

Job Polarization and Structural Change: Evidence from European Regions

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Extended Abstract

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In contrast to the upgrading pattern observed during the 1980s, in the last few decades the employment structure in developed countries has experienced a decline in the share of middle-skilled occupations relative to high- and low-skilled occupations. This phenomenon is usually referred to as *job polarization*.

The increasing polarization of societies, along both economic and political dimensions, is one of the top global risks, according to the World Economic Forum's 2017 Global Risk Report. How best to support displaced middle-skilled workers is a complex issue that requires political will to tackle. Understanding the patterns and sources of polarization is key for an effective policy response, and ultimately for preserving market-based, democratic institutions.

The routine-biased technological change (RBTC) theory, first proposed by Autor, Levy and Murnane (2003), argues that job polarization is mainly the result of technological change. In this model, technological progress takes the form of an ongoing decline in the cost of computerizing routine tasks. The adoption of computers substitutes for workers performing routine manual tasks -such as bookkeeping, clerical work, and repetitive production and monitoring activities- and complements workers performing non-routine abstract tasks -more creative, problem-solving tasks performed by professionals and managers. Finally, technology neither substitutes nor complements labor performing non-routine manual tasks – those that usually involve physical dexterity and flexible interpersonal communication (Acemoglu and Autor 2011). Since routine tasks tend to be concentrated at the middle of the wage distribution, the RBTC model is successful in predicting the observed patterns of job polarization.

A more recent strand of literature emphasizes the link between job polarization and structural change (Bárány and Siegel, 2018; Comin, Danieli, and Mestieri, 2020). According to this line of research, a significant part of the observed employment polarization is the result of changes in the industrial structure of the economy. More advanced economies exhibit a common pattern of

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manufacturing decline and growth of the service sectors, which intensively use high- and low-skill occupations in production. To attract more workers into services, the wages in this sector have to improve relative to manufacturing. Since manufacturing jobs tend to be at the middle of the wage distribution, structural change is able to predict a pattern of job polarization across sectors.

Industrial change can be driven by supply forces, such as technological change (Bárány and Siegel, 2018), as well as by higher relative demand for expenditure elastic services as aggregate household income rises (Comin, Danieli, and Mestieri, 2020). Both studies use calibrated models to find that a large part of the observed job polarization can be explained through the sectoral shift channel. However, there are no papers that test empirically the link between structural change and job polarization.

The contribution of this paper is to advance the literature on job polarization by testing empirically whether structural change can explain the observed patterns of job polarization. We use the individual-level European Union Labor Force Survey (LFS) and the Structural of Earning Survey (SES) for a group of 12 Western European countries (Austria, Belgium, Finland, France, Germany, Greece, Italy, Norway, Portugal, Spain, Sweden, and the UK) during 2005-2019. We exploit industrial variation across NUTS regions and find a strong and significant link between job polarization and changes in the industrial structure. Furthermore, we use an instrumental variable approach to find evidence of causal effects of structural change on job polarization in European regions.

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