What has been the impact of the COVID-19 pandemic on immigrants? An update on recent evidence

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While the COVID-19 crisis had a disproportionate impact on immigrants during the first months of the pandemic, the longer run effects are more mixed. Employment rates of foreign-born people are up, back to or near pre-crisis levels for most countries. However, long-standing weaknesses in access to training remain, and immigrants are still more likely than the native-born to catch the disease, to develop severe symptoms, and to face higher mortality risks. Following a first OECD policy brief published after the first wave (OECD, 2020[1]), this policy brief provides new evidence on the impact of the pandemic on immigrant integration in terms of health, labour market outcomes and training, as OECD countries start to recover from the crisis.

Key findings

- Immigrants are disproportionately affected by COVID-19. In virtually all countries for which data are available (Canada, Denmark, France, Germany, Italy, the Netherlands, Norway, Portugal, Sweden, the United Kingdom and the United States) – with the exception of Ireland – immigrants were much more likely than their native-born peers to catch the disease, to develop severe symptoms, and to face higher mortality risks.
- This is due to a range of factors such as poorer housing conditions with higher incidences of overcrowding; a higher dependency on public transport; overconcentration in areas with higher population density; fewer possibilities for teleworking and a higher incidence of frontline jobs; as well as language barriers and other structural obstacles to access health services and communications regarding prevention measures.
- Immigrants are also underrepresented among those who get vaccinated. Part of the gap, however, is due to unregistered jabs of immigrants in their origin countries.
- Immigrants have less stable employment conditions and generally lower seniority in the workplace than natives, which has made them more vulnerable to the economic shock. Immigrants have suffered during the confinement periods when public employment services were reduced and contact networks become even more relevant for finding a job. There is also evidence for increases in discrimination in times of slack labour markets.
- Immigrants are also strongly overrepresented in a number of sectors that were most affected by the pandemic such as the hospitality industry. Compared with their native-born peers, they are also more likely to be employed in essential sectors such as health care that were on the frontline during the pandemic.
- The initial impact of the pandemic on the labour market outcomes of immigrants has been disproportionately negative, essentially eliminating the progress observed over the previous decade. However, the latest available labour market data (Q3-2021) show a return to or near pre-crisis levels for most countries.
- In particular, whereas new arrivals have been disproportionately suffering in previous economic downturns, this was not the case over the period 2020-21. This is likely due to a mix of a decline in immigration of groups with weak labour market attachment (such as refugees and family migrants) and an increase in return to their country of origin of recent arrivals who lost their jobs.
- Immigrants generally have greater job mobility than the native-born. While immigrant employment declined disproportionately in the hardest-hit sectors, such as hospitality, it also increased more than that of the native-born in growing sectors such as ICT.
- Overall, the participation rate of immigrants across the OECD increased to 76%, 1 percentage point higher than before the pandemic and also 1 percentage point above the figure for the native-born. In countries where differences in participation rates between immigrant and native-born women are particularly large, such as in the Nordic countries (bar Norway), Belgium, France and the Netherlands, there was a strong increase in the participation of migrant women.
- Immigrants receive less training than native-born, despite the fact that they generally have greater needs. While the training gap was slightly smaller during the pandemic than before, immigrants remained disadvantaged in all European OECD countries bar Portugal and some Central and Eastern European countries.
- Youth with foreign-born parents have been particularly hard-hit, with increases in youth not in employment, education or training (NEET) rates. There is some tentative evidence suggesting that drop-outs from school among children of immigrants during the pandemic increased.

Introduction

The global pandemic had an unprecedented impact on the lives of individuals around the globe. A first stock-taking by the OECD assessing its impact on immigrants and their children (OECD, 2020[1]) revealed a number of specific vulnerabilities. In particular, it suggested that the pandemic had a disproportionately negative impact on integration, notably with respect to health and the labour market. The pandemic hit after a decade of steady progress in immigrant employment across the OECD, reversing the narrowing trend in employment rate gaps between immigrants and the native-born. Just prior to the pandemic, immigrant employment was at or near record levels in the EU, the United Kingdom, Canada, and the United States (Figure 1).

Two years into the pandemic, this paper provides a more comprehensive stock-taking of the impact of the crisis on migrants, and draws some lessons for integration policy.

Impact on migrant health

COVID-19 cases

The first OECD brief on the impact of COVID-19 on immigrants provided a number of reasons for a higher likelihood of immigrants to contract the disease (OECD, 2020[1]). These included: i) poorer housing conditions with higher incidences of overcrowding; ii) a higher dependency on public transport; iii) living in areas with higher population density; and iv) fewer possibilities for teleworking and a higher incidence of frontline jobs. In addition, language barriers may lead to a more limited understanding of health communications regarding prevention measures. In response to this challenge, a number of OECD countries adopted targeted communication strategies to circumvent such barriers (see for an overview OECD (2020[2])).

Indeed, among OECD countries that provide infections data by country of origin, immigrants are overrepresented among positive COVID-19 cases virtually everywhere (Annex Table 1.A.1). Over the first year of the pandemic, COVID-19 case rates of immigrants (and their native-born children) were between two and three times those of natives (with native-born parents) in Norway, Sweden, and Denmark. Similarly, during the first wave of COVID-19 reported infection rates of the foreign-born (whatever their migration status) surpassed those of the native-born in Canada (Ontario), France, Spain and Portugal. Only in Ireland were foreign nationals as prone as nationals to test positive for SARS-CoV-2.

What is more, COVID-19 infections varied considerably across migrant groups. In Norway, reported incidences among immigrants from Somalia (7 515 per 100 000), Pakistan (6 523) and Iraq (5 197) far exceeded those of natives (906) while those of migrants from China, Germany and the United States were considerably lower (Indseth et al., 2021[3]; Labberton et al., 2022[4]). Likewise, in Sweden, incidences were higher among immigrants from the Middle East (9 031), South East Europe (7 069) as well as South America (6 648), compared to natives (5 344) (Folkhälsomyndigheten, 2021[5]). Immigrant groups that live together in collective housing are particularly at risk. Accordingly, refugee and asylum seeker centres were identified as common “infection environments” in Germany, accounting for 2.5% of all reported COVID-19 outbreaks and 7.5% of overall cases during the first wave (Buda et al., 2020[6]).

While positive cases are an important metric to gauge the differential impact of SARS-CoV-2 on the foreign- and the native-born population, they may underestimate the actual prevalence of COVID-19 among immigrants. Even when controlling for differences in demographics such as age or income, infection rates may not be a reliable estimate, as they hinge critically on countries´ testing capacities.

Indeed, it seems that COVID-19 is more likely to go unnoticed (for longer periods of time) among immigrants, as their access to testing, especially in the beginning of the pandemic, has often been limited.

For example, the proportion of migrants tested for COVID-19 was lower than that of natives in Denmark and Ontario, Canada (Indseth et al., 2021[3]; Statens Serum Institut, 2021[7]; Guttmann et al., 2020[8]). While differences were not large, these need to be seen in the context of immigrants' much higher likelihood to get the disease, as seen above. What is more, some evidence suggests that immigrants tended to be tested later than the native-born. In Italy, for example, a study found that immigrants were diagnosed approximately 2 weeks later than their native-born peers (Fabiani et al., 2021[9]).

COVID-19 hospitalisations and excess mortality

Due to immigrants' greater exposure, coupled with lower rates of testing, they are potentially more prone to be diagnosed later (if at all) and fall seriously ill or even die of COVID-19. Further aggravating the situation is the higher prevalence of comorbidities in foreign-born populations (WHO Bureau for Europe, 2018[10]), as well as tangible (limited health care coverage) and intangible (lower language proficiency) barriers to health care access (ECDC, 2021[11]; Tjaden and Haarmann, 2022[12]).

In many OECD countries, including Norway, Denmark, Sweden, the Netherlands, and Italy, immigrants were overrepresented among inpatients. What is more, migrants were more at risk of needing critical care and ending up in intensive care units (ICUs) due to COVID-19 than natives in Norway, Sweden, the Netherlands and Italy. The rates of hospital admission for the foreign-born exceeded those of natives by factors ranging from around two in Denmark, to four in the city of Amsterdam, the Netherlands (Annex Table 1.A.2). Again, immigrants from lower-income countries were particularly affected (Labberton et al., 2022[4]; Statens Serum Institut, 2020[13]).

The limited information providing time comparisons between hospitalisations during the first and second wave of the pandemic suggest that the overrepresentation of immigrants among inpatients increased over the course of the pandemic. The proportion of foreign-born hospitalisations in both Norway (Indseth et al., 2021[3]) and Amsterdam, the Netherlands increased, with admissions of immigrants quadrupling relative to those of the native-born in the second wave (Stronks et al., 2021[14]). Hence, over time the differential impact of COVID-19 on foreign-born populations appears to have worsened in these countries.

When it comes to COVID-19 mortality, absolute numbers of deaths generally present a biased picture due to different characteristics between immigrants and the native-born (age, place of living, etc.). To correct for these, national data on all-cause mortality by country of birth over time is suited best to (a) see whether there is any excess mortality in 2020/21 compared with previous years and (b) estimate the potentially differential toll the pandemic has taken on immigrants,. Evidence on excess mortality of immigrants indeed suggests that analogous to cases and hospitalisations, immigrants (and their native-born children) were overrepresented among the victims of SARS-CoV-2. In most countries, excess mortality of immigrants largely exceeded that of the native-born (Annex Table 1.A.3). Again, the death toll of COVID-19 was distributed unevenly across migrant groups, with refugees and other immigrants from developing countries being most affected. In France, where the number of deaths increased in 2020 by 5% and 6% for native-born women and men, respectively, these figure reached 17% and 22% for immigrants from the Maghreb and a staggering 29% and 60% for those from Sub-Saharan Africa (Blanpain and Papon, 2021[15]).

An alternative to excess mortality is to control mortality figures for age, gender and socio-demographic characteristics (education, occupation, income, household size, or comorbidities (Annex Table 1.A.4). Specifically, being an immigrant from a low- or middle-income country, higher relative poverty, lower educational attainment as well as being single and male are all linked to higher excess mortality in Sweden (Drefahl et al., 2020[16]). A study looking at native-born versus immigrant (and mixed) couples in the same setting, found that difficulties in understanding health communications and the Swedish health care system did not explain much of the differences in excess mortality (Aradhya et al., 2021[17]).

Hence, measures to assess the disproportionate impact of COVID-19 on immigrants are not limited to all-cause mortality. However, as many of the alternatives rely on testing (with differences between countries and immigrants groups) and are sensitive to the age structure of the respective population, their results should be interpreted with caution, especially if not adjusted.

Vaccination rates

COVID-19 vaccines reduce the risk of both infections and serious symptoms (EMA, 2022[18]). While past studies have documented vaccination inequity between the native- and the foreign-born for multiple infectious diseases (e.g. reviews by Wilson et al., 2018[15]; Charania et al., 2019[16] covering over 12 different OECD countries), there is little research regarding COVID-19 vaccination coverage by country of birth.

Across the OECD, only a handful of countries provide information on administered vaccinations by country of birth or nationality. While some have acknowledged that they are (still) lacking the necessary legal basis for publishing data on administered jabs (e.g. Switzerland), others report vaccination by ethnic minority group or race (United Kingdom, United States).[1] The limited data available on jabs by country of origin or nationality is predominantly based on vaccination registers (Austria, Norway, and Sweden) or surveys (Germany, Canada). While registers offer a more comprehensive overview of the respective population than surveys, they may fail to account for vaccinations administered abroad. Hence, register-based vaccination rates of immigrants are likely to be lower-bound estimates, subsequently overstating differences between the native- and foreign-born.

The scarce available evidence across OECD countries consistently suggests lower vaccination rates against COVID-19 among migrant populations (Annex Table 1.A.5). In all countries with available data, there are significant differences in vaccination rates between the foreign- and native-born, with particularly large gaps of around 20 percentage points reported in Norway and Sweden.

Rates vary considerably between migrant groups. According to Norwegian register data, coverage ranged from 45% among immigrants born in Central and Eastern European countries (Latvia, Bulgaria, and Poland) to 92% among those born in Viet Nam, Thailand and Sri Lanka, compared with 94% among the native-born with native-born parentage (Kraft et al., 2022[19]). Very low vaccination rates for immigrants from Central and Eastern European countries have also been reported in Austria and Sweden.

There are a number of likely reasons for the observed gaps in vaccination rates between immigrants and the native-born. Due to their often lower socio-economic status, migrants tend to have less extensive health care coverage or might lack access all together, which may have contributed to rendering vaccination uptake more difficult (ECDC, 2021[20]). While jabs were generally offered to everyone regardless of their health insurance coverage, access issues might have played a role in the early stages of the vaccination, when the vaccine was not yet widely available. Indeed, a study from Norway suggested that gaps in vaccination rates between migrant groups were partially explained by differences in socio-economic characteristics (Kraft et al., 2022[19]). Immigrants, especially those who lack proficiency in the host country language, may also struggle with understanding the functioning of the health system. As such, a study in Germany suggested that coverage among immigrants with good mastery of the German language largely exceeded that of immigrants speaking little or no German (92% versus 75%) (Robert Koch Institut, 2022[21]).

[1] Among US adults who had received at least one dose of a COVID-19 vaccine by mid-March 2021, 65% were non-Latino Whites, while only 9% were Latino. However, an unknown number of vaccinations of persons with unclear ethnic origin were coded as non-Latino White, so it is difficult to assess vaccination under-coverage by ethnic origin. As a result, the United States has not been included in Annex Table 1.A.4.

Part of the observed lower vaccination rates is also the result of a statistical artefact – that is, immigrants may have been administered the jabs in their origin countries, without them being registered in the destination. Indeed, intra-EU migrants appear to be particularly prone to book their appointments in their origin countries (Kraft et al., 2022[19]). Data from Austria provides further tentative evidence along these lines. Foreign nationals in Austria have consistently lower vaccination rates than their foreign-born peers (which includes naturalised citizens) from the same origin countries, with an average difference of almost 10 percentage points between both groups (Statistik Austria, 2021[22]). While this is partly the result of a selection effect (naturalised immigrants are more familiar with the host-country health system and are more likely to speak the language), differences are even observed for German nationals compared with immigrants from Germany. This suggests, that non-negligible numbers of immigrants went back to their origin country for their shots. Adding such vaccinations administered abroad to registers is complicated. Both Austria and Norway charge fees for correcting register entries, while Sweden requires paper-based documentation. Hence, vaccination coverage is likely higher among some migrant groups than data suggests.

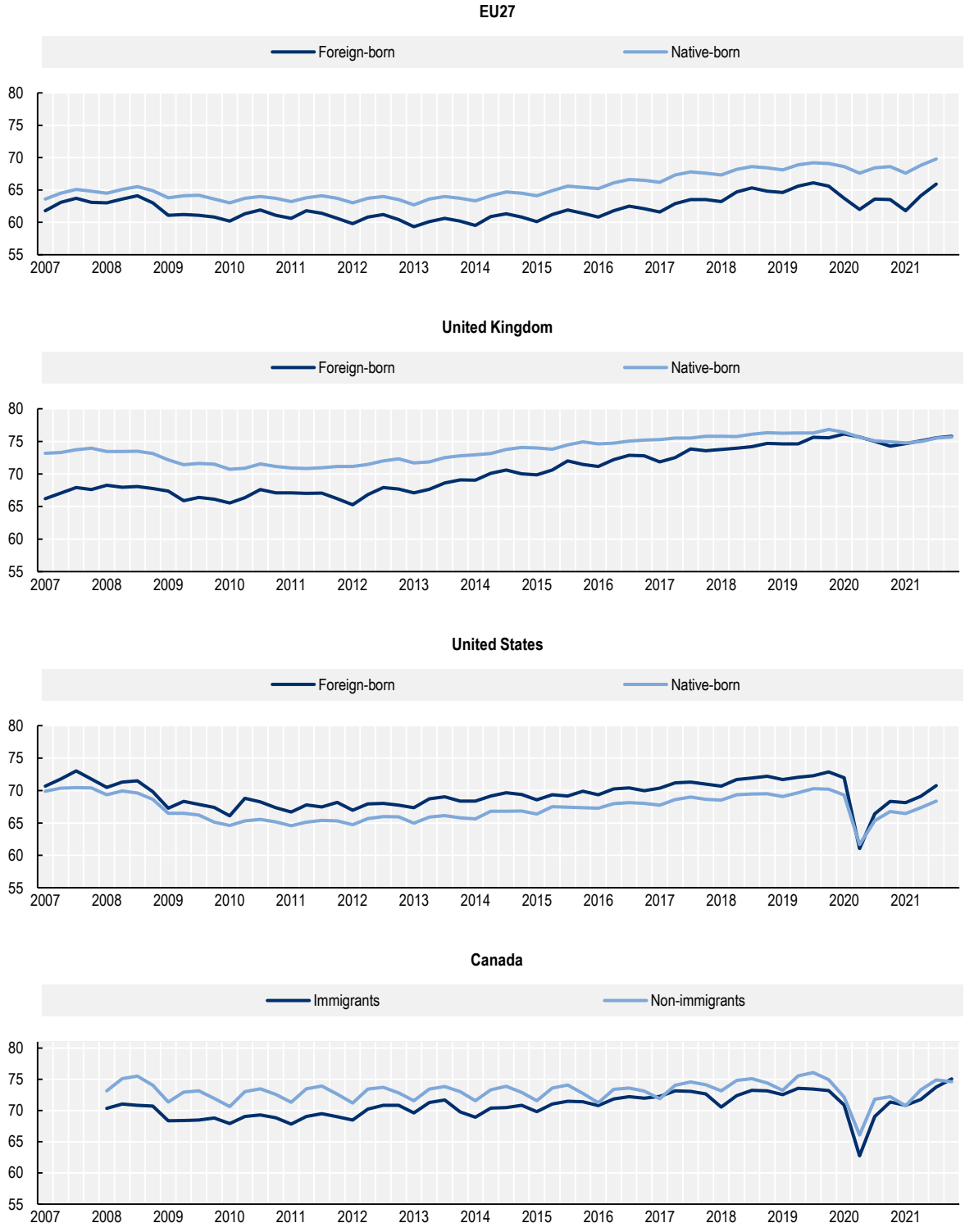
Impact on the labour market

Overall impact on outcomes

It is a well-established fact that immigrants are more affected by economic downturns. This is due to a range of factors, including less stable employment conditions and generally lower seniority at work. A number of past studies also suggest that discrimination strongly increases in times of a slack labour market, while contact networks – of which migrants have fewer – become more relevant for finding a job (OECD, 2009[23]).

What is more, immigrants are strongly overrepresented in a number of sectors that were most affected by the pandemic. For example, in the hospitality industry in European OECD countries, more than a quarter of employees are foreign-born, twice their share in overall employment, with recent arrivals being even more overrepresented. Strong overrepresentation is also observed in Australia, Canada, Japan, New Zealand and the United States (OECD, 2020[24]). At the same time, due to their concentration in cyclical jobs, immigrants also tend to be among the first to benefit from an economic upswing (OECD, 2019[25]). What is more, immigrants are overrepresented in a number of so-called “essential” sectors in the pandemic, in particular health professions.

Figure 1. Quarterly employment rate evolution by place of birth in the EU27, the United Kingdom, Canada and the United States, 2007-21, population aged 15 to 64

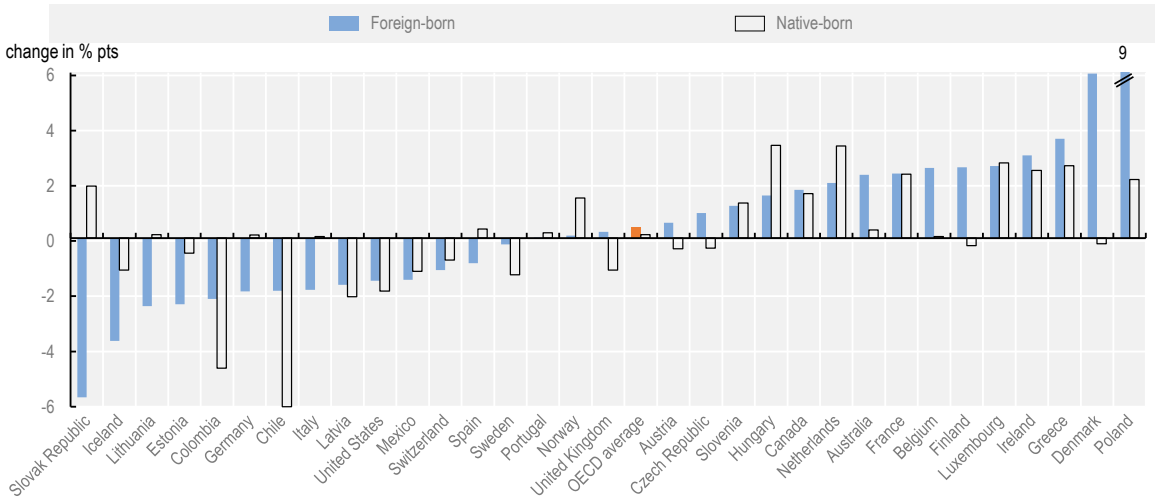


Source: Eurostat; ONS; OECD Secretariat calculations with data from the Canadian labour force survey and the Current Population Survey for the United States.

Overall, the evolution of the employment outcomes of immigrants over the course of the pandemic has been characterised by a disproportionately sharp decline in the early phase, and a disproportionately strong increase in 2021, bringing immigrant employment rates back to pre-pandemic levels in OECD-Europe and Canada, though not in the United States (Figure 1).

Comparing the latest figures on employment (Q3-2021), with the situation two years earlier, shows a mixed picture across the OECD. Indeed, in about half of the countries for which data are available, there has been an increase in immigrants' employment rates compared with pre-crisis levels (Figure 2). In Canada, France, Greece, Ireland, Luxembourg and the Netherlands, employment rates increased for both immigrants and the native-born alike, although often more strongly for immigrants. This was for example the case in Canada, where the latest figures (Q4-2021) show record-high employment rates for immigrants. Australia, Belgium, Denmark and Finland saw strong increases in immigrants' employment rates while the rates for the native-born remained constant or even declined. This was also the case, albeit to a lesser degree, in Austria and the Czech Republic. Likewise, in the United Kingdom, while the employment rate of the native-born declined, it slightly increased for the foreign-born. In the United Kingdom, the immigrant employment rate also already increased in 2020, while the number of employed immigrants declined. In particular, the number of employed immigrants from Central and Eastern Europe dropped by a full 17%. This suggests that part of the increase in the employment rate might be linked to the fact that many migrants with weaker labour market attachment may have left the country. There is also some evidence of this in other European OECD countries, with increases in the emigration of immigrants from Central and Eastern Europe. The most striking example is Poland, however. This is the country where the migrant employment *rate* increased most strongly, by a full 9 percentage points. However, *total* migrant employment in that country registered a significant drop, as a result of a mix of outflows of immigrants and a decline in new temporary migration.

Figure 2. Change in the employment rate between Q3 2019 and Q3 2021, by place of birth, population aged 15 to 64



Note: Q4 2019 compared with Q4 2021 for Australia, Canada and the United Kingdom. Full year 2019 compared with 2021 for Chile, Colombia and Mexico. Data for Chile refer to foreigners rather than foreign-born.
Source: OECD Secretariat calculations with data from labour force surveys and the Current Population Survey for the United States.

Colombia and Chile, which host many recent migrants notably from Venezuela, saw large declines in employment for both immigrants and the native-born, but the impact of the pandemic was much stronger

on the native-born. In the case of Colombia, one measure that might have cushioned the negative impact on immigrants was the large-scale regularisation that was initiated in early 2021.

Only a few countries, such as Germany, Italy, Spain, and some Central and Eastern European countries, saw a negative impact on the employment rate of immigrants compared with the native-born. For the Baltics and the Slovak Republic, this seems largely due to cohort effects, with many older migrants in working-age leaving the labour force. In Germany, Italy and Spain, many immigrants working in the hospitality sectors have lost their jobs, and employment growth in other sectors did not compensate for these losses.

While overall labour market results have to be interpreted with some caution given changes in the definition of employment in the European Labour Force Survey for many countries in 2021, there is certainly no strong case for a disproportionate negative impact of the pandemic on immigrant employment in most countries – which stands in stark contrast to what was experienced in the 2008 global economic crisis.

One of the key factors cushioning the impact of the pandemic on the labour market has been the massive use of job retention schemes (JRS) (OECD, 2021[26]). These schemes were generally rolled out with no differentiation by nationality or country of birth, although concentrations of migrants in certain sectors or the selective use of such schemes by employers may have resulted in a differentiated impact. The limited evidence on the participation of immigrants in these schemes is somewhat mixed. In Austria, foreigners were much more likely to be in job retention schemes than nationals (43% vs. 31%, respectively, of those previously employed; (Integrationsbericht, 2021[27])). Likewise, in Belgium, immigrants and their native-born descendants were 40% more likely than those with native-born parents to be in job retention schemes in 2020. Further analysis suggested that this overrepresentation is largely due to the sectors in which they worked (Federal Public Service Employment and UNIA, forthcoming[28])). In contrast, migrants were just as likely to be placed on JRS as the native-born in Germany (Auer, 2022[29]) and Switzerland (Hijzen and Salvatori, 2022[30]). Accounting for sectoral effects, Auer (2022[29]) finds that immigrants were actually underrepresented in JRS and were more likely to be laid off instead.[2]

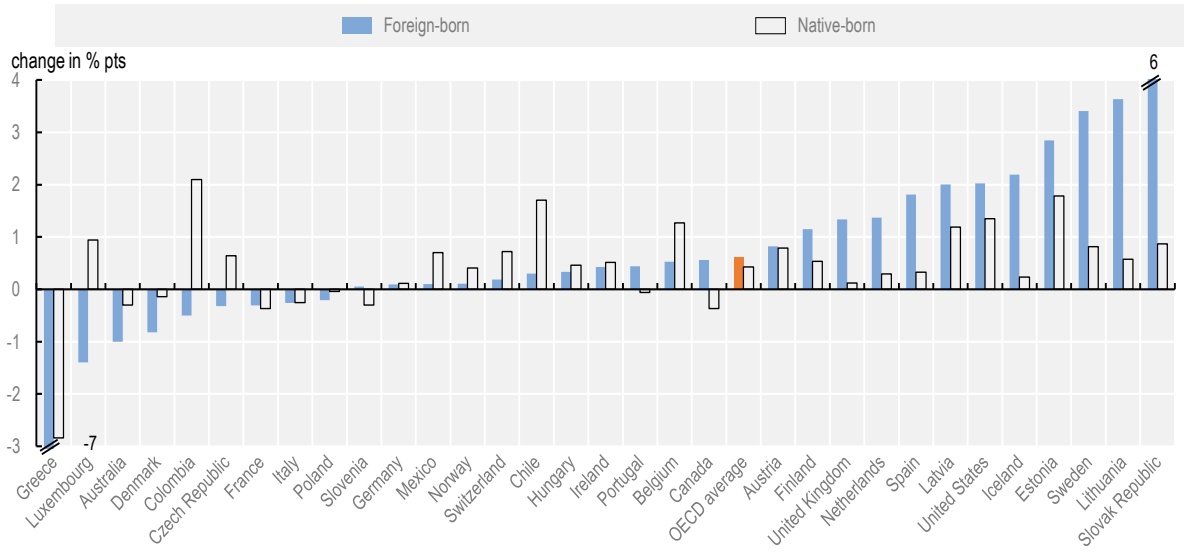
Besides job retention schemes and more generally the social protection inclusion of migrants, a further factor cushioning the impact is the fact that immigrants are much more likely to change jobs than the native-born. This was already the case prior to the pandemic, with both immigrants and native-born recording declines in job changes in the EU-27 countries for which data are available. That notwithstanding, it is noteworthy that job changes in 2020 – the latest year for which data are available – were more common among immigrants than the native-born in all countries bar the Czech Republic and Denmark.

The average participation rate of immigrants across the OECD increased to 76%, 1 percentage point higher than before the pandemic and also 1 percentage point above that of the native-born.

That notwithstanding, a majority of countries also experienced a simultaneous increase in immigrant unemployment (Figure 3), with Sweden, the United States, as well as Iceland, the Slovak Republic and the Baltics each registering an increase of 2 percentage points or more, and thus well above the figure for the native-born.

[2] Further analysis suggests, that the findings are unlikely to be driven by differences in productivity between migrants and natives. Moreover, using industry-specific variation in the extent of the economic downturn, Auer (2022[29]) demonstrates that layoff probabilities differences between migrants and natives increase with the magnitude of the shock. In the hardest-hit industries, the probability of job loss is three times larger among migrants than among the native-born, indicating substantive discrimination in layoffs.

Figure 3. Change in the unemployment rate between Q3 2019 and Q3 2021, by place of birth, population aged 15 to 64



Note: Q4 2019 compared with Q4 2021 for Australia, Canada and the United Kingdom. Full year 2019 compared with 2021 for Chile, Colombia and Mexico. Data for Chile refer to foreigners rather than foreign-born.
Source: OECD Secretariat calculations with data from labour force surveys and the Current Population Survey for the United States.

Evidence for specific groups

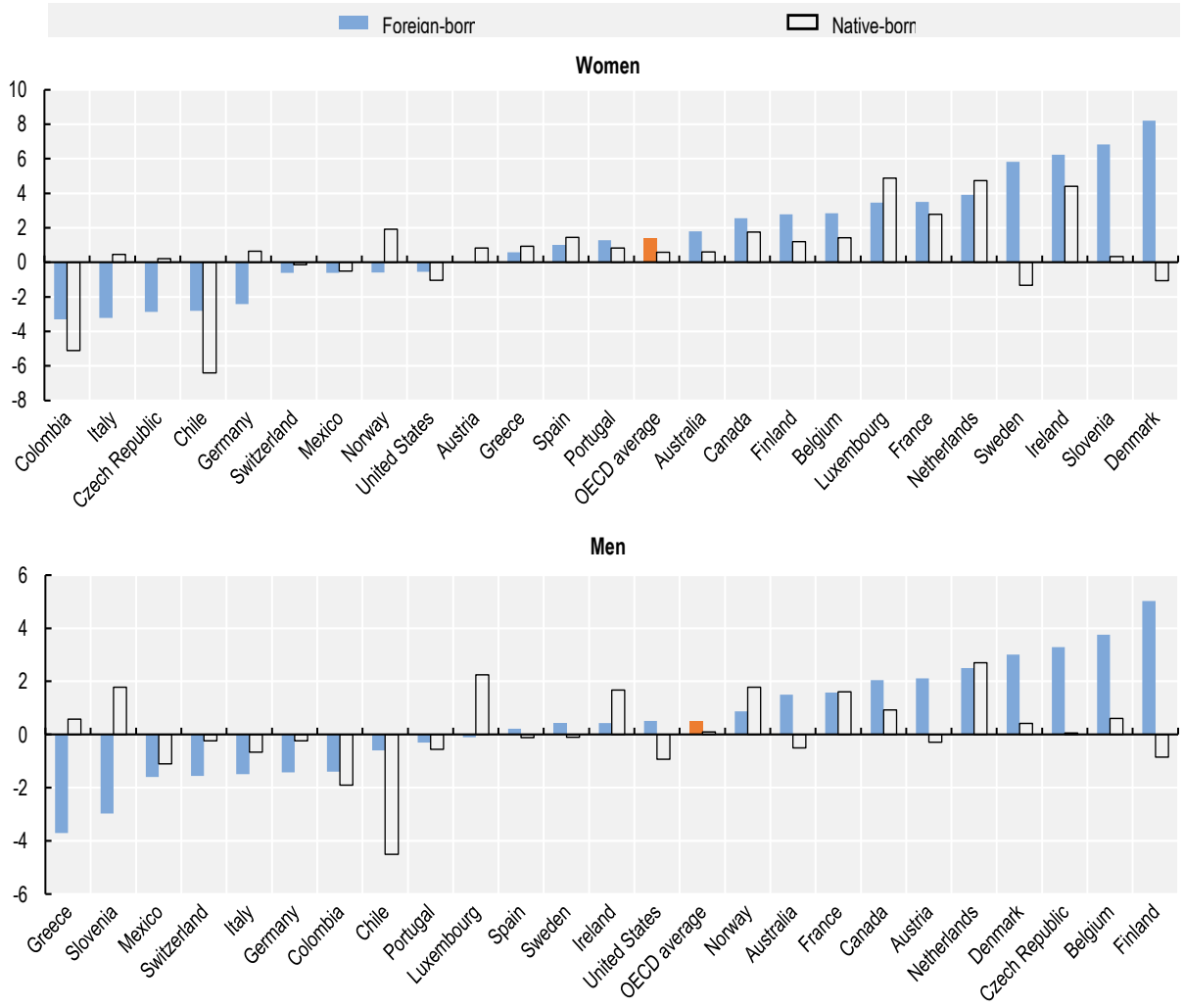
The impact of the pandemic on the labour market integration of immigrant women is a priori unclear. On the one hand, immigrant women are in a particularly vulnerable situation, not only because of their lower labour market attachment and strong concentration in hard-hit services sectors (notably hospitality), but also because school closures put a disproportionate burden on mothers with small children whose spouse was not able to telework – as has been the case for migrant women. On the other hand, previous crises have seen a so-called "added worker effect" – that is, previously inactive spouses joining the labour market to compensate for the actual or possible loss of earnings by the principal breadwinner (OECD, 2009[23]). The net effect of these diverging impacts is therefore unclear.

Indeed, when disaggregating the outcomes by gender, one does not observe a clear gender pattern (Figure 4). If anything, the labour market participation of immigrant women has increased in most countries, over and above the increases observed among both native-born women and immigrant men. Indeed, when comparing Q3-2019 with Q3-2021, only Italy, Germany and the Czech Republic registered declines in the participation rate of immigrant women that were above 2 percentage points. In contrast, Denmark, Ireland, Slovenia and Sweden each saw the participation of immigrant women increase by 6 percentage points or more, resulting in a significant reduction of the immigrant gender gap in these countries. What is more, in both Sweden and Denmark, the rise in the participation of migrant women was accompanied by a decline in the participation of native-born women. More generally, in countries where differences in participation rates between immigrant and native-born women are particularly large, such as in the Nordic countries (bar Norway), Belgium, France and the Netherlands, there was a strong increase in the participation of migrant women.

In Denmark, national data show that the observed increase is mainly due to refugees and other immigrant women from lower-income countries entering the labour market, notably in the health and cleaning sectors (Bjørsted and Olsen, 2022[31]).

A number of OECD countries have also seen increases in the labour market participation of immigrant men, while that of native-born men declined. This was notably the case in Austria, Australia, Finland and the United States. Indeed, what is often referred to as the "great resignation" in the United States has not been observed among immigrant men, and much less than for immigrant women than for their native-born peers. However, in Germany, Greece, and Italy, overall participation of immigrants saw a significant decline while this was not the case for the native-born.

Figure 4. Change in the labour force participation rate between Q3 2019 and Q3 2021, by place of birth and gender, population aged 15 to 64



Note: Q4 2019 compared with Q4 2021 for Australia and Canada. Full year 2019 compared with 2021 for Chile, Colombia and Mexico. Data for Chile refer to foreigners rather than foreign-born.
Source: OECD Secretariat calculations with data from labour force surveys and the Current Population Survey for the United States.

There is also no strong evidence for a disproportionate impact on specific groups. For example, within European OECD countries, overall there are no strong differences between immigrants from EU vs. non-EU countries. While information on category of migration is not yet available, in many EU countries, most non-EU immigrants are refugees and their families. This apparent lack of a negative impact on vulnerable migrants stands in contrast to the situation in 2020, where a number of findings indicated a much greater initial adverse effect of the pandemic, notably on refugees. For example, in the context of Germany,

Brücker et al. (2021[32]) found that refugees experienced a much higher initial increase in unemployment during the first lockdown in 2020. However, by the end of 2020, that disadvantage had reverted to pre-pandemic levels. A similar result was found in a survey among refugees in Austria. The survey also suggested that refugees often moved during the pandemic into platform or other atypical employment, notably in delivery services. The picture was different in Norway, where Alstadsaeter et al. (2022[33]) found that immigrants from Central and Eastern European EU countries were hardest-hit.

Another interesting finding is that recent arrivals have seen their outcomes develop more favourably than those of settled immigrants. In Estonia, Germany, Slovenia, Sweden, Canada, the United States and to a lesser degree in Spain, the employment rates of immigrants with less than five years of residence increased, whereas the rates of settled migrants declined. In a number of other countries, including Belgium, Finland, France and the Netherlands, the situation improved for both groups but much more for recent arrivals. This is unusual, since recent arrivals are generally among the hardest-hit in early phases of economic downturns (OECD, 2009[23]; OECD, 2014[34]). Two factors may contribute to this phenomenon. First, immigration took a massive hit in 2020, and groups with weak labour market attachment (such as refugees and family migrants) saw particularly strong declines in numbers of new arrivals, thereby resulting in a mix of recent arrivals with more favourable outcomes. Second, emigration of previous immigrants increased in a number of countries, with recent arrivals being much more prone to emigrate or return. While it is unclear to which degree this concerned recent immigrants with weaker labour market attachments, some evidence suggests that the latter were more likely to leave their host countries, notably in Poland and the United Kingdom (see above). For Norway, Bratsberg and Raaum (forthcoming[35]) found that the use of posted workers (which are not included in the labour force survey) declined by two-thirds during the pandemic, thereby cushioning the impact on resident immigrants and the native-born alike.

In a number of countries, the pandemic has impacted the school-to-work transition of youth negatively, as shown by increases in the share of youth not in employment, education or training (NEET). Information on this indicator is limited, but for the bulk of countries for which it is available, NEET rates increased among both native-born and immigrant youth, with generally stronger increases among the latter. In Italy and Norway, increases were at, 4 and 11 percentage points respectively. In other words, increases were overall around twice as large as for native-born youth (in Norway even 7 times as large). However, the situation is not uniform, with countries like Belgium and France registering declines in NEET rates among both immigrant and native-born youth (whereas declines are stronger among the former).

One factor that will shape the school-to-work transition moving forward will be the broader impact of the pandemic on educational outcomes of children of immigrants. While the evidence to date is scarce, it does suggest a disproportionately negative impact in terms of school attendance and results (Box 1).

Box 1. Impact of the COVID-19 pandemic on educational outcomes of children of immigrants

Across OECD countries, temporary school closures have prompted an abrupt transition to distance learning at all educational levels. The first OECD brief on the impact of COVID-19 on immigrants highlighted that children of immigrants are particularly vulnerable in this situation (OECD, 2020[1]). Being overrepresented among students with a socio-economically disadvantaged background, they are more likely to lack a sound study environment at home and the necessary digital infrastructure to continue their education remotely. Language barriers and difficulties of their foreign-born parents to guide them through host-country curricula and distance learning in the host-country language pose additional challenges. However, policy responses such as the provision of computers to disadvantaged students might have cushioned some of the learning losses.

To date, the evidence regarding the impact of the crisis on the educational attainment of the children of immigrants is scarce. Results from international assessments of student performances such as PISA (2022) and the Progress in International Reading Literacy (PIRLS) (2021), which would allow for a comparative assessment, are not yet available. National test score data are not widely available and generally do not include information on the country of birth of students' parents and in some countries, final or admission exams have even been halted entirely during the COVID-19 pandemic. What is more, some evidence suggests that increases in attrition rates in national tests have been higher among students who were already at high risk of school dropout. Indeed, research from the United States found higher attrition rates in a nationwide math and reading assessment from 2019 to 2020 among low-performing and ethnic minority students (Kuhfeld et al., 2020[36]). This would cause an upward bias in the estimation of learning progress. Recommendations for teachers to grade leniently during the crisis in several countries could further add to this bias.

The limited available evidence points to a disproportionate impact of the crisis on learning outcomes of children of immigrants. These learning losses tend to be more pronounced in countries where remote learning periods were longer. Germany, for example, which imposed lengthy and frequent school closures, saw a sharp increase in the reading competencies gap between primary students with immigrant versus native-born parents (Ludewig et al., 2022[37]). Due to sample size issues, this increase is, however, not statistically significant. By contrast, in the Netherlands and Belgium, only small and often statistically insignificant differences in learning growth were found between the children of immigrants and their peers with native-born parents (Maldonado and De Witte, 2021[38]; Haelermans, 2021[39]).

Qualitative research from Italy, Slovenia and Belgium suggests that a lack of access to digital devices, limited host-country language exposure and less remediation of learning difficulties through direct teacher contact set children of immigrants back in their learning trajectories (Gornik, Dežan and Medarić, 2020[40]; Redazione, 2021[41]; Damery and Raziano, 2021[42]). These problems proved particularly severe for newly arrived migrant and refugee children (D'Angelo and Manzoni, 2021[43]; Primdahl et al., 2020[44]; Rude, 2020[45]).

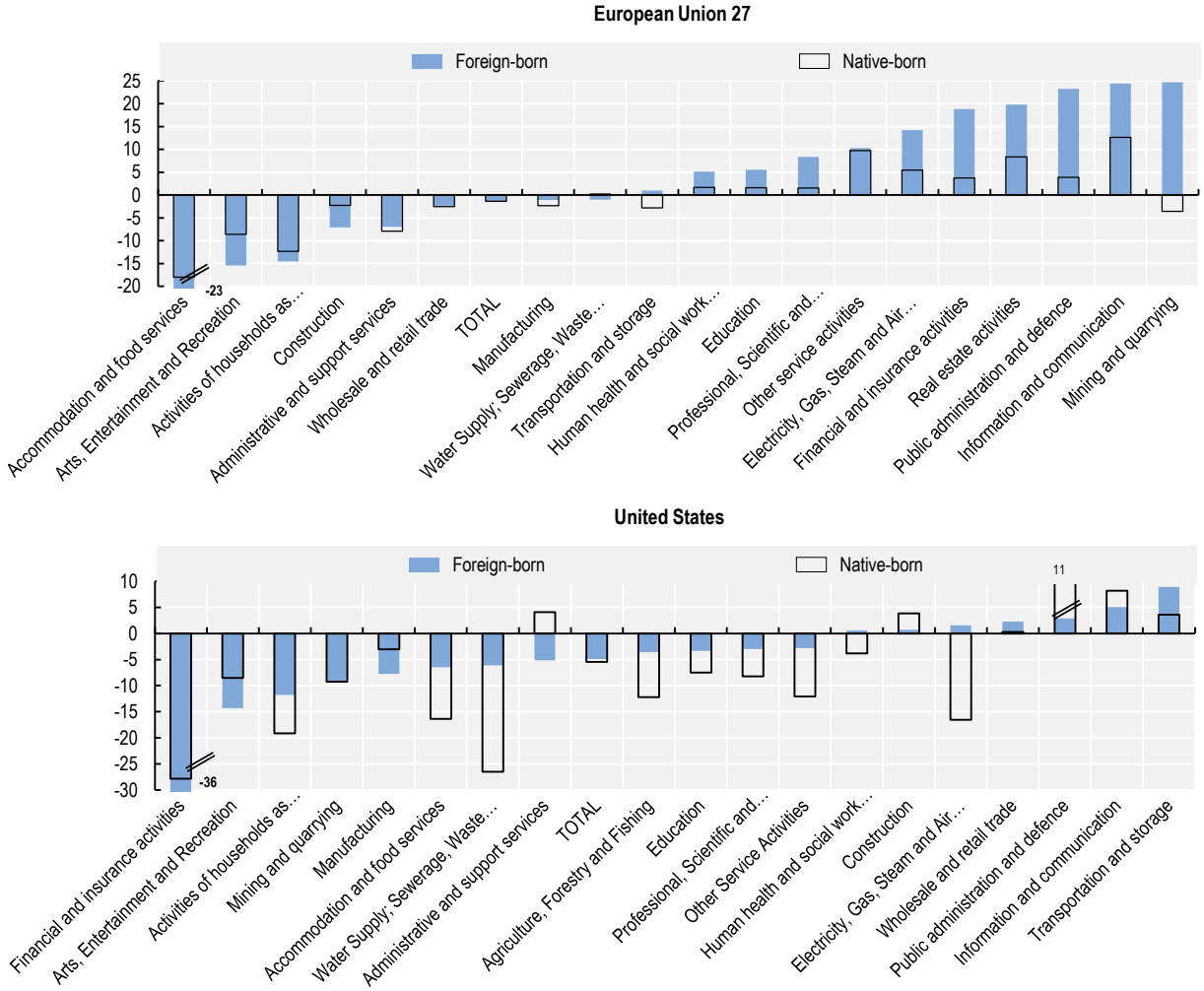
While these studies provide a first picture, it is still too early to draw definite conclusions on the impact of school closures on educational outcomes of children of immigrants. Evidence is even more scant when it comes to possible long-term effects such as school disengagement. A first report from the Lombardy region of Italy suggests that the share of foreign-born students has dropped significantly by 11% in the beginning of the school year 2020/2021 (Redazione, 2021[41]).

Impact by industry

The impact of the pandemic has been strongly asymmetric across sectors. Figure 5 shows the differences in employment by country of birth and industry, for both the European Union and the United States. In the EU, immigrants were disproportionately affected by both job losses in declining industries, such as hospitality and entertainment, as well as by new job creations in growing sectors such as ICT. The picture is less clear-cut in the United States, however.

Figure 5. Change in employment, by industry and country of birth, three first quarters 2021 compared with the same period in 2019

In percentage of total employment



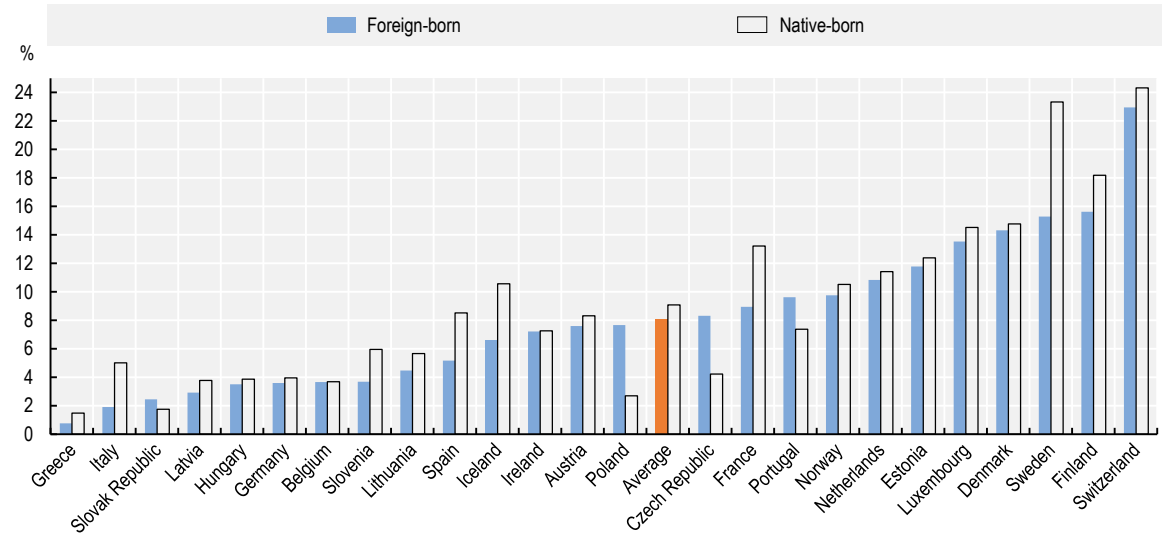
Source: OECD Secretariat calculations with data from the European Union Labour Force Survey (EU-27) and the Current Population Survey for the United States.

Training

The pandemic crisis has accelerated the ongoing transformation of the labour market, most notably the digital transformation and automation (OECD, 2021[26]). To prepare for this rapidly-changing labour market, investment into training and skills is key. However, it is a well-established fact that immigrants are less

likely to participate in training in most OECD countries (OECD/European Union, 2018[46]). First data for European OECD countries in 2020 show that the training gap remains sizeable in most countries, with particularly large differences observed in Sweden, France, Iceland, Spain and Italy (Figure 6). While the training gap remained substantial in all countries, bar Portugal and some Central and Eastern European countries, it was slightly smaller in 2020 than before.[3] Nevertheless, persistent gaps must be interpreted in the context of higher training needs, due to the fact that immigrants are more likely to work in occupations most at risk of automation. This holds true for virtually all European OECD countries (OECD, 2017[47]).

Figure 6. Share of individuals who attended a training over the last 4 weeks, 2020, by place of birth



Source: OECD Secretariat calculations with data from the European Union Labour Force Survey.

Conclusion

It took OECD labour markets a decade to revert to the employment levels of immigrants seen prior to the global economic downturn of 2008. At the outset of the pandemic, there was widespread concern that this also holds for the labour market impact brought about by the economic shock associated with COVID-19. Indeed, the initial impact of the pandemic on immigrants was disproportionately negative. However, the latest labour market figures suggest that the situation has improved markedly and in most countries with the economic recovery in 2021: labour market outcomes for immigrants are again at or near pre-pandemic levels. This holds across indicators (employment, unemployment, participation) and migrant groups, with some indication of a stronger negative impact on migrant youth, however.

A number of reasons contribute to explaining this significant bouncing back. First, and probably most importantly, the massive use of job retention schemes and other measures that have been put in place in many OECD countries has undoubtedly cushioned the impact of the pandemic, for immigrants and the native-born alike. Second, there is evidence that immigrants have been "greasing the wheel" regarding the labour market with the pandemic – disproportionately leaving declining sectors and entering growing sectors instead. Third, it appears that immigrant women have been joining the labour market to compensate for the loss of employment or revenue of the principal breadwinner. Finally, there have been

[3] For Poland, the large training differences in favour of migrants seems at least in part due to the fact that immigrants are strongly overrepresented among the highly-educated, a group which is more likely to received training.

some shifts in the composition of the immigrant population, which led in many countries to a slight shift towards migrants in employment. This is the result of two trends which work in the same direction. In a number of countries, it seems that immigrants who were not in employment left. What is more, inflows of new migrants – particularly those with lower labour market attachment such as refuges and family migrants – have declined across the OECD (OECD, 2021[48]).

Going forward, to ensure that the pre-pandemic progress in migrant labour market integration picks up again in a sustainable way, it important to address the training gap for migrants that is common across the OECD. This is even more important where migrants are more in need of such training to adapt to their new jobs and the overall structural changes in the labour market. Likewise, it is crucial to ensure that the periods of school closures do not leave a lasting scar on the school-to-work transition for the children of immigrants.

At the same time, the pandemic has also highlighted particular health vulnerabilities of migrants, with immigrants being more likely to catch the disease, to develop severe symptoms and die of COVID-19. In this context, the seemingly lower vaccination rates of certain immigrant groups are particularly worrisome. Overall, findings suggest that more needs to be done to ensure health inclusion and health literacy of foreign-born groups. Outreach to migrant communities, including the use of targeted communication strategies (OECD, 2020[2]), appears to be effective in addressing this issue.

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Annex 1.A. Additional tables

Annex Table 1.A.1. COVID-19 cases

Country	Measurement Type	Adjustment	Period	Target Population	Main Results	Ratio	Source
Canada	Proportion tested positive	Data disaggregated by age groups, sex, duration of stay, migrant status etc.)	16.06.2020	Permanent migrants in Ontario	Permanent immigrants were more likely to be tested positive and accounted for 43.5% of cases, while making up only 25% of Ontario´s population.	1.7	Guttmann, A. et al. (2020)
Denmark	Proportion tested positive	Data disaggregated by age and sex	09.03.2021	Immigrants and their native-born children	11.4% (5.3%) of immigrants from "Non-Western" ("Western") countries and their native-born children tested positive, compared to 4.2% among their peers with native-born parents.	2.7	Statens Serum Institut (2021)
France	Proportion self-reporting COVID-19 symptoms	Adjusted for age and social variables, exposure, region, health	05.2020 to 06.2020	Immigrants and their native-born children reporting anosmia (loss of smell) and/or ageusia (loss of taste)	After adjusting for risk of exposure and health variables, immigrants, their native-born children and those coming from France´s overseas departments were more prone to report anosmia/ageusia compared with the rest of the population.	n/a	Bajos, N. et al. (2021)
Ireland	Positive cases	Data disaggregated by age-group (only those older than 65 and total population)	25.11.2020	Foreign nationals	There were no differences between Irish and non-Irish nationals.	1	ESRI (2020)
Italy	Odds of testing positive	Adjusted for age and sex	06.03.2020 to 26.03.2020	Immigrants in the Italian region Emilia-Romagna	Immigrants residing in the Reggio Emilia province had a similar prevalence of infection compared to natives (odds ratio: 0.99).	1	Rossi (2020)
Norway	Incidence of positive cases	Adjusted for age and sex, municipality of residence and occupation	15.03.2020 to 15.02.2021	Immigrants	Rates of infection were higher among the foreign-born than natives (2 312 versus 906 per 100.000). COVID-19 cases per 100.000 were highest among immigrants born in Somalia (7 515) and Pakistan (6 523).	2.6	Indseth, T. et al. (2020)
Norway	Incidence of positive cases	Adjusted for age and sex, municipality of residence and occupation	15.03.2020 to 15.02.2021	Native-born children of immigrants	Rates of infection were higher among the native-born offspring of immigrants than their peers with native-born parents (4 799 versus 3 140 per 100.000).	1.5	Indseth, T. et al. (2020)
Spain	Incidence of positive cases	Adjustment not mentioned	05.04.2020	Immigrant patients in Madrid	There were no overall differences between immigrants and natives. However, incidences among migrants from Latin	1	Aroca Jaqueti, J. et al. (2020)

					America were almost five times higher than those among natives and other immigrants.		
Spain	Incidence of positive cases	Adjusted for age and sex	01.02.2020 to 25.04.2020	Immigrant residents of Alcorcon	Incidences among migrants were higher than those of natives (9 versus 7 per 100.000). The relative risk of contracting COVID-19 compared to natives was four times higher for immigrants from Sub-Saharan Africa, six times higher for those from the Caribbean and seven times higher for those from Latin America.	1.3	Guijarro, C. et al. (2021)
Sweden	Incidence of positive cases	Adjusted for age and sex	13.03.2020 to 15.02.2021	Immigrants	Incidences among migrants from the Middle East (9 031), South-East Europe (7 069), South America (6 648), Africa (5 579) and Asia & Oceania (5 788) were higher than those of natives (5 344 per 100.000).	1.1 to 1.7	Folkhälsomyndigheten (2021)
United Kingdom	Incidence of positive cases	Adjusted for age	13.05.2020	Ethnic minorities (BAME)	There were more positive cases among “Other ethnic” groups (1 076 in women and 1 101 in men) and “Black ethnic groups” (486 in females and 649 in males), compared to “Whites” (220 per 100 000 in females and 224 in males).	n/a	Public Health England (2020)
United States	Proportion tested positive	Adjustment not mentioned	29.02.2020 to 31.05.2020	Non-English Speakers	The proportion of positive cases was around five times higher among non-English speakers (18.6%) compared with English speakers (4.0%).	4.7	Kim, H. et al. (2020)
United States	Relative rates of cases	Adjusted for age	10.03.2022	Ethnic minorities/ race	Hispanic or Latino persons were more likely to contract COVID-19 than White, Non-Hispanic persons.	1.5	CDC (2022)

Note: Ratios compare the native-born versus the foreign-born, foreign nationals versus nationals or Whites versus ethnic minority groups, respectively.
Source: OECD Secretariat Calculations based on data from national sources.

Annex Table 1.A.2. COVID-19 hospitalisations and ICU admissions

Country	Measurement Type	Adjustment	Period	Target Population	Main Results	Ratio	Source
Denmark	Proportion of hospital admissions	Adjustment not mentioned	07.09.2020	Immigrants and their native-born children	COVID-19 related hospital admissions were more common among immigrants from "Non-Western" countries and their native-born children. These comprised 8.9% of the population, but accounted for 15.3% of hospital admissions due to COVID-19. There were differences between migrant groups.	1.7	Statens Serum Institut (2020)
Italy	Relative risk of hospitalisation & ICU admission	Adjusted for demographic characteristics, pre-existing comorbidities, and period of diagnosis	20.02.2020 to 19.07.2020	Immigrants	Immigrants are more prone to being hospitalised (1.4), and, once admitted, more prone to end up in intensive care compared to the native-born (1.2). The adjusted relative risk has been particularly high among immigrants from developing countries.	1.4 & 1.2	Fabiani, M. et al. (2021)
Netherlands	Incidence of hospital admissions	Adjusted for age and sex	29.02.2020 to 31.05.2020 06.2020 to 01.2021	Immigrants and their native-born children in Amsterdam	During the first wave, hospital admissions were 2 to 3 times higher among immigrants (and their native-born children) from low-income countries in Amsterdam (99 per 100 000) than among those with native-born parents (42 per 100 000). During the second wave, the incidence of hospital admissions among immigrants (273 per 100 000) was more than four times higher than that of natives (61 per 100 000). There were differences between migrant groups.	2 to 4	Stronks, K. et al. (2021)
Norway	Incidence of hospital admissions	Adjusted for age, sex, place of residence and occupation	15.03.2020 to 15.02.2021	Immigrants and their native-born children	Hospitalisation rates due to COVID-19 infections are higher among immigrants and descendants than among those with native-born parentage (136 versus 44 per 100 000), with strong variation by origin. The over-representation of the foreign-born among inpatients increased over the course of the pandemic.	3.1	Indseth, T. et al. (2020)
Norway	Incidence of ventilator treatments	Adjusted for age, sex, residence and occupation	15.03.2020 to 15.02.2021	Immigrants	Incidences of ventilator use were higher among immigrants than natives (20 versus 6 per 100.000), especially among those born in Asia (35) and Africa (34).	3.3	Indseth, T. et al. (2020)
Sweden	Incidence of ICU admissions	Adjusted for age and sex	13.03.2020 to 15.02.2021	Immigrants	The foreign-born accounted for around 40% of all patients admitted to ICUs, but make up only around 20% of the population. The relative risk of needing intensive care due to COVID-19 is much higher for people born in Africa and the Middle East (RR >5), compared to natives	2	Folkhälsomyndigheten (2021)
United States	Relative rates of hospital admissions	Adjusted for age	10.03.2022	Ethnic minorities/ race	Hispanic or Latino persons are more likely to be hospitalised than White, Non-Hispanic persons.	2.3	CDC (2022)

Note: Ratios compare the native-born versus the foreign-born, foreign nationals versus nationals or Whites versus ethnic minority groups, respectively.
Source: OECD Secretariat Calculations based on data from national sources.

Annex Table 1.A.3. COVID-19 excess mortality

Country	Measurement Type	Adjustment	Period	Target Population	Main Results	Ratio	Source
France	Excess mortality	Data disaggregated by sex, age, population density	01.03.2020 to 30.04.2020 (compared to 2019)	Immigrants	Excess mortality among immigrants was twice that of natives. Mortality differed between migrant groups and was also observed among the youngest cohorts. Immigrants' excess mortality remained twice to four times that of the native-born, even after controlling for living in densely populated areas.	2.2	Papon, S. and I. Robert-Bobée (2020)
France	Excess mortality	Data disaggregated by sex, age, population density	01.01.2020 to 30.06.2021 (compared to 2003 & 2015-19)	Immigrants	Above 55 years of age, immigrants´ mortality increased much more than that of their native-born peers, compared to previous periods. Age-specific mortality rates increased the most among immigrants born in Africa, in particular from Sub-Saharan Africa. However, gaps, were smaller than those during the first wave.	n/a	Blanpain, N. and Papon, S. (2021)
Germany	Excess mortality	Data disaggregated by age group	01.2021 to 08.2021	Foreign nationals	There were 4 500 excess deaths among immigrants compared to 2019, while their share among total deaths increased. Among immigrants, aged 45-64 there was a 9-percentage point increase in deaths compared to a 1.1-point increase among their native-born peers over 2020.	8.1	Plümecke, Supik and Will, (2022)
Netherlands	Excess mortality	Data disaggregated by age group	03.2020 to 06.2020	Immigrants and their native-born children	996 "Non-Western" immigrants died amounting to an excess 306 deaths. The excess mortality rate was 47% among "Non-Western" immigrants, with those from Türkiye and Morocco being most at risk of dying. Excess mortality among natives was 38%.	1.7	Centraal Bureau voor de Statistiek (CBS) (2020)
Sweden	Excess mortality	Data disaggregated by age group	01-03-2020 to 30-04-2020	Immigrants	In Sweden, the share of foreign-born among deaths, which varied between 12% and 14% over 2016/19, reached 16% in March-April 2020. The number of deaths born in countries from which many refugees have migrated to Sweden in the last decades (Syria, Iraq and Somalia) was 220% higher in March-May 2020 compared to the average in 2016/ 19. The respective increase was only 18% for those born in Sweden, the EU or North America, despite an older age composition.	n/a	Hansson, E. et al. (2020)
Switzerland	Excess mortality	Data disaggregated by age group	01.2020 to 05.2021	Foreign nationals	In 2020, twice as many foreigners (approximately 8 100) died as predicted based on previous years. The share of immigrants among total deaths increased (peaked at 15% of total deaths in April 2020)	1.9	Plümecke, Supik and Will, (2022)
United Kingdom (England, Wales)	Excess mortality	Data disaggregated by age group and sex	21.03.2020 to 01.05.2020	Ethnic minorities (BAME)	Excess deaths amounted to 43 941 among the White group, 2 301 Black, 3 083 Asian, 385 Mixed and 1 038 in the Other ethnic group. Deaths among ethnic minorities were between 2.4 and 3.9 times higher than expected for the period, compared with around 1.7 times higher deaths among Whites.	n/a	Public Health England (2020)

Note: Ratios compare the native-born versus the foreign-born, foreign nationals versus nationals or Whites versus ethnic minority groups, respectively.
Source: OECD Secretariat Calculations based on data from national sources

Annex Table 1.A.4. COVID-19 deaths and mortality rates

Country	Measurement Type	Adjustment	Period	Target Population	Main Results	Ratio	Source
Canada	Proportion of COVID-19 deaths	Data disaggregated by age group, sex, province and metropolitan area	03.2020 to 04.07.2020	Immigrants	During the early months of the pandemic, immigrants accounted for 25% of overall COVID-19 deaths, despite making up 22% of the Canadian population (2016 Census). The death burden ratio of immigrants amounted to 1.1 (i.e. a disproportionately higher mortality compared to their share of the population).	1.1	Statistics Canada (2021)
Canada	Crude mortality rate	Data disaggregated by age-group	03.2020 to 04.07.2020	Immigrants	Crude mortality rates were higher for immigrants than natives (26 versus 22 per 100.000).	1.2	Statistics Canada (2021)
Denmark	COVID-19 related case fatality rate	Data disaggregated by age-group	07.09.2020	Immigrants and their native-born children	COVID-19 related case fatality rate (i.e. percent of deaths among those tested positive) for people aged 60 to 79 was higher among natives with native-born parents than "Non-Western" immigrants and their offspring (9% versus 5%). Corresponding rates for people over 80 amounted to 32.2% for natives and 15.4% for "Non-Western" immigrants	0.6	Statens Serum Institut (2020)
Ireland	COVID-19 deaths	Data disaggregated by age-group (only those older than 65 and total population)	25.11.2020	Foreign nationals & ethnic minorities	Ethnic minorities and non-Irish nationals are under-represented among COVID-19 deaths.	0.5	ESRI (2020)
Italy	Relative risk of mortality	Adjusted for differences in demographics, period of diagnosis and comorbidities	20.02.2020 to 19.07.2020	Immigrants	Immigrants from countries with a low Human Development Index were more at risk of dying from COVID-19 than natives.	1.3	Fabiani, M. et al. (2021)
Netherlands	Mortality rate	Data disaggregated by Dutch region	03.2020 to 06.2020	Immigrants and their native-born children in three Dutch cities	COVID-19 deaths per 100.000 were 1.5 times higher among immigrants than natives. Deaths differed between migrant groups.	1.5	Stronks, K. et al. (2021)
Norway	Mortality rate	Not adjusted	15.06.2020 to 15.10.2020	Immigrants	The number of COVID-19 related deaths per 100 000 were higher among natives (11) than immigrants (8).Among the foreign-born, deaths per 100 000 were highest among those born in Asia (12) and Africa (11).	0.7	Indseth, T. et al. (2021)
Sweden	Relative risk of mortality	Adjusted for age and gender	13.03.2020 to 15.02.2021	Immigrants	The relative risk of dying was higher in almost all immigrant groups (except those born in North America). Compared to natives, immigrants born in Africa (the Middle East) have a 3.4 (2.8) times higher risk of dying from COVID-19. Being born abroad (apart from North America and Western Europe), resulted in a risk twice as	2	Folkhälsomyndigheten(2021)

					high as that of natives.		
Sweden	Deaths per capita	Adjustment not mentioned	02.08.2020	Immigrants and their native-born children	For natives, deaths per capita amounted to 0.121 compared to 0.228 among immigrants. Among native-born children of immigrants, there were 0.232 deaths per capita.	1.9	Florida, R. & C. Mellander (2020)
Sweden	Mortality rate	Adjusted for sex, marital status, country of birth, living in Stockholm, educational attainment and individual net income	07.05.2020	Immigrants	Overall, immigrants from low and middle-income countries were around twice as likely to die as natives. There were differences in mortality rates between immigrants from low-, middle-, and high-income countries.	2	Drefahl, S. et al. (2020)
United Kingdom	Mortality rate	Adjusted for age, demographic, socio-economic and health-related factors	28.06.2020	Ethnic minorities (BAME)	All ethnic minority groups (except Chinese) exceeded mortality rates of Whites. Age-standardised mortality varied between ethnic minority groups with males of Black African (287.7per 100 000) and females of Black Caribbean ethnic background (106.8 per 100 000) experiencing the highest rates of death vis-à-vis their White peers.	2.0 to 2.7	Office for National Statistics (2021)
United States	Mortality rate	Adjusted for age	10.03.2022	Ethnic minorities/ races	All ethnic groups and races were more likely to die of COVID-19 compared to White people (except for Asians). Hispanics or Latino persons were more at risk of dying from COVID-19 than White persons.	1.1	CDC (2022)

Note: Ratios compare the native-born versus the foreign-born, foreign nationals versus nationals or Whites versus ethnic minority groups, respectively.
Source: OECD Secretariat Calculations based on data from national sources.

Annex Table 1.A.5. COVID-19 vaccination rates

Country	Type of data	Adjustment	Period	Target population	Main results (at least 1 dose)	Ratio	Source
Austria	Vaccination register	Adjustment not mentioned	30.11.2021	Immigrants by country of birth Foreigners by nationality, aged 25 to 64	Vaccination rates of foreign nationals (52%) and the foreign-born (63%) are significantly lower than those of Austrian nationals (68%) and natives (70%).	0.9	Statistik Austria (2021)
Canada	Survey	Disaggregation by age groups	12.04.2021 to 12.05.2021	Immigrants by immigration status, all ages	Vaccination rates were significantly lower among immigrants (42%) than "non-immigrants" (48%).	0.9	Statistics Canada (2021)
Germany	Survey	Adjusted for income, education, age, and language skills	04.11.2021 to 18.12.2021	Immigrants and their native-born children, average age of 55	Vaccination rates differed significantly between native-born respondents with native-born parents (92%) and (the offspring of) immigrants (84%).	0.9	Robert Koch Institut (2022)
Norway	Vaccination register	Adjusted for income, education, sex, age, medical risk group and place of residence	28.12.2020 to 20.10.2021	Immigrants and their native-born children, aged 18 and above	Vaccination coverage was higher among natives with native-born parents (94%) compared with immigrants (73%) and their native-born children (82%).	0.8	Kraft, K. et al. (2022)
Sweden	Vaccination register	Data disaggregated by age groups	02.11.2020 to 31.01.2022	Immigrants by country of birth, aged 16 to 39	Vaccination coverage was lower among immigrants (66%) than natives (86%).	0.8	Folkhälsomyndigheten (2022)
United Kingdom (England)	Linked administrative data	Adjusted for age and sex	15.05.2021	Ethnic minorities (BAME), aged 50 and above	First dose vaccination rates in people aged 40 years and over were 93% for White British and 75% for ethnic minorities.	0.8	Office for National Statistics (2021)

Note: Ratios compare the native-born versus the foreign-born, foreign nationals versus nationals or Whites versus ethnic minority groups, respectively.
Source: OECD Secretariat Calculations based on data from national sources.

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