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ABSTRACT

Immigrant Key Workers: Their Contribution to Europe's COVID-19 Response*

This note describes the contribution of migrant workers to the ongoing effort to keep basic services running in the Union during the COVID-19 epidemic. We quantify the prevalence of migrant workers in the so called "key professions" that the Commission and Member States have identified using the most recent wave of the EU Labour Force Survey. Our results show that migrant "key workers" are essential for critical functions in European societies.

JEL Classification: F22, J61, K37

Keywords: migrant workers, COVID-19 epidemic, key occupations

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* All data and computer programs are available on request. We would like to thank Laurent Aujean for helpful comments and suggestions. The views in this paper are solely the responsibility of the authors and should not be interpreted as reflecting the views of the European Commissionor of any other person associated with the European Commission.

Key Messages

- According to our estimates, on average approximately 31% of employed working-age individuals are *key workers* in the EU. This share is highly heterogeneous across Member countries, varying from more than 40% in Denmark and France to just above 10% in Bulgaria and Slovenia.

- The largest five categories of *key workers* in the EU are: teaching professionals (14.5%), skilled agricultural workers (11.9%), science and engineering associate professionals (11.1%), personal care workers (10.3%) and cleaners and helpers (9.9%).

- Six categories of *key occupations* - personal care workers, cleaners and helpers, health associated professionals, teaching professionals, health professionals and personal service workers - are clearly female-dominated, while all the others have a majority of male workers. This pattern is similar for both native and immigrant workers.

- Even if the majority of *key workers* are Native, Extra-EU migrants and EU mobile citizens are essential in filling vital roles, keeping European economies functioning: On average 13% of *key workers* are immigrants in the EU.

- In some occupations - e.g. cleaners and helpers and labourers in mining and construction - up to a third of *key workers* are foreign born.

- The contribution of the migrant workforce to Europe's effort in keeping vital sections of the economy operational is heterogeneous across Member States, mainly reflecting existing differences in the share of migrant workers over the total workforce.

- EU mobile workers are generally contributing in equal measure to key occupations compared to Natives.

- In many Member States, Extra-EU migrants are overrepresented among the key workers, this is especially true for low skilled Extra-EU migrants who are overrepresented among the low skilled key workers.

- Migrant workers (and especially Extra-EU ones) are over-represented in low-skill key professions (e.g. personal care workers in health service, drivers, transport and storage labourers, food processing workers).

1 Introduction

The current COVID-19 pandemic presents an unprecedented challenge to most European countries. The rapid spread of the contagion has induced many Member States to temporarily shut down large sections of their economies with the intent of slowing down its propagation rate and allowing national health systems to offer adequate care to all citizens seriously affected. While the forced shut down has confined large sections of the workforce at home, some essential functions still need to be performed to keep European citizens healthy, safe and fed during the pandemic. "Key workers" are performing those crucial tasks - extending from high skilled (e.g. doctors or medical researchers) to low skilled occupations (e.g. refuse workers or drivers) - on the front line of Europe's COVID-19 response.

This note describes the contribution of EU-mobile and extra-EU workers to the ongoing effort to keep basic services running in the European Union during the COVID-19 epidemic. Using the most recent wave of the EU Labour Force Survey, we quantify the prevalence of immigrant workers in the so called "key professions" that the Commission and Member States have identified.

The share of key workers as well as the share of migrant key workers over the total work force vary widely across Member States and occupations. In Ireland and Cyprus, for instance, around a third of key workers are foreign born while in many eastern Members almost all key workers are natives. In terms of occupations, more than a third of cleaners and helpers, more than a quarter of labourers in mining and construction sectors, stationary plant and machine operators and one in five workers in food processing are migrants. As we argue in this note, these statistics not only highlight the critical role that migrant workers are playing in performing basic functions in EU societies, but they also suggest an important fact: low educated migrants are essential in many vital roles within European societies. The fight against COVID-19 has unveiled their relevance which is otherwise often overlooked - if not dismissed - in a migration debate predominantly focused on the importance of attracting high skilled migrants to the Union.

2 Identifying Key Workers in EULFS data

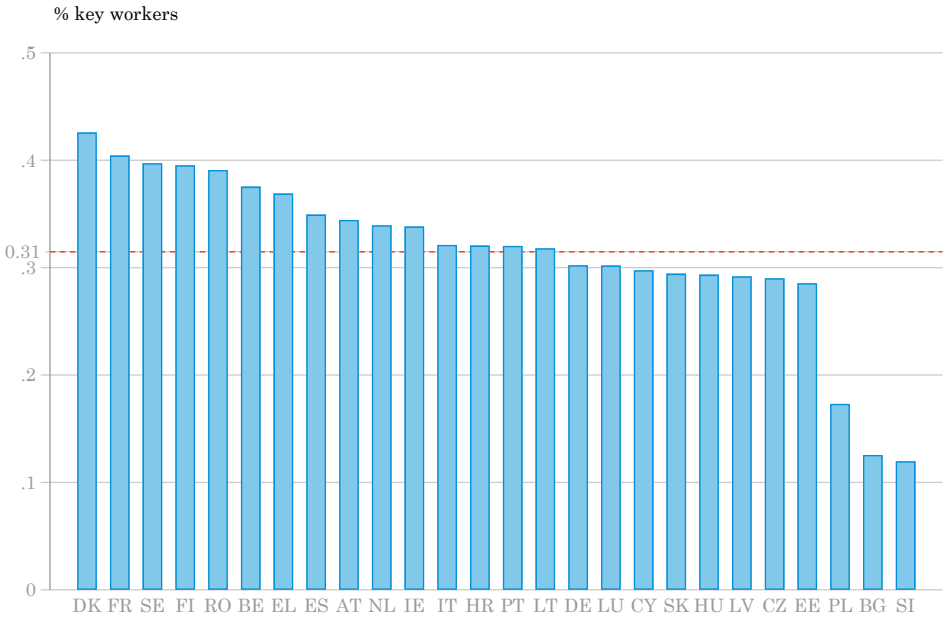
We base our analysis on the most recent wave (2018) of the EU Labour Force Survey (EU-LFS). We restrict our sample to employed workers in the 15 to 64 age bracket. We define two groups of migrant workers based on their country of birth: EU mobile citizens and Extra-EU migrants. EU mobile citizens are all those workers who are born in a Member State other than the one where they currently work and reside. Extra-EU migrants are all those workers who are born outside of the Union. Further, we define as native anyone who was born in the current country of residence.

For the definition of key workers, we follow the Communication from the Commission on Guidelines concerning the exercise of the free movement of workers during COVID-19

outbreak[1] supplemented with the Dutch definition of key workers.[2] We identify key workers based on ISCO-08 occupations at three digits, which is the most detailed classification available in the EU-LFS.[3] Note that both the Commission's and the National's definitions often refer to a finer ESCO four digits classification.[4] Our definition is thus necessarily more generous than the original one, but there are no obvious reasons to expect this discrepancy to affect the comparisons between natives, EU migrants and extra-EU migrants that we discuss below.

According to our definitions and estimates, on average approximately 31% of employed working-age individuals are key workers in the EU. Figure 1 illustrates the heterogeneity of this share across Member countries, varying from more than 40% in Denmark and France to just above 10% in Bulgaria and Slovenia.

Figure 1: Share of Key Workers, by Member State



Note: The bars report the percentage of key workers over the employed population for each Member state. The red dotted line indicates the EU average of workers defined as key workers (31%).

[1] https://ec.europa.eu/social/main.jsp?langId=en&catId=89&furtherNews=yes&newsId=9630

[2] https://www.government.nl/topics/coronavirus-covid-19

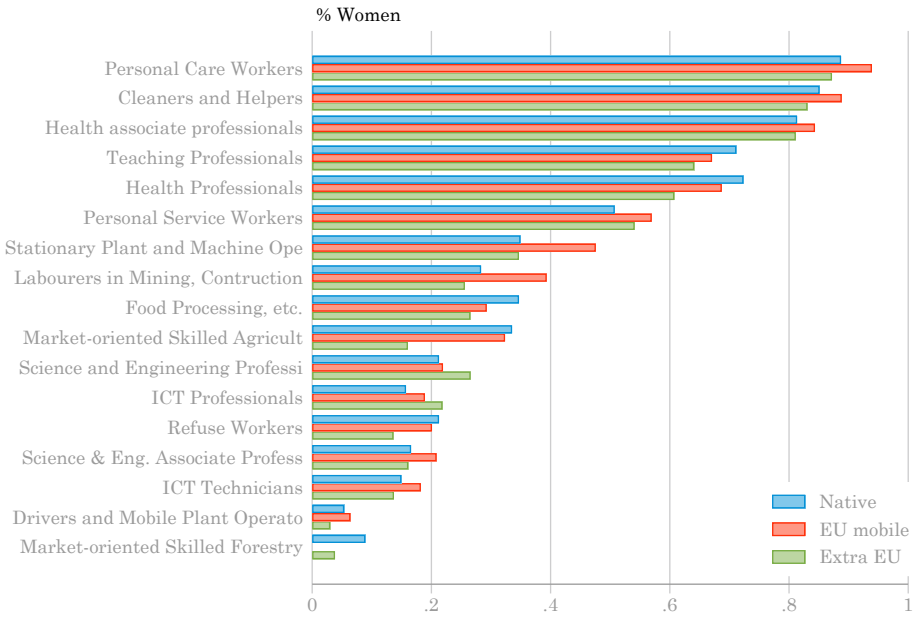
[3] A full list of our definition of key profession is provided in the appendix Table 2.

[4] ESCO is the European implementation of ISCO and therefore the two classifications can be easily mapped into each other.

3 Characterizing Key Workers in the EU

Occupations. The list of key occupations we use is reported in Appendix Table 1, together with their overall prevalence and distribution among Natives, EU mobile and non-EU workers. The largest five categories are: teaching professionals (14.5%), skilled agricultural workers (11.9%), science and engineering associate professionals (11.1%), personal care workers (10.3%) and cleaners and helpers (9.9%). Since natives are by far the most numerous group, their distribution across key occupations closely resembles the overall distribution. Important differences are visible for the two migrant groups. Indeed, the first three key occupational categories for EU mobile workers are: cleaners and helpers (20.9%), personal care workers (12.5%) and teaching professionals (11.1%). The top two occupations are the same for extra-EU workers - cleaners and helpers (27.8%) and personal care workers(16.6%) - while the third most frequent occupation is drivers and mobile plant operators (9%).

Figure 2: Share of Women Key Workers, by Occupation

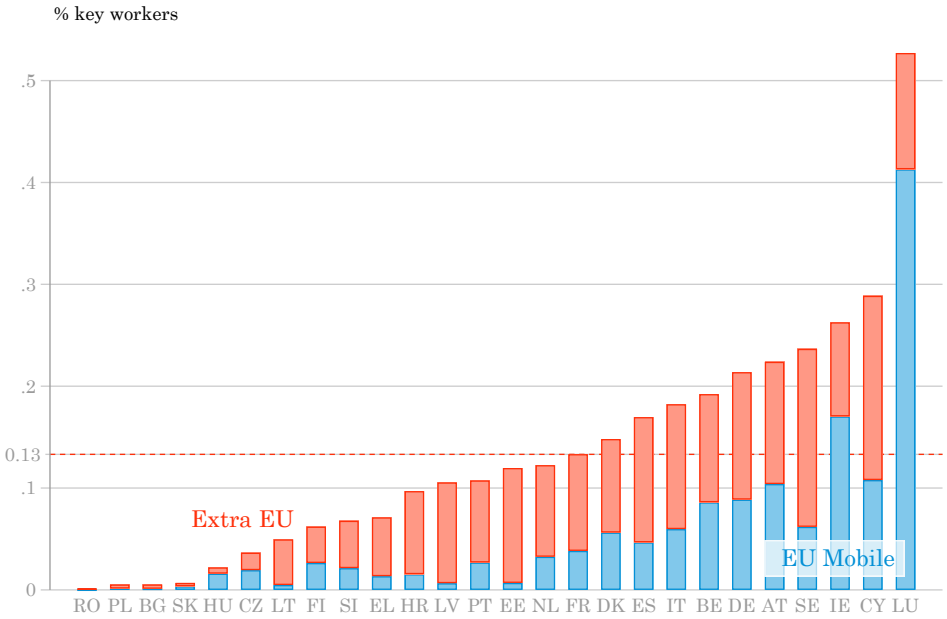


Note: The bars report the percentage of women key workers within each ISCO 2 digits occupational category by origin.

Gender. Figure 2 reports the share of women working in each of the key occupations, distinguishing between Natives, EU-mobile and Extra-Eu workers. Six categories of occupations - personal care workers, cleaners and helpers, health associated professionals, teaching professionals, health professionals and personal service workers - are clearly female-dominated, displaying shares of women above 50%, while all the other occupations have a

majority of male workers. As figure 2 shows, this pattern is similar for both native and immigrant workers.

Figure 3: Share of Immigrants among Key Workers

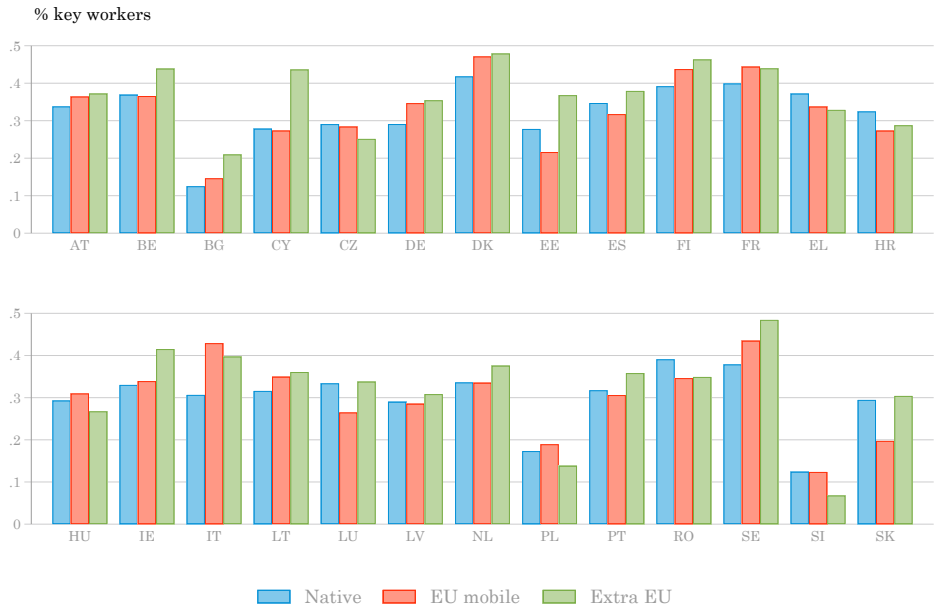


Note: The bars report the percentage of immigrants over total key workers for each Member state. The red dotted line represents the average share of immigrant key workers across the Union (13%).

Natives and Immigrants. On average 13% of key workers are immigrants in the EU. Figure 3 shows a wide variation across Member States: The share of immigrant key workers is close to zero in Eastern European countries such as Romania, Bulgaria, Poland and Slovakia, while it fluctuates around 20% in countries such as Italy, Belgium, Germany, Sweden and Austria. The largest figures are observed in Ireland (26%), Cyprus (29%) and Luxembourg (53%). In most countries, the share of Extra-EU key workers is larger than the EU-mobile one.

A substantial fraction of the variation we observe in Figure 3 is driven by differences in the overall share of migrants residing in each country. To take into account the different size of each group among the total employed population, Figure 4 reports the percentage of key workers within each of the three categories of workers (i.e native, EU-mobile and extra-UE), showing that their contribution to key professions is actually fairly balanced in most member states. Indeed, the shares of Natives (blue bars), EU-mobile (red bars) and Extra-EU workers (green bars) are comparable within each country. The figure also shows that EU-mobile and, even more so, Extra-EU workers tend to be over-represented in

Figure 4: % of Key Workers Within Each Group of Origin

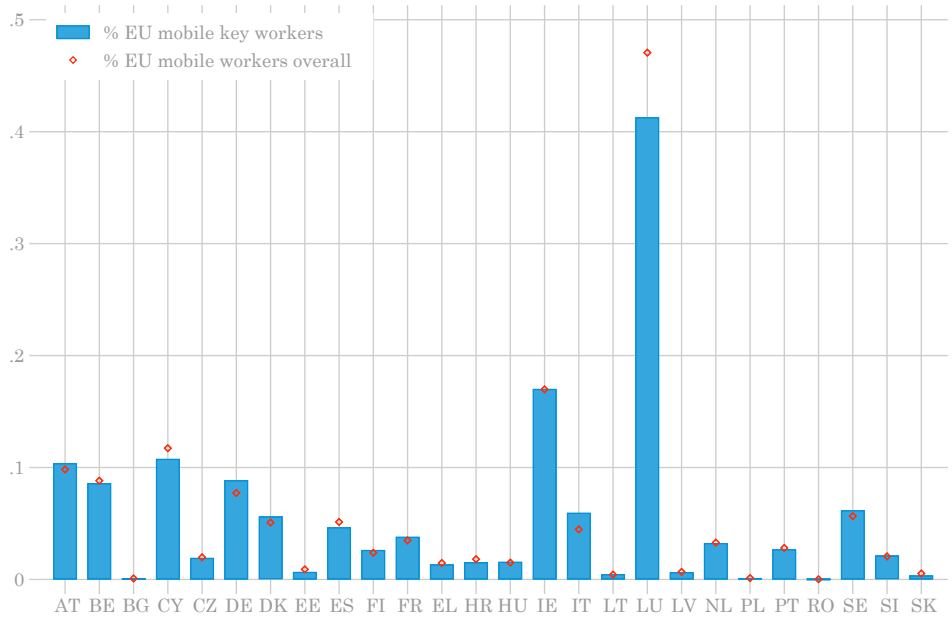


Note: For each group of workers and each Member State, the bars report the percentage of key workers over total employed workers.

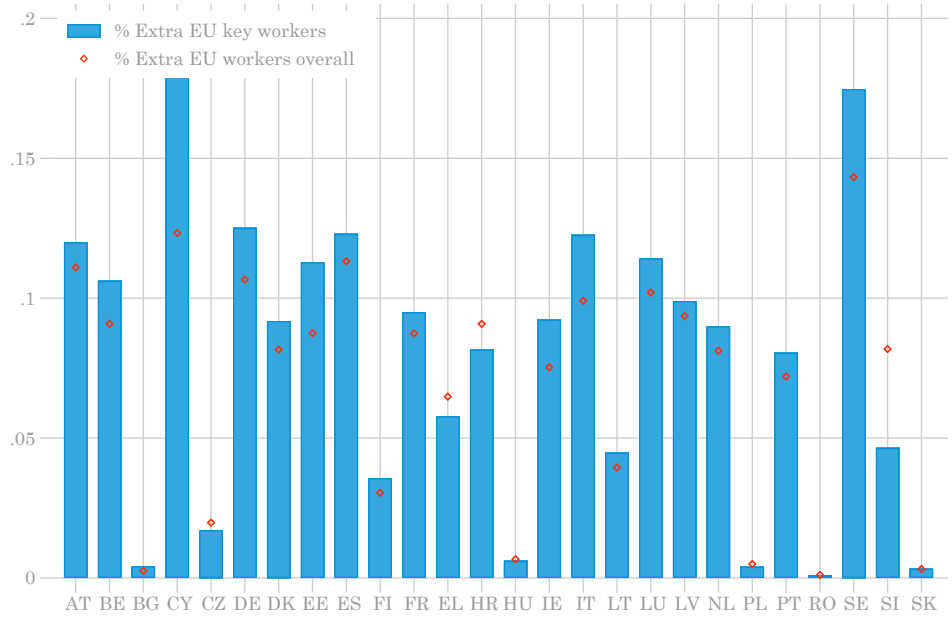
key occupations, with their shares being above those of natives in the majority of Member States. In Germany, for instance, while less than 30% of natives are key workers, EU-mobile and Extra-EU citizens are around 35%. Gaps are even larger in countries such as Italy (31% for natives versus 43% for EU-mobile and 40% for Extra-EU workers) or Sweden (38% for natives, 43% for EU-mobile and 48% for extra-EU citizens).

In order to better asses the over/under-representation of migrants among key workers, in Figure 5 we compare the share of migrants among key workers (blue bars) to the share of migrants in the employed population (red dots) for both EU-mobile and extra-EU workers. While the two shares are extremely close for EU-mobile workers in all Member States (panel a), the red dots tend to be below the blue bars for Extra-EU workers (panel b), highlighting their overrepresentation among key workers relative to their prevalence in the general population of workers. The largest difference is observed in Cyprus (where extra-EU migrants account for 13% of total workers, but for almost 20% of key workers), but relatively large gaps are observed also in countries such as Germany, Italy and Sweden. Notably, Extra-EU workers are under-represented among key workers in just four Member States (Czech Republic, Greece, Croatia and Slovenia).

Figure 5: Migrant Key Workers vs. Migrant Workers in each Member State



(a) EU Mobile

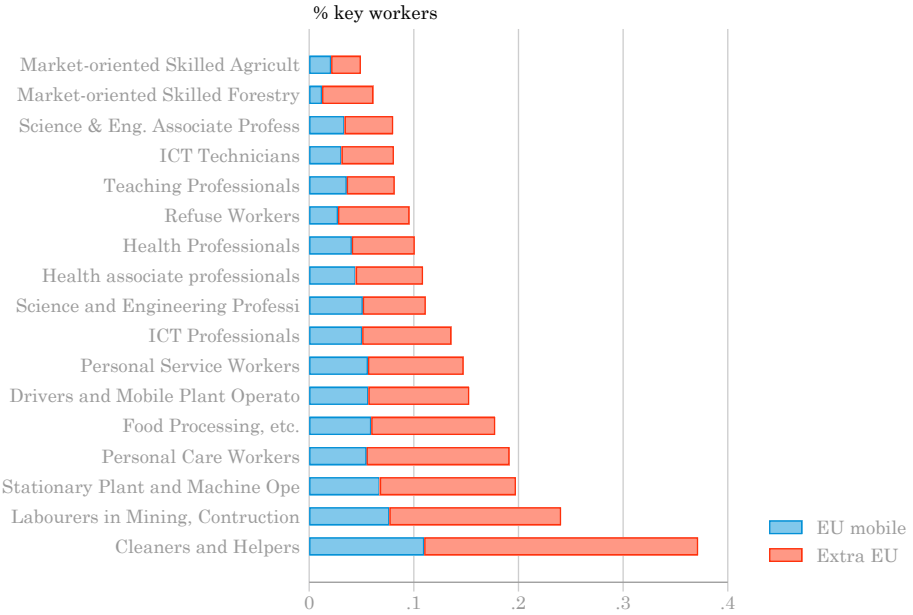


(b) Extra EU

Note: For each Member State, the bars report the share of migrants among the key workers and the dots the share of migrant among the overall employed population.

Finally, in Figure 6 we consider the entire EU area and report the share of foreign born key workers by occupation. The graph clearly shows how heavily some key occupations rely on migrant workers. If foreign born workers account for 13% of key workers in the EU (see Figure 3), in many key occupations we observe shares which are substantially higher. For example, more than a third of cleaners and helpers, more than a quarter of labourers in mining and construction sectors, stationary plant and machine operators and one in five workers in food processing are migrants. Extra-EU citizens alone account for more than 25% of cleaners and helpers, 17% of mining and construction workers and 14% of personal care workers.

Figure 6: Share of Immigrants among Key Workers, by Occupation



Note: The bars report the percentage of immigrants over total key workers for each occupation.

Education. As shown in Table 1, the set of key occupations is very diverse, ranging from highly qualified jobs such as science and engineering professionals to manual occupations such as drivers and labourers in mining, construction or manufacture. Migrants' skills and educational attainments - combined with existing hurdles to the recognition of foreign qualifications and to the access to certain professions in the EU - will determine how represented foreign born workers are in each occupation. We explore this important issue in Figure 7, reporting EU mobile (panel a) and extra-EU key workers (panel b) by educational level. In most Member States, EU mobile key workers are predominantly middle or highly educated while Extra-EU key workers tend to have lower education (especially in countries

such as Italy, Spain, Portugal and Greece). This is partly due to the original skill distribution of migrants in each country, as well as to the process of selection of individuals into migration.

We now consider the concentration of migrants in key occupations by educational level (low, middle, high). We analyse EU-mobile workers in Figure 8 and extra-EU workers in Figure 9. For each level of education and migrant group, the vertical bars show the share of low (middle or high) educated migrant key workers over the total low (middle or high) educated migrant workers while the dots identify the share of overall low (middle or high) educated key workers over the total low (middle or high) educated workers. If the dots lie above the bars it implies that, for a given educational level, migrants are underrepresented in key occupations with respect to the overall population, while if they lie below the bar migrants are over-represented. We can learn a few important facts from these graphs. First, in all countries, the education distribution of those who are employed in key occupations is fairly balanced between the three educational categories. This is evident from the fact that the dots in Figures 8 and 9 are fairly aligned in all Member States. Second, irrespective of their level of education, EU-mobile workers' concentration in key occupations closely follows that of the overall population: the distances between dots and bars in Figure 8 tends to be small for all three educational levels. Third, the overrepresentation of Extra-EU workers in key occupations observed in Figure 5 is driven by a strong overrepresentation of low educated migrants (see the distance between blue dots and bars in Figure 9) while high educated migrants are mostly correctly - or at times under - represented in most EU countries (see the green dots and bars in Figure 9).

High and low skill occupations. In Figure 10 we use scatter plots to compare the concentration of natives and migrants (EU-mobile in panel a and Extra-EU in panel b) in low and high skill occupations (blue and red dots, respectively).[5] These shares are comparable to those displayed in Table 1, but are defined on the finer 3 digits ISCO-08 classification instead of the 2 digits classification that we use in the Table. In both panels, natives are on the vertical axis and migrants on the horizontal one, implying that if dots lie above (below) the 45 degree line (identified by the dashed green line) migrants are under (over) represented in those occupations with respect to natives. For both EU-mobile and extra-EU workers, most of the dots fall relatively close to the 45 degree line, suggesting that their concentration in most professions closely resembles that of natives. However, a substantial under-representation is visible for Extra-EU migrants in high skill occupations (i.e. all red dots lie above the 45 degree line in panel b) whereas both migrant groups are strongly over-represented among low-skill professions such as cleaners and helpers, personal care workers and transport and storage labour.

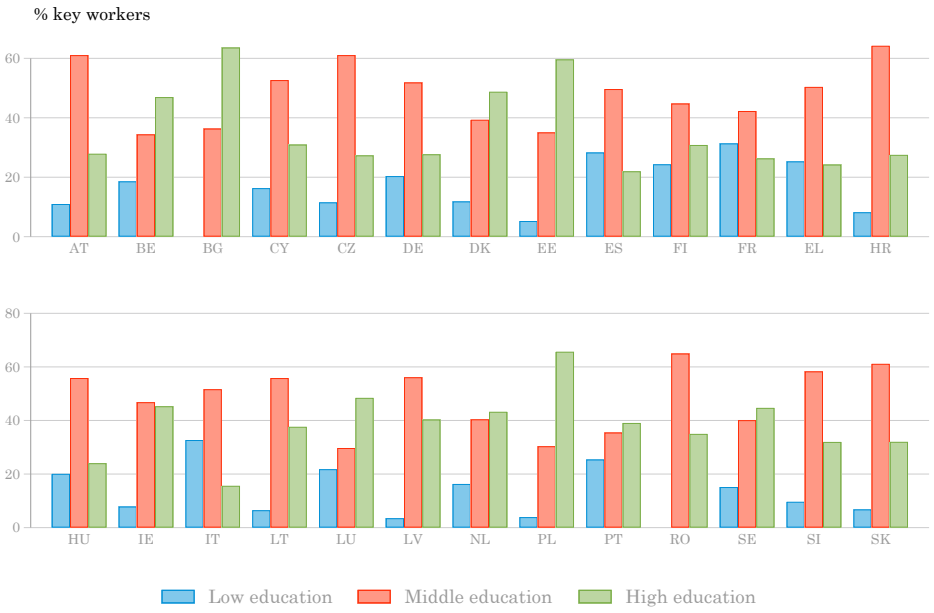
[5]In these scatter plots, we define low and high skill occupations on the basis of the median level of education for workers in each three digits ISCO-08 occupation. Low skill occupations are those occupations whose workforce median level of education is up to secondary education. An occupation is high skill if the median level of education of its workforce is above secondary education.

4 Conclusions

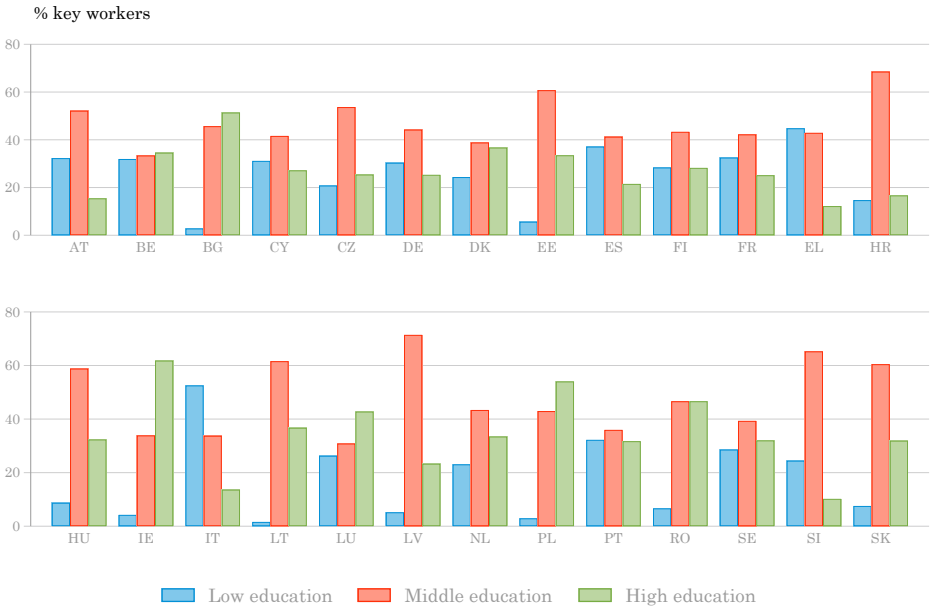
This note describes some basic features of the key workers in the Union: their number, geographical distribution, gender composition, education level and type of occupation performed. Its main goal, though, is to highlight the role of the non-natives in this effort. We find that, as for the total number of key workers, also the share of EU mobile and Extra-EU workers is highly diverse between Member States: very low in the Eastern members, much higher in the Western ones.

The overarching picture that this note paints is that of a migrant workforce that acts as an integral part in keeping basic and necessary functions of European societies working amidst periods of forced closure. It is worth stressing how, among migrants, the low skilled workers are especially over-represented in a number of key occupations that are vital in the fight against COVID-19, underscoring their often neglected value within European economies.

Figure 7: Migrant Key Workers by Educational Level



(a) EU Mobile



(b) Extra EU

Note: Low education is defined as ISCED11 level 2 and below; Middle education as ISCED 11 levels 3 to 5 included; High education as ISCED11 level 6 and above.

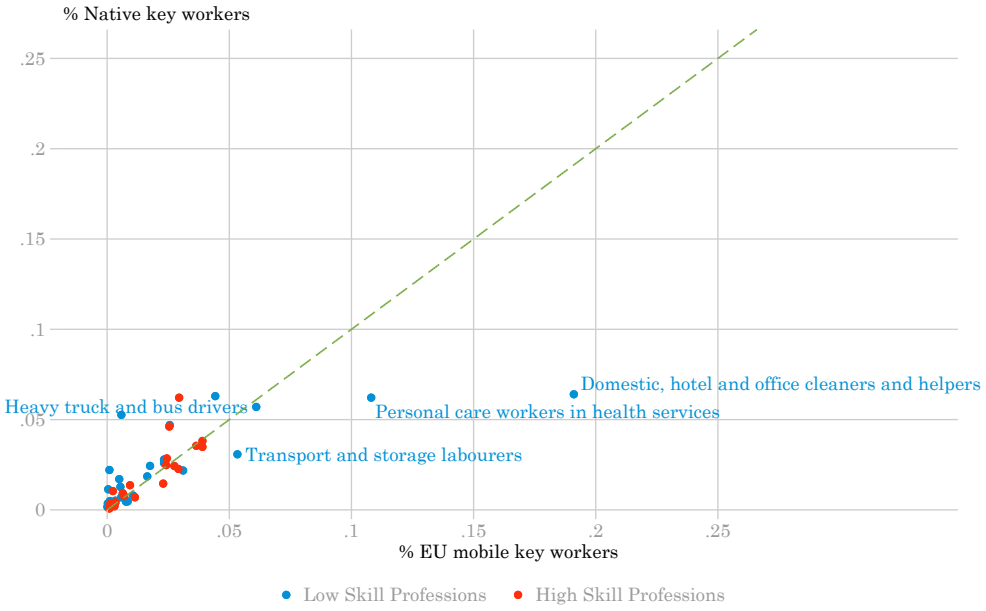
Figure 8: % EU Mobile Key Workers by Educational Level

Note: The dots over each bar represent the share of workers defined as key in each educational category by Member State.

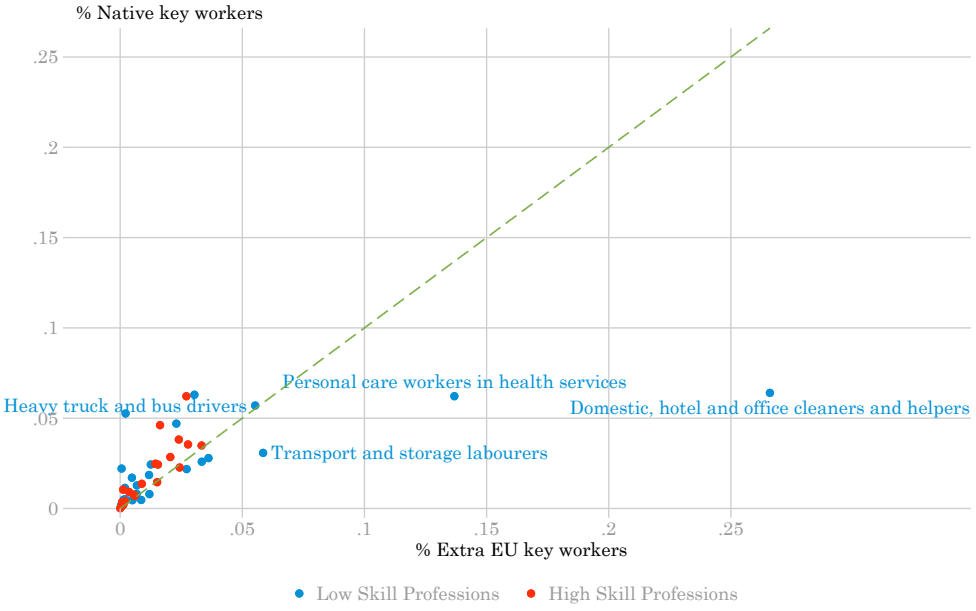
Figure 9: % Extra EU Key Workers by Educational Level

Note: The dots over each bar represent the share of workers defined as key in each educational category by Member State.

Figure 10: % of Migrant Key Workers vs. Native Key Workers by Occupation.



(a) EU Mobile vs. Natives



(b) Extra EU vs. Natives

A Appendix

Table 1: Key Workers by Occupation and Origin

ISCO-08	Native	EU mobile	Extra EU	Total
Teaching Professionals	15.35	11.14	7.81	14.55
	(77,845)	(2,868)	(3,671)	(84,384)
Market-oriented Skilled Agricultural Workers	13.13	3.87	3.15	11.91
	(66,560)	(997)	(1,479)	(69,036)
Science & Eng. Associate Professionals	11.77	7.68	5.98	11.12
	(59,688)	(1,977)	(2,810)	(64,475)
Personal Care Workers	9.69	12.59	16.63	10.38
	(49,144)	(3,241)	(7,817)	(60,202)
Cleaners and Helpers	7.74	20.93	27.81	9.95
	(39,259)	(5,389)	(13,069)	(57,717)
Drivers and Mobile Plant Operators	8.70	8.49	9.05	8.72
	(44,125)	(2,186)	(4,252)	(50,563)
Health Professionals	8.35	8.05	5.88	8.14
	(42,345)	(2,072)	(2,764)	(47,181)
Health associate professionals	5.09	4.32	3.48	4.93
	(25,817)	(1,113)	(1,633)	(28,563)
ICT Professionals	4.75	5.69	4.50	4.77
	(24,106)	(1,464)	(2,115)	(27,685)
Science and Engineering Professional	3.99	4.23	2.57	3.89
	(20,236)	(1,088)	(1,209)	(22,533)
Labourers in Mining, Contruction, Manuf., & Transport	3.23	5.05	5.68	3.51
	(16,365)	(1,301)	(2,669)	(20,335)
ICT Technicians	2.44	1.85	1.44	2.33
	(12,378)	(475)	(676)	(13,529)
Food Processing, etc.	2.21	2.94	2.62	2.27
	(11,184)	(756)	(1,229)	(13,169)
Personal Service Workers	1.30	1.56	1.29	1.31
	(6,594)	(402)	(604)	(7,600)
Refuse Workers	1.18	0.52	0.72	1.11
	(5,986)	(133)	(338)	(6,457)
Stationary Plant and Machine Operators	0.87	1.06	1.27	0.91
	(4,419)	(274)	(599)	(5,292)
Market-oriented Skilled Forestry Fishey & Hunting	0.20	0.03	0.12	0.19
	(1,029)	(9)	(58)	(1,096)
Total	100.00	100.00	100.00	100.00
	(507,080)	(25,745)	(46,992)	(579,817)

Note: Observations count in parenthesis.

Table 2: Key Workers Occupations

ISCO-08 2 digits	**ISCO-08 3 digits**
Science and Engineering Professional	Life science professionals Engineering professionals
Health Professionals	Health professionals Medical doctors Nursing and midwifery Traditional and complementary medicine Paramedical practitioners Other health professions
Teaching Professionals	University and higher education teachers Vocational education teachers Secondary education teachers Primary school and early childhood teachers Other teaching professionals
ICT Professionals	Information and communication technology Software and applications developers Database and network professionals
Science & Eng. Associate professionals	Sci. and engineering assoc. professionals Physical and engineer science technicians Mining, manufacturing and constructions Process control technicians Life science technicians Ship and aircraft controllers and technicians
Health associate professionals	Medical and pharmaceutical technicians Nursing and midwifery
ICT Technicians	Information and communications technicians ICT operations and user support technicians Telecommunications and broadcasting technicians
Personal Service Workers	Travel attendants, conductors and guides Other personal services workers
Personal Care Workers	Personal care workers Child care workers and teachers' aides Personal care workers in health services
Market-oriented Skilled Agricultural Workers	Market-oriented skill agricultural workers Market gardeners and crop growers

	Animal producers Mixed crop and animal producers
Market-oriented Skilled Forestry Fishery	Fishery workers, hunters and trappers
Food Processing, etc.	Food processing and related trades workers
Stationary Plant and Machine Operators	Food and related products machine operators
Drivers and Mobile Plant Operators	Locomotive engine drivers Car, van and motorcycle drivers Heavy truck and bus drivers Ships' deck crews
Cleaners and Helpers	Domestic, hotel and office cleaners and helpers Vehicle, window, laundry and other cleaning workers
Labourers in Mining, Construction, Manufacturing	Transport and storage labourers
Refuse Workers	Refuse Workers