IMF RESEARCH BULLETIN

Volume 18, Number 1 March 2017

www.imf.org/researchbulletin

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Research Summary

Income Polarization in the United States

Ali Alichi, Kory Kantenga, and Juan Solé



The U.S. middle class is shrinking. Since 2000, more middle-income households have fallen into lower rather than higher income bracket. Combined with real income stagnation, this polarization has had a negative impact on the macroeconomy, hampering the main engine of U.S. growth: consumption. It is estimated that over 1998–2013, the U.S. economy has lost the equivalent of more than one year of consumption growth due to increased polarization.

The U.S. middle class—those households with 50–150 percent of median disposable income—has been shrinking. Middle-income households declined by 11 percentage points (from 58 to 47 percent) of the total U.S. household population between 1970 and 2014. In other words, the U.S. income distribution has been polarizing, or hollowing out, as middle-income households became richer or poorer (see Figure 1).

From 1970 to 2000, this polarization was mainly good news because more households moved into upper income ranks (with disposable incomes higher than 150 percent of the median) than slipped down (with disposable incomes lower than 50 percent of the median). Since 2000, however, the story has reversed. More middle-income households have fallen into lower-income than higher-income brackets.

Falling into a lower income bracket takes a toll on households, especially at a time when average real (after-inflation) incomes have been broadly stagnating. At the aggregate level, the hollowing out has damaged the economy in recent years by hampering consumption—the main engine of U.S. growth. Lower consumption in the world's largest economy also hurts its trading partners, as well as many other countries through global production and financial chains.

Middle Class Trends

A strong economy needs strong consumption and investment to function well. Low-income households have limited ability to consume and save little. High-income households save a lot, but relative to their incomes, consume too

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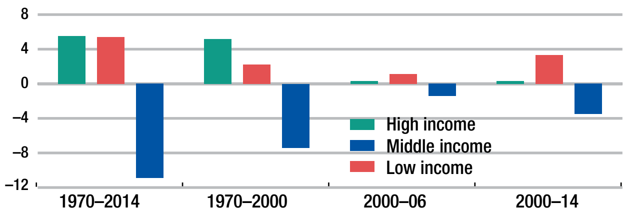
Income Polarization in the United States *(continued)*

Figure 1. Hollowing Out

The share of middle-income households in the United States has been shrinking since 1970.

(change in income-class share, percent of households)

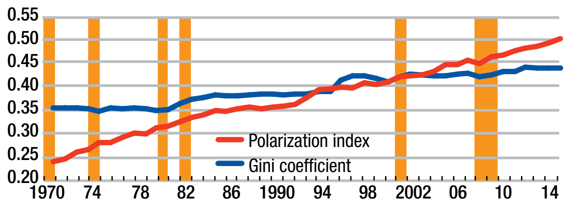


Source: U.S. Census Bureau, Current Population Survey.
Note: Middle-income households are those with annual incomes, adjusted for household size, between 50 percent and 150 percent of the national median income. Above that range are high-income households and below it are low-income households.

Figure 2. Fast Polarization

Although the growth in inequality has leveled off, income polarization continues to increase in the United States.

(value for Gini coefficient and polarization index)



Sources: U.S. Census Bureau, Current Population Survey; and author's calculations.
Note: The Gini coefficient is a measure of income inequality. When the coefficient is zero each household has the same income; when it is 1 a single household has all the income. The polarization index measures the movement of income from the middle to the lower and upper brackets. It is zero when all households have the same income and 1 when some households have no income and the others have the same (nonzero) income. Income data are adjusted for household size. Shaded areas represent recession.

little. Middle-income households provide a reliable balance for consumption and saving in the society. In the United States, the middle class not only accounts for most of the economy's consumption, but also provides most of its human capital and owns most of its physical capital, such as houses and cars. Therefore, a shrinking middle class hurts the economy.

The 11 percentage point shift in the middle class share of total U.S. households since 1970 represents, in part, economic progress; roughly half of these households advanced up through the income distribution, while the other half moved down over that span. But the long-term trend masks a deterioration since the turn of the century. While the majority of middle income households that left the middle ranks moved up between 1970 and 2000, since 2000 only 0.25 percent of households have moved up to higher income ranks, compared to an astonishing 3.25 percent of households that have moved down the income ladder from middle- to low-income status.

Income share is a proxy for an income group's relative weight in the economy. At the same time that the middle class is hollowing out, its share of total national income is shrinking. The income share of middle-income households fell from about 47 percent of total U.S. income in 1970 to about 35 percent in 2014. That decrease in the income of the middle-income households corresponds to the increase in the income share garnered by high-income households. Meanwhile, the income share for the lower-income households has been flat over the entire period—at around 5 percent of total national income. Low wage growth in recent years—partly a result of the drawn out recovery from the global financial crisis but also because people weren't changing jobs—has also contributed to these trends (Danninger, 2016).

Inequality and Polarization

Although growing income inequality has been studied extensively by economists, income polarization (or hollowing out) has not received as much attention. Income polarization measures the move from the middle of the income distribution out into the tails. Income inequality measures how far apart incomes at those tails are, that is, what is the income distance between the low and high-income groups.

Income inequality is usually measured by the Gini coefficient, which gauges statistical dispersion in household income distribution. The polarization index, which is not as well-known as the Gini coefficient, was developed to measure income polarization. This index, measures the relative population weight of households whose incomes are close to the extremes (poles) of the income distribution. The polarization index varies between zero and one. It is zero when all households have the same income. It increases as incomes of more households get closer to the two extremes of the income distribution and reaches 1 when some households have no income and the others have the same (non-zero) income. Figure 2 shows that polarization has grown faster than inequality since 1970 based on a comparison of the Gini and polarization indices. Moreover, while the Gini coefficient has been broadly flat since 2000, the polarization index notably increased around the global financial crisis, suggesting that the hollowing out of the middle class in recent years may be socially and economically even more worrisome than inequality.

How Broad-Based Is Hollowing Out?

We defined the middle class as households whose incomes fall within 50 to 150 percent of median income, but there are no easily-agreed definitions of what constitutes the middle class. Our research shows that the hollowing out of the middle class appears to occur under alternative reasonable assumptions about what upper and lower bands around median income (e.g., 60–225 or 75–125 percent of median income, instead of 50-150 percent) are used to define middle income.

We adopted a relative definition of the middle class in which household incomes each year are compared to the median income of that year. One could also define the middle class based on absolute dollar salary cut-offs that are not necessarily the median income. The hollowing out trends are also similar when absolute levels are used.

In addition, when households in the top 1 percent of income distribution are excluded as well as across age, race, or education level the results are similar: income polarization has increased substantially over the past four decades. The only exception is for households headed by women; in this group polarization has somewhat decreased since 1970, although in recent years, households headed by women have also seen an increase in income polarization.

The Economy Suffers

When households disproportionately move toward the lower part of the income distribution scale, as has been happening recently, there may be negative social and political repercussions. This downward move may also, and usually justifiably, be seen as unfair.

But polarization can also have important consequences for the overall economy. Since 1998, most polarization has involved middle-income households joining the low-income ranks. For the economy as a whole this downward movement has reduced income and resulted in a consumption loss. We estimate that polarization has resulted in about 1¾ percentage points of cumulative lost U.S. consumption growth between 1999 and 2013—i.e., the total consumption lost over this period due to increased polarization is equivalent to about half a year of consumption growth.

To make matters worse, recent evidence suggests that an increase in income of a similar amount for all households does not result in the same increase in consumption that it would have triggered not too long ago—to use economists' jargon, the economy's marginal propensity to consume has decreased, despite economists' predictions that it would increase with more low-income households. This has put additional downward pressure on consumption. The total consumption lost between 1999–2013 due to the lower responsiveness of consumption to increases in income has also been estimated at about 1¾ percentage points.

We can only hypothesize about what has caused the increased polarization and its alarming consequences for the overall economy. Some of it may be due to policies such as taxation or immigration. Technological progress and declining unionization may also play a role, as well as recessions. Future research should study these or other possible explanations.

Understanding the causes of polarization would help authorities devise policies to mitigate the pattern, ensure most people achieve improved living standards over time, and tackle the social and economic consequences of polarization toward the lower part of the income distribution.

Global Phenomenon

Although this article focused on income polarization in the United States, hollowing out appears to be occurring in other countries too. For example, Bigot and others (2012) show that in Canada and Germany, polarization seems more pronounced than in the United States in recent decades, while in France, Italy, and the United Kingdom, it appears to have slowed or decreased. The data for emerging economies are sparse, but Lueth and Syed (2006), using World Bank data, found that in all but one of nine Asian countries, polarization grew from the mid-1990s to mid-2000s. The largest increase in polarization was in China and the smallest in Sri Lanka. Only in Thailand was there a decline in income polarization during this period.

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Research Summary

The Future Wealth of Nations: World Trade in Services

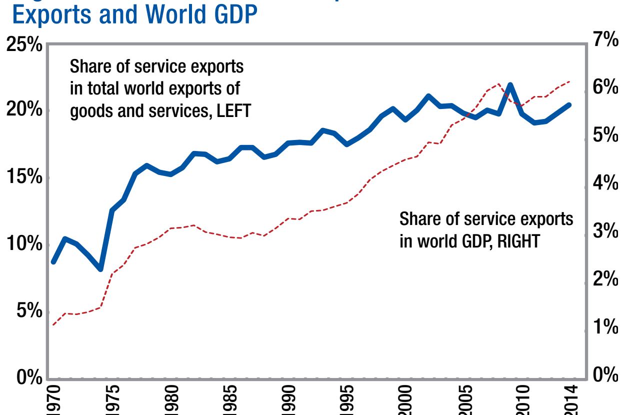
Prakash Loungani, Saurabh Mishra, Chris Papageorgiou, and Ke Wang




The ability to trade services has increased significantly thanks to technology: service exports now account for almost a quarter of total exports. Service exports have also come to play a central role in global production networks and value chains. A new dataset and toolkit document these important trends in the future wealth of nations. The rise in services exports is not confined to advanced economies; services exports have grown ten-fold since 1990. Services may thus be a game-changer, offering an opportunity to sustain globalization.

In "The Wealth of Nations," Adam Smith questioned the social value provided by "lawyers, men of letters of all kinds, … musicians, opera-singers, etc." He was expressing a prejudice against the service sector that holds to this day. Christina Romer lamented in an op-ed that there is a "feeling that is it better to produce 'real things' than services" (*New York Times*, Feb. 4, 2012). Meanwhile, services—which already account for 70 percent of world GDP and 50 percent of employment—are also becoming an important part of trade. In 2014, service exports accounted for nearly 25 percent of total exports (Figure 1). Services exports have also come to play a central role in global production networks and value chains.

Figure 1. Share of Services Exports in Total World Exports and World GDP



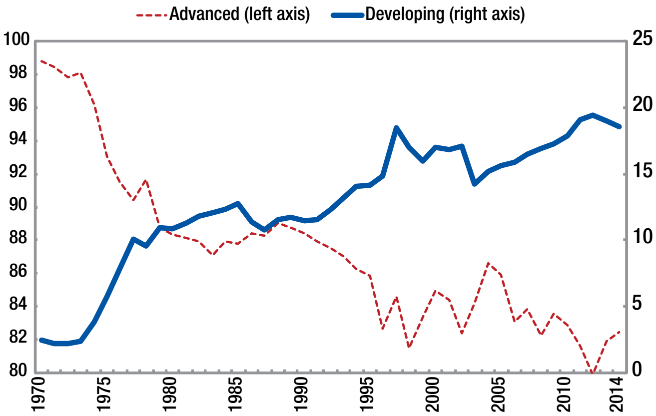
Sources: BPM6, World Economic Outlook, and authors' calculations.

While a haircut still requires a trip to the local barbershop, many other services no longer require the provider to be close to the customer. Financial services are global and many consulting services, such as architectural designs, can be delivered from anywhere. The main reason for the increased tradability of services is the revolution in information and communication technologies. Rapidly declining telecommunication costs, increasing internet adoption around the world, and rapid proliferation of broadband internet services have made arm's length delivery of services possible within and across borders.

Since many countries can take advantage of these technological advances, the rise in services exports is not confined to advanced economies. Services exports from developing countries have grown tenfold since 1990 and at twice the rate of services exports from advanced economies; hence, developing countries' share has increased from 3 percent in 1970 to over 20 percent in 2014 (Figure 2). This increase is not just due to higher exports of traditional services, but is also due to modern technology-enabled services as well, e.g., business services (including R&D and consultancy), computer and information services, financial services, and intellectual property.

As a result of these developments, a nascent literature has begun to challenge the long-held tenet that industrialization has to be the prime engine of growth for emerging markets and low-income countries. This classical view holds that the manufacturing sector promotes broad economic growth (Kaldor, 1967) while the services sector is resistant to improvements in productivity (Baumol, 1967). This argument was based on the assumption that the provision of services—such as restaurant meals, haircuts or medical checkups—required face-to-face transactions. These services did not lend themselves easily to standardization and trade—the source of growth in productivity and hence incomes.

Figure 2. Share of World Service Exports in Advanced vs. Developing Countries



Sources: BPM6 and authors' calculations.

Technology allows for services to be increasingly unbundled; a single service activity can now be fragmented into tasks that are done at different geographic locations. Adam Smith described how the productivity of a pin factory was boosted if, instead of one worker doing all the tasks involved in making a pin, several workers each specialized in a particular task, and then combined the fruits of their labor. A similar process of specialization and exchange is underway in many service industries. As with goods, services productivity can rise because of specialization (a finer division of labor) and scale (falling unit costs of production). Indeed, recent evidence highlights that services seem to experience productivity growth through the same mechanisms that have traditionally made manufacturing the key driver of growth (see, e.g., Meglio, Gallego, Maroto, and Savona, 2015; Flaaen, Ghani, and Mishra, 2013).

New Dataset to Track Services Exports

While it may be too early to tell if the drivers of growth are moving from manufacturing into services, it is clear that the rise in services exports is an important development to track. Our forthcoming working paper (Loungani, Mishra, Papageorgiou, and Wang, 2017) contributes to this effort by introducing a new dataset on global trade in services for 192 countries from 1970 to 2014. We use information from the IMF's Balance of Payments Statistics database to track developments in 66 services exports subsectors. A web portal (http://data.imf.org/ITS) provides access to the data and tools to produce charts and stylized facts.

Using this rich data, we document the global trends in services exports and how countries differ on various dimensions of services exports. The paper makes the case that services exports are not only catching up with exports of goods in many countries, but that they could also help sustain the globalization process, with implications for structural transformation, labor allocation, and income distribution.

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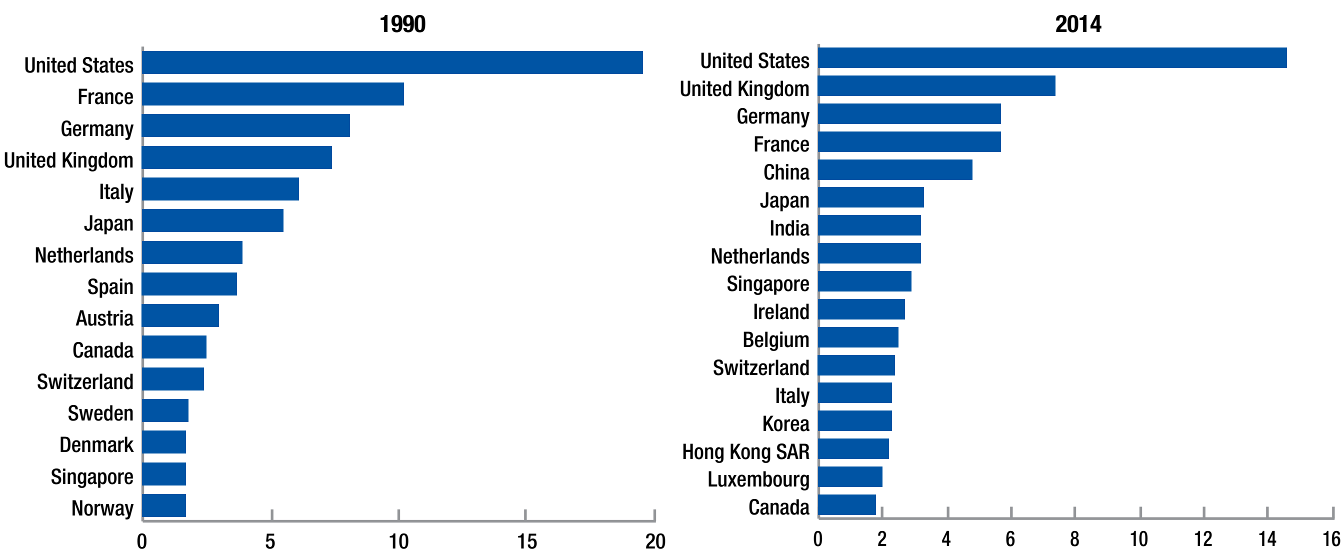
Figure 3. Share of Service Exports in World Service Exports



Note: The Euro Area as a whole occupied the biggest world market share of almost 16% in 2014.
Sources: BPM6 and authors' calculations.

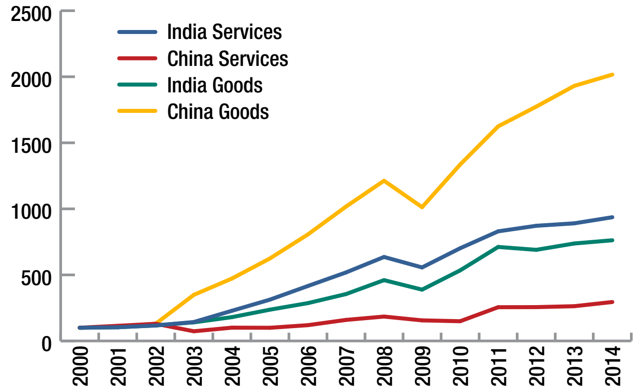
The Future Wealth of Nations: World Trade in Services *(continued)*

At the global level, computer and information and financial services have emerged as two of the most important sectors in the services exports basket. In 2014, world exports of computer and information services reached US$300 billion, 10 percent of the total. Similarly, financial services have grown rapidly in world exports, and have bounced back since the financial crisis to almost US$350 billion in 2014.

Figure 3 presents the share of a country in world services exports in 1990 and 2014. While Europe as a region is the largest services exporter, the United States has remained the top services exporter, though its importance has declined significantly. Though well known as an exporter of goods, China has also become an important services exporter (ranked 5th in 2014). India is also now one of the top 10 countries, with its share of services exports tripling to over 3 percent of world service exports during the period 2000–13. Thailand, Brazil, Indonesia, and Egypt are in the top 30 and moving up rapidly.

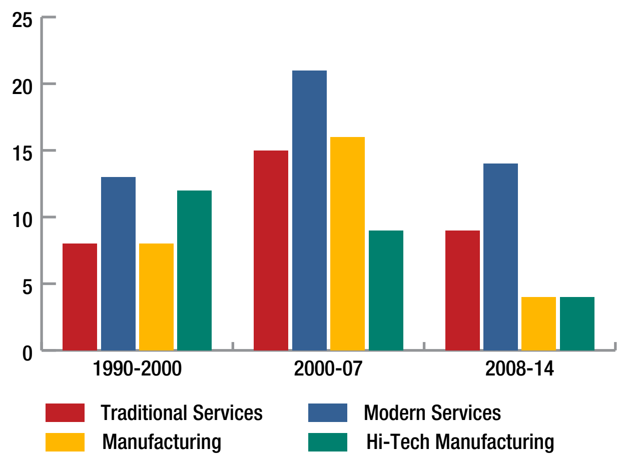
There has been much discussion of India's services exports miracle, which seemingly has defied conventional wisdom about the process of structural transformation and economic development (see e.g., Dehejia and Panagariya, 2014). This stands in contrast to China, where export growth was primarily driven by goods (Figure 4). India has been the world leader in computer and information services, estimated at about US$75 billion in 2014. However, it lags behind China in traditional services exports, such as transport, travel, and manufacturing services, with a gap of over US$60 billion. Travel, transport, and other business services have become the largest exporting sectors in China, while progress has also been made in computer and information services and construction services (Figure 4).

Figure 4. Export Growth, Comparing China and India
(2000 is indexed to 100)



Sources: BPM6 and authors' calculations.

Figure 5. Modern Service Exports Are One of the Fastest Growing Sectors of the Global Economy



Sources: BPM6, 2016 UN COMTRADE, and authors' calculations.

Implications for Growth Strategies

The dataset has many potential research applications, including studying the growing importance of modern services in the global economy; the role of services exports in the process of structural transformation, and the implications of trade in services on macroeconomic volatility, labor reallocation, and income inequality.

Role of modern services. Traditional services such as transport, travel or retail still require physical presence; however, they too are gaining from network effects and increased tradability enabled by technology (Loungani and Mishra, 2014). In addition, the shift to export of modern services has spread across countries at different income levels, making them one of the fastest growing segments of world trade (Figure 5). This is an important trend with ramifications for global export allocation and growth strategies of developing countries.

Growth, structural transformation, and diversification. Many emerging markets including China are seeking service-led sources of growth (McKinsey, 2013). Preliminary evidence suggests that movements in exports of services exhibit higher correlation with country-level GDP growth outcomes than those in the exports of agricultural or manufacturing goods. Service-led growth also offers opportunities for diversification and competitiveness for countries across the development spectrum to resource-rich and low-income countries. (Copeland and Mattoo, 2007; Reinsdorf and Slaughter, 2009; Gervais and Jensen, 2014; Leo and Philippe, 2014).

Labor reallocation. Trade in services offers opportunities for labor reallocation and job creation, and could help address the growing polarization of labor markets. Preliminary evidence suggests that on average, countries that experience higher growth in services exports also experience faster job growth.

Resilience. Services trade has been more resilient than trade in goods to shocks and financial crisis. Further, it is worth noting that services exports from developing countries have been generally more resilient than those from advanced economies.

Income inequality. Finally, services exports may be more inclusive than the traditional goods-based model of the world economy. There is a negative correlation between the change in export services and income inequality. Plausible explanations may be related to labor mobility benefiting primarily low- and middle-income workers, and female labor employment increasing in countries with a sizable services exports sector.

Conclusion

Trade is steadily shifting away from manufacturing and into services. Thanks to technology, more services can now be traded across countries. Services now contribute significantly to the productivity of many manufacturing industries; hence, increasingly, discussions of "manufacturing vs. services" appear outdated—countries now need services to develop their manufacturing sectors. Could these developments be a good thing for the global economy which, for so long, has depended on the engine of manufacturing? The glimpses from our dataset presented above suggest that export of services may indeed be a game-changer, offering an opportunity to revive and sustain globalization. For advanced economies, trade in services could help them retain some global competitive edge. At the same time, the growing tradability of services may aid the diversification strategy of resource-rich countries and low-income countries. For many countries, services may offer a pathway to inclusive growth, for instance by offering work opportunities for women.

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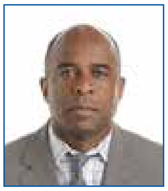
Q&A Seven Questions on China-Africa Relations

By Luiz Almeida, Wenjie Chen, and Oral Williams



China has emerged as Sub-Saharan Africa's (SSA) major trading partner and as an important lender in recent years. Sub-Saharan Africa enjoyed a trade surplus with China for more than a decade, but this has now turned to a deficit with the slump in commodity prices. China's engagement with SSA goes beyond a narrative of natural resources and includes wider cooperation to address bottlenecks in SSA's development. Despite uncertainties in the external environment China has pledged US$60 billion over the next three years to support SSA's development.

Question 1. How important is China's trade with Sub-Saharan Africa?

China has emerged as Sub-Saharan Africa's (SSA) single largest trading partner, following China's rapid growth in recent years. Twenty years ago, advanced economies accounted for about 90 percent of SSA exports. Since then there has been a shift in trading patterns with Brazil, India, and China now accounting for over half of SSA exports. China accounts for the lion's share of SSA exports at about 25 percent. Fuel, metal, and mineral products represent 70 percent of SSA's exports to China. Over the past decade, SSA enjoyed a trade surplus with China, only briefly interrupted during the global financial crisis in 2009, but this has turned to a deficit since 2015 owing largely to the slump in commodity prices. On the import side, the majority of SSA imports from China comprise manufactured goods and machinery.

Figure 1. China's Exports and Imports to Sub-Saharan Africa

(Billions of U.S. dollars, 6 month moving average)

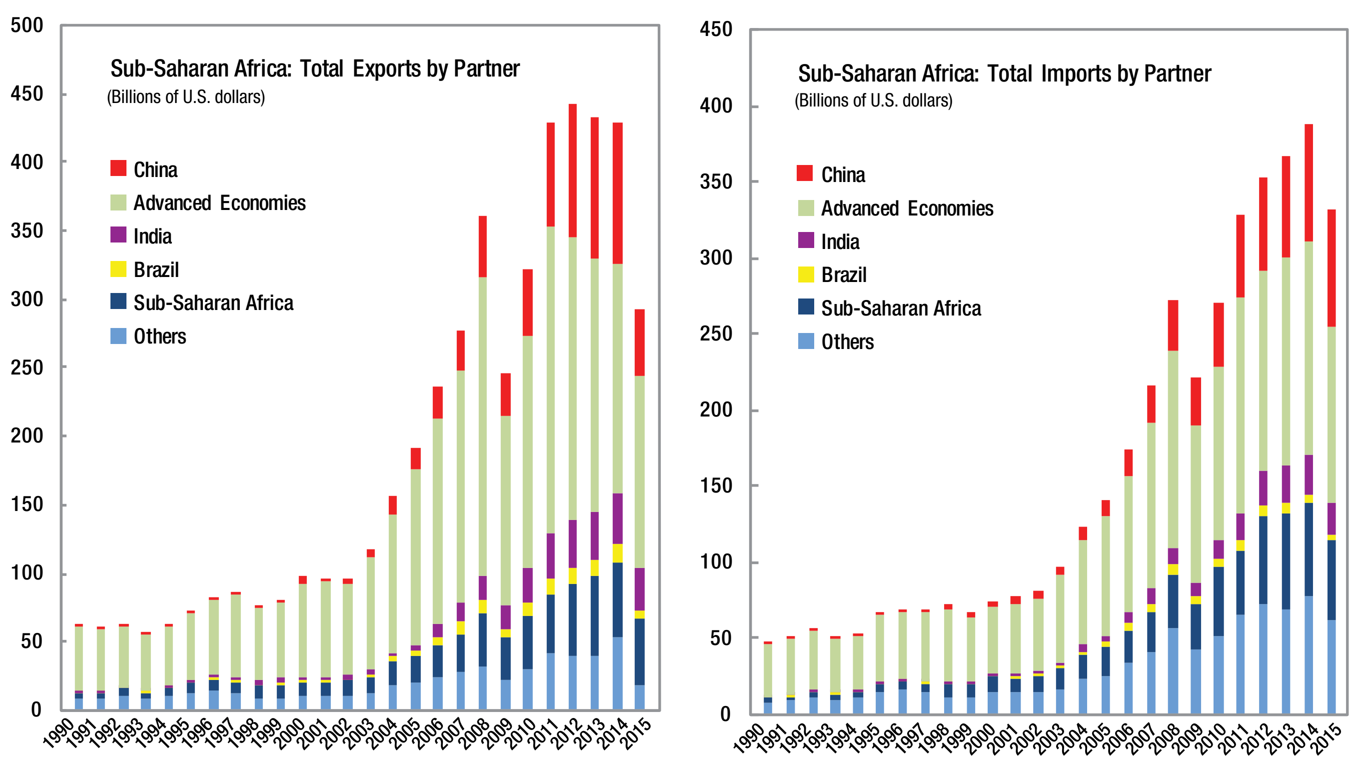
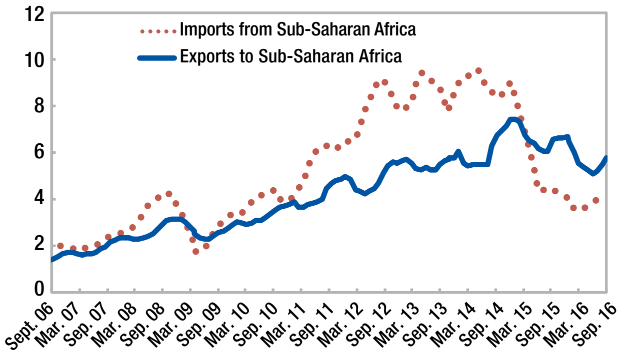


Figure 2. China's Exports and Imports to Sub-Saharan Africa

(Billions of U.S. dollars, 6 month moving average)



Question 2. Is it all about natural resources?

China's engagement with SSA transcends natural resources. China's cooperation with SSA is articulated through the Forum on China-Africa Cooperation (FOCAC) which meets every three years at the heads-of-state level. During the most recent FOCAC meeting (2015), China pledged $60 billion in both project finance and technical assistance designed to cover all important aspects of their cooperation encompassing industry, agriculture, infrastructure, environment, trade facilitation, poverty alleviation, and public health. These interventions are designed to address key bottlenecks to SSA's development, namely (i) infrastructure; (ii) shortage of talent; and (iii) inadequate financing. China is expected to increasingly shift its labor-intensive industries to Africa, which is complemented by its support for African infrastructure projects via preferential financial arrangements and capacity building through technical assistance, vocational training, and fellowship programs.

Question 3. What do the changes in China's economy, as it shifts from investment to consumption, mean for Sub-Saharan Africa?

China's shift to a more balanced growth model that emphasizes consumption has hit SSA commodity exporters hard. With oil and mineral prices falling sharply from previous peaks and China's demand of minerals decreasing, SSA's trade surplus has now turned to a deficit. As a result, growth has fallen sharply in many SSA commodity exporters, fiscal deficits have widened, and international reserve buffers have been greatly reduced. With futures markets suggesting a slow recovery in commodity prices and China's shift from an investment-driven growth to consumption oriented growth, implying lower demand for investment-intensive commodities, SSA commodity exporters will need to undertake an orderly adjustment. This urgency is compounded by a difficult external financing environment

Question 4. How important is China as an investor in Sub-Saharan Africa?

China's investment in Africa has grown as SSA has diversified its sources of capital. While China's outward investment has increased significantly since 2006, official statistics suggest that China's share of FDI to SSA remains relatively small at less than 5 percent. Nevertheless, FDI is widely distributed across oil and non-oil exporting SSA countries. FDI in services accounts for a large share of the number of Chinese private investment projects, followed by manufacturing.

Question 5. How big a lender is China to Sub-Saharan Africa and how important is its aid program?

China has stepped up official lending to SSA. Chinese loans focus primarily on financing public infrastructure projects. These have risen from 2 percent of SSA external debt prior to 2005 to about 15 percent currently. This new source of financing has become increasingly important as SSA countries pursue their sustainable development goals, including addressing large infrastructure gaps. By 2013, about a quarter of all Chinese engineering contracts worldwide were in SSA with a majority in energy (hydropower) and transport (roads, railways, ports, and aviation). However, official aid remains small relative (about 1 percent) to SSA's total overseas development assistance.

Question 6. Has the slump in commodity prices changed the nature of China's investments in Sub-Saharan Africa?

Anecdotal data suggest a shift in Chinese investments from commodity exporters to non-commodity exporting countries. Lower commodity export prices have certainly affected commodity exporters' capacity to repay loans and will be a major factor in driving both official lending and FDI flows. For example, Kenya, Uganda, and Ethiopia have attracted large infrastructure investments, ranging from railways in Kenya and Ethiopia to significant hydropower projects in Uganda.

Question 7. What are the medium-term prospects for China's engagement with Sub-Saharan Africa?

Despite uncertainties in the external environment, China more than doubled its pledges (US$60 billion) to support SSA's development over the next three years. The surge in

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Seven Questions on China-Africa relations (*continued*)

capital outflows from China suggest a search for yield or safe haven as China is rebalancing its growth model and as the role of the renminbi in global transactions has increased. Shifts in production patterns as wages rise in China and changing demographic trends offer SSA new opportunities for growth and investment. By 2035 the number of people entering the working age population in SSA will exceed that of the rest of the world combined. With the appropriate supportive policies that foster investment in human capital and job creation, the challenge for SSA will be to harness this demographic dividend.

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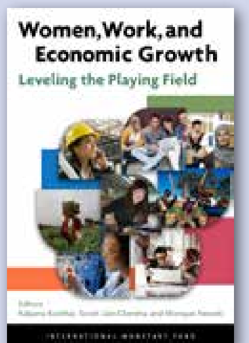

Women, Work, and Economic Growth: Leveling the Playing Field
edited by Kalpana Kochar, Sonali Jain-Chandra, and Monique Newiak

2017. 347pp. Paperback ISBN 978-1-5135-610-3

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"The challenges of promoting growth, creating jobs, and improving women's participation in the labor force are closely intertwined. Economic growth and stability are necessary to broaden women's employment opportunities, but at the same time, their participation in the labor market is an important driver of growth and stability. In rapidly aging economies in particular, higher female labor force participation can mitigate the negative impact of a shrinking workforce on potential growth. Greater opportunities for women can also contribute to broader economic development, for instance through higher levels of school enrollment, including for girls, given that women are likely to invest more of their income in educating their children. Implementing policies that remove labor market distortions and level the playing field for all will give women more opportunities to develop their potential and to participate in economic life more fully should they choose to do so."

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