

## Occupational and job mobility during the pandemic

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**KRTK-KTI WP – 2024/20**

November 2024

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## ABSTRACT

Using individual-level EU-LFS data from nine European countries, this study analyses how the probability of occupational and job mobility has changed in the first year of the COVID pandemic in nine European countries compared to previous years. We show that the probability of leaving a job increased slightly, and the probability of changing occupations and moving between jobs decreased, although the latter effect was less pronounced. If we distinguish between employment changes within the firm and employment changes related to job changes, the probability of the former type of employment changes has decreased and the latter type has remained unchanged. These results are consistent with previous studies on the impact of the economic crisis on job and occupational mobility. The impact of the pandemic was heterogeneous across countries, with Hungary a massive outlier. This is likely due to the belated and strict conditions of the job retention scheme there.

JEL codes: J6, J08, J62, J68

Keywords: COVID, occupational mobility, job mobility, labour market fluidity

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Funding: We thank the NKFIH OTKA 138766 Grant for financial support

Data: In the analysis we used the EU-LFS microdata for scientific purposes (<https://ec.europa.eu/eurostat/web/microdata/european-union-labour-force-survey>). The results and conclusions are ours and not those of Eurostat, the European Commission or any of the statistical authorities whose data have been used.

Acknowledgement: We thank Melinda Tir for help with data processing, and Zoltán Hermann for his helpful comments and estimating the senate weights. All remaining errors are ours.

# Foglalkozási és munkahelyi mobilitás a pandémia idején

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## ÖSSZEFOGLALÓ

Ez a tanulmány azt elemzi kilenc európai ország egyéni szintű EU-LFS adatai felhasználásával, hogy hogyan változott a foglalkozási és munkahelyi mobilitás valószínűsége a COVID-járvány első évében kilenc európai országban a korábbi évekhez képest. Az eredmények szerint a munkahely elhagyásának valószínűsége enyhén nőtt, a foglalkozásváltás és a munkahelyek közötti mozgás valószínűsége pedig csökkent, bár ez utóbbi hatás kevésbé volt kifejezett. A munkahelyváltások közül a cégen belüli munkahelyváltások valószínűsége csökkent, a munkahelyváltással járó munkahelyváltások valószínűsége pedig nem változott. Ezek az eredmények összhangban vannak a gazdasági válságnak a munkahelyi és foglalkozási mobilitásra gyakorolt hatásáról szóló korábbi tanulmányokkal. A világjárvány hatása heterogén volt országok szerint, Magyarország masszívan kilógott a sorból. Ez valószínűleg annak a következmény, hogy itt a munkahelymegtartó intézkedéseket megkésve és nagyon szigorú feltételeket előírva hozták meg.

JEL: J6, J08, J62, J68

Kulcsszavak: COVID, foglalkozási mobilitás, munkahelyi mobilitás, munkaerőpiaci rugalmasság

## 1. Introduction

This study examines the effect of the COVID pandemic on occupational and job mobility in nine European countries (Austria, Greece, Croatia, Hungary, Ireland, Lithuania, Slovenia, Slovakia, and Sweden) during the first year of the pandemic based on individual-level data of the European Labour Force Survey (EU-LFS).

Occupational and job mobility are key drivers in the restructuring of the economy. Mobility ensures that workers move from low-productivity firms to high-productivity firms (e.g. Davis et al. 1996). At the same time, it also causes the loss of firm—or occupation-specific human capital. Crises tend to accelerate structural changes and can also trigger profound economic transformations. In this paper, we focus on the effect of the COVID crises.

The Covid crisis differed from previous economic crises in several ways. The crisis partly resulted from state action to combat the spread of the pandemic: as a first response to the pandemic, governments have called for the closure of the workplaces of entire sectors of the economy. However, there is also research showing (Forsythe et al., 2020) that the economic collapse in the spring of 2020 was widespread and probably not caused by the policies of individual states or countries but rather by fear of the virus causing them to halt some of their activities in response to the pandemic.

During the pandemic crises, the economy followed a V-shaped recovery pattern. The GDP growth rate in the EU27 countries first fell from 1.6% in 2019 to -5.7% in 2020, then rose to +5.5% in 2021. The employment rate also fell in 2020, but the fall was smaller than the fall in GDP and rose to a higher level in 2021 than before the pandemic outbreak (72.15% in 2019, 71.4% in 2020 and 72.9% in 2021 for the EU27 countries). The COVID crisis was not simply a general economic slowdown but also a short-term, radical change in the composition of economic activity. The impact of the pandemic has been highly heterogeneous across occupations and industries, but most European countries have tried to mitigate these effects through job retention schemes.

As governments expected that much of the restructuring of economic activity would be temporary, government policies were designed to avoid the bankruptcy of otherwise viable firms and to save jobs. Most European countries have tried to protect firms from bankruptcy and maintain employer-employee relations through various programmes. By retaining workers, firms would avoid hiring new workers when the lockdowns ended and demand conditions recovered. The aim was not only to save time and the cost of finding new workers, but also to avoid the productivity loss resulting from the loss of firm or occupation-specific human capital. Most EU countries adopted new job retention programmes or scaled up existing programmes immediately or shortly after the closures. The details and generosity of the job retention schemes varied from country to country, but the essence was similar. (The main features of job retention programmes in the countries included in our analysis are summarised in Table 1 in the Appendix.) The impact of the programmes may also be reflected in the fact that in the first year of the pandemic, a much higher proportion of those employed than in the previous two years were reporting to have a job or business but not working in the reference week (see Table 2 in the Appendix for our sample countries).

The main focus of this study is to investigate whether we observe changes in the probability of changing jobs and occupations in 2020 compared to 2018-2019, whether occupational mobility is associated with a change of employer or whether it is a change of occupation within a single employer. We also examine how the probability of leaving employment changed in the first year of the epidemic.

The analysis covers nine countries. The countries were not purposively selected, but the seven countries in which we could link individual-level observations between the quarterly data in the EU-LFS microdata for scientific purposes. The countries included differ in terms of the structure of their economies, the pre-pandemic level of labour market fluidity, and the extent and timing of their job retention schemes.

Our paper contributes to the literature on occupation mobility during recessions and the extensive literature on the labour market impacts of the COVID pandemic by documenting job and occupation mobility patterns over the first year of the pandemic. We also contribute to the literature by examining differences in the likelihood of occupational mobility depending on whether someone who changes occupation also moves to a new job or stays with the previous employer and by examining how this likelihood is affected by the COVID pandemic.

The rest of the paper is structured as follows: in Section 2, we provide an overview of the related literature; in Section 3, we describe our database and how the variables were defined; in Section 4, we present the methods used; in Section 5, we provide some descriptive statistics; in Section 6, we present the estimation results on the impact of the pandemic on the probability of leaving employment and job and occupation change; and in Section 7, we draw some concluding remarks.

## **2. Literature review**

There is extensive literature on the pandemic's labour market effects, including its impact on employment, unemployment, and structural reallocation both for the US (e.g. Bartik et al. 2020; Albanesi and Kim, 2021; Aaronson et al. 2021) and Europe (e.g. Dukic et al., 2021; Bermejo et al. 2023; Carillo-Tudela, 2023), and also on how job retention programmes have affected unemployment in Europe during the pandemic (e.g. Lam and Solovyeva, A., 2023). The studies showed that in the US, the increase in the unemployment rate was extraordinary after the outbreak of the pandemic; employment levels fell significantly. In Europe, employment levels also fell, with the decline being more pronounced in industries hard hit by closures and where there were fewer opportunities to move from working at home. However, despite much work on the impact of the pandemic on the labour market, little work has examined the effects of the Covid crisis on job and occupational mobility.

Previously, a large body of literature has addressed the effects of economic crises on occupational mobility (e.g. Murphy-Topel, 1987; Moscarini-Vella, 2008, Kambourov-Manovski 2008, 2009a, Longhi-Taylor, 2014, Carillo-Tudela et al. 2014; Bisello et al., 2022, Devereux, 2022).

Most studies have found that occupational mobility follows economic cycles, decreasing procyclically during recessions and increasing during booms. One plausible explanation is that as job creation declines during recessions, firms hire fewer people, limiting worker mobility and thus reducing the likelihood of workers or unemployed workers looking for work and the probability of occupational mobility. Therefore, occupational mobility is decreasing in the downturn phases (e.g. Carrillo-Tudela et al., 2014; Roosaar et al., 2014; Carillo-Tudela-Visschers, 2023b).

In contrast, some studies have pointed out a mechanism by which economic downturns can be associated with increased occupational mobility, which can lead to countercyclical occupational mobility. Since employers post fewer jobs in recessions, job seekers may be less selective in their job search (Moscarini-Vella, 2008), accepting most jobs and being willing to take jobs in mismatched occupations and change occupations. When it is easy to find a job, the job search is more selective, directed towards occupations where the individuals can use their occupation-specific human capital (Kambourov-Manovski, 2009b). Therefore, occupational mobility may increase during a downturn.

Most studies have empirically investigated the mobility of workers in continuous employment, i.e. those who have always been in employment for two consecutive observations and have changed their occupation in the meantime. A few studies have also analysed the probability of career change for those moving from unemployment and found that occupational mobility can play an essential role in the job search process of the unemployed (Longhi-Taylor, 2014; Carillo-Tudela-Visschers, 2023; Manuel-Plesca, 2022). Results showed the unemployed move to a new occupational group at a very high rate. Still, in their case, the probability of changing occupation during a recession has decreased rather than increased (Carillo-Tudela et al. 2016, 2023).

A change of occupation does not always mean a change of job, just as a change of job does not always mean a change of occupation. Most workers change occupations while continuing to work for the same employer. In the United States, roughly 40 per cent of occupation changes in the early 2000s were with the same employer, and this proportion has been increasing (Moscarini-Vella, 2008). Occupational mobility has declined steadily over the past two decades, with the primary cause of the decline being a weakening of job mobility during recessions, while within-firm occupational mobility has remained relatively stable (Forsythe, 2018). A similar result was found by Papageorgiou (2018), who, using Danish data, showed that firms reduce hiring during labour market frictions but that large firms increase the incidence of intra-firm occupational mobility of workers during economic downturns.

To date, few studies have examined the impact of the COVID epidemic on job and occupational mobility. Some papers have looked at changes in the employment structure by occupation groups during the Covid pandemic (Forsythe et al., 2022; Carillo-Tudela et al., 2023; Eurofound, 2022).

Hyatt and McEntarfer (2012) documented that job mobility declined markedly during the recession in the US. Black and Chow (2022) reported similar results; they presented that job mobility has also declined in Australia during the pandemic, with the proportion of workers

changing jobs falling to its lowest level in decades by mid-2020. Borgensgaard (2022) examined the labour market effects of the Danish temporary wage compensation scheme introduced at the beginning of the lockdown and found that the scheme largely unaffected job-to-job mobility. These results are broadly consistent with the pro-cyclical nature of voluntary turnover.

Carillo-Tudela et al. (2022) investigated how individuals adjusted their job search behaviour in response to changing employment patterns across occupations and industries in the UK during the pandemic. They found that net inter-occupational mobility remained broadly stable, as it was during the financial crisis. This is mainly because workers in declining occupations continued looking for work in their previous occupations rather than expanding ones.

Manuel and Plesca (2023) investigated occupational mobility patterns during the first year of the COVID pandemic in the US and found that occupational mobility rates did not increase during this period. Still, occupation mobility patterns differed from those of a pre-pandemic benchmark period from 2016 to 2019. A deterioration in job quality could be observed for those individuals who had changed occupations during the pandemic after a period of unemployment.

### **3. Data**

The analysis is based on the 2018-2020 quarterly waves of the anonymised European Labour Force Survey (EU-LFS) microdata for scientific purposes. The EU-LFS is a representative survey among private households that provides annual and quarterly information on individual household members' labour market status, job, occupation, and demographic status.

The survey is a rotational panel; the same persons are interviewed several times in consecutive quarters. This design makes it possible to derive variables describing labour market transitions between quarters at the individual level. Due to Eurostat's anonymisation method, we could identify the same individuals between waves only for nine countries (Austria, Croatia, Greece, Hungary, Ireland, Lithuania, Slovakia, Slovenia, and Sweden). The analysis was made for these nine countries. As these nine countries are not necessarily representative of the European Union as a whole, the analysis did not focus on the average effect of COVID in the sample but on the effects observed in each country and the differences between them.

Different countries use different panel designs, but in all panel designs, there is an overlap between one quarter and the successive one, which made it possible to identify whether an individual's occupation in two consecutive quarters alters. However, the number of waves during which an individual remains in the sample may differ. Croatia and Lithuania use the 2-(2)-2 panel design, where sampled units are interviewed for two consecutive quarters, then stay out of the sample for the next two quarters and are included again two more times afterwards. Greece and Hungary use rotation patterns for six waves, Austria, Ireland, Slovakia, and Sweden for six waves, where each participant is interviewed consecutively for five, six, or eight quarters before permanently leaving the sample. Slovenia's panel design is the 3-(1)-2,

where sampled units are interviewed for three consecutive quarters, then stay out of the sample for the next quarter and are included again two more times afterwards.

We could identify the individuals within the same calendar year because, in the EU-LFS microdata for scientific purposes, all individuals are given new identifiers in all years so that we could follow individuals within years, and we could not observe labour market status, job or occupational changes between Q4 and Q1. We suppose that the changes in the labour market status, jobs, or occupations are roughly evenly distributed and that the value of occupational changes between quarters Q4 and Q1 are not outliers in either direction; this does not bias our results.

For the analysis, we used the pooled data from the nine countries, and we restricted the sample to respondents aged 25- 65.

The individual weights in the Eurostat databases ensure the representativeness of the samples within the country. The sum of the weights in each country is adjusted to be proportional to the country size, i.e. the total sample is representative of the EU population. This means that larger countries in the pooled data may have a greater impact on the estimation results. Therefore, our analysis used the so-called senate weights instead of those provided by Eurostat data. The senate weights are simply rescaling the country-level weights to obtain the same constant value within each country. In this way, all countries contribute equally to the analysis.

Five outcome variables were used to examine the impact of the pandemic on labour market fluctuations. (1) First is the probability of leaving employment. We identified individuals leaving employment who reported being employed in wave  $t$  and unemployed or inactive in wave  $t+1$ . We did not distinguish between those leaving employment and becoming unemployed or leaving employment and becoming inactive. The variable leaving employment shows whether the individual lost their job in the given year (yes/no). The other outcome variables were the probability of (2) job and (3) occupational change. Those individuals were identified as job/occupation changers who were employed in two consecutive quarters and whose employer/occupation at the *3-digit level* differed in waves  $t$  and  $t+1$ . The variable job change/occupation change shows whether the individual changed job/occupation at the 3-digit level in the given year (yes/no). Finally, we examined separately the (4) probability of an individual having changed occupation and at the same time having changed job (Type1) and (5) the likelihood of an individual having changed occupation but not job but continuing to work in the same job (Type2).

We pooled the country-level data and used the pooled data for the analysis<sup>1</sup>.

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<sup>1</sup> We also run separately the models on country-level data, omitting the COUNTRY and COUNTRY\*COVID variables as appropriate. We present the results of these estimations on request. The COVID effect results were very similar to the results of the calculations based on the pooled data.



#### 4. Methods

We estimated the same model for the different output variables. The model can be written as follows, where we pool countries (denoted by the index  $j$ ) and estimate models of the form:

$$Y_{it}^j = X_i' \beta + COUNTRY_t^j + COVID_t^j * COUNTRY_t^j + \varepsilon_{it}^j \quad (1)$$

Where  $Y_{it}$  indicates the probability of the outcome variable (an individual leaving employment, changing occupation or changing job),  $i$  shows the individuals, and  $t$  stands for years (periods).  $X_i$  describes the characteristics of the individual (gender, education level, age group, tenure at current employer),  $COUNTRY$  indicates the country dummy variables,  $COVID * COUNTRY$  is the COVID and country interaction term to test how the effect of the crises varied for the different countries in our sample, and  $\varepsilon_{it}$  is a normally distributed random error.<sup>2</sup> Occupational mobility ( $y = 1$ ) occurs when the latent variable  $Y_{it} > 0$ , where  $Y_{it} = 1$  if the individual changed occupations between two quarters and  $Y_{it} = 0$  if he did not change occupations.

We also estimate an extended version of this model, which includes additional job-specific variables (employer industry, whether the individual had supervisory duties and the size class of the firm).

There are several important points to note. First, our control variables relate to the base period (quarter). Second, we restrict the coefficients of the control variables to be the same across countries, but we allow period effects to vary across countries. Thus, we allow the onset of COVID to affect mobility differently in each country; however, we restrict the coefficients on control variables to be constant over time.

Finally, we need to discuss who is included in the sample. When estimating the probability of leaving employment, we include in the sample all individuals employed in the reference period and observed in the following quarter. Regarding job-to-job mobility and occupational mobility, we include all individuals employed in two consecutive quarters in the sample. Finally, when we distinguish between different types of occupational mobility (within-firm and those associated with job mobility), we exclude from the sample individuals who belong to the other type of occupational mobility; in other words, we estimate only the particular type of occupational mobility compared to the absence of mobility (neither occupational nor inter-occupational mobility).

#### 5. Descriptive statistics

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<sup>2</sup> Thus, we essentially estimate a probit model.

Figure 1 presents some descriptive statistics, including the rate of occupation change, the rate of job changes, and the exit rate to non-employment in the nine countries of our sample in 2018 and 2019 (the average of the two years preceding the COVID crisis), and 2020.

Please note that leaving into non-employment does not equate to voluntarily leaving employment. There can be involuntary quits among those who left employment status due to firing, voluntary quits, and individuals moving to inactivity simply out of fear of the disease or due to retirement, childbearing, disability, etc.

The exit rate to non-employment (Figure 1 A panel) varied across countries even before the COVID crisis. It was 1.5 per cent or less in Greece and Slovakia while above 3 per cent in Austria. The rate increased in all observed countries in 2020; despite job-retention measures, outflows from employment in all countries have accompanied the onset of the COVID crisis. The growth in the exit rate to non-employment was highest in Hungary and Slovakia and lowest in Sweden and Slovenia.

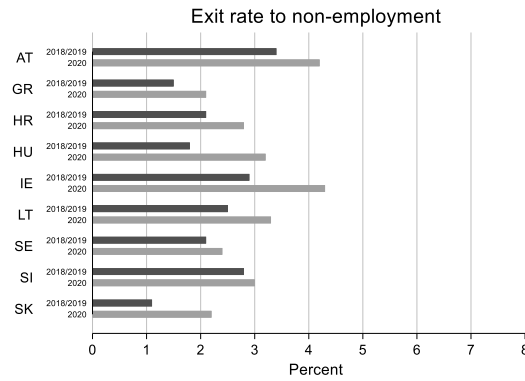
The job mobility and occupational mobility rates, that is, labour market fluidity, varied widely across countries before the crises, reflecting the differences in labour market regulation and education system or differences in the sectoral, industrial, and occupational composition of the countries' economies. Job mobility rates ranged from less than 0.5 per cent in Greece to around 3 per cent in Lithuania and Sweden in 2018/2019. We can also notice that job mobility hardly changed between 2018/2019 and 2020 or decreased, except for Hungary, where there was a more than 20 per cent increase in the rate.

Occupational mobility was significantly higher than job mobility in most countries. The rate varied in 2018/2019, with less than 1 per cent of employees changing occupations in Greece and Slovakia and more than 5 per cent of employees switching in Austria and Ireland. In 2020, the rate did not change or even decrease in six countries, and it increased in Greece, Slovakia, and Hungary.

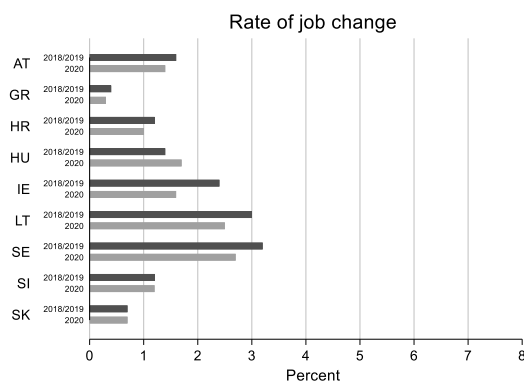
*Figure 1*

Exit rate to non-employment and job and occupational change rates in 2018/2019 and 2020

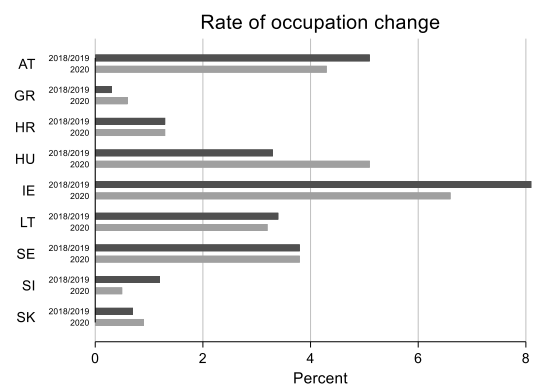
A



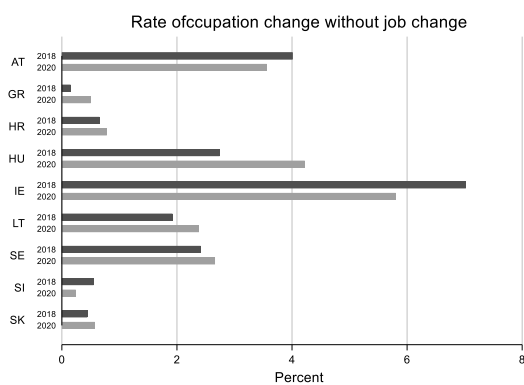
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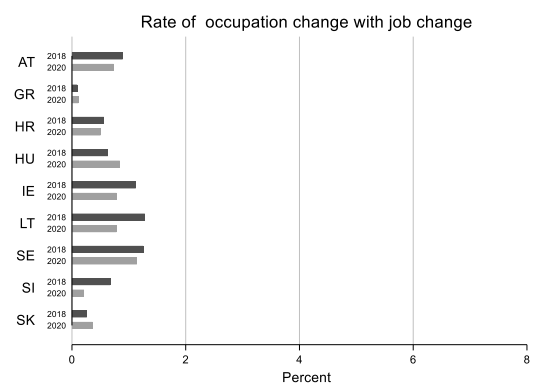
C



D



E



If we look at how the probability of occupational changes that occurred within the firm (Figure 1 D panel) and those that were associated with a change of job (Figure 1 E panel), we see that occupational changes within the workplace have increased slightly in several countries, while the rate of occupation changes with job change has decreased in all countries. Hungary is rather different, insofar there was a slight increase in occupation changes accompanied by a job change, and the increase in occupational changes at a given firm were more significant than in other countries.

## 6. Results

Table 1 shows the estimation results of the average marginal effects of the short and long specification of the first three models: (1) probability of leaving employment, (2) probability of job, and (3) probability of occupation change.

Table 1 Probability of leaving employment, of job and occupational mobility

Marginal effects

	Short specification			Long specification		
	Leaving employment (1)	Job change (2)	Occupation change (3)	Leaving employment (4)	Job change (5)	Occupation change (6)
COVID*AT	0.00619*** (6.92)	-0.00219* (-2.47)	-0.00519*** (-4.68)	0.00615*** (6.92)	-0.00217* (-2.45)	-0.00500*** (-4.52)
COVID*GR	0.00975*** (8.09)	-0.00207 (-1.28)	0.0173*** (7.81)	0.0104*** (8.50)	-0.00185 (-1.14)	0.0176*** (7.94)
COVID*HR	0.00696* (2.16)	-0.00213 (-0.65)	0.000188 (0.04)	0.00724* (2.25)	-0.00207 (-0.64)	-0.0000139 (-0.00)
COVID*HU	0.0145*** (12.61)	0.00382*** (4.13)	0.0125*** (10.60)	0.0144*** (12.63)	0.00391*** (4.24)	0.0125*** (10.62)
COVID*IE	0.0118*** (9.37)	-0.00538*** (-4.56)	-0.00497*** (-4.51)	0.0119*** (9.50)	-0.00518*** (-4.39)	-0.00495*** (-4.48)
COVID*LT	0.00617** (2.72)	-0.00239 (-1.44)	-0.000998 (-0.39)	0.00631** (2.82)	-0.00247 (-1.50)	-0.000985 (-0.39)
COVID*SE	0.00373*** (3.50)	-0.00243*** (-3.43)	0.000855 (0.86)	0.00368*** (3.49)	-0.00236*** (-3.34)	0.000899 (0.91)
COVID*SL	0.00272 (1.49)	-0.000398 (-0.21)	-0.0225*** (-6.25)	0.00296 (1.63)	-0.000491 (-0.27)	-0.0222*** (-6.17)
COVID*SK	0.0175*** (10.83)	0.00203 (1.29)	0.00640** (2.75)	0.0173*** (10.72)	0.00204 (1.30)	0.00636** (2.74)
<i>Gender</i>						
Male	-0.00959*** (-17.11)	0.000658 (1.41)	0.00393*** (6.77)	-0.00781*** (-12.89)	0.00127* (2.46)	0.00221*** (3.46)
<i>Educational attainment</i>						
Upper secondary	0.0223*** (24.31)	0.00537*** (7.50)	0.00557*** (6.18)	0.0165*** (17.10)	0.00388*** (5.02)	0.00482*** (4.98)
Higher	0.00986*** (15.16)	0.000976 (1.88)	0.00177** (2.80)	0.00648*** (9.32)	0.000315 (0.55)	0.00128 (1.88)
<i>Age group</i>						
35-44 years olds	-0.00529*** (-6.68)	-0.00305*** (-5.17)	-0.00331*** (-4.08)	-0.00460*** (-5.84)	-0.00273*** (-4.66)	-0.00365*** (-4.53)
44-54 years old	-0.00423*** (-5.16)	-0.00365*** (-5.87)	-0.00490*** (-5.89)	-0.00353*** (-4.30)	-0.00339*** (-5.47)	-0.00495*** (-5.95)
55-64 years	0.0147***	-0.00730***	-0.00935***	0.0148***	-0.00725***	-0.00914***

old	(17.69)	(-8.57)	(-8.90)	(17.83)	(-8.53)	(-8.64)
Tenure	-0.00432*** (-42.90)	-0.00332*** (-34.40)	-0.00217*** (-23.92)	-0.00400*** (-40.46)	-0.00317*** (-33.26)	-0.00219*** (-24.06)
Tenure <sup>2</sup>	0.00971*** (37.49)	0.00652*** (27.10)	0.00434*** (17.82)	0.00911*** (35.62)	0.00623*** (25.98)	0.00437*** (17.94)
<i>Firm size</i>						
1-10				0.000922 (0.60)	-0.00506*** (-3.50)	0.00364* (2.27)
11+				-0.00565*** (-3.41)	-0.00679*** (-4.61)	0.000102 (0.06)
<i>Supervisor</i>						
Not supervisor				0.00853*** (10.54)	0.00263*** (4.52)	-0.00433*** (-6.34)
Self-employed				0.000909 (0.60)	-0.00863*** (-6.17)	0.000151 (0.10)
Country	YES	YES	YES	YES	YES	YES
Industry	NO 733439	NO 714742	NO 714021	YES 733066	YES 714380	YES 713664

*t* statistics in parentheses

\*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$

*Reference category*: female; educational attainment: at most lower secondary education; age group: 25-34 years old; firm size: unknown; employee (not self-employed)

The results confirm that during the first year of the pandemic, there was an increase in the flow out of employment (Table 1 Columns 1 and 4) in all countries except for Slovenia; that is, despite the job retention schemes, individuals left employment with a significantly larger probability than during the two preceding years. Nevertheless, the effect of the pandemic was less pronounced in some countries (Croatia and Lithuania), where there was a small negative effect at 5 and 10 per cent significance levels. In Sweden and Austria, the impact was also relatively weak. The largest impact can be observed in Slovakia, Hungary, and Ireland, where the pandemic increased the probability of leaving employment by 1.4 to 1.7 percentage points.

Looking at the effect of control variables other than those measuring the impact of the pandemic, we can see that men have a lower probability of leaving employment, and the association with age (as well as tenure) follows a U-shaped pattern (with those between 35 and 54 having a lower outflow probability). Somewhat surprisingly, those with higher and mainly medium levels of education have a substantively higher probability of leaving

employment than those with low formal qualifications.<sup>3</sup> Those with supervisory duties (likely meaning a higher position in the hierarchy) have a lower probability of leaving employment.

The results for the probability of changing employers (Table 1 Columns 2 and 5) show that in all countries in the initial year of the COVID crisis, there was either no effect of the Covid-crisis on job mobility or the pandemic even decreased the probability of changing jobs. There was a minor decrease in job mobility in Austria and Sweden and a slightly more significant decrease, 0.5 percentage points, in Ireland. Hungary is an outlier regarding job mobility, where job-to-job mobility increased by 0.4 percentage points.

Hardly surprisingly, job-to-job mobility decreases with age and is particularly low among employees aged 55 and above. Similarly, those with long tenure are less likely to switch firms (this effect tends to fade out), with individuals who worked at the same firm for 10 years having a 2.5 percentage point lower probability of switching than new recruits.

The results for the effect of the pandemic on the probability of occupational mobility (Table 1 Columns 3 and 6) show that in six countries there was either no effect of the pandemic or, in some countries, the Covid crisis decreased the probability of occupational mobility. The negative effect was large in Slovenia (more than two percentage points) and also significant in Austria and Ireland (around 0.5 percentage points). At the same time, there was a pronounced *increase* in Greece and Hungary, amounting to more than one percentage point upward shifts in the probability of occupational change.

In line with earlier research findings, occupational mobility decreases with age and is particularly low among employees aged 55 and above. Similarly, occupational mobility decreases with (firm) tenure, albeit at a decreasing rate, with individuals who worked at the same firm for 10 years having a 1.5 percentage point lower probability of switching than new recruits.

#### *Patterns of occupational mobility*

As shown in Figure 1 most occupational changes happen without employer changes, and the proportion of these can vary between 50 to 80 per cent of all occupational mobility. Furthermore, as job changes became less frequent (among continuously employed persons) during COVID, occupational changes tended to be concentrated within the firm. However, there are also a few countries where within-firm occupational mobility increased in absolute value, including Greece and Lithuania. Still, Hungary is a clear outlier, as occupation changes at a given firm increased by more than 1.5 percentage points.

The second part of the analysis focuses on the two different types of occupational mobility: those who changed occupations within a given firm and those who did so simultaneously when they changed employers. The results are summarised in Table 2.

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<sup>3</sup> There are also sizeable differences across industries, we do not discuss these here.

Table 2

Probability of occupation change without a job change and occupation change with a job change

Marginal effects

	Occupation change without a job change		Occupation change with a job change	
	Short specification (1)	Long specification (2)	Short specification (3)	Long specification (4)
COVID*AT	-0.00426*** (-4.45)	-0.00414*** (-4.34)	-0.00099 (-1.71)	-0.00094 (-1.61)
COVID*GR	0.0184*** (9.25)	0.0186*** (9.36)	0.00006 (0.05)	0.00028 (0.22)
COVID*HR	0.00214 (0.46)	0.00210 (0.45)	-0.00087 (-0.40)	-0.00088 (-0.41)
COVID*HU	0.0105*** (10.66)	0.0105*** (10.65)	0.00217*** (3.47)	0.00224*** (3.58)
COVID*IE	-0.00327*** (-3.63)	-0.00335*** (-3.71)	-0.00294*** (-3.66)	-0.00289*** (-3.63)
COVID*LT	0.00495* (2.09)	0.00489* (2.08)	-0.00448*** (-3.63)	-0.00442*** (-3.60)
COVID*SE	0.00199* (2.23)	0.00198* (2.21)	-0.000908 (-1.90)	-0.000848 (-1.78)
COVID*SL	-0.0184*** (-5.30)	-0.0182*** (-5.30)	-0.00587*** (-3.48)	-0.00576*** (-3.43)
COVID*SK	0.00476* (2.10)	0.00463* (2.05)	0.00199 (1.87)	0.00200 (1.88)
<i>Gender</i>				
Male	0.00341*** (6.80)	0.00175** (3.21)	0.000560 (1.75)	0.000388 (1.08)
<i>Educational attainment</i>				
Upper secondary	0.00359*** (4.70)	0.00400*** (4.87)	0.00231*** (4.49)	0.00118* (2.11)
Higher	0.000684 (1.25)	0.000955 (1.65)	0.00127*** (3.64)	0.000570 (1.45)
<i>Age group</i>				
35-44 years olds	-0.00120 (-1.65)	-0.00170* (-2.35)	-0.00204*** (-5.09)	-0.00186*** (-4.71)
44-54 years old	-0.00225** (-3.11)	-0.00257*** (-3.55)	-0.00281*** (-6.25)	-0.00252*** (-5.66)
55-64 years old	-0.00469*** (-5.16)	-0.00481*** (-5.27)	-0.00538*** (-8.31)	-0.00503*** (-7.79)

Tenure	-0.00121*** (-15.95)	-0.00127*** (-16.80)	-0.00121*** (-19.00)	-0.00114*** (-18.15)
Tenure <sup>2</sup>	0.00244*** (12.02)	0.00254*** (12.54)	0.00219*** (12.83)	0.00206*** (12.19)
<i>Firm size</i>				
1-10		0.00400** (2.82)		-0.00115 (-1.32)
11+		0.00143 (0.92)		-0.00221* (-2.43)
<i>Supervisor</i>				
Not supervisor		-0.00502*** (-8.51)		0.000662 (1.69)
Self-employed		0.00227 (1.78)		-0.00348*** (-4.35)
Country	YES	YES	YES	YES
Industry	YES	NO	YES	NO
<i>N</i>	702769	702424	689520	689182

*t* statistics in parentheses

\*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$

*Reference category:* female; educational attainment: at most lower secondary education; age group: 25-34 years old; firm size: unknown; employee (not self-employed)

The regression results also show that in most countries, there was no change or a minor decrease in the probability of occupational changes associated with job mobility. Indeed, the only country where there was a minor increase during 2020 is Hungary. The picture is much more mixed regarding within-firm occupation changes, with decreases in three countries, including Slovenia, where this drop was substantial, around 1.8 percentage points. By contrast, within-firm occupational changes increased in five countries, with large increases both in Hungary (1 percentage point) and in Greece (1.8 percentage points).

## 7. Conclusions

This study investigated the impact of the COVID crisis on leaving employment on job-to-job and occupational mobility in general, as well as on intra-firm occupational mobility and occupational mobility related to job changes in the first year of the pandemic in nine European countries.

The pandemic increased outflows from employment in almost all countries, but to varying degrees. The probability of changing jobs was either unaffected by the crisis or reduced in the countries surveyed. The only exception was Hungary, where the likelihood of changing jobs increased due to the crisis. The probability of changing employment was also either unaffected by the crisis or decreased. Of the three countries where a significant positive effect



was found, in two, Greece and Slovakia, only the probability of changing occupation within the firm increased, while in Hungary, a significant positive effect was found for both the probability of changing employment within the firm and the probability of changing occupation and job simultaneously.

These findings align with previous research results showing that job and occupational mobility is pro-cyclical, and during recessions, labour market mobility decreases. Despite the COVID crisis's uniqueness, the pro-cyclical nature of job and occupational mobility could be observed in almost all of the European countries in our sample.

At the same time, the Hungarian results may confirm that there might be cases when an economic downturn may result in increased job and occupational mobility if employees become less selective in their job search. Our data do not allow us to examine causal effects. Still, some reasons will enable us to suspect that, in the Hungarian case, the employees have become less selective in their job search during the first year of the crisis, which may have caused the increase in the probability of labour market mobility in Hungary. Hungary was one of the countries where the outflow from employment grew the most at the beginning of the pandemic. The Hungarian government was slow to take job-retention measures, the first job retention scheme was introduced on 16 April, more than a month after the lockdown on 11 March (Krekó-Varga, 2022) and rigorous conditions were set for eligibility (see Appendix Table 1). Therefore, job-to-job mobility could increase, and employees could accept jobs in new occupations. The probability of occupation changes within the company also increased, which might result from some companies trying to adapt to the conditions of the pandemic (for example, a restaurant could switch to food delivery and reclassify the waiters as delivery workers, etc.). They were more likely to use such solutions since they had difficulty accessing job retention support due to the rather strict rules, as employers had to prove a 75 percent decrease in turnover. Indeed, less than 3 percent of employees were affected by the job retention schemes during the first wave, and 5 percent were affected during the second wave of the pandemic.

## References

- Aaronson, D., Lewers, R. and Sullivan, D.G. (2021): Labor reallocation during the Covid-19 pandemic. *Chicago Fed Letter*, 455(10.21033).
- Albanesi, S. and Kim, J. (2021): Effects of the COVID-19 recession on the US labor market: Occupation, family, and gender. *Journal of Economic Perspectives*, 35(3), pp.3-24.
- Bartik, A.W., Bertrand, M., Lin, F., Rothstein, J. and Unrath, M. (2020): Measuring the labor market at the onset of the COVID-19 crisis (No. w27613). National Bureau of Economic Research.
- Bermejo, L., Malmierca-Ordoqui, M. and Gil-Alana, L.A. (2023): Unemployment and COVID-19: an analysis of change in persistence. *Applied Economics*, 55(39), pp.4511-4521.
- Bisello, M., Maccarrone, V. and Fernández-Macías, E., 2022. Occupational mobility, employment transitions and job quality in Europe: The impact of the Great Recession. *Economic and Industrial Democracy*, 43(2), pp.585-611.
- Black, Susan, and Emma Chow (2022): Job mobility in Australia during the COVID-19 pandemic. RESERVE BANK OF AUSTRALIA  
<https://flosse.dss.gov.au/flossejspui/bitstream/10620/18592/1/job-mobility-in-australia-during-the-covid-19-pandemic.pdf>
- Borgensgaard, P.V., 2022. *Job retention during the Covid-19 pandemic* (No. 186). Danmarks Nationalbank Working Papers.
- Carrillo-Tudela, C., Hobijn, B. and Visschers, L., 2014. Career changes decline during recessions. *FRBSF Economic Letters*, (2014-09).
- Carrillo-Tudela, C., Hobijn, B., She, P. and Visschers, L., 2016. The extent and cyclicity of career changes: Evidence for the UK. *European Economic Review*, 84, pp.18-41.
- Carrillo-Tudela, Carlos and Comunello, Camila and Clymo, Alex and Visschers, Ludo and Zentler-Munro, David and Jackle, Annette, Search and Reallocation in the COVID-19 Pandemic: Evidence from the UK (2022). CESifo Working Paper No. 9621, Available at SSRN: <https://ssrn.com/abstract=4059713> or <http://dx.doi.org/10.2139/ssrn.4059713>
- Carrillo-Tudela, C. and Visschers, L., 2023. Unemployment and endogenous reallocation over the business cycle. *Econometrica*, 91(3), pp.1119-1153.
- Carrillo-Tudela, C., Clymo, A., Comunello, C., Jäckle, A., Visschers, L. and Zentler-Munro, D. (2023): Search and Reallocation in the COVID-19 Pandemic: Evidence from the UK. *Labour Economics*, 81, p.102328.
- Davis, S-, Haltiwanger, J.C., Schuh, S. (1996): *Job Creation and Destruction*. Cambridge, MA: MIT Press.

- Devereux, Paul J. "Occupational upgrading and the business cycle." *Labour* 16, no. 3 (2002): 423-452.
- Đukić, A., Štaka, M. and Drašković, D. (2021): The impact of the COVID-19 pandemic on the macroeconomic aggregates of the European Union. *Economics* 9, no. 2 91-108.
- Eurofound (2022), Recovery from COVID-19: The changing structure of employment in the EU, Publications Office of the European Union, Luxembourg.
- Forsythe, E. - Kahn, L.B. - Lange, F. - Wiczer, D. (2022) Where have all the workers gone? Recalls, retirements, and reallocation in the COVID recovery, *Labour Economics*, Volume 78, 2022, 102251,
- Hyatt, H.R. and McEntarfer, E. (2012): Job-to-job Flows and the Business Cycle. US Census Bureau Center for Economic Studies Paper No. CES-WP-12-04.
- Hyatt, H.R. and McEntarfer, E., 2012. Job-to-job Flows and the Business Cycle. *US Census Bureau Center for Economic Studies Paper No. CES-WP-12-04*.
- Kambourov, G. and Manovskii, I., (2008): Rising occupational and industry mobility in the United States: 1968–97. *International Economic Review*, 49(1), pp.41-79.
- Kambourov, G. and Manovskii, I., 2009b Occupational mobility and wage inequality. *The Review of Economic Studies*, 76(2), pp.731-759.
- Kambourov, G. and Manovskii, I., (2009a): Occupational mobility and wage inequality. *The Review of Economic Studies*, 76(2), pp.731-759.
- Krekó J.–Varga J. (2022): Job retention wage subsidies during the pandemic in Hungary. In: Szabó-Morvai Ágnes–Kónya István–Krekó Judit (Eds.): The Hungarian labour market, 2020. The Covid-19 pandemic. Institute of Economics, Centre for Economic and Regional Studies, Budapest, 2022, pp. 190–193.
- Lam, W.R. and Solovyeva, A. (2023): *How effective were job-retention schemes during the COVID-19 pandemic? A Microsimulation Approach for European Countries*. International Monetary Fund.
- Longhi, S. and Taylor, M., 2014. Employed and unemployed job seekers and the business cycle. *Oxford Bulletin of Economics and Statistics*, 76(4), pp.463-483.
- Manuel, N. and Plesca, M., 2023. Unemployment and Occupation Mobility During the Covid-19 Pandemic.
- Moscarini, G. and Vella, F.G., 2008. *Occupational mobility and the business cycle* (No. w13819). National Bureau of Economic Research.
- Murphy, K.M. and Topel, R.H., (1987). The evolution of unemployment in the United States: 1968-1985. *NBER macroeconomics annual*, 2, pp.11-58.

Papageorgiou, T., 2018. Large firms and within firm occupational reallocation. *Journal of Economic Theory*, 174, pp.184-223.

Roosaar, L., Mötsmees, P. and Varblane, U., 2014. Occupational mobility over the business cycle. *International Journal of Manpower*, 35(6), pp.873-897.

## Appendix

Table A1.

*The main features of job retention programmes in the countries of the sample*

Country	Rate of subsidy	Requirements regarding percentage reduction in turnover	Requirements regarding share of workforce affected	Duration of the support (in months) according to the September 2020 rules	Take-up rate percentage	
					April-May 2020	September 2020
Austria	80–90 per cent of the previous wage N	None	None	6	27.5	5.1
Croatia						
Greece	60 per cent of net pay for hours not worked	None	None	7	20.7	4.6
Hungary	70 per cent of net pay for lost working time	75 per cent reduction in working time	None	3	2.6	5
Ireland	70 per cent of salary or 85 per cent if weekly salary is less than EUR 412	25 per cent	None	5	23.2	17.7
Lithuania	70 per cent of gross wage, but not less than the minimum wage	None	None	n.a	13.8	.8
Slovakia	80 per cent of gross salary, maximum EUR 880, later increased to EUR 1,100	20 per cent	None	7	21.5	8.5
Slovenia	80–100 per cent of gross wage, not less than the minimum wage	None	10 per cent	7	21.2	3.1
Sweden	75–80 of the wage bill, maximum EUR 4,400 per month	None	None	8	12.2	6.8

Source: Column (1), (4), (5), (6) OECD (2021); Column (2) Baptista et al., 2021; Column (3) Eurofound, 2021.

Table A2

*Was not working but had a job %*

<i>Year</i>	<i>2018</i>	<i>2019</i>	<i>2020</i>
AT	9.83	9.47	11.73
GR	2.50	2.44	8.08
HR	6.88	6.95	9.61
HU	3.12	3.20	4.93
IE	6.16	5.92	11.16
LT	5.15	5.24	7.80
SE	13.16	13.43	13.88
SI	8.50	8.90	12.81
SK	5.68	5.30	9.49

Source: Based on EU-LFS data