Overview Panel

Timothy J. Kehoe

I. Introduction

When President Esther George invited me to participate in this overview panel, I spent some time thinking about how the theme of the symposium—fostering a dynamic global economy—was relevant to central bankers. Of course, Chair Janet Yellen provided us with one answer to my question during her opening remarks yesterday: Growth in output and employment depend on growth in productivity, and banks and the financial system more generally play a crucial role in financing the activity of firms, particularly small and new firms. To the extent that firm creation fosters growth in productivity, monetary policy and financial regulation can spur growth in output and employment.

As you will remember, however, during an excellent discussion of the impact of trade liberalization on labor markets yesterday, Alan Auerbach asked, "What does monetary policy have to do with all of this?" In my discussion, I expand on Chair Yellen's argument about the importance of the financial system in fostering growth in output and employment, and I try to turn her argument around to answer Alan Auerbach's question. I start by observing that many of the problems that face policymakers today, including central bankers,

stem from the extraordinary slowness of the recovery of the world economy from the recession that began with the 2007-09 financial crisis in the United States. I argue that any policies that foster a more dynamic global economy—that is, any policies that generate a more vigorous recovery from the recent worldwide recession—will change the policy objectives of central bankers. Currently, given the fragile state of the global economy, central bankers worry about the possibility that increasing interest rates could further weaken the recovery. A more vigorous recovery would alleviate these worries and allow central bankers to worry about something else.

II. Globalization and the Spread of the Industrial Revolution

Let us begin by examining the historical growth experience of the United States and using this experience to think about growth and development around the world. Chart 1 compares the growth of real GDP per working-age person from 1800 until 2017 with a growth trend of 2 percent per year. The real GDP data are taken from the Maddison Project (2013) at the University of Groningen spliced with data from the U.S. Bureau of Economic Analysis at 1929. Details on the construction of these data can be found in Costa et al. (2016a). Three things are worth noticing about the U.S. growth experience: First, U.S economic growth in the early 19th century was slow up until about 1875 when it accelerated to 2 percent per year. After recessions and booms, the U.S. economy consistently returned to the 2 percent growth trend line. Second, the major deviation from 2 percent growth in the United States, at least up until recently, was the Great Depression of the 1930s. Third—and this is what I want to emphasize today—the recovery of the U.S. economy from the recession that began with the 2007-09 financial crisis has been extraordinarily weak from a historical perspective.

The U.S. experience of near constant growth since the late 19th century is not the typical one. In fact, the only major country that I know of with a similar growth experience is Canada. Chart 2 compares the economic growth of the United States with that of Japan. The Japanese experience is similar to that of the countries in Western Europe. There was roughly 2 percent growth up until World War II. Following the war, there was impressive catch-up growth. Notice

Chart 1
Real GDP per Working-Age Person in the United States

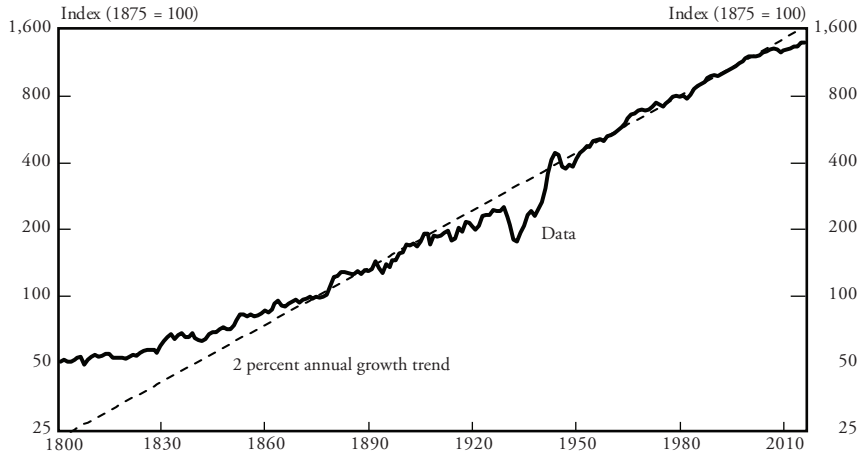
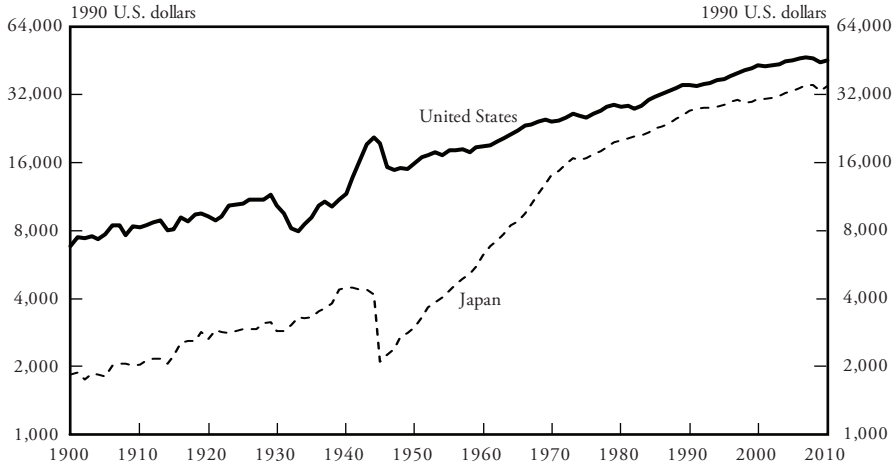


Chart 2
Real GDP per Working-Age Person in the United States and Japan



that, when the Japanese economy did level out at something close to 2 percent growth after the war, in the 1990s, it was on a substantially higher growth path than it was before the war.

Following the path of Parente and Prescott's (1994) work on barriers to riches and of my own work with Prescott on great depressions (see Kehoe and Prescott 2007), I have been working with Daniela Costa and Gajendran Raveendranathan on developing an updated version of Walt Rostow's (1960) stages of economic growth. In our theory of growth, based on extensive analysis of data from the Maddison Project, countries may or may not proceed from one stage of growth to the next (see Costa et al. 2016a, 2016b).

Stage 0 is the Malthusian trap, first analyzed by Malthus (1798) at the onset of the Industrial Revolution in England. In the Malthusian trap, there may or may not be technological progress and economic growth, but population growth eats up any gains, and growth per capita is approximately 0. According to economic historians like Clark (2007), the economies of all of the countries in the world were caught in the Malthusian trap until the Industrial Revolution in Britain.

Stage 1 in the stages of economic growth is what Rostow called the takeoff into sustained growth. We define this stage of taking off into growth as when a country achieves growth in real GDP per working-age person that averages at least 1 percent per year for 25 years. This was the growth experience of Britain at the beginning of the Industrial Revolution. Rostow's theory of stages of growth focused on this stage of taking off into growth because he thought it was the most difficult to achieve.

Stage 2 is catching up to the economic leader—the richest major country in the world, which was the United Kingdom in the 19th century and the United States in the 20th and, at least so far, 21st centuries. In this stage, the country attains 35 percent of the real GDP per working-age person of the economic leader and maintains it for a sustained period of time. Mexico, for example, reached stage 2 during its rapid growth from 1952 to 1980, while China has still not reached this stage.

The final stage of economic growth, stage 3, joining the economic leader, is where the country attains 65 percent of the real GDP per working-age person of the economic leader and maintains it for a sustained period of time. This is the stage of economic growth that has been attained by Japan and the richer European countries. We call this stage joining the economic leader because most countries that have attained it have some sectors that are at the worldwide frontier in terms of technology and productivity.

The data in Chart 1 suggest that—except for the Great Depression and the weak recovery from the recent global recession—growth in the U.S. economy since 1875 has consisted of small deviations from a balanced growth path. In a balanced growth path, real GDP growth is driven by growth in productivity, that is, improvements in technology and in managerial practices. Capital grows only to keep the capital-output ratio roughly constant. In the stages of economic growth described by Costa et al. (2016a, 2016b), countries that are on balanced growth paths grow at the same rate as the economic leader. By improving its policies and institutions, a country can grow faster than the balanced growth rate and transit from one balanced growth path to a higher one, as the data in Chart 2 suggest that Japan did between 1945 and 1990.

Let us get back to our question: Did the financial system have a role in the slow recovery that the world has experienced post-2012? There has been a downward trend in firm entry in the United States. How important is firm entry in determining productivity growth? Yesterday, Pete Klenow and Chang-Tai Hsieh argued that the entry and exit of firms account for a small fraction of growth in the United States. Although I found their argument persuasive, I would counter that a significant reduction in even this fraction of U.S. economic growth generated by firm entry and exit could be enough to account for the weakness in the recent recovery. Furthermore, in recent work, Jose Asturias, Sewon Hur, Kim Ruhl and I study entry and exit in plant-level manufacturing data from Chile and South Korea. We find that creative destruction, in the form of increased entry and exit of plants, is more important during rapid growth periods than it is during slow growth periods (Asturias et al. 2017). The reduction in firm

entry and exit could be responsible for slower growth in the United States, and I would argue that it probably is responsible for the slower growth of countries that would otherwise be catching up with the United States. To the extent that problems in the financial system are responsible for the reduction in firm entry, this is a matter of concern for policymakers.

The slow recovery from the global recession currently presents policymakers with challenges, but we must remember that the development of the world economy since the end of World War II has been very successful in lifting the majority of the world's population out of extreme poverty. Roser and Ortiz-Ospina (2018) calculate that the percentage of the world's population living in extreme poverty has declined from about 90 percent in 1820 to 10 percent today. Costa et al. (2016b) argue that for much of the world's population, the Industrial Revolution has actually occurred since 1960 as globalization has spread it throughout the world. The data in Chart 3 show that more than half of the world's population lived in countries that were still in the Malthusian trap in 1960 while, by 2010, less than 2 percent lived in such countries. This is not to deny that globalization is not increasing inequality within many countries or that it is increasing inequality among countries, as some countries seem to be caught in the middle-income trap. The Industrial Revolution has been extraordinarily successful, however, at reducing extreme poverty and reducing inequality in income across people. These facts are not inconsistent. As Ann Harrison was telling us yesterday, a dramatic increase in the income of the middle class in countries like China and India has simultaneously increased inequality among the people in those countries and decreased inequality among people worldwide.

III. Dangers: Stagnation of Multilateral Liberalization and Spread of Populism

Costa et al. (2016a) argue that globalization—in the form of international trade and foreign investment in particular and of the spread of ideas more generally—has been largely responsible for making it easier for countries to achieve takeoff into sustained growth. The spread of globalization seems to be stagnating, however. One indicator of this stagnation is that global trade as a fraction of global

Chart 3
World Population by Stage of Economic Growth

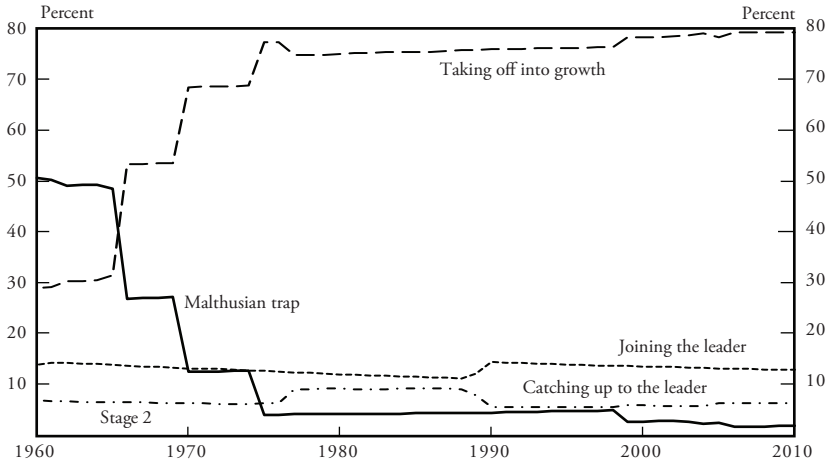
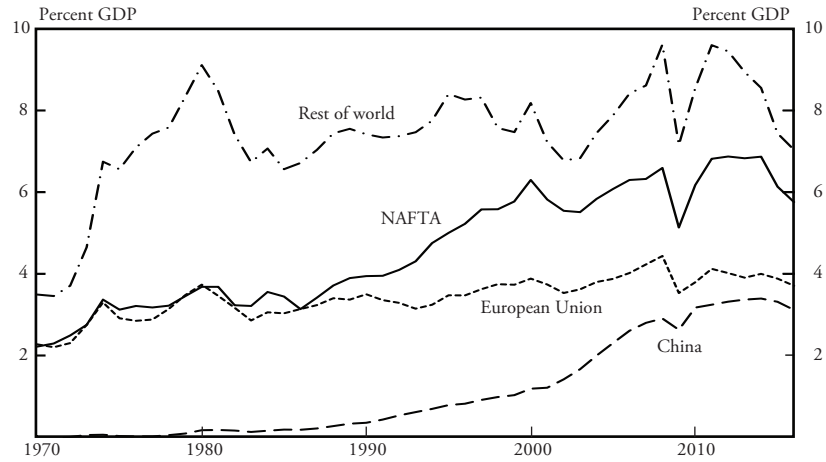


Chart 4
U. S. International Merchandise Trade (exports plus imports)



income fell sharply during the global recession and still has not fully recovered. Chart 4 presents data on total merchandise trade—imports plus exports of goods—between the United States and some of its major trading partners as a percentage of U.S. GDP. Here the rest of the world includes Japan and Korea. There are three things to notice about these data: First, over the period 1970-2007, U.S. merchandise trade rose considerably, from 8.0 percent of U.S. GDP to 22.0 percent. Second, after 1980, all of the increase in U.S. merchandise trade as a percentage of GDP was due to U.S. trade with China and with our two NAFTA partners, Canada and Mexico. Third, U.S. merchandise trade fell sharply during the global recession and, although there was some recovery afterward, in 2016 it was still only 19.6 percent of GDP, below its 2007 level.

If we view globalization as a source of productivity increases and of the spread of economic progress throughout the world, we can hypothesize that the stagnation in the liberalization of trade and foreign investment is one of the reasons for the slow recovery from the global recession. Up through the 1980s, multilateral liberalization through the GATT and it successor, the WTO, drove much of the increases in trade and investment flows. Multilateral negotiations, especially the Doha Round of WTO negotiations that started in 2001, have stalled because of disagreements over liberalization of agricultural trade. Given the lack of progress in multilateral liberalizations, many countries have turned to preferential trade agreements with a small number of partners, often neighboring countries. NAFTA is the most important preferential trade agreement in which the United States participates.

In recent years, liberalization and investment have become less popular in more developed countries. Yesterday, Nina Pavcnik pointed out that globalization is also becoming less popular in many less developed countries. I found her discussion of negative attitudes about globalization in countries like Brazil and Colombia to be interesting when I coupled it with Catherine Mann's data on global value chains: These are countries that are not particularly open and are almost left out of global value chains, but where it is still popular to blame globalization for the stagnation of local household incomes.

The fundamental question is: If I am right that globalization has been a success in lifting a large fraction of the world's population out of extreme poverty and in reducing income inequality at the world level, why are populists on both the right and the left assailing globalization as the cause of increased inequality within their countries and the loss of manufacturing jobs in more developed countries? An obvious answer is that populists are concerned with income inequality within their own countries, not income inequality at the world level. Although many economists tend to dismiss the arguments of populist and protectionist politicians as stemming from ignorance or cynically preying on the ignorance of the population, there are reasons to be concerned about the populist backlash against globalization. What is popularly referred to as globalization includes not only the liberalization of trade and foreign investment but also increases in immigration, changes in technology, and increases in the education premium in wages and salaries. There is no doubt that globalization in this broad sense has left large fractions of the populations of more developed countries and of many less developed countries behind. The backlash against globalization has resulted in Brexit and the election of Donald Trump as president of the United States.

This symposium has had informative, provocative, and challenging discussions of what economic policy makers can do to address the concerns of those citizens who believe that they are being left behind by globalization. In fact, I view our discussions as a call to action on the part of policymakers, and I take it as a call to action for academic economists like me to do more research—and encourage my graduate students to do more research—on the adverse consequences of globalization and on policies to offset these adverse consequences.

Let me mention some of the highlights of our discussions of the backlash to globalization: John Van Reenan described how the Leave side of the Brexit debate produced a populist rejection of the arguments of "experts" like me. On closely related points, David Dorn pointed out that, in United States, the Trade Adjustment Assistance program is very ineffective at smoothing labor market adjustment to trade liberalization, and Catherine Mann stressed that we should not focus on job losses due to trade in isolation from job losses due to

technology. Peter Schott told us that it is easy to say that education is the answer to lack of labor market mobility, but we economists need to look at the frictions that reduce mobility. Much of Mario Draghi's luncheon address yesterday dealt with how the economic benefits of openness could be lost if policymakers do not respond to the populist backlash against globalization. He argued that we need better public policies to support more vulnerable members of society. In particular, to make openness sustainable, we need to convince citizens of our countries that openness can be fair, safe, and equitable. Most importantly, the only way to convince voters of this is to implement policies that in fact make openness fair, safe, and equitable. He points out that doing this will require international cooperation. Overall, our discussions have produced a major agenda for economic policy makers and for academic economists.

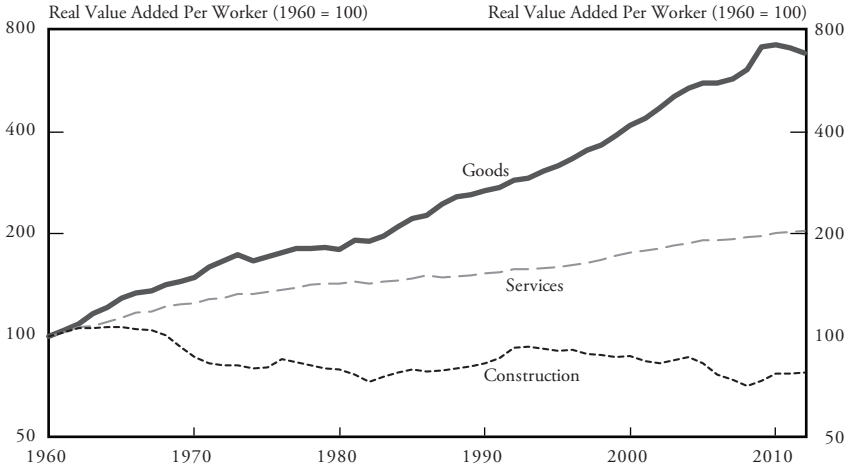
IV. Globalization: Trade Liberalization or Automation?

A number of the participants in this symposium—especially Ann Harrison, Susan Collins and Catherine Mann—have discussed the problem of disentangling the impact of trade liberalization from the impact of changes in technology. Let me use this opportunity to briefly discuss some of my own recent work on this topic that is joint with Kim Ruhl and Joseph Steinberg (Kehoe et al. 2018).

Starting in the early 1990s, the United States has run large trade deficits, peaking at 5.6 percent of GDP in 2006. In the 21st century, the largest component of these deficits has been the bilateral deficits with China. Ben Bernanke argued that the U.S. trade deficit was driven by the desire of foreigners, especially the Chinese after their entry into the WTO in 2001, to purchase U.S. assets rather than U.S. goods (Bernanke 2005). He called this phenomenon the global saving glut, and he further argued that this saving glut was the product of factors largely outside the U.S. economy. Kim, Joe, and I adopt Bernanke's global saving glut hypothesis as one of the exogenous driving forces in our model, taking foreign saving in the United States as exogenously given.

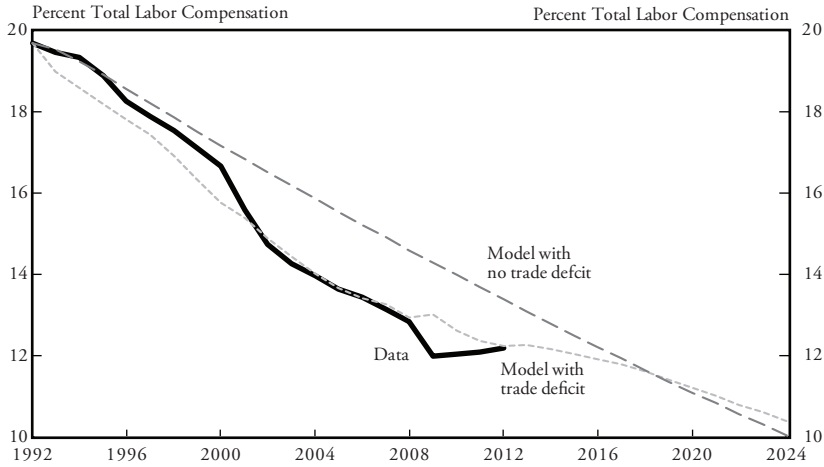
The other exogenous driving force in our model is the differences in growth rates of productivity across industrial sectors in the United

Chart 5
Labor Productivity by Sector



States. The data in Chart 5 show how much faster productivity in the production of the goods sector—which includes the output of the agricultural and extraction sectors, but is mostly manufactured goods in the United States—has grown compared to productivity in services and construction. In our dynamic general equilibrium model of the United States and the rest of the world, consumers have a low elasticity of substitution in their demand for consumption of goods, services, and housing. Firms have even lower elasticities of substitution in their demand for intermediate inputs of goods, services, and structures in production. The higher growth rate of productivity in goods production implies that the prices of goods fall over time compared to the prices of services and the prices of houses and structures. The low elasticities of substitution imply that the fraction of expenditures on goods falls over time. The rapid growth of productivity in goods production combined with low elasticities of substitution allows our model to replicate some crucial facts, often referred to as structural change, observed in the U.S. economy: We produce more goods every year using fewer workers, and the share of expenditures on goods in nominal GDP falls even as the real output of the goods sector rises, sometimes even faster than real GDP.

Chart 6
Share of U.S. Labor in Goods Production



Our model is successful in replicating the key facts about the U.S. economy over the period 1992 to the present. In particular, as Chart 6 shows, it is successful in capturing the decline of labor in goods manufacturing. We measure the fraction of workers in goods production using wages and salaries paid there as a fraction of total wages and salaries. We learn a lot by comparing the equilibrium of our model with the saving glut with the equilibrium of the model where we turn off the saving glut, causing trade to be roughly balanced over time. In Chart 6, we see that the large U.S. trade deficits sped up the decline in goods production in the United States and accounted for about 15 percent of the decline in employment in the goods sector during the peak deficit years. Most of the decline in employment in the goods sector, however, was driven by the higher rate of productivity in goods production.

Our model predicts that, although U.S. trade deficits sped up the decline of the goods producing sector—mostly the manufacturing sector—jobs in goods production will not come back as these trade deficits fall and are eventually reversed. Manufacturing jobs would not come back even if government policy were to force trade deficits to zero.

Yesterday, Catherine Mann talked about the increased importance of trade in services. This is a major feature in our model results. The United States is the largest exporter of services in the world—especially business services, as the home for the headquarters of many of the world's multinationals, and services associated with the payments of royalties like entertainment and the development of pharmaceuticals. As the prices of services relative to goods rise over time, more of the value of U.S. exports will be the exports of services.

Kim, Joe, and I find that consumers in the United States benefited overall from the saving glut. Foreigners sold us their goods cheaply and lent us the money to buy these goods. Furthermore, Americans on average will benefit in the future, as productivity in goods production continues to rise and fewer workers are needed to produce more goods. As our discussion at this symposium has stressed, however, policymakers need to make sure that the gains from the increases in productivity are shared so that a large fraction of the population is not left behind. Otherwise, the political backlash against globalization could stop, or at least slow down, economic growth. As an academic economist, I leave this symposium with an agenda for future research for myself and my graduate students.

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