

Job Market Boom or Oppressive Change? The Effects of the Digital Transformation on the Workplace and the Labor Market

Digital transformation, triggered by the advances in artificial intelligence, robotics, and the availability of “Big Data”, is leading to rapid changes in economic and production structure. At the same time, it also poses serious challenges for workplaces, business organization, labor markets, and the welfare state. Yet it is not clear whether the digital transformation will ultimately create or destroy more jobs. For this volume of the CESifo Forum we have contacted the best contributors of last year’s CESifo and LINER–AUEB conference on “The Effects of the Digital Transformation on the Workplace and the Labor Market”. They share their latest insights on this topic – including how the Covid-19 crisis has affected the global labor market.

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Introduction to the Special Issue on “The Effects of the Digital Transformation on the Workplace and the Labor Market”

On 28–29 November 2019, CESifo and LINER–AUEB organized a conference on the topic of “The Effects of the Digital Transformation on the Workplace and the Labor Market” held at CESifo in Munich. This Focus collects a number of papers presented at this conference.

Advances in artificial intelligence, robotics and the availability of “Big Data” are changing the world and, in particular, the workplace. It is widely agreed that these technologies will lead to an increasing number of automatized tasks that are so far carried out by humans. Many aspects of how this change affects the workplace are to date understudied and yet are highly relevant for decisions of policy makers, the structure of firms and the well-being of employees.

For instance, people increasingly worry that large numbers of jobs in the economy will disappear. While there is disagreement on the exact time scale and on whether there is going to be a massive loss of jobs, it is undisputed that effects on the workplace and the labor market will be fundamental.

The CESifo and LINER–AUEB conference on “The Effects of the Digital Transformation on the Workplace and the Labor Market” therefore brought together researchers from

economics and related fields, such as business research, data science and computer science, who are studying the challenges and opportunities resulting from the digital transformation for firm organization, labor markets and the welfare state.

Dmitri Koustas (University of Chicago) presents “Insights from New Tax-Based Measures of Gig Work in the United States.” He argues that despite increasing attention to the “gig” economy in recent years, properly measuring economic activity in the gig economy has proven elusive. In his paper he discusses new



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measures of gig work in the United States derived from tax data and presents insights about the gig economy using these new measures. He documents that, while gig work has been growing, most gig work is done as a second job rather than full-time work. This is especially true for the work being done on new online platforms. These facts about the ways households interact with gig work are important to document, and they can help inform the way researchers model gig work and policymakers regulate it going forward. While we cannot say to what extent these findings apply to the gig economies of other countries, these new approaches may provide lessons for researchers interested in measuring gig work in other countries.

Jean-Victor Alipour (ifo Institute), along with Oliver Falck, Alexandra Mergener, and Simone Schüller, presents his work on “Wiring the Labor Market Revisited: Working from Home in the Digital Age.” They document Working from Home (WfH) patterns in the German labor market in the digital age and highlight three features relevant for evidence-based policy making: first, increases in WfH over time are mainly due to its occasional use. Second, WfH is very heterogeneous in terms of quality and quantity, particularly with regard to varying occupational requirements and different flexibility needs of employees (e.g., due to childcare or commuting). Third, currently unused WfH capacities are likely to be exploited in the future, mainly by carrying out some (rather than all) occupational tasks at home.

Nadzeya Laurentsyeva (LMU Munich), with Thomas Fackler, discusses her recent work on “Gravity in Online Collaborations: Evidence from GitHub.” Gravity models are well established in the study of international trade where they are employed to explain the bilateral trade of goods and services or in labor economics where they describe migration flows between geographical units. They have not been used to study exchanges in virtual markets to date. As immaterial goods are becoming increasingly important for modern economies, the question arises to which extent standard barriers to trade or labor mobility are still relevant for outputs and production processes that can be performed entirely online. Using micro-data from GitHub, the world’s largest hosting platform for collaborative software projects, Nadzeya provides

evidence that barriers, such as distance, country borders or language, still matter for virtual collaborations. Most collaborations originate within the same city, and the role of physical barriers does not seem to decrease over time.

Catherine Thomas (LSE), in joint work with Christopher Stanton, describes “The Gig Economy Beyond Local Services and Transportation” in her contribution. She starts with the observation that online platforms create opportunities for remote, electronically delivered work and expand the set of feasible matches for tasks beyond local labor markets. However, she shows that in the United States, the supply of individuals engaging in high-end gig work appears limited based on an analysis of self-employment trends as it relates to education levels, and the share of work done online has been slow to overtake traditional work arrangements even when it is technically feasible and offers potential labor costs savings.

Eliza Forsythe (University of Illinois at Urbana-Champaign) discusses “Automation and Technological Change: The Outlook for Workers and Economies.” Since the advent of mechanization, predictions regarding the demise of jobs have accompanied each labor-altering technological advance. Going back to 1930, John Maynard Keynes coined the phrase “technological unemployment” to express the idea that technological change may lead to gross and potentially permanent declines in employment. While past episodes of technological progress did not lead to permanent unemployment, many fear this time is different. Eliza Forsythe now documents that, while technology may replace tasks, this occurs in conjunction with the addition of new tasks to jobs. For example, in the case of office support jobs, the modern support worker is asked to perform a wider variety of tasks, resulting in such jobs persisting with fewer, higher-skilled workers. The vast majority of automation technology now available or on the horizon will cause jobs to change but not disappear. Moreover, as with many economic disruptions, gains and losses are unevenly distributed. In particular, losses appear the greatest for those without college degrees. Policy makers should be aware that the continued march of technological change is likely to lead to disruptions in individuals’ careers.