PRESS RELEASE

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Soaring Machinery Imports Boosted China's Wage Inequality, Study Says

Over the last few decades, China has witnessed a rapid surge in the wage skill premium due to growing machinery imports. Accordingly, wages for skilled workers rose disproportionately, widening wage inequality.

"The rise in capital goods imports, which embody advanced technology, can explain the rising demand for skill in China," Hongbin Li from the Stanford University, Lei Li from the University of Mannheim and Hong Ma from the Tsinghua University wrote in a recent paper.

The authors show that a simultaneous rise in the skill wage premium, i.e. the wage gap between workers with a college degree and those without, and the amount of high-skilled workers in China during the 1990s and 2000s are due to an increased demand for skilled workers.

"Imports of capital goods took off in the 1990s, around the same time when the skill premium started to rise," the economists explain. Because machinery embodies advanced technologies which are more beneficial for skilled workers, importing machinery increases the skill premium.

The study is based on data of the Chinese Urban Household Survey from 1992 to 2009 for information on wages and jobs and focused on 18 representative provinces and individuals between 16 and 60 years old with labour income.

The wage premium for skilled workers shot up over the observation period and remained around 20 per cent in the late 1990s and then rose rapidly to 44 per cent in 2009. "Note that the wage premium for skilled workers increased despite a dramatic increase in the supply of skilled workers due to the massive college expansion since 1999," the scientists pointed out.

Between 1992 and 2007 the average real wage jumped by 202 per cent, accompanied by a sharp rise in wage inequality, other economists have shown. Capital accumulation and skill-biased technological change are seen as the major forces behind the evolving wage structure in urban China.

At the same time, the impact of capital goods from the most advanced countries such as Germany or the United Kingdom are substantially larger than the impact of those from an average country. More specifically, a 10 percentage point increase in the import intensity of capital goods can increase the skill premium by 3.8 percentage points.

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Firm-level evidence shows that the operators of imported machines pay higher wages, and firms using imported capital goods hire more skilled workers, use computers more intensively and have higher labour productivity, according to the paper.

Overall, imported capital goods, such as computers and machinery, show that these imports are skill-complementary. While focusing on China, the authors conclude “that capital goods imports could also be an important driver of the skill premium in other developing countries.“

The presented discussion paper is a publication without peer review of the Collaborative Research Center Transregio 224 EPoS. Access the full discussion paper here. Find the list of all discussion papers of the CRC here.

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Established in 2018, the Collaborative Research Center Transregio 224 EPoS, a cooperation of the universities Bonn and Mannheim, is a long-term research institution funded by the German Research Foundation (Deutsche Forschungsgemeinschaft, DFG). EPoS addresses three key societal challenges: how to promote equality of opportunity; how to regulate markets in light of the internationalization and digitalization of economic activity; and how to safeguard the stability of the financial system.

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