



CENTRO STUDI LUCA D'AGLIANO

# Research note on the impact of unit non-response rate in the 2020 EU LFS

Authors: Tommaso Frattini  
*(University of Milan and Centro Studi Luca d'Agliano)*  
Irene Solmone  
*(Centro Studi Luca d'Agliano)*

May 2022



Fondazione  
Compagnia  
di San Paolo

This article was prepared within the Migration Observatory Project, which is jointly carried out by Fondazione Collegio Carlo Alberto and Centro Studi Luca d'Agliano and has been running since 2016 thanks to the contribution of Fondazione Compagnia di San Paolo.

## Research note on the impact of unit non-response rate in the 2020 EU LFS

According to the European Labour Force Survey (EU LFS), the number of immigrants between 2019 and 2020 has decreased by about 4 million individuals in Europe and by about 3 million in EU14 countries<sup>1</sup>. Given the extraordinary circumstances that occurred during 2020, a reduction or stabilization in the number of immigrants in Europe might be plausible: many countries imposed lockdowns and blocked all entries from outside the national borders for several months, and the economic crisis brought to a substantial loss of temporary and part-time jobs, which are often filled by migrant workers. Therefore, it is possible that a substantial part of the individuals that would have moved to Europe during the year did not, and that many of those that were already living in Europe may have moved back home.<sup>2</sup> However, while these phenomena would fit the trend observed in the data, a number of clues point to other, possibly complementary, explanations for the reversal of the positive trend followed by the stock of immigrants in the past several years. There are at least two reasons why estimates of the size of the immigrant population obtained from Labour Force Surveys in 2022 may not be correct: 1) weights may be incorrectly estimated; 2) non-response may have differentially increased among natives than among immigrants.

Similar issues have been noted by several observers with regard to the UK Labour Force Survey (O'Connor and Portes, 01.2021; Sumption, 02.2021; Gordon, 03.2021). The purpose of this note is to provide similar evidence for the EU LFS.

### 1. WEIGHTS

First of all, it is worth mentioning the way in which survey weights are constructed. O'Connor and Portes (01.2021) have raised the issue with regard to the 2020 UK Labour Force Survey, which estimates a drop in the number of foreign workers of about half a million, and – most surprising – a conspicuous increase in the national population. As O'Connor and Portes point out, a survey is not a count, and it must rely on external sources (such as the population Census or other administrative data) in order to ensure that the weights are estimated correctly, and that the population interviewed is representative of the total population. The extraordinary circumstances of 2020 might have created understandable problems in the calculation of the weights, which

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<sup>1</sup> EU27 countries, as well as countries that are members of the European Economic Area: Iceland, Norway and Switzerland. EU14 countries are Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, Netherlands, Portugal, Spain, Sweden. Note that from 2020 the UK is excluded from the sample, since it formally left the EU on January 31, 2020.

<sup>2</sup> Based on administrative records, the OECD estimates that permanent migration flows to OECD countries decreased by more than 30% in 2020 (OECD, 2021)

would have been very difficult to adapt quickly to the new circumstances and to a (possibly) changed composition and size of the population, especially of the immigrant one.

## 2. NON-RESPONSE

Beyond the inaccuracy of survey weights, however, differential non-response of immigrants and natives may exacerbate the bias in population estimates. This has been noted, in the UK context in an article in the Migration Observatory by Madeleine Sumption (02.2021) and a research note by Ian Gordon (03.2021). Both point out that in order to avoid personal contacts, most face-to-face interviews were carried out online or on the phone, thereby substantially increasing the non-response rate. Even before 2020, non-response rates varied widely across different groups in the population, and numerous studies show that the highest non-response rates can generally be found among immigrants (Sumption, 2020; Deding et al., 2008; Feskens et al., 2006). There are at least two valid explanations for this. Deding et al. (2008) and Gordon (2021) stress the importance of language barriers: most national surveys offer the questionnaires in a limited range of languages; a fact which could lead to higher non-responses rates among immigrants, and particularly among lower-educated immigrants, recent immigrants (who have had less time to integrate and acquire country-specific skills such as the language), or immigrants from countries without previous exposure to the host country language. Furthermore, immigrants might more frequently feel uneasy or suspicious of such a comprehensive survey as the LFS, and be less inclined to answer (Sumption, 2020).

Therefore, it is plausible that the challenges with which interviewers were faced in 2020 might have affected the immigrant population more strongly.

Evidence that these problems occurred not only in the UK are provided by Eurostat's article on sample-size and non-response rates (March 2022)<sup>3</sup>. The unit non-response rate increased from 24.7% in 2019 to 35 and 35.6% in the first two quarters of 2020, respectively (Figure 1). Bulgaria, Germany, France, Latvia, Hungary, Portugal and Slovenia reported an increase of more than 10 percentage points in the second quarter of the year with respect to the average in 2019. In the second and third quarters of 2020, the overall use of Computer Assisted Telephone Interviewing (CATI) increased by about 12 and 15 percentage points, respectively, and Computer Assisted Personal Interviewing (CAPI), or face-to-face interviewing, decreased by about 17 and 20 percentage points in the same period<sup>4</sup>. The average weekly difference in sample size between 2020

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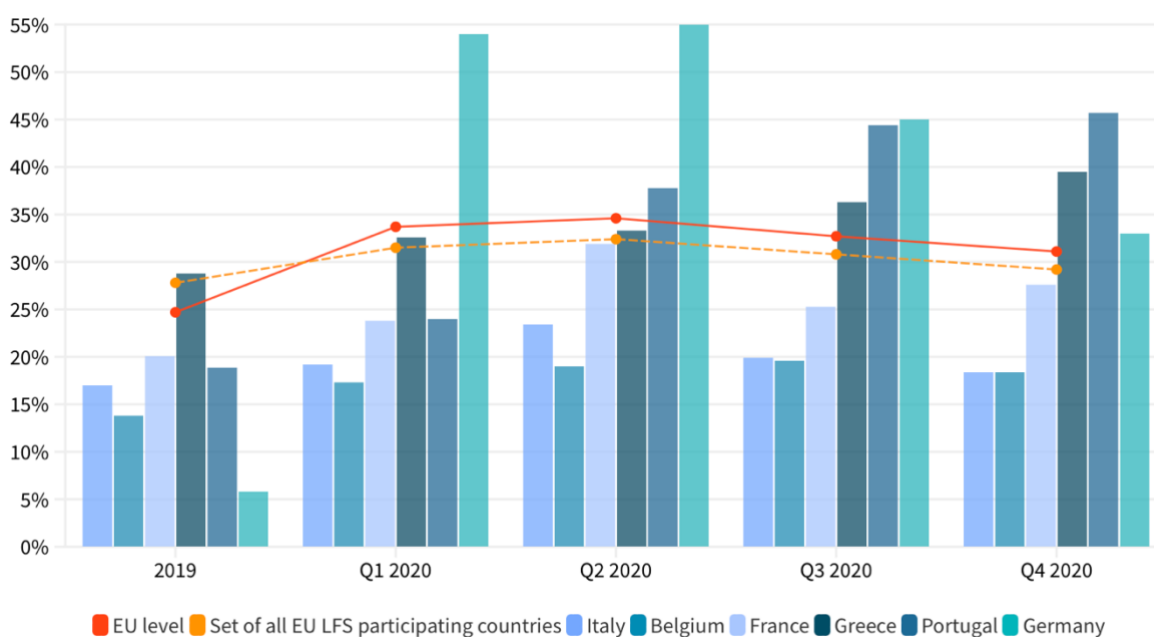
<sup>3</sup> [https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Sample\\_size\\_and\\_non-response\\_-\\_quarterly\\_statistics](https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Sample_size_and_non-response_-_quarterly_statistics)

<sup>4</sup> Czechia, Denmark, Germany, France, the Netherlands Romania and Slovenia are not included.

and 2019 in the first 39 weeks was of -3,666 individuals, with the lowest value of -11,116 registered at week 12 (roughly the end of March).

Furthermore, France and Germany modified the survey methodology, so it is not possible to separate the effects of the pandemic from the effects of this change. Germany implemented a new rotation scheme, a multi-mode design and new IT tools for survey management and data collection, while France renovated the questionnaire and applied a new protocol which gave the possibility to use computer-based interviewing. In addition to this, Germany had some technical issues which restricted the data collection even more, from the beginning of 2020. In a note, the German Federal Statistical Office goes as far as saying that a part of the data collected cannot be used, even though this seems to be a problem at the regional level, and not at the federal level<sup>5</sup> (German Federal Statistical Office, 03.2021). In fact, the largest increase in unit non-response rates can be found in Germany: 48.2, 49.2 and 39.2 percentage points in the first three quarters of the year, with respect to the average in 2019.

**Figure 1** – Unit-non response rates in 2019 and Q1-Q4 2020, overall and in a selected group of countries



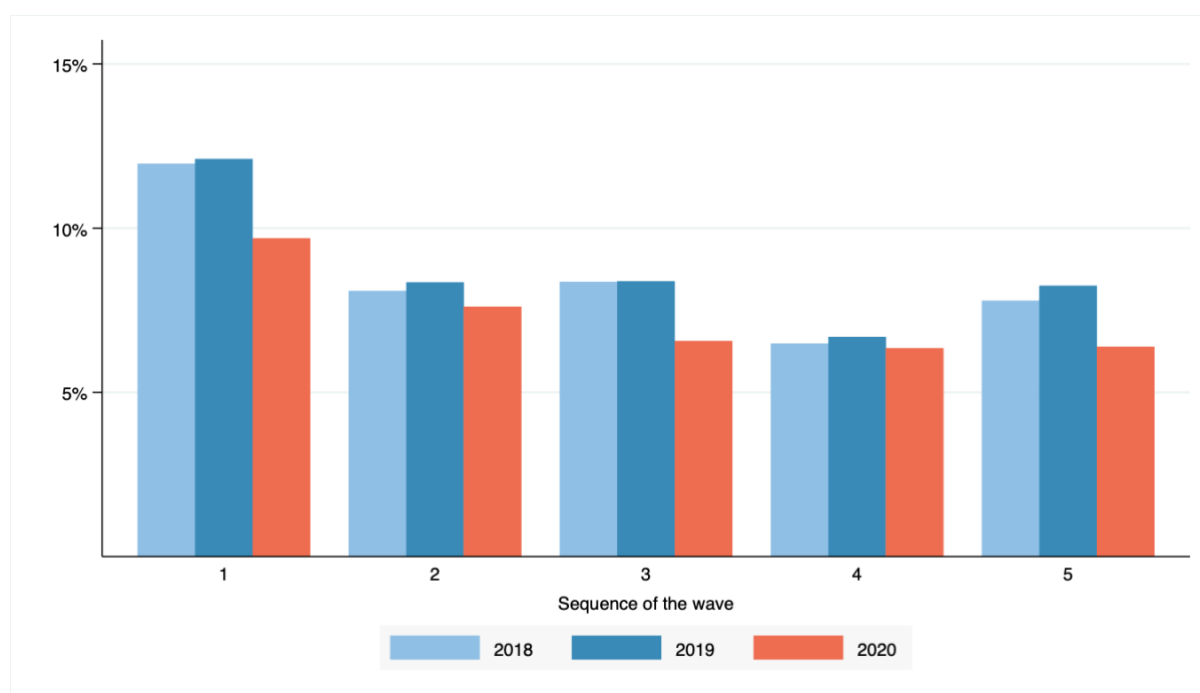
Even though Eurostat does not specifically reference migrants, the considerations above indicate that such problems would probably have affected the migrant population more strongly. In order to find evidence of this, we perform an exercise similar to the one done by Sumption (2021) for

<sup>5</sup> <https://www.destatis.de/EN/Themes/Society-Environment/Population/Households-Families/Methods/microcensus-2020.html>

the UK, on EU LFS data: by looking at the year-to-year variations in weighted observations between 2019 and 2020 in specific sub-groups of the population, we assess whether the resulting estimates can be considered realistic or not.

Firstly, the weighted share of immigrants over the total population is significantly lower in 2020 with respect to the previous two years: on average, slightly more than 2 percentage points (from 10.1% in 2018 and 10.2% in 2019, to 8.1% in 2020). Similar results can be found even if the data is divided according to the waves of interviews. The largest decrease is observed in the first, third and fifth waves, where the immigrant share dropped by 2.4, 1.8 and 1.9 percentage points, respectively, compared to 2019 (Figure 2).<sup>6</sup> The decrease with respect to 2018 is similar across all waves, since the share of immigrants was only slightly lower in 2018 with respect to 2019.

**Figure 2** – Weighted share of immigrants over total population



The decrease in immigrant share measured in the EU LFS could be due to an actual decrease in the immigrant stock, due to both sustained immigrant outflows and reduced inflows. If that is the case, we could expect to observe some heterogeneity across areas of origin. In particular, a greater decrease in the number of immigrants from the EU and other European countries, who could have returned to their countries of origin more easily. Travel to and from Africa, America and Asia was strongly limited, and in some cases completely shut down from the beginning of the emergency until the end of the year.

<sup>6</sup> We exclude here the sixth, seventh and eighth wave, since most countries in the EU LFS conduct interviews in five or fewer waves.

Between 2019 and 2020, the estimated population of EU immigrants across all countries in the EU LFS decreased by 9% (Table 1). As already mentioned, this might be plausible, even though the estimated decrease in some countries seems “too high”: in Ireland, the Member State with the highest unit non-response rate in both 2019 and 2020 (51% in 2019, 54.7, 59.5 and 60.2% in the first three quarters of 2020), there was a 42% decrease in the estimated number of EU immigrants. Likewise, the overall stock of European but non-EU migrants estimated from the EU LFS decreased by 2%, but this estimated decrease is highly heterogeneous across countries, and it records some implausible values. For instance in Croatia, Finland, France, Latvia, Poland and Slovenia the estimated number of European immigrants from outside the EU plummets to zero<sup>7</sup>. Instead, the overall decrease of African immigrants is 36%. Even if almost all immigrant inflows from Africa during the year had stopped because of lockdowns and travel limitations imposed by most EU countries, and return migration had increased (which, as mentioned, is improbable), a decrease of more than one third of the African population in EU countries seems highly unlikely.

**Table 1** – Percentage variation between 2019 and 2020 of the stock of immigrants, by origin

% variation	EU	Europe - non EU	Africa	America and Oceania	Asia
Austria	1	7	-42	-7	-25
Belgium	-3	16	-45	4	56
Croatia	-16	-100	0	0	0
Cyprus	-23	102	-36	15	-34
Czech Republic	-7	4	-23	227	-45
Denmark	-25	60	-82	17	-30
Estonia	5	3	124	27	2
Finland	-9	-100	-23	-36	61
France	-13	-100	-30	0	112
Germany	-4	6	-68	8	-4
Greece	-11	-11	-57	-12	-31
Hungary	3	18	35	15	-20
Iceland	3	248	-60	10	-44
Ireland	-42	764	-89	1	-26
Italy	-15	22	-38	-5	-33
Latvia	-14	-100	0	126	-13
Lithuania	-32	10	-67	17	-24
Luxembourg	-3	54	-70	-2	75
Netherlands	-10	14	-47	4	-22
Norway	1	88	-88	20	-5
Poland	-32	-100	0	0	0
Portugal	-9	50	-100	10	2170
Romania	-20	54	-90	-2	10
Slovak Republic	-11	76	-76	-50	-4
Slovenia	2	-100	0	0	0
Spain	-11	144	-14	7	-6
Sweden	-12	24	-26	11	97
Switzerland	-1	12	-69	0	-4
<b>All</b>	<b>-9</b>	<b>-2</b>	<b>-36</b>	<b>5</b>	<b>10</b>

<sup>7</sup> In 2019, the number of observations for non-EU European migrants for each of these countries was: 345 (Croatia), 70 (Finland), 631 (France), 170 (Latvia), 90 (Poland), 147 (Slovenia).

One could argue that the stock of recent immigrants may vary more than the stock of those who have been longer in the country: the former have arguably a lower attachment to the host country and hence a higher probability of outmigration, and in addition a reduction in inflows will only affect the stock of recent immigrants. Hence, if most of the observed reduction had happened primarily among recent migrants, then the estimates above would be more realistic. Table 2 shows the absolute and the percentage variation between 2019 and 2020, by quarter and cohort of arrival. While it is true that the most recent cohort is among the ones that decreased the most, the estimated stock of immigrants arrived between 2000 and 2009, who would then have been in the host country for 10 to 20 years, dropped by more than 30% in the first, second and fourth quarters with respect to the previous year.

**Table 2** – Absolute and percentage variation in the number of immigrants between Q1 and Q4 of 2019 and 2020, by cohort of arrival

<b>Year arrival</b>	<b>Q1 2019</b>	<b>Q1 2020</b>	<b>Change</b>	<b>% var.</b>	<b>Q2 2019</b>	<b>Q2 2020</b>	<b>Change</b>	<b>% var.</b>
<i>Before 1970</i>	1,089,512	900,986	-188,527	-17%	1,105,441	900,861	-204,580	-19%
<i>1970-1979</i>	997,243	716,942	-280,301	-28%	992,158	731,991	-260,167	-26%
<i>1980-1989</i>	1,007,130	812,016	-195,114	-19%	1,041,274	806,902	-234,372	-23%
<i>1990-1999</i>	1,814,533	1,449,830	-364,703	-20%	1,849,637	1,502,612	-347,025	-19%
<i>2000-2009</i>	3,893,893	2,284,583	-1,609,310	-41%	3,916,144	2,571,901	-1,344,243	-34%
<i>2010-2018</i>	3,892,553	2,602,164	-1,290,389	-33%	3,971,242	2,658,458	-1,312,784	-33%
<b>Year arrival</b>	<b>Q3 2019</b>	<b>Q3 2020</b>	<b>Change</b>	<b>% var.</b>	<b>Q4 2019</b>	<b>Q4 2020</b>	<b>Change</b>	<b>% var.</b>
<i>Before 1970</i>	1,133,523	952,570	-180,953	-16%	1,156,808	939,944	-216,864	-19%
<i>1970-1979</i>	926,994	807,879	-119,114	-13%	976,998	939,944	-37,053	-4%
<i>1980-1989</i>	988,109	874,901	-113,208	-11%	1,071,545	882,498	-189,047	-18%
<i>1990-1999</i>	1,865,261	1,691,621	-173,640	-9%	1,923,193	1,707,348	-215,845	-11%
<i>2000-2009</i>	3,587,397	2,622,091	-965,306	-27%	3,855,217	2,496,476	-1,358,741	-35%
<i>2010-2018</i>	3,944,936	3,063,124	-881,812	-22%	4,015,821	2,994,014	-1,021,807	-25%

Sumption (2021) argues that the group that would have been most likely to leave are single individuals in their twenties. The only quarter in which this is the group with the largest variation is the fourth, which also happens to be the one with the lowest unit non-response rate in 2020. In fact, the highest estimated percentage variation in the first half of the year is among minors (Table 3), and in the third quarter families with children under 11 years of age in the household drop by the same percentage as families with no children in the household (Table 4). In the first two quarters of 2020, the number of families with young children drops by more than one quarter with respect to the same period in 2019.

**Table 3** – Absolute and percentage variation in the number of immigrants between 2019 and 2020, by quarter and age

Age	Q1 2019	Q1 2020	Change	% var.	Q2 2019	Q2 2020	Change	% var.
0-9	491,169	354,777	-136,392	-28%	552,393	331,284	-221,109	-40%
10-19	976,222	606,133	-370,089	-38%	907,349	619,789	-287,559	-32%
20-29	1,967,296	1,263,548	-703,748	-36%	1,942,562	1,292,206	-650,356	-33%
30-39	3,063,198	2,049,779	-1,013,419	-33%	3,137,490	2,196,136	-941,354	-30%
40-49	2,799,420	2,044,912	-754,508	-27%	2,913,387	2,136,009	-777,378	-27%
50-59	2,088,150	1,564,143	-524,007	-25%	2,122,198	1,631,052	-491,146	-23%
60-69	1,267,167	962,146	-305,021	-24%	1,329,649	1,017,651	-311,998	-23%
70+	1,129,644	885,281	-244,363	-22%	1,121,373	864,045	-257,328	-23%
Age	Q3 2019	Q3 2020	Change	% var.	Q4 2019	Q4 2020	Change	% var.
0-9	519,598	445,526	-74,072	-14%	494,675	443,824	-50,850	-10%
10-19	908,748	638,499	-270,250	-30%	920,156	677,836	-242,320	-26%
20-29	1,879,585	1,477,861	-401,724	-21%	1,965,651	1,398,796	-566,855	-29%
30-39	2,952,337	2,372,198	-580,139	-20%	3,051,590	2,297,177	-754,413	-25%
40-49	2,865,987	2,367,031	-498,956	-17%	2,964,240	2,334,793	-629,447	-21%
50-59	2,095,121	1,766,792	-328,329	-16%	2,152,805	1,754,144	-398,661	-19%
60-69	1,306,379	1,090,750	-215,629	-17%	1,332,398	1,120,363	-212,035	-16%
70+	1,104,058	960,312	-143,747	-13%	1,148,580	932,312	-216,268	-19%

**Table 4** – Absolute and percentage variation in the number of immigrants between 2019 and 2020, by quarter and presence of children in the household

Children in household	Q1 2019	Q1 2020	Change	% var.	Q2 2019	Q2 2020	Change	% var.
Yes (0-11 y.o.)	5,852,091	4,348,360	-1,503,731	-26%	5,922,188	4,405,775	-1,516,413	-26%
Yes (12+ y.o.)	1,986,543	1,455,883	-530,660	-27%	2,035,923	1,467,030	-568,893	-28%
No	6,969,791	4,623,319	-2,346,472	-34%	7,163,774	4,906,185	-2,257,589	-32%
Children in household	Q3 2019	Q3 2020	Change	% var.	Q4 2019	Q4 2020	Change	% var.
Yes (0-11 y.o.)	5,829,912	4,731,227	-1,098,685	-19%	5,938,751	4,718,708	-1,220,043	-21%
Yes (12+ y.o.)	2,019,192	1,694,838	-324,354	-16%	2,046,571	1,710,566	-336,005	-16%
No	6,826,617	5,503,196	-1,323,421	-19%	7,079,908	5,347,248	-1,732,660	-24%

Summing up, the evidence presented above highlights that measuring changes in the size of the immigrant populations in European countries between 2019 and 2020 using EU LFS data is problematic. Although it is likely that the size of the immigrant population in many EU countries has decreased (or at least grown less) in 2020 than in previous years, several factors point toward an increase in non-response rates among immigrants as the main reason for their undercounting in the 2020 EU LFS.



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