

The Implications of Trade with China on U.S. Labor and Wages: A New Perspective on a Longstanding Debate

Zhi Wang, Shang-Jin Wei, Xinding Yu, and Kunfu Zhu (2018). **Re-examining the Effects of Trading with China on Local Labor Markets: A Supply Chain Perspective.** National Bureau of Economic Research (NBER) working paper.

How has the explosive growth of China's exports after its accession to the WTO affected the U.S. labor market? Studies published in the past have provided much-publicized evidence that U.S. regions with greater exposure to China's import competition experienced declines in employment and wages that persist to this day. However, a new study adds to the debate by calculating how cheaper intermediate inputs from China (such as laptops, printers, and office machine parts) have led to cost savings for U.S. firms, improving their efficiency and adding to U.S. jobs. By calculating this broader "supply chain" effect, the researchers of this study conclude that trading with China yielded a positive boost overall to employment and real wages.

The data. This study adds to previous research by explicitly introducing an analysis of imported intermediate goods from China to assess their impact on the U.S. economy. In addition to assessing the effects of direct import competition, this research also: a) introduces measures that capture the "downstream" and "upstream" effects of imports from China; b) separates imported intermediate inputs — i.e., imports used in the production of final goods in the U.S. — from total imports; and c) more precisely allocates imported inputs from China across U.S. sectors.

INSIGHTS

- Exposure to the China import shock from 2000 to 2007 reduced U.S. employment by nearly 2% per year in firms competing directly with China, as well as in firms that sell to firms competing with China.
- However, expanded employment in firms that accessed cheaper intermediate goods from China (i.e., imports used in the production of final goods in the U.S.) offset this loss, resulting in a net U.S. employment *gain* across sectors of 1.27% per year.
- Using this broader "supply chain" perspective, researchers conclude that 75% of U.S. workers on average experienced real wage growth following exposure to the China trade shock.

The researchers used the Inter-Country Input-Output tables from the OECD that detail supply and demand contributions of countries and sectors in global value chains from 1995 to 2014 to measure downstream and upstream exposures. They also collected local employment microdata from the U.S. Census (1990–2000) and the American Community Survey (ACS) provided by the IPUMS-USA database (2001–2014), which they then mapped onto each U.S. local labor market. The U.S. Census and the ACS included information on each respondent's employment status, wage income, gender, and educational attainment.

Direct competition and upstream channels lead to employment losses. Researchers find that firms that do business in "upstream channels" — i.e., companies that supply inputs to those U.S. businesses that directly compete with Chinese imports — experience job losses. More specifically, they conclude that direct competition with Chinese imports resulted in manufacturing sector job losses of, on average, 0.39% a year. This figure rose to 0.63% when upstream exposure was also included. Both direct competition and upstream effects also produced a non-manufacturing sector job loss of 1.34% a year. Taken together, the effects of direct competition and upstream exposure produced a reduction in total employment of approximately 1.98%.

Downstream gains reverse U.S. employment losses. The results of this study demonstrate, however, that job losses from direct competition and upstream exposure comprise only part of the “China shock” story. When the researchers incorporate the effects of intermediate goods imports from China into downstream U.S. channels, they find strong evidence that the overall effect on U.S. employment is, in fact, positive. This positive downstream effect, in other words, is greater than the negative employment impact of direct competition and upstream exposure combined.

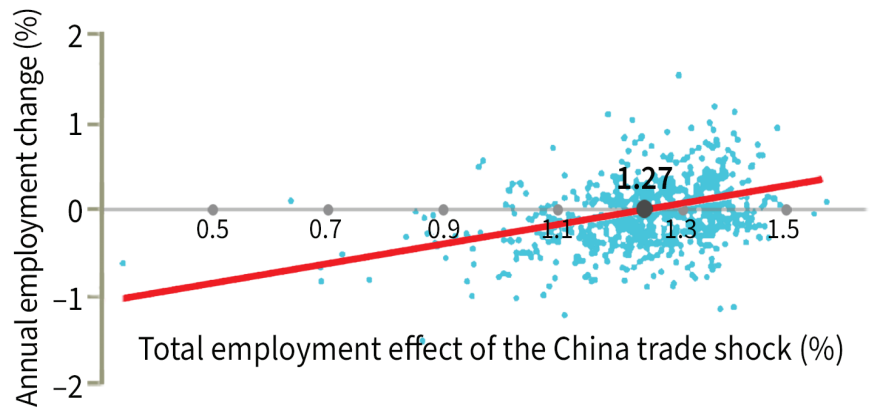
In concrete terms, firms that use imported inputs from China (such as laptops, electronics, and communications devices) include entities like research institutes, hospitals, and banks that go beyond the manufacturing sector. Indeed, the downstream channel produces large job gains in the non-manufacturing sector (3.08% a year) and even a small downstream increase in jobs in the manufacturing sector (0.16%). When researchers sum up all three channels (i.e., downstream, upstream, as well as direct competition effects) in both manufacturing and non-manufacturing sectors, the average total effect of trading with China is a net job *increase* of 1.27% a year.

Stated differently, this study highlights how the negative effects of direct competition induced by the rise of China’s imports on U.S. employment and wages is largely limited to a subset of U.S. manufacturing firms. By comparison, downstream exposure benefits all sectors of the U.S. economy, including service sectors, which comprise a much larger part of the U.S. economy.

Real wage gains. In addition to employment gains, the researchers also found that 75% of U.S. workers, on average, experienced real wage growth from trade with China. When the supply chain perspective was applied to analyze this issue, the downstream channel produced increases in average real wages of 8.5% a year, whereas the upstream channel produced an average wage reduction of 4.1% a year, and the impact of the direct channel is not significant. The research team found that trading with China boosted aggregate wage growth in the U.S. by approximately 4.9% a year from 2000 to 2007. Overall, this research further found that college educated workers tended to see a faster wage growth (7.2% a year), while non-college educated workers saw a decline (4.3% a year).

Supply chain offers new perspective. By explicitly applying a supply chain perspective, researchers found that the U.S. labor market primarily added jobs and saw higher wages from trading with China. Many factors affect the U.S. labor market besides international trade — including technological and regulatory changes — and can lead to job and wage losses. This new study highlights how trading with China did not precipitate but, in fact, helped to mitigate the aggregate losses that may have come from other factors.

Total employment effect of the China trade shock from all three channels (% working age cohort; 722 commuting zones)



Effect of the China trade shock on U.S. wage distribution: three channels

