specified modern macro model. They use a specific framework tied to the idea of secular stagnation, but as Summers (2015) has noted elsewhere, one really does not need to be too specific about the framework. Many frameworks will get you similar results.

Models of secular stagnation posit that demand is permanently, or nearly permanently, too low for a variety of reasons (shifts in the nature of production, demographics, etc.), and that barring persistent deliberate attempts to increase demand, growth will disappoint. Alternatively, the savings glut idea posed by Ben Bernanke suggests some set of countries have shifted their desired level of saving in a way that increases the level of world saving, pushing down the world real interest rate. Models focused on debt overhang (recently highlighted in a global context by Ken Rogoff) argue that individuals, firms, and governments are less willing to spend because they have compromised balance sheets due to too much borrowing in the past. Thus, demand is lower until balance sheets are improved (barring some policy action). The crucial issue in these frameworks is the notion that global demand is too weak even when interest rates are at or near zero.

In this case, a lack of demand in one country has very different impacts on other countries compared to “normal” times.

To understand this, think first of such normal times. Work I’ve done with a co-author Jim Feyrer (Feyrer and Shambaugh, 2012) demonstrates how an exogenous shock to saving by the government in the United States transmits around the world. While part of that shock might be absorbed in changes in investment and saving by other actors in the United States, roughly half of the shock spills around the globe. If the United States as a whole saves more, someone must be saving less. As it turns out, the global savings and investment tend to line up. Thus, in normal times, as in a liquidity trap, changes to saving and investment in one country have spillovers around the world.

Let’s imagine an increase in saving in a country outside of the United States in normal times. There is no reason to think a change in saving in that country transmits one-for-one to the United States. Rather you’d think such a shock would spill roughly evenly around the world. If the U.S. economy were to face less demand from a country abroad, that would leave it with a demand shortfall, but we might normally expect global real interest rates to adjust down. In those normal times, we would think that the U.S. central bank would largely be able offset this shock in a way that would increase demand in the United States. Thus, this increase in savings abroad would tend to lead to a decrease in savings (or increase in consumption) or an increase in investment in the United States. A large current account surplus in one country might affect savings decisions in other countries, but not the total level of output.

When there is a global lack of demand and central banks are already trying to do as much as they can, though, the situation appears to be different. In this case, a decrease in demand (or increase in saving vs. investment, or most simply, an increase in the current account) in a country abroad

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<sup>1</sup> This is something Paul Krugman has commented on many times over the last 7 years. See Krugman (2016) for a recent example.

would mean a reduction in demand to the home country. But, if the central bank is not able to offset this by stimulating demand, the reduction in demand simply reduces output.

Hence, global macro when interest rates are effectively at zero appears to operate differently. Demand is in a sense a finite and precious commodity. One country taking action to increase demand can spillover positively to the rest of the world, but trying to increase demand for your own products from the rest of the world, without trying to increase demand in your own country, can be predatory.

In this sense, global growth has two key impacts on the United States beyond those we normally think about. We often discuss the impact of global growth on exports – and make no mistake, U.S. export growth tracks trade-weighted foreign GDP growth quite well – or the way global shocks can spill through financial markets. Both are important, but I’ve tried to explore two other issues that we must consider when looking at why it matters to the United States for the world economy to grow faster. First, lower global growth can lower investment at home and hence have both a negative impact on demand in the near term and on productivity through less capital deepening. Second, lower global growth may be difficult to offset due to the near-zero interest rates around the world.

None of these challenges need be permanent. The troubling cycle of low demand leading to low investment leading to low productivity growth causing lower expectations and lower demand can itself turn around and become a virtuous cycle. But, shifting the cycle will require concerted action across a range of countries. As global demand is such a key part of the investment decision, it is hard for any one country to execute liftoff on its own.

### **The case for optimism**

In the United States, we have made fiscal policy somewhat more supportive of growth, removing much of the impacts of sequestration and passing a five-year infrastructure bill in 2015. The recent pick up in wage growth should help increase demand as well. In a sense, it seems it is time for capital deepening to come back (and detailed work looking at capital services relative to output over time suggests investment should pick up<sup>2</sup>). European leaders have said they will spend more both on integrating refugees and on defense from terrorism. China has stabilized the current outlook and is showing signs of increasing domestic demand. Canada has taken the clearest position amongst major economies with a decision to spend more, and to allow the deficit to rise temporarily in the name of increasing domestic demand.

Recent statements by the G20 have signaled a willingness to use a variety of tools to lift growth. The declaration in Shanghai in February said, “The global recovery continues, but it remains uneven and falls short of our ambition for strong sustainable, and balanced growth...we will use all policy tools – monetary, fiscal, and structural – individually and collectively to achieve these goals.” (G20, 2016)

But steps to increase growth must be sustainable.

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<sup>2</sup> See Economic Report of the President (CEA 2015, Chapter 2)

Countries across the world have confronted the temptation to use the exchange rate or trade policy restrictions to capture more demand from the world. The world cannot rely on U.S. growth alone, we cannot go back a decade in terms of the global economic model. We also cannot assume that China will grow at the same pace as it did between 2008 and 2012. It is crucial that all economies take the necessary steps to lift the world out of too-slow growth.

Again, the case for optimism is that it appears that growth – while slow – is not slowing more, and that market exchange rate based world growth will be picking up this year as well. Modest improvements in key trading partners like Canada suggest trade-weighted foreign GDP growth (from the U.S. perspective) should start to turn, or at least not continue decreasing.

Taking positive steps to make sure this happens is important.

Looking forward, we need to take demand seriously and we need to take productivity growth seriously, and we need to see the links between the two. It seems highly unlikely that the trends from the past few years represent changes to economic fundamentals. Our capacity to improve our production processes is still strong. The ability of our economy and the private-sector to find valuable investment opportunities is still strong. But, we need to recognize that even years after the financial crisis the challenges and interconnections of the global economy look somewhat different than they normally do—which is why a concerted, truly global effort to lift growth is still needed.

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