

We Were The Robots: Automation in Manufacturing and Voting Behavior in Western Europe

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Extended Abstract

We investigate the political consequences of automation of production on the politics of 15 Western European democracies, between 1993 and 2016. In particular, we focus on the shock induced by the adoption of industrial robots across industries and regions. While evidence exists that the crisis of manufacturing driven by globalization –and by Chinese competition in particular– has had a noticeable effect on voting behavior in these countries, leading to increased support for neo-nationalist and radical-right parties (Colantone and Stanig, 2018), the political consequences of automation in Western Europe have not yet been investigated.

We compute a time-varying measure of the robot shock for each region in our sample of countries. This measure is based on two pieces of information: (1) the historical composition of employment by industry in each region; and (2) the industry-specific pace of adoption of robots in each country and year, published by the International Federation of Robotics. Each region, in any given year, receives a robot shock that is based on the current adoption of robots at the country-industry level, and on its historical industry specialization, which is measured before the extensive automation of production observed from the mid-90s on. Intuitively, regions that were initially specialized in industries in which the adoption of robots has later been faster are assigned stronger robot shocks.

In the first step of the analysis, we estimate the effects of the robot shock on election results across regions, focusing on district-level summaries of ideological leaning that combine election returns and party ideology scores from the Comparative Manifesto Project. For instance, we regress the vote share of radical right parties in a district on the robot shock in the region where the district is located. In a second step, we regress self-reported

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vote choice, from the European Social Survey, on the robot shock in the region where the individual lives. To account for the possible endogeneity of the robot shock, we employ an instrument that exploits the adoption of robots, by industry, in foreign countries. This instrument is meant to exploit industry-specific trajectories in automation that are driven by technological features shared across countries. Its validity hinges on the fact that the adoption of robots in other countries, at the industry level, is plausibly orthogonal to the political dynamics of each domestic region.

Finally, in the third part of the paper, we deepen our analysis by computing an individual-level measure of exposure to the robot shock. This is meant to capture potential heterogeneous effects across voters. Automation, besides having an impact on workers actually employed in the affected industries, has also reduced labor demand, and therefore job opportunities for prospective workers, in those same industries. Workers who might have obtained, in the absence of extensive automation, a well-paid job, for instance, in the automobile industry, find themselves employed in low-wage service occupations instead. Our measure is based on the predicted probabilities of employment of an individual in each industry, estimated from historical data on individual and regional patterns of employment. The individual-level robot shock in each year is then retrieved as a weighted average of the pace of adoption of robots at the country-industry level. The weights are the predicted probabilities of employment of an individual in a given industry, conditional on their region of residence and their individual characteristics, e.g., education level. We use this individual-specific robot shock to estimate the consequences of automation on self-reported voting behavior and on ideological leanings.

We find evidence that the robot shock increases support for nationalist and radical-right parties. The impact of automation is distinct from the impact of Chinese imports, which is identified simultaneously as in Colantone and Stanig (2018). By and large, both technology and trade seem to drive structural changes which are consequential for voting behavior.

Keywords: Automation; Globalization; Nationalism; Radical Right.