Trade, Innovation, and Economic Growth

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It is great to be back at Brookings, an institution I fondly called my home before joining the Obama Administration. Brookings has long played an important role in the development, discussion, and advancement of economic policies and I expect no less from today's forum.

One of the main goals of economic policy is to raise the incomes of middle-class households and those working to get into the middle class. A necessary—but certainly not sufficient—condition for sustained increases in incomes is stronger economic growth. Indeed, the recovery has accelerated in recent years: our economy grew 2.8 percent over the past two years, compared with 2.1 percent over the first three-and-a-half years of the recovery, while the labor market is in the midst of the longest stretch of monthly job growth on record.

But the longer-run income trends are more troubling. In the post-war years, middle-class households enjoyed annual income growth of about 3 percent per year. Since the 1970s, however, income growth has fallen to about half a percent a year. The largest cause of this slowdown has been a slower productivity growth. Rising inequality and, more recently, declining labor force participation rates, have also played important roles.

In my remarks today, I will focus on one key instrument that can help boost middle-class incomes: expanding trade.[2] The policies here include regional agreements, specifically the Trans-Pacific Partnership (TPP) and the Transatlantic Trade and Investment Partnership (T-TIP)—trade agreements that tie together two-thirds of the world economy. They also include multilateral efforts through the World Trade Organization (WTO), including the WTO Information Technology Agreement, the WTO Trade Facilitation Agreement, the Trade in Services Agreement, and the Environmental Goods Agreement.

First, I will briefly outline the conventional economic arguments for the ways these agreements can benefit middle-class families, both by improving the quality of jobs and by expanding choice for consumers and producers. Second, the major focus of my remarks will be on what I believe to be an underappreciated—but perhaps even more important—contribution of expanded trade: increasing innovation and thus economic growth. Third, I will briefly consider how the more level playing field created by our proposed trade agreements increases the returns to complementary policies designed to help expand the U.S. economy and benefit U.S. workers. Finally, I will offer some thoughts about how our international efforts, particularly in the trade area, relate to some of the current debates over secular stagnation and global imbalances.

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[1] I want to thank Maurice Obstfeld, Jennifer Poole, Tim Simcoe, and Eric Van Nostrand for assistance with these remarks.

[2] For more, see Chapter 7 of the 2015 *Economic Report of the President*.

The Traditional Case for Trade: Comparative Advantage and its Implications for Household Incomes

The traditional case for trade is based on an exercise in comparative statics: comparing the allocation of production and consumption in autarky (or with trade barriers) to what it would be under free trade (or with reduced trade barriers). Adam Smith was one of the first to frame the problem and some of the earliest analytics were developed by David Ricardo in his theory of comparative advantage—the idea that countries should specialize in and export to other countries what they produce relatively efficiently, and import from other countries what they produce relatively inefficiently.

In the nearly 200 years since Ricardo published his ideas, economists have identified a number of further benefits to trade that fit within this comparative statics paradigm. First, the ability to sell to a larger world market allows firms to take better advantage of increasing returns to scale. Second, much of the expansion in trade is along the "extensive margin," so reduced tariffs do not merely increase trade in currently traded products, but also open up trading opportunities for new firms and new products. And third, foreign direct investment is especially important for improving overall productive efficiency.

Together these different economic forces translate into two very simple benefits for the middle-class: better jobs and improved living standards. Studies of U.S. manufacturing industries document that, on average, export-intensive industries pay workers up to 18 percent more than non-export-intensive industries.[3] Extensive economic research shows higher average wages in exporting firms, possibly because those firms are more productive and thus have higher profits, or because they seek out skilled workers to produce high-quality goods.[4] When controlling for industry and worker characteristics, CEA finds that the average industry's strong increase in exports over the 1990s and 2000s translated into an additional $1,300 in annual earnings for the typical worker. That corresponds to more than two months' worth of an average family's food spending. As a result, increased exports are one route to higher middle-class wages.

Higher living standards result because trade allows countries to specialize in their comparatively productive lines of business. When our trading partners produce goods relatively more efficiently, the United States can import goods at lower prices than if we were to use our scarce resources to produce those goods ourselves. These lower prices raise real wages, helping U.S. consumers purchase more with their current incomes. International trade also offers consumers a wider range of products to choose from—from year-round fresh fruit to affordable clothing—offering value equivalent to 2.6 percent of GDP by one estimate.[5] The greater variety of imports available at lower prices also reduces firms' production costs through imported intermediate inputs, thereby helping American businesses to expand production and employment and increase

[3] Riker, David. 2010. "Do Jobs in Export Industries Still Pay More? And Why?" *Manufacturing and Services Economics Brief* no. 2, International Trade Administration, U.S. Department of Commerce.
[4] Bernard, Andrew B., J. Bradford Jensen, Stephen J. Redding, and Peter K. Schott. 2007. "Firms in International Trade." *Journal of Economic Perspectives* 21, no. 3: 105-130.
[5] Broda, Christian and David E. Weinstein. 2006. "Globalization and the Gains from Variety." *The Quarterly Journal of Economics* 121, no. 2: 541-85.

the wages they can afford to pay. Since World War II, reductions in U.S. tariffs are estimated to have contributed an additional 7.3 percent to American incomes.[6]

One of the next critical efforts in liberalizing trade and opening foreign markets is TPP, an agreement we are negotiating with 11 other countries that together with the United States represent nearly 40 percent of the global economy.

The starting point of TPP is the contrast between U.S. tariffs and those of our partner countries. Our trade-weighted average applied tariff rate is 1.4 percent and 70 percent of imports already enter our economy duty free. In contrast, on average, our TPP partners report simple average applied tariffs 1.5 percentage points higher than our equivalent rate. In some TPP countries, average tariffs are up to 4 percentage points higher, though this difference masks considerable industry-specific variation; the United States faces tariffs of up to 30 percent on auto exports to Malaysia and 40 percent on agricultural goods to Vietnam. Many TPP countries also have substantially higher non-tariff barriers, particularly in the area of services trade, where the United States maintains a strong comparative advantage. As a result, TPP will disproportionately decrease foreign barriers to U.S. exports. In addition, TPP will include the highest and most enforceable labor and environmental standards of any trade agreement and will be the first trade agreement to put disciplines on state-owned enterprises and to ensure a free and open internet.

The most comprehensive estimates of the benefits of TPP are those of Peter Petri, Michael Plummer, and Fan Zhai, who employ an 18-sector, 24-region computable general equilibrium model to simulate policy changes in more than twenty different areas including tariffs, non-tariff barriers, and rules governing foreign direct investment.[7] They find that by 2025, TPP would raise U.S. incomes by 0.4 percent per year, the equivalent of $77 billion in 2007 dollars, although the actual estimate could vary somewhat depending on the details of the agreement and alternative modelling assumptions.[8] The European Union has said that the United States would gain a comparable amount from T-TIP.[9] Some have described these totals as small, but I think I would risk losing my license to offer economic advice if I counseled anyone to leave $77 billion lying on the sidewalk each year.

The New Case for Trade: Expanding Competition, Innovation, and Economic Growth

But these estimates may understate—perhaps even grossly understate—the benefits of TPP, T-TIP, and expanded trade more generally. All of these estimates are essentially based on comparative statics. But as Petri, Plummer and Zhai were the first to point out, "[e]conomic integration may have large additional benefits that are not adequately captured by

[6] Bradford, Scott C., Paul L. E. Grieco, and Gary Clyde Hufbauer. 2005. "The Payoff to America from Global Integration." in C. Fred Bergsten ed. The United States and the World Economy. Institute for International Economics. Washington, DC.
[7] Petri, Peter A., Michael G. Plummer, and Fan Zhai. 2012. "The Trans-Pacific Partnership and Asia-Pacific Integration: A Quantitative Assessment." Peterson Institute for International Economics. Washington, D.C.
[8] Petri, Peter A., Michael G. Plummer, and Fan Zhai. 2013. "Adding Japan and Korea to the TPP." Unpublished manuscript, asiapacifictrade.org.
[9] European Commission. 2013. "Transatlantic Trade and Investment Partnership: The Economic Analysis Explained."

microeconomic models" because these models do not incorporate the effects of trade on the *rate* of innovation and thus the rate of economic growth. Or in the words of Nobel Prize-winning economist Robert Solow, "[r]elatively free trade has the advantage that the possibility of increasing market share in world markets is a constant incentive for innovative activity."[10]

Thanks to the pioneering work of Solow himself more than a half century ago, economists understand innovation in terms of total factor productivity—the total amount of output that can be produced from a given amount of inputs like capital and labor. In what follows, I explore two ways in which trade can increase total factor productivity: as a direct input into the innovation production function and as an increased incentive to innovate.

Trade and the Innovation Production Function

We can think of innovation as being produced by a production function that combines inputs like research and development (R&D). Trade can directly increase the level of innovation for a given amount of inputs. Specifically:

Greater R&D specialization can increase innovation. The static arguments about comparative advantage can be extended to R&D and innovation itself. Greater specialization can increase the amount of knowledge produced per unit of R&D investment if companies in different countries focus on innovating in the areas where they have a comparative advantage. For example, if engineers at Toshiba focus on improving memory chips, and engineers at Intel focus on improving microprocessors, the R&D productivity of each firm may be higher, leading to better and cheaper computers than if each company had to improve both components simultaneously.

One study of R&D specialization shows that strengthening foreign intellectual property protection, as TPP would do, leads to more outward licensing from the United States, where U.S. companies allow other companies to use their ideas, products, or processes in exchange for royalty payments.[11] Specifically, the authors find that royalty payments from foreign affiliates to U.S. parent companies increase by 16.6 percent on average following a reform that strengthens intellectual property rights in the affiliates' home country. This finding highlights the role of non-tariff barriers for shaping trade in ideas, particularly if one country specializes in the "R" and the other in the "D."

Trade also helps firms become more productive by accelerating the global flow of ideas. Both exporters and importers are frequently exposed to new ideas and novel tools, materials, or techniques that make them more productive. For example, many multinational companies have systems and standards to promote the diffusion of "best practices" within their global supply chains.[12] Learning also occurs when a firm adapts novel ideas to suit its own operating

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[10] Solow, Robert M. 2007. "On Macroeconomic Models of Free-Market Innovation and Growth." In *Entrepreneurship, Innovation, and the Growth Mechanism of the Free-Enterprise Economies*, edited by Eytan Sheshinski, Robert J. Strom, and William Baumol. Princeton, NJ: Princeton University Press.

[11] Branstetter, Lee G., Raymond Fisman, and C. Fritz Foley. 2006. "Do Stronger Intellectual Property Rights Increase International Technology Transfer? Empirical Evidence from U.S. Firm-Level Panel Data." *The Quarterly Journal of Economics* 121, no. 1: 321-49.

[12] MacDuffie, John Paul and Susan Helper. 1997. "Creating Lean Suppliers: Diffusing Lean Production Through the Supply Chain." *California Management Review* 39 (4): 118-151; Distelhorst, Greg, Jens Hainmueller, and Richard

environment, leading to both new goods and greater productivity. For example, many American manufacturers and businesses in other industries have adopted aspects of the "lean" production system, which was originally developed in Japan, and realized substantial productivity benefits by tailoring the underlying ideas to meet their own needs.[13]

In addition, export activity offers firms opportunities to learn about foreign markets—perhaps even gaining technical expertise from foreign buyers—leading to increased productivity.[14] This "learning-by-exporting" theory has support in a body of research spanning many countries and time periods.

Many of the new ideas that diffuse through trade are embodied in intermediate inputs. In fact, roughly half of all U.S. imports are inputs into the production of final goods. As noted earlier, increases in the quality and variety of these inputs can reduce domestic firms' production costs, thereby inducing American importers to expand production and employment. For example, a classic paper shows that a country's gains from international trade increase substantially when the benefits of cheaper and more varied imported production inputs are taken into account.[15]

Trade and the Incentive to Innovate

So far, I have discussed two ways that trade can make the innovation process more efficient. Trade can also boost productivity growth by increasing the incentive to innovate.

For example, Solow has highlighted the link between market size and innovation. International trade allows companies to access a larger market, which yields more profit for a given level of innovation, and therefore raises the incentive to innovate. For example, the global reach of the "App Stores" managed by Apple and Google contributes to the large number of software developers who populate those distribution platforms. One recent study found empirical evidence of learning-by-exporting among low-productivity plants.[16] Another study finds that firms with experience in foreign markets have a greater probability of R&D investment, consistent with the idea that accessing larger foreign markets translates into higher expected returns to research and development.[17]

Finally, even holding market size constant, increased trade can promote innovation by strengthening competition. More than fifty years ago, the Nobel Prize-winning economist Kenneth Arrow pointed out that a monopolist may have relatively weak incentives to innovate,

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M. Locke. 2014. "Does Lean Improve Labor Standards? Management and Social Performance in the Nike Supply Chain." Watson Institute for International Studies Research Paper No. 2013-09.

[13] Teich, Sorin T. and Fady F. Faddoul. 2013. "Lean Management—the Journey from Toyota to Healthcare." *Rambam Maimonides Medical Journal* 4, doi:10. 5041/RMMJ. 10107.

[14] De Loecker, Jan. 2013. "Detecting Learning by Exporting." *American Economic Journal: Microeconomics* 5 (3): 1-21.

[15] Romer, Paul. 1994. "New goods, old theory, and the welfare costs of trade restrictions." *Journal of Development Economics* 43 (1): 5-38.

[16] Lileeva, Alla and Daniel Trefler. 2010. "Improved Access to Foreign Markets Raises Plant-Level Productivity…For Some Plants." *The Quarterly Journal of Economics* 125 (3): 1051-1099.

[17] Aw, Bee Yan, Mark J. Roberts, and Daniel Yi Xu. 2008. "R&D Investments, Exporting, and the Evolution of Firm Productivity." *American Economic Review* 98 (2): 451-56.

because its innovations do not allow it to "steal" business from competitors.[18] A similar idea appears in more recent "Schumpeterian" models of innovation and economic growth, where competition can promote growth by increasing the expected payoffs of successful innovation. By bringing companies into a worldwide marketplace, trade greatly increases the incentive for a firm to innovate in order to win business from its competitors, reinforcing the market-size effects discussed above.[19]

However, Schumpeterian models also suggest that too much competition can reduce innovation, because firms will not wish to invest in R&D if their discoveries are easily copied and the resulting profits immediately dissipated.[20] Intellectual property laws help determine where a country falls on the Schumpeterian spectrum between too little and too much competition, and our trade policies can promote harmonization around a set of rules that strike the appropriate balance for promoting long-run growth and job creation.

Does Trade Cause Innovation or Does Innovation Cause Trade?

While my comments have emphasized how trade can promote innovation and productivity growth, it is important to note that this relationship runs in both directions. That is, increased trade can promote innovation, and at the same time, increased innovation can promote trade. At the individual firm level, the decision to innovate and the decision to trade are jointly determined as part of a comprehensive investment strategy. This creates interesting challenges and opportunities for economic research that aims to isolate the causal effects of a particular mechanism. The message for policy is simpler, as one recent review of the evidence calls the relationship between trade and productivity growth a "robust finding"[21]—trade is one of several tools that we can use to promote long-term growth in productivity and middle-class incomes.

Increasing the Return to Policies that Complement Expanded Trade

I have described the many opportunities offered by trade to create good new jobs, benefit consumers, and expand innovation and growth. However, globalization, like any other domestic source of innovation, can also create challenges. Globalization has played a role in the increase in inequality, although most economists would rank it below factors like technology, education, and labor market institutions. Globalization can also lead to increased turnover and dislocation—although the dislocation due to trade is only a small fraction of the dislocation in the economy in

[18] Arrow, Kenneth J. 1962. "Economic Welfare and the Allocation of Resources for Inventions." In *The Rate and Direction of Inventive Activity: Economic and Social Factors*, edited by R.R. Nelson, 609-626. Princeton, NJ: Princeton University Press.
[19] Bloom, Nicholas, Mirko Draca, and John Van Reenen. 2011. "Trade Induced Technical Change? The Impact of Chinese Imports on Innovation, IT and Productivity." *Centre for Economic Performance Discussion Paper* no. 1000.
[20] Aghion, Philippe, Nick Bloom, Richard Blundell, Rachel Griffith, and Peter Howitt. 2005. "Competition and Innovation: An Inverted-U Relationship." *The Quarterly Journal of Economics* 120 (2): 701-728.
[21] De Loecker, Jan and Pinelopi K. Goldberg. 2014. "Firm Performance in a Global Market." *Annual Review of Economics* 6, no. 1: 201-27.

any given month, and much of the turnover generated by trade can be seen in the shift to more high-quality jobs.

But these challenges are real and merit a serious policy response. Part of this policy response lies in the observation that many of the downsides of globalization stem from factors outside of trade policy—factors like improvements in transportation and information technologies which have driven the recent rise in world trade. This perspective suggests that the importance of TPP is to ensure that we are managing the process of globalization, for example by incorporating stronger labor and environmental standards than we would have in the absence of these agreements. But this perspective also underscores the importance of policies to complement expanded trade.

The Administration would be seeking more investment in infrastructure, research and education as well as reforms to our business tax system regardless of our position in the global economy. But greater global integration can increase the returns to all of these policies by expanding the size of markets, attracting foreign businesses to invest in the United States, and offering better employment opportunities. For example, as I said earlier, the unconditional labor premium in export-intensive jobs is 18 percent over non export-intensive jobs. But this comparison is between unconditional means—among other factors, it reflects the fact that workers in export-intensive industries are better educated and specially trained. This suggests that not only should we expand trade to create more export-intensive industries, but that we should also ensure that the workers poised to benefit have access to education and training opportunities.

A second set of complementary policies are being pursued to ensure that more Americans are in a position to benefit from trade, including both better protecting workers from the downsides of dislocation and providing greater assistance to workers to get back on their feet and find new jobs if they have suffered a displacement. Many of the most important policies in this area are not trade specific, reflecting the fact that trade is responsible for only a small portion of the job turnover that American workers face. Programs like Unemployment Insurance and the Affordable Care Act do not ask why someone lost their job or lacks health insurance—and in fact the vast majority of workers who benefit from these policies are in that position for reasons having nothing to do with trade. The Administration has proposed expanded investments in retraining for dislocated workers, including through programs targeted at all sources of dislocation and through the Trade Adjustment Assistance program (TAA), which is set to expire at the end of this fiscal year.

Note that many of these policies—both to increase our competitiveness and ensure more Americans benefit from trade—have potential fiscal costs. But to the degree that increased trade boosts overall economic growth, it helps reduce the long-run fiscal gap, freeing up more resources than we would otherwise have had to devote to these complementary policies.

The Role of Trade in Current Debates about the Global Macroeconomic Situation

Larry Summers and Ben Bernanke have recently been engaged in a fascinating debate about the current economic situation and the prospects for the future. The debate concerns the causes and consequences of the extremely low interest rates observed across the globe, following a nearly continuous twenty-five year interest rate decline.[22] Summers takes the "secular stagnation" hypothesis seriously, contending that fundamental factors like slowing population growth and low capital intensity in new industries are fostering an excess of saving over investment. Bernanke assigns more weight to an explanation rooted in international imbalances in trade, saving, and investment, which are more often a function of government policies than such fundamental factors.

I do not plan to use my remarks today to wade into this debate, but instead to describe the implications that each perspective has for thinking about trade policy and international economic policy more broadly.

Secular Stagnation

The secular stagnation hypothesis explicitly concerns aggregate demand. It starts with an economy with too few high return investment projects to justify substantial commitments of resources to build new factories and equip them with new machines. In this environment the central bank's inability to lower real interest rates to sufficiently negative levels because of the zero lower bound on nominal rates could lead to chronically insufficient demand.[23]

To the degree that trade succeeds in raising the level and growth rate of economic output not just in the United States but also globally, it would also help increase the number of attractive investment prospects. This would raise the equilibrium interest rate and relax the constraint imposed by the zero lower bound on interest rates, thus helping to relieve the underlying stagnation. To be clear: I am not endorsing the hypothesis nor am I claiming that if it were correct, trade would be enough to cure secular stagnation or would obviate the need for the other remedies that Summers endorses, like expanded public infrastructure investment. But I do believe that expanding the growth rate of aggregate supply—through measures that increase productivity growth—would help relieve the conditions under which the zero lower bound can interfere with achieving adequate aggregate demand, whether today or in a potential future recession. And as I have explained, trade does have the potential to foster greater innovation and productivity growth.

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[22] See, for example, Ben S. Bernanke, *Why are Interest Rates So Low, Part 3: The Global Savings Glut* (April 2015); Lawrence Summers, *On Secular Stagnation* (April 2015).

[23] See my recent remarks at the National Association for Business Economics, *Questions and Answers: The Economic Recovery and the Path Forward*, for some brief thoughts on secular stagnation. For more detail, see Summers, Lawrence. 2014. "U.S. Economic Prospects: Secular Stagnation, Hysteresis, and the Zero Lower Bound." Business Economics, vol. 49, no. 2, pp. 65-73. February; Teulings, Coen, and Richard Baldwin, eds. 2014. *Secular Stagnation: Facts, Causes and Cures*. London: Centre for Economic Policy Research.

Global Imbalances

The global imbalances view, or "global savings glut" as Bernanke has termed it, also relates to aggregate demand. It posits that a combination of underlying structural economic features and deliberate policy choices have led to an uneven global allocation of saving and investment—with both too much saving and too many countries unwilling to deploy a commensurate portion of that saving flow in the form of internal investment. The result for the United States, according to this view, is that we import capital to make up the difference between our investment and saving. The flip side of this capital surplus is that we run a current account deficit—the dominant component of which is our trade deficit. Notably, such trade deficits appear to have been linked with other imbalances, like the debt-fueled housing bubble that precipitated the financial crisis. Overall, according to this view, large, persistent current account deficits driven in part by other countries' current account surpluses, threaten the sustainability of global growth. They force a choice between contractionary pressures and market bubbles that can boost consumption in the short run but threaten macroeconomic and financial stability down the road.

It is noteworthy in this regard that the United States has made significant strides in rebalancing its economy. Our current account deficit fell from 5.8 percent of GDP in 2006 to 2.4 percent of GDP in 2014, the lowest share of our economy since the late 1990s. This progress is especially notable given our advanced position in the business cycle versus our trading partners', which would tend to increase the deficit since domestic demand has outpaced foreign demand. In part, this progress is attributable to our own policies, including the increase in net national saving associated with the reduction in our Federal budget deficit and the dramatic reduction in net petroleum imports. But also in part, the reduction in the current account deficit reflects a broader move towards rebalancing in much of the rest of the world.[24]

Nevertheless, to the degree that imbalances have been rooted in distortionary policies in the rest of the world—and to the degree these distortions exist today—they have a cost for the United States. Global imbalances can be understood as being rooted in three factors: macroeconomic policies broadly construed, national exchange rate policies specifically, and other asymmetries across countries, including in trade policies.

The largest source of current global imbalances stems from macroeconomic policies broadly construed. Specifically, while many of the large surplus countries have reduced their current account surpluses, the adjustment process in Europe has been more concerning. Countries like Italy and Spain have seen their current account deficits turn into small surpluses, in large part due to a compression in domestic demand, but this adjustment has not been matched by a corresponding increase in domestic demand in surplus economies. In fact, Germany has seen its current account surplus increase to 7.8 percent of its GDP. Indeed, Germany's 2014 current account surplus exceeded China's in absolute terms as well despite the smaller size of the German economy.

[24] For more detail, see the International Monetary Fund's *World Economic Outlook: Legacies* (October 2014), *Chapter 4: Are Global Imbalances at a Turning Point?*; Ben S. Bernanke, *Why are Interest Rates So Low, Part 3: The Global Savings Glut* (April 2015). It is worth noting, however, that the "global adjustment process . . . has been asymmetrically and disproportionately borne by deficit economies" like Italy, Spain, and the smaller peripheral European economies.

Germany's outsized surplus is largely attributable to its high exports beyond the borders of the euro area. Germany could implement a number of fiscal or structural policies to increase domestic demand, such as public investment in infrastructure, increased tax incentives for private investment, or greater expansions in wages and consumer spending. These policies could offset demand contraction in the weaker European economies and insure against a further weakening in the German economy itself. Germany is not the only substantial surplus country and macroeconomic policies have contributed to imbalances in other economies as well.[25]

Every international monetary system throughout history has faced the problem that pressures to adjust international payments imbalances are asymmetric—much greater for deficit than for surplus countries. Because this fact can complicate policy for deficit economies and give a deflationary bias to the world economy, the G-20 policy coordination process plays an essential role in highlighting the danger to the global economy from excessive current account surpluses.

A second source of global imbalances can be currency policies that target an undervalued exchange rate in order to shift global demand. The United States has made progress toward promoting more transparent, market-based exchange rates as a key element of our international economic policy. We secured a G-7 commitment that monetary policy in member states would remain focused on domestic economic objectives using domestic instruments rather than targeting exchange rates. Moreover, all G-20 member countries have committed not to target exchange rates for competitive purposes and to move faster toward market-determined exchange rates.

China has historically had a systematically undervalued exchange rate that has contributed to global current account imbalances while helping to sustain imbalances within China's own economy. In response, the United States' intensive economic diplomacy with China—including through the Strategic and Economic Dialogue (S&ED)—has made some progress addressing these key concerns. The yuan has seen a real effective appreciation of nearly 30 percent since China allowed its currency to resume appreciation in mid-2010 and the Chinese current account surplus has fallen from 10.0 percent of GDP in 2007 to 2.1 percent of GDP in 2014. The United States and the broader global economic community will continue to push China to fulfill its S&ED commitments to move towards a market-determined exchange rate.

The third source of global imbalances is other economic asymmetries across countries, including asymmetries in the level of government interventions that distort the free flow of trade. For a given set of exchange rates, the openness of the U.S. economy combined with the often larger barriers to our exports to the rest of the world can be a source of imbalance.[26] In that respect, it is notable that, using available data, the United States is currently running a small goods and services trade surplus with the totality of our 20 Free Trade Agreement (FTA) partners—as

[25] See the Treasury Department's *Report to Congress on International Economic and Exchange Rate Policies* (October 15, 2014) for descriptions and analysis of these issues in a wide range of countries.

[26] Economic theory predicts that the exchange rate will adjust as a result of asymmetric reductions in trade barriers, leaving the trade balance unchanged. To the degree this is the case the United States benefits from better terms-of-trade for a given trade balance. However, in some of our trade partners restrictive trade policies are associated with repressed financial systems or other structural factors pushing toward higher saving and/or lower investment.

compared to a trade deficit with all other countries.[27] Moreover, TPP would disproportionately result in tariff and non-tariff barrier reductions by our trading partners, which—for given exchange rate and income levels—would result in higher net exports than in TPP's absence.

Today's largest current account imbalances stem from macroeconomic policies, and addressing them will require continued efforts in the G-20 and other fora. But that does not detract from the importance of trade agreements like TPP in mitigating global imbalances or from continued aggressive and effective actions on exchange rates using multilateral and bilateral tools and channels.

The bottom line is that regardless if one places more weight on either the secular stagnation hypothesis or the global imbalances view, trade liberalization offers important economic benefits that help address either concern. Secular stagnation would be ameliorated by faster productivity growth and an expanded range of productive investment opportunities—an important effect of high-standard trade agreements like TPP. Those who subscribe to the global imbalances view of the world seek a level competitive playing field for global trade to help resolve such imbalances—and high-standard trade agreements like TPP are also designed to do just that.

Conclusion

As genuinely important and timely as these questions are, I want to bring these remarks to a close by returning to my main theme—the future of productivity growth. I believe productivity is a much more fundamentally important determinant of the long-run future of the U.S. economy and middle-class incomes than the essentially more demand-side perspective advanced by either the secular stagnation or global imbalances theories.

Trade has many advantages. In the 2015 *Economic Report of the President,* we described a number of others besides increased productivity growth, including trade's role in reducing global poverty, improving working conditions in the developing world, promoting gender equality, and increasing investments in green technologies to reduce global greenhouse gas emissions.

But ultimately, and most importantly, trade is an important driver of long-run economic growth. Enacting high-standard and values-driven trade agreements is a significant plus—and even more so when they are part of a broader economic agenda to expand public and private investment in America's workers, businesses, and infrastructure.

[27] Bilateral trade balances reflect a wide variety of economic factors as well as measurement issues. Differential growth rates, for example, can be expected to have a greater impact on trade flows than trade agreements and bilateral deficits can be affected by shifts in the location of final assemblies or the sourcing of intermediate inputs. Trade agreements have wide-ranging effects and benefits that, as discussed earlier, are not a function of their impact on the trade balance. To the degree that one is examining the impact of trade agreements on bilateral deficits, the relevant question is not how trade flows have changed, but how those trade flows would have changed differently in the absence of an agreement. For example, increases in exports to Australia, Chile and Singapore following our FTAs with these countries vastly exceeded initial projections, in part because of the many other factors at play. Exports have also increased to Korea in the three years since the agreement went into force, but the bilateral trade deficit has grown largely because of a slowdown in the Korean economy. In contrast, we shifted from a trade deficit to a trade surplus with Colombia following our FTA, in part because of their strong growth.