

# PURDUE

## AGRICULTURAL ECONOMICS REPORT

### *Analysis of Labor Market Outcomes during the COVID-19 Pandemic in Eight Countries*

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**Summary:** Pre-pandemic job characteristics and social distancing policies significantly influenced employment changes across eight countries during COVID-19, with employer behavior (labor demand) driving job losses more than worker decisions (labor supply).

#### **Main takeaways:**

- Pre-existing occupational sorting of workers in jobs that can easily be worked remotely and in jobs that involve many face-to-face tasks is similar across countries;
- Such sorting explains much of the changes in employment during COVID-19;
- Strict distancing policies during COVID-19 reduced employment even in the absence of high virus cases, highlighting the importance of mitigation policies in driving labor outcomes;
- Changes in labor market outcomes reflect changes in labor demand rather than labor supply.

In a research paper, authors compare changes in labor market outcomes during 2020 in eight countries that had very different pandemic experiences and policy responses (i.e., social distancing and social safety net). In particular, they focus on the United States, Australia, South Korea, Italy, Denmark, Spain, France, and Sweden.

The study explores the role that the COVID-19 virus and the mitigation policies separately played in shaping the labor market experience of different types of workers. Moreover, the authors investigate the determinants of cross-country differences and disparities.

The data comes from the labor market surveys of the nine countries, which the authors make as similar as possible so that each variable measures the same changes across countries. This allows for cross-country comparability of the results.

The authors use periodic labor force surveys in each country from January 2019 to December 2020. Specifically, they rely on the Australian Bureau of Statistics Longitudinal Labour Force Survey for Australia, the Economically Active Population Survey and Local Area Labour Force Survey for South Korea, the Current Population Survey for the U.S., and Eurostat for Italy, Denmark, Spain, France, the United Kingdom, and Sweden. The data for Australia, South Korea, and the U.S. are monthly, while those for the European countries are quarterly.

The empirical analysis aims to understand how some socio-demographic characteristics of workers and the types of jobs they had impacted their labor market outcomes during the first year of the pandemic.

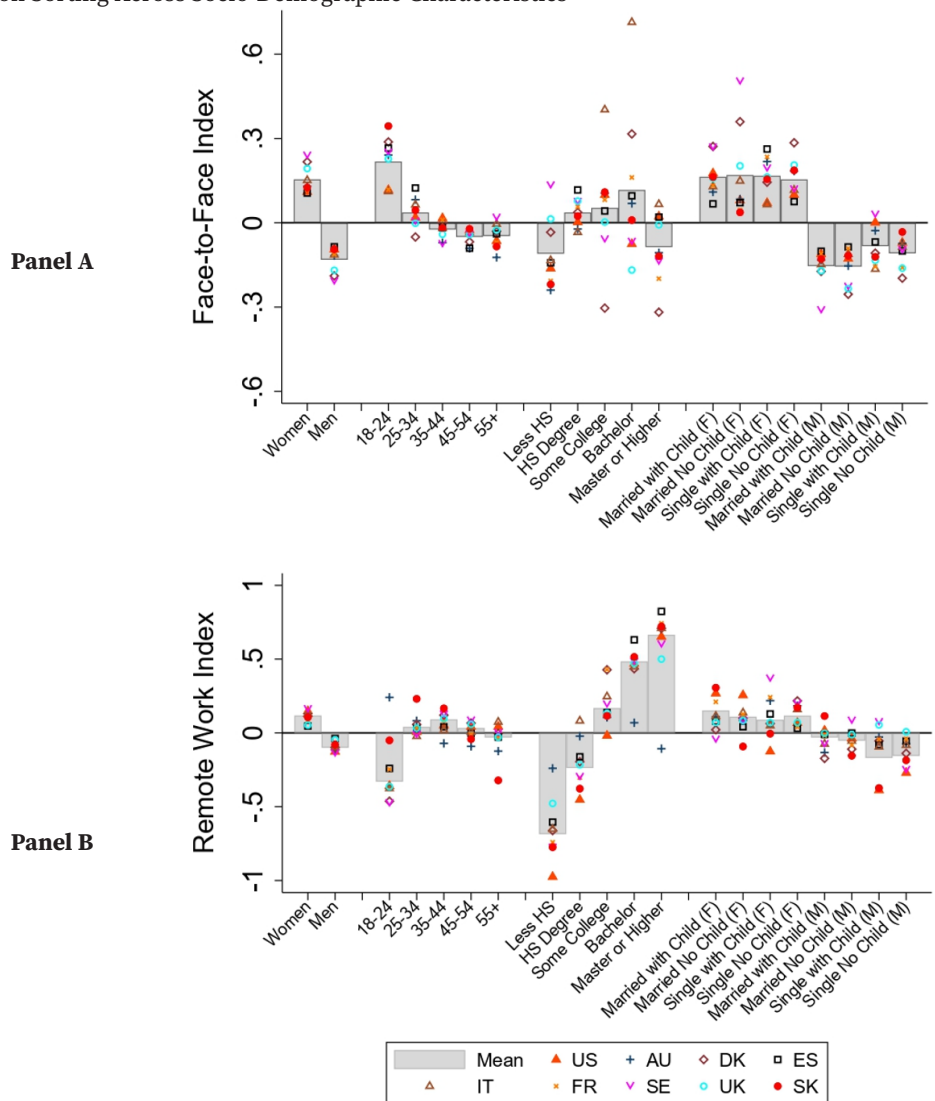
<sup>1</sup> This report is based on research by Robert Breunig (Australian National University), Wei Cheng (East China University of Science and Technology), Laura Montenovo (Purdue University), Kyoung Hoon Lee (Korea Institute of Public Finance), Bruce Weinberg (The Ohio State University), and Yinjunjie Zhang (Australian National University).

Specifically, the authors focus on gender, age, educational achievement, and parental and marital status as potential determinants of labor market changes during 2020. Moreover, they rank the jobs of workers based on how much, in 2019, their tasks require face-to-face interaction (Face-to-Face Index) and on the extent to which their tasks can be performed remotely (Remote Work Index).<sup>2</sup> Notably, they measure the indices using 2019 data in order to gauge the characteristics of jobs before the pandemic and exclude any impact that the pandemic had in shaping such characteristics. For example, teaching was considered a very face-to-face job before 2020, but it became quite prone to being remote since the beginning of 2020.

Then, the authors explore how much of these characteristics shaped workers' changes in labor market outcomes during COVID-19. The outcomes they consider are employed and at work, employed but currently absent from work, unemployed, and out of the labor force.

Figure 1 shows the average Face-to-Face (Panel A) and Remote Work (Panel B) job indices measured in 2019 for each country and the cross-country average in 2020 for the women, men, five age categories (18-24, 25-34, 35-44, 45-54, and 55+), five educational groups (less than high school, high school degree, some college, bachelor, masters or higher), and four household categories separately for females and males (married and single, with and without a child present in the household).

**Figure 1.** Pre-Pandemic Occupation Sorting Across Socio-Demographic Characteristics<sup>3</sup>



This graph shows whether specific socio-demographic subgroups tended to disproportionately sort themselves into jobs that differed in their flexibility and potential to adjust to the pandemic. Both panels indicate not only that such sorting is present but that it is very similar across the countries considered.

For example, women are more likely to be in jobs that rank high in face-to-face and remote work potential (e.g., teachers), while the opposite holds for men. Young workers are disproportionately in high face-to-face and low remote work occupations. As workers age, they enter jobs that rank lower in their face-to-face reliance. The lowest and highest education groups are less likely to be in jobs relying heavily on face-to-face tasks, while the opposite holds middle education groups. Instead, the remote work index increases substantially and monotonically with education achievement. Finally, differences by marital and parental status seem to be explained by gender differences rather than by household composition per se, as they track down the results for women and men overall.

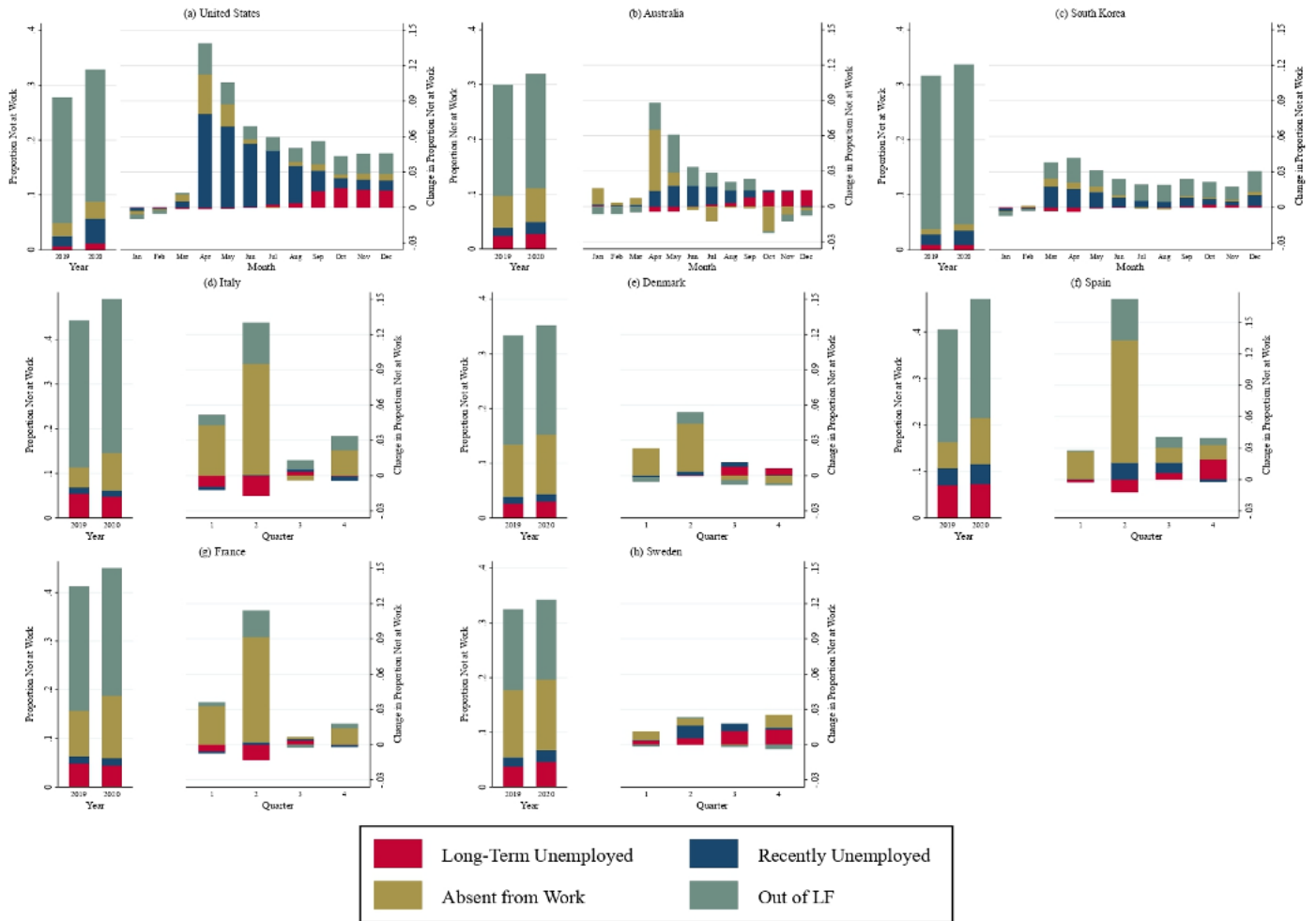
The analysis shows that such sorting of workers by socio-demographic characteristics that existed before the pandemic substantially explains the disparities in job loss and unemployment that these subgroups experienced during the pandemic. Some jobs can rank high in both face-to-face and remote work. In fact, certain tasks could normally be carried out in person before the pandemic, but they had the potential to be held remotely (which they did in 2020). Examples are teachers and administrators. Consequently, the remote work index might drive the labor market outcomes a bit stronger than the face-to-face index during the pandemic.

This is exactly what the results in Figure 1 suggest. Jobs that ranked high in face-to-face features were more likely to experience statistically significant but relatively mild decreases in employment in 2020, especially in Australia, Denmark, Sweden, the United Kingdom, and the United States. Instead, remote work is positively and strongly associated with employment in 2020 in all countries considered except Sweden. Overall, job characteristics that proved to be crucial in times of work-from-home are major drivers of employment outcomes in the United States and internationally. Because employment in 2019 is, instead, barely explained by such indices, it is safe to infer that they started to gain importance in shaping employment only as a result of the pandemic.

In Figure 2, the authors focus on the share of not-at-work individuals in the overall population in the United States, Australia, South Korea, Italy, Denmark, Spain, France, and Sweden. The bars on the left side of the graph show the shares in 2019 and 2020. The bars on the right side of the graph plot the changes between months (U.S., Australia, and South Korea) or quarters (European countries) in 2019 and 2020. Four categories of not-at-work are plotted and identified by different colors: long-term unemployment (i.e., unemployed for more than six months), recently unemployed (those who lost their jobs within the last six months), absent from work (employed but not currently working), and out of the labor force. The sub-categories are stacked and sum up to the overall not-at-work share. Figure 2 helps compare the reactions of labor markets to the virus and the mitigation policies across the eight countries.

First, although all countries experience the largest increase in the not-at-work share in April or the second quarter,

**Figure 2.** Change in Four Not-at-Work Categories Between 2019 and 2020



*Note: The bars are measured as shares of the number of individuals in each category by the working age (18 to 65 years old) population. Using population in the denominator, rather than individuals in the labor force, is preferred to exclude the effect of changes in the size of the labor force due to the pandemic.*

some start experiencing such increases in March or the first quarter. For example, South Korea and Italy both had surges in not at work in March and the first quarter, likely because the virus there broke earlier than in other countries.

Second, there is a wide cross-country variation in the magnitude of the increases. For example, the share of not-at-work increased by only about 3% in Sweden and South Korea and surged by well over 10% in Spain, where it increased by more than 15% in Italy, France, and the US.

Third, the overall change in the not-at-work group hides substantial differences in how the sub-categories varied across countries. Recent unemployment and absence from work both increased dramatically in the US. Instead, in South Korea, the change in out-of-work is largely driven by an increase in recent unemployment and out-of-labor force rates. In the other countries (except Sweden), absence from work was the main driver, followed by increases in out-of-the-labor-force. The authors note how these differences may be partially related to the labeling associated with social welfare policies, job retention, and short-term work schemes, especially in Europe and Australia. Fourth, the magnitude of the increases in not-at-work appears to be associated with the severity of the outbreaks in each country. However, some important exceptions are likely explained by the variation in mitigation policies. For example, in Australia, the social distancing policies may have caused the increase in the not-at-work share, given the absence of large COVID-19 case numbers. In South Korea, where cases were relatively low, increases in not-at-

work were lower than in Australia, potentially because, unlike Australia, no lockdowns were implemented. Finally, in Sweden, which did not enact any considerable or aggressive social distancing policies, the increases in not-at-work were extremely mild.

Overall, the authors conclude that mitigation measures, social distancing policies, and social welfare policies played a major role in shaping labor market outcomes during the pandemic in the eight countries they consider.

Finally, the authors use Figure 2 and other evidence to identify whether the changes in labor market outcomes during 2020 were due to labor supply or labor demand mechanisms. Labor supply mechanisms arise from changes in the behavior of workers, their willingness to work, participation in the labor market, or changes in their desired working conditions. Labor demand mechanisms arise from changes in the behavior of employers, including how much they hire, pay, and terminate.

Figure 2 suggests that changes in labor supply are unlikely the main determinants of the surge in the population not-at-work. Even though the share of workers exiting the labor force increased in all countries except South Korea, such sub-category plays a relatively minor role in the overall increase in the not-at-work during the pandemic. Moreover, most increases in out-of-labor-force rates revert quicker than for other sub-categories.

In further analyses, the authors find that much of the job losses during the pandemic were concentrated among younger workers. Because older workers were more vulnerable to the risks of contracting the virus, labor supply mechanisms would imply these workers to be those most likely to withdraw from the labor market. Further, because the authors find similar effects for individuals with and without children, parents choosing to leave their jobs to care for their children due to school closure does not seem like a major explanatory factor.

Based on their overall results, the authors suggest that the impact of the pandemic and related policymaking on the labor markets was largely driven by a change in the behavior of employers at an international level.

## ***Conclusion***

This report summarizes some of the main findings of a paper that compares the change of main labor market outcomes during the early stages of the COVID-19 pandemic across eight countries. First, they find that jobs' reliance on face-to-face tasks and flexibility to perform tasks remotely played a major role in shaping workers' job loss in 2020, and the results are consistent internationally. Second, they find that social distancing policies that have been implemented in response to the pandemic substantially shaped labor market outcomes, even in the absence of high COVID-19 numbers. Finally, their findings suggest that the main determinant of the labor market outcomes changes during 2020 were driven by labor demand mechanisms rather than by labor supply responses.

## **Reference**

Montenovo, L., Jiang, X., Lozano-Rojas, F., Schmutte, I., Simon, K., Weinberg, B. A., & Wing, C. (2022). Determinants of disparities in early COVID-19 job losses. *Demography*, 59(3), 827–855. <https://doi.org/10.1215/00703370-9961471>