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Trade, Competitiveness and Employment in the Global Economy

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Trade, Competitiveness, and Employment in the Global Economy

This article is based on papers presented at a 2013 conference titled "Measuring the Effects of Globalization." These papers will be published in a forthcoming book, Measuring Globalization*, edited by Susan Houseman and Michael Mandel, and published by the Upjohn Institute. Draft versions of these and other papers presented at the conference are available at http://www.upjohn.org/MEG/Conference_agenda.*

The globalization of the U.S. economy is evidenced by the rapid expansion of trade. In the 1960s, the volume of U.S. trade (imports plus exports) expressed as a percent of U.S. GDP was a mere 9 percent. That percentage has steadily expanded in the intervening years, and today trade is the equivalent of 30 percent of U.S. GDP. Large trade deficits and sharp declines in manufacturing employment accompanying the expansion of trade have fueled concerns about the loss of American competitiveness and the impacts of trade on U.S. workers.

Yet import and export data traditionally used by policymakers and researchers to study the global competitiveness of domestic industries and the effects of trade on employment, among other things, can be misleading. The reason: the fragmentation of production and the growth of global supply chains. With the break-up of vertically integrated companies and the development of extensive global production networks, imports from one country increasingly embed intermediate inputs produced in other countries. By extension, exports from a country may contain significant content from imported intermediates.

A session at the conference focused on efforts in the international statistical community to develop so-called trade in value-added measures. These measures are designed to provide a more accurate picture of what is made where and thereby allow a better understanding of trade flows and their economic impacts. In this article, I review some of this research, with a particular focus on insights that new trade in value-added data have for the competitiveness of U.S. industries and the employment trends in high-, medium-, and low-skilled occupations.

Trade in Value Added

The need for trade in value-added measures was popularized by case studies such as those of the Apple iPad and iPhone supply chains (Kraemer, Linden, and Dedrick 2011). Although the U.S.-based company Apple designs and distributes these products, it outsources all production. Final assembly of iPads and iPhones occurs in China in plants owned by the Taiwanese-based company Foxconn, with parts produced in Japan,

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Taiwan, South Korea, and Europe. Each iPad or iPhone imported into the United States adds between $200 and $300 to the U.S. bilateral trade deficit with China, yet Kraemer, Linden, and Dedrick estimate that only about $10 of the value, or about 4 percent, is captured by Chinese workers. As such case studies illustrate, bilateral trade deficits, which are measured by gross imports and exports, can be misleading in a world economy characterized by extensive global production chains.

At the conference, Timmer, Los, and de Vries (2013) presented work on the recently released World Input-Output Database (WIOD), a trade in value-added database sponsored by the European Community, while Ahmad (2013) reported on an initiative undertaken by the Organisation for Economic Co-operation and Development (OECD) and the World Trade Organization (WTO) to create a more comprehensive and ongoing trade in value-added database, building on the WIOD and earlier efforts by U.S. and Japanese agencies. These databases involve the construction of global input-output (I-O) tables, providing a full accounting of how goods and services produced in each country are utilized as inputs or to meet final demand domestically and in other countries. These data permit the estimation, for example, of the value-added contribution (i.e., the payments to labor and capital) from each sector in each country to meet the final demand for goods and services globally. The WIOD and OECD-WTO databases also include information on labor input by skill or education level, which allows the separate computation of capital and labor compensation and employment or hours input by labor type. In addition, data on carbon emissions enable estimates of the environmental impacts of global production and trade.

While world I-O tables are conceptually straightforward, data gaps make their construction complex. One particular challenge is that countries generally do not collect information on the destination of imports in the economy, and so the assignment of imports to various industries in the I-O tables must be based on assumptions.[1]

Insights from Trade in Value-Added Data

The WIO and OECD-WTO data provide a number of insights into evolving patterns of global production, trade, and employment. Reflecting the growth of global supply chains, trade in intermediate inputs has grown, and the import value of exports is significant in all advanced countries. In the United States, the import value of exported manufactured products was about 15 percent in 2009.[2] At the same time, countries have become more dependent on foreign demand as a source of growth for income from manufactured products. In 1995, a quarter of the value added by the United States to meet demand worldwide for manufactured products derived from foreign countries; by 2008 that share had risen to a third. Similarly, foreign demand accounted for almost half of Chinese value added for manufactures in 2008, up from about a third in 1995 (Timmer, Los, and de Vries 2013, Table 3).

Value-added data also reveal the critical role of services in world trade. Services account for about two-thirds of GDP in most advanced economies, but less than a quarter of total trade, as measured by conventional import and export statistics. But these statistics do not factor in the value added by the services sector in traded manufactured products. When computed on a value-added basis, services account for over half of the export value in most countries, including the United States (Ahmad 2013, Figure 6). Similarly, about half of the jobs directly and indirectly needed to produce manufactured products currently are generated outside the manufacturing sector, with the share accounted for by services growing over time (Timmer, Los, and de Vries 2013).

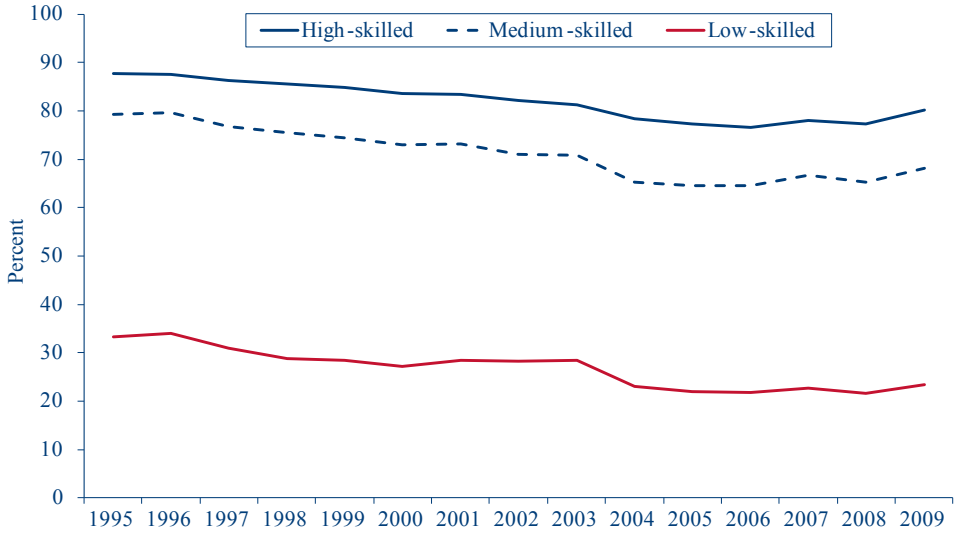
World I-O tables provide a useful tool for assessing the global competitiveness of a nation's industries. As illustrated with the Apple iPad and iPhone examples, a nation's export share can be misleading, since a large component of the value of exports from countries specializing in final processing or assembly may reflect imported inputs. As an alternative competitiveness measure, Timmer, Los, and de Vries (2013) use what they call a country's share of the global value chain (GVC) income—a country's share of income to capital and labor to meet world demand for particular goods and services. The data show a substantial shift in GVC income from advanced countries to emerging economies. In 1995, advanced economies accounted for about three-fourths of the value added in the production of manufactured goods worldwide; that share had fallen to about 50 percent by 2011 (Timmer, Los, and de Vries 2013, Figure 3).[3] The U.S. value-added share for manufactured products worldwide fell from 20 percent in 1995 to 17 percent in 2009, with particularly large declines in textiles, leather, wood products, electrical and optical equipment, and transportation equipment.[4] Data from world I-O tables also reveal that globally the share of income going to capital and high-skilled labor has been rising, while that to low- and medium-skilled labor has been falling (Timmer, Los, and de Vries 2013).

Trade and American Jobs

Much policy attention in the United States has focused on globalization's effects on workers. While many are concerned that the rapid growth of trade has harmed job growth, the Great Recession and weak jobs recovery since 2009 has spurred the Obama Administration to focus policy efforts on increasing exports to boost employment. New data from world I-O tables provide useful background on how the global distribution of jobs has changed and how American workers of varying skill levels have fared vis-à-vis their counterparts in other countries in recent years.

The indirect foreign labor content of U.S. manufactured goods has risen substantially since the mid-1990s, underscoring the importance of accounting for imported intermediates in estimating the domestic employment effects of export promotion policies. Figure 1 displays trends in the U.S. share of labor input (in hours) by skill level used to meet world demand for all U.S. manufactured products, based on data from the WIOD. High-skilled workers

Figure 1 U.S. Share of Labor Hours Used to Meet Global Demand for U.S. Manufactured Products, by Skill Level



NOTE: Labor hours include direct and indirect labor used in the production of manufactured products. About half of these labor hours are worked in nonmanufacturing sectors.
SOURCE: Author's calculations from the World Input-Output Database.

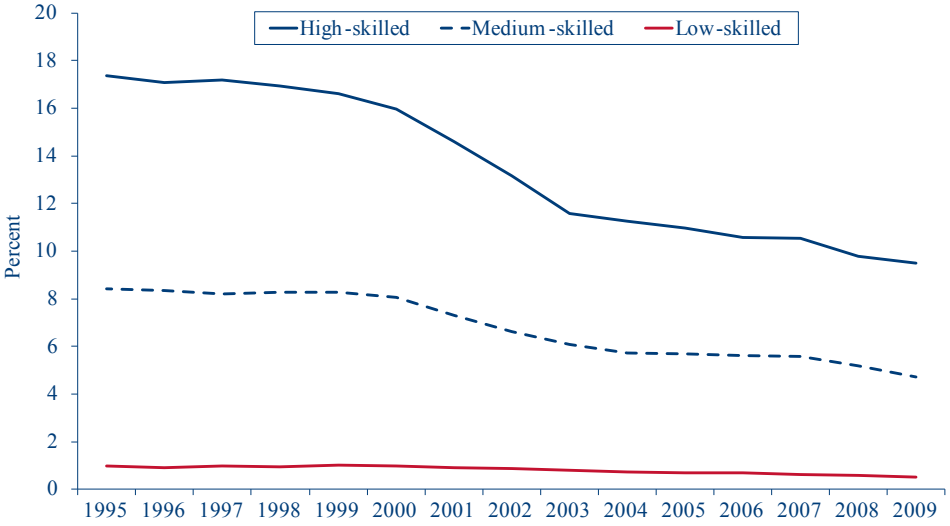
refer to those with a college education, medium-skilled workers are those with a high-school education, and low-skilled workers lack a high school degree. The U.S. share of direct and indirect labor hours used in the production of U.S. manufactured goods has fallen over time for all skill levels. This trend is consistent with the rising share of imported intermediates used in U.S. manufacturing. Perhaps not surprisingly, the U.S. share of low-skilled labor embedded in U.S. manufactured products is low and has fallen from 33 percent in 1995 to 23 percent in 2009, reflecting the shift in sourcing to developing countries for tasks requiring low-skilled labor.

Because U.S. goods and services are inputs in the production of manufactured products overseas, it is necessary to examine labor shares to meet worldwide demand for manufactured products to understand how the distribution of jobs in the global economy has shifted. Figure 2 shows that the U.S. share of direct and indirect labor hours used in the global production of manufactured products has fallen, most strikingly for high-skilled workers. In 1995 the United States accounted for about 17 percent of high-skilled labor used directly or indirectly to meet world demand for manufacturing products; by 2009 that share was just 9 percent.

One must be cautious in drawing conclusions from these descriptive statistics. Falling labor shares could reflect higher labor productivity growth in the United States compared to other countries or the more rapid expansion of demand in emerging economies, which might be disproportionately met by local production. Moreover, trade is not a zero-sum game, and a decline in a country's labor share does not necessarily imply an absolute decline in the number of workers involved in the production of manufactured goods.

In advanced economies, while the number of workers in medium- and low-skilled jobs associated with manufacturing has universally fallen, the number in high-skilled jobs generally has increased, mitigating those declines. The United States is the only exception to this pattern (Timmer, Los, and de Vries 2013). Despite the large increase in global demand for manufactured products since 1995, the number of Americans in high-skilled jobs associated with meeting this demand, along with the number in medium- and low-skilled jobs, has fallen. Given that the United States is presumed to have a comparative advantage in high-skilled labor, this finding is surprising and suggests that college-educated workers in the United States have fared relatively poorly in the global economy.

Figure 2 U.S. Share of Labor Hours Used to Meet Global Demand for All Manufactured Products, by Skill Level



NOTE: Labor hours include direct and indirect labor used in the production of manufactured products. About half of these labor hours are worked in nonmanufacturing sectors.
SOURCE: Author's calculations using World Input-Output Database.

Notes

The conference, "Measuring Globalization," was cosponsored by the Upjohn Institute and the Progressive Policy Institute and funded by the Alfred P. Sloan Foundation.

1. Yao, Ma, and Pei (2013) illustrate the challenges of estimating the import content of exports in China's huge processing sector, and Ahmad (2013) describes initiatives be taken by OECD to improve the quality of data in world I-O tables.
2. This figure is based on the author's calculations using the WIOD.
3. Timmer et al. (2013) focus on competitiveness measures for manufactured products because data on I-O relationships for services industries are relatively crude in most countries.
4. Figures are author's calculations based on the WIOD.

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Steven Raphael

Mass Incarceration and Employment

This is an excerpt from a forthcoming Upjohn Press book, The New Scarlet Letter? Negotiating the U.S. Labor Market with a Criminal Record, *by Steven Raphael. To preorder the book, visit www.upjohn.org/Publications/Titles/TheNewScarletLetter.*

In 2011, nearly 700,000 people were released from either a state or federal prison. These releases added to the roughly 6 million adults who have served prison time in the past. Many will experience a host of difficulties upon reentering noninstitutional society. Those with minor children (especially incarcerated men) often accumulate substantial back child-support obligations while incarcerated and face the legal requirement to pay down the balance. Many face precarious housing situations and a high risk of homelessness following release. Most have little in the way of assets and receive a very small amount of "gate money" upon release, usually no more than a few hundred dollars. Many will be returned to custody for either parole violations or for a new felony offense. In light of these problems and the sheer numbers of individuals released from our prisons each year, policymakers at all levels of government are increasingly focused on how to foster and support the successful reentry of former prison inmates.

For a myriad of reasons, stable employment is of central importance to the successful reentry of former inmates into society. To start, the material well being of most released inmates depends principally on what they can earn in the labor market. The U.S. social safety net provides little by way of public assistance for the nonworking poor, especially for able-bodied and nonelderly men. Thus, avoiding material poverty requires gainful employment.

Second, economic research has demonstrated that the likelihood of committing crime depends to some extent on having something to lose. Those with good jobs and good employment prospects in the legitimate labor market tend to commit less crime. Those with poor employment prospects tend to commit more. Higher criminal participation among those with low earnings may be driven by the need to generate income to meet basic needs, a sense that the potential losses associated with being caught and punished are low when legitimate job opportunities are rare, or a general sense of not playing a meaningful role outside of prison. Regardless of the causal avenue, the transition to stable employment is often characterized as a key determinant of desistance from criminal activity and the process of disentangling oneself from the criminal justice system.

Stable employment is of central importance to the successful reentry of former inmates into society.

Third, most released male inmates are of an age where they are firmly attached to the labor force and where conventional norms regarding responsible adult behavior prescribe steady legitimate work and supporting one's dependents. Facilitating "buy in" among former inmates into conventional society requires that they be afforded the opportunity to transition into the standard roles of other law-abiding citizens.

Finally, formal employment provides daily structure and a sense of purpose for many—factors that may prevent further criminal activity. Criminologists have studied in-depth the "incapacitation effect" of prison—that is, the extent to which prisons reduce crime by forcibly segregating the criminally active. Of course, many other activities incapacitate criminal activity, if we interpret the