

ROBOTS LEAD TO ‘RESHORING’ – But low-skilled workers do not benefit

A rise in automation leads to firms bringing previously offshored production back to the home country – ‘reshoring’. The driving mechanism is that using robots becomes cheaper over time due to increasing efficiency in automation.

At the same time, the process of reshoring increases employment and wages for high-skilled workers but not for low-skilled workers. Inequality rises as a consequence of the increasing gap between wages for high- and lower-skilled workers.

These are the key results of new research by **Astrid Krenz, Klaus Prettnner** and **Holger Strulik**, to be presented at the annual congress of the European Economic Association in Manchester in August 2019.

Their study shows that when one more robot per 1,000 workers is used in production, it is associated with increased reshoring activity of about 3.5% (using one more robot per 100 workers results in a 35% increase).

Professional workers are better off from reshoring whereas lower-skilled workers – those conducting routine tasks and whose jobs can be easily done by robots – do not benefit.

The estimates show that on average a 10% increase in reshoring is associated with an annual increase of employment in the category of professional occupations by about 1,150 workers. This results in an overall increase of 535,000 workers for the researchers’ sample over time. But there are no effects on workers in elementary occupations.

Given that the use of robots is increasing at a high speed worldwide, a consequence for the future should be that employees need to be better prepared for the change in the future labour market and receive higher education and training.

The researchers find a positive trend in reshoring activity from 2000 to 2014. This trend is visible long before protectionist policies came into place. It is due instead to increasing labour costs in previous offshore destinations (Asian countries, such as China) and a rise in the efficiency of robots and other new technologies (which makes production by automation capital at home cheaper compared with labour).

What’s more, many employers prefer to produce back home to have a higher degree of flexibility or to have better control of the quality of production processes.

An example described in *The Economist* in 2017 is the sports clothing producer Adidas, which has reshored production back to Germany and the United States from China and India; 160 jobs were thus created compared with more than 1,000 in a typical Asian factory.

Robots instead of workers are now doing the knitting, cutting and additive manufacturing, etc. But machines are not yet able to put the laces into the shoes: humans are still required to do that. In addition, mostly higher-skilled workers work in the factories nowadays, for example, machine engineers.

The study develops a new theoretical economic model, incorporating firms that produce intermediate goods either with labour at home, by offshoring (using labour in a foreign country) or by reshoring and using automation capital/robots at home. Firms are driven by the motivation to produce with the cheapest input factor.

The model's results show that higher protectionism (tariffs imposed on imports), higher wages in foreign countries that were previous offshore destinations and higher productivity of automation reinforce firms' reshoring.

When the productivity of automation increases, more firms will reshore given the size of tariffs (that means independently from what the size of tariffs or protectionism is). The model shows that protectionism increases the speed of reshoring, but it does not improve the lot of low-skilled workers.

The model's predictions are supported empirically by developing a novel measure for reshoring activity and applying it to macro data from Europe and the United States.

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'Robots, Reshoring, and the Lot of Low-Skilled Workers' by Astrid Krenz, Klaus Prettner and Holger Strulik

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