

The unequal(?) burden of unemployment in Sweden during the first wave of the COVID-19 pandemic

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ISSN 1651-1166

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Marcus Eliason^{a,b}

Abstract

The first wave of the COVID-19 pandemic and the measures enforced to combat it have led to a decline in economic activity unprecedented since the Great Depression. Worldwide, millions, and yet millions, of people have lost their jobs—either temporarily or permanently. At first, the COVID-19 pandemic was characterised as a leveller, but since then it has become increasingly clear that it is nothing of the sort. Using aggregated data on jobseekers registered with the Swedish Public Employment Service I document how the inflow, outflow, and stock of jobseekers evolved for various demographic groups during the first wave of the pandemic. Similar to previous studies, I find that already disadvantaged groups, such as the younger and to some extent also the foreign born were more adversely affected during the first wave of the COVID-19 pandemic. However, that is not to say that other groups were not affected, and contrary to many of these same studies I do not find that women were disproportionately affected.

Keywords: COVID-19; unemployment, jobseekers

JEL codes: I12, I18, J63, J64

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^bThe author thanks Johan Egebark, Anders Forslund, Caroline Hall, Martin Nybom and seminar participants at IFAU for helpful comments.

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1 Introduction

Early on the COVID-19 pandemic was characterised as a leveller as no one could be certain of not contracting the virus as long as there was no vaccine. Since then it has become increasingly apparent that it is nothing of the sort. Neither the morbidity and mortality burden of the virus itself nor the burden of the various measures enforced to reduce its spread have been equally distributed over populations. Those risking complications and a fatal outcome are almost exclusively the elderly and those with certain underlying adverse health conditions. The measures enforced to reduce the spread of the virus, such as stay-at-home orders, travelling restrictions, partial or full lockdowns, and social distancing restrictions, have led to dramatically diminished economic activity and massive job loss. These job losses seem to have hit other distinct groups, while yet others have been largely insulated.

The objective of the present study is to document how the burden of unemployment was distributed in Sweden during the first wave of the COVID-19 pandemic. From previous recessions we know that those who are hit hardest are already disadvantaged socio-demographic groups such as non-white, youth, and those with lower education levels, but also men due to being more likely to be employed in industries that are highly cyclical (e.g., Hoynes et al. 2012, Forsythe & Wu 2020, Nyberg 2014). The current pandemic-induced recession is, at least initially, fundamentally different from previous recessions. Most obviously it is not rooted in economic origins, but an exogenous shock caused by a virus. When the pace of the spread of COVID-19 increased in March 2020 and its pandemic nature was revealed, the responses in many countries were temporary lockdowns and stringent social distancing measures. These responses to limit the spread of infection—not only the lockdowns enforced by governments but also people’s changed behaviour—have abruptly halted economic activity and led to massive job loss in face-to-face services such as leisure, hospitality and tourism. In many countries, those working in these sectors are primarily low-wage, women, immigrants, low-educated, and the young, and a number of recent studies have shown that job losses were not evenly distributed, but hit those groups the hardest (e.g., Alstadsæter et al. 2020, Bell et al. 2020, Cho & Winters 2020, Daly et al. 2020, Deshpande 2020, Gezici & Ozay 2020, Stevenson 2020, Tran & Tuzemen 2020, Zamarro et al. 2020, Lee et al. 2021, Dang & Viet Nguyen 2021).

These findings mirror those of previous recessions, with the exception that women, rather than men, seem to have been disproportionately affected during the present recession; especially in the U.S., but also in the U.K., China, India, and Italy. Several explanations have been proposed to the reversed gender pattern (e.g., Alon et al. 2020): (i) affected sectors during the current recession are female dominated, while male-dominated sectors such as manufacturing and construction have been more affected in past recessions; (ii) the closing of schools and daycare centers have made it more difficult for mothers to keep working; and (iii) women are less likely to hold jobs that allow telecommuting.

However, the Swedish case differ, to some extent, from that of many other countries. During the first wave of the COVID-19 pandemic, Sweden did not enforce any lockdowns, no stay-at-home orders were issued, and restaurants, bars, pre-schools, compulsory schools etc. remained open. The pronounced strategy to combat COVID-19 did not aim at eliminating the virus but to slow down the spread of infection sufficient enough to not overload the health care system and at the same time protect the groups most vulnerable to the virus. Measures taken included: (i) recommendations that everyone should keep their distance and take personal responsibility; (ii) recommendation that those who have the opportunity should work from home; (iii) recommendation to avoid unnecessary travelling; (iv) restaurants, bars and cafes had to create distance between guests and were only allowed to serve at tables; and (v) ban on gatherings and public events of more than 500, later reduced to 50, people. Only partly, these measures affected the same sectors as did the more comprehensive and stringent measures taken in other countries. Hence, it is not obvious, albeit nevertheless likely, that the burden of unemployment was distributed similarly to other countries.

The rest of the paper is organised as follows: In the next section, I will provide a description of how Sweden initially was hit by the COVID-19 pandemic, the measures taken by the Government and its agencies to combat the pandemic, how employers’ responded to the enforced restrictions in terms

of advance notices of layoff, the Government's efforts to save businesses and jobs, and finally how the inflow, outflow, and stock of jobseekers registered with the Swedish Public Employment Service (PES) were affected. Section 3 provides a brief description of the data and the method applied in the empirical analysis. In Section 4, I report the results from a graphical analysis of how the inflow, outflow, and stock of jobseekers evolved during the first 31 weeks of 2020 and 2019, a "difference-in-difference" analysis that quantifies the impact of the first wave of the COVID-19 pandemic on the same measures across demographic groups, followed by additional analyses to support the validity of the empirical strategy. Section 5 concludes.

2 Background

2.1 The first wave of the COVID-19 pandemic and the work of the Government and its agencies to limit the spread of infection

This section intends to provide a description, almost week by week, both of how the first wave of the COVID-19 pandemic developed during its first wave and of the Government and its agencies' efforts to limit the spread of infection (see also Table A1). Going back to the third week of 2020, then, on 16 January, the Public Health Agency of Sweden (PHA) published the news that a new corona virus had been detected in Wuhan in the Hubei province of China and that about 100 cases of the disease had been reported. The PHA's assessment at the time was that the risk of the infection spreading to Sweden was very low. The following week, the Ministry of Foreign Affairs advised against all non-essential travel to the Hubei province. Nevertheless, on 31 January (week 6), a woman who recently had returned from the affected area in China was diagnosed with COVID-19—the first confirmed case of COVID-19 in Sweden. The next day COVID-19 was classified as a public and socially dangerous disease under the Communicable Diseases Act.

In early February (week 6), the PHA assessed that the risk of spreading infection in Sweden was still very low, but flagged for imminent updates. At the same time, the PHA urged people who may have been exposed to infection, who showed respiratory symptoms or fever, to call the medical services for assessment and possible sampling. One week later, the PHA reported that capacity to diagnose COVID-19 had been established in eight clinical microbiological laboratories around the country, in addition to their own laboratory.

In week 8, the Ministry of Foreign Affairs extended its advice against travel to China to include all travel to the Hubei province and non-essential travel to the rest of China. The following week the PHA reported that spread of infection was also present in some parts of South Korea, Italy, and Iran, and urged anyone who had recently visited these areas and who got cold symptoms to contact the Health Care Hotline 1177 by phone. The PHA's new risk assessment was that the risk of more import cases was high, while the risk of community transmission in the country was low. On 25 February, a second import case of COVID-19 in Sweden was confirmed, and the following day, five more cases were reported.

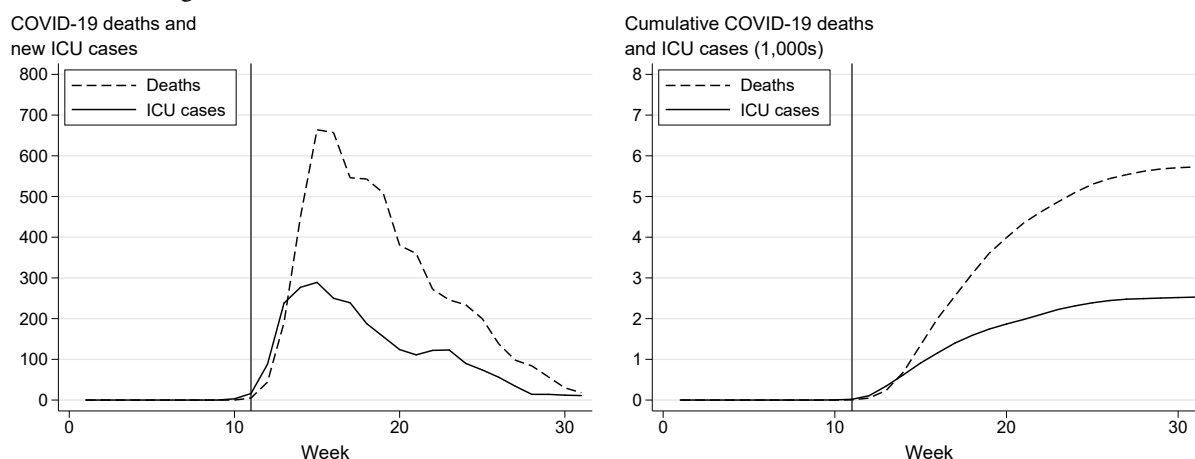
In week 10, the PHA updated its risk assessment once again and assessed that the risk of detecting more cases of COVID-19 in Sweden was very high and that the risk of community transmission in the country was moderate. The Foreign Ministry now advised against travel to Iran (from 2 March), as well as from non-essential travel to northern Italy and some parts of South Korea (from 6 March), the whole of Italy (from 10 March), and the state of Tyrol in Austria (from 11 March), while the PHA recommended that people who had visited these parts of the world should be tested for COVID-19 if they developed cold symptoms within 14 days. The PHA also recommended that all clinical microbiological laboratories in the country should, if possible, extend sampling and analysis indication for COVID-19 by routinely test for the virus in samples from patients with respiratory symptoms without known

cause. In the end of the week, the PHA convened the National Pandemic Group¹ to coordinate increased preparedness throughout society.

In week 11, the situation deteriorated rapidly both in Sweden and globally. This marks the start of the first wave of the pandemic in my later analyses. In the beginning of the week, the PHA reported that 248 positive cases of COVID-19 had been detected in Sweden and that intensive work on contact tracing was carried out. Moreover, signs of community transmission in Region Stockholm and in the Västra Götaland Region was reported and the risk level of community transmission in Sweden was raised to the highest (i.e., very high risk). Anyone with symptoms of respiratory infection, including mild ones, were urged to refrain from social contacts at risk of spreading infection, and relatives were advised to avoid unnecessary visits to healthcare and care of the elderly. Then, on 11 March, the first death due to COVID-19 was confirmed in Sweden, and the very same day, the World Health Organization (WHO) declared that the spread of COVID-19 was so widespread that it was considered a pandemic. As a response to the signs of community transmission, the Government decided on a ban on holding gatherings and public events with more than 500 people, and the PHA abandoned its previous strategy to identify all cases of disease by sampling and declared that the focus now was on delaying the spread of infection in the population while protecting the oldest and most vulnerable from the disease. Hence, sampling was concentrated to people with fever or respiratory symptoms and who either were in need of inpatient hospital treatment or worked within healthcare or care for the elderly. The PHA also advised anyone sick with a cold or flu-like symptoms to stay at home.

During the following week, the Government and the PHA took a number of measures. The PHA recommended that employers who had the opportunity to allow employees to work from home should consider this, that people over the age of 70 should limit their close contacts with others as far as possible, that teaching in upper secondary schools and at universities and colleges should no longer be conducted on site but through remote or distance teaching, and that everyone should refrain from unnecessary travel. The Government, in turn, decided to stop all non-essential travel to Sweden from another country (with the exception of EEA countries and Switzerland) and proposed several changes to sickness insurance in a (second) additional amending budget of 2020: (i) that the waiting day in sick pay should be temporarily abolished by the state paying compensation for the first day of sickness, and (ii) that the requirement for a medical certificate during the sick pay period should be suspended. In the end of the week, the PHA reported that there were now clear signs, especially in metropolitan areas, of community transmission of COVID-19.

Figure 1: The number (left) and cumulative number (right) of new intensive care unit (ICU) cases and deaths with a COVID-19 diagnosis



Source: The Public Health Agency of Sweden. Own calculations.

¹The National Pandemic Group consist of representatives from the PHA, the National Board of Health and Welfare, the Swedish Civil Contingencies Agency, the Swedish Association of Local Authorities and Regions, the Swedish Medical Products Agency, the Swedish Food Agency, and the Swedish Work Environment Authority.

In week 13, the number of intensive care unit (ICU) cases and deaths with COVID-19 began to increase dramatically (see Figure 1).² At the same time, a number of restrictions were imposed or tightened: The PHA stipulated that restaurants, cafes etc. should, among other things, ensure that there was no crowding, that visitors could keep their distance between each other, that visitors were only allowed to eat and drink seated at a table, and that standing serving at bars was not allowed, while the Government decided to lower the participation ceiling from 500 to 50 participants for gatherings and public events.

In the beginning of week 14, the Government decided on a temporary ban on visits to special housing for the elderly, and the PHA issued a number of general guidelines on everyone's responsibility to prevent spread of infection. These included: (i) That everyone should keep distance to each other, refrain from participating in larger social contexts, and refrain from unnecessary travel; (ii) That people over the age of 70 and other at-risk groups should limit their social contacts and avoid being in places where people gather; (iii) That people who were, or suspected to be, infected by COVID-19 should stay at home and avoid social contacts; (iv) That employers should ensure that staff, if possible, kept their distance from each other, worked from home, avoided unnecessary travel at work, and were able to adjust their working hours to avoid travelling at rush hour; (v) Public transport should ensure that sufficient services were offered to minimise the risk of crowding and limit the number of passengers per vehicle; (vi) Shopping centers, department stores, shops, etc. should limit the number of customers present at the same time; (vii) Sports clubs should, whenever possible, hold training sessions and other sports activities outdoors, as well as postpone matches, training matches, tournaments, and cups.

In week 15, four weeks after the outbreak in Sweden, the first wave of the COVID-19 pandemic peaked in terms of both the number of new ICU cases and the number of deaths with a COVID-19 diagnosis: the number of new ICU cases that week reached 289 and the number of deaths was 664.³ Thereafter, both the number of ICU cases and deaths with COVID-19 diminished week by week and during week 31 the number of new ICU cases and deaths with COVID-19 was no more than 18 and 11, respectively; this marks the end of the first wave of the pandemic in my later analyses. By then, a total of 2,529 people had received intensive care and 5,726 people had deceased with a COVID-19 diagnosis. During this period, no new restrictions were added, but most existing restrictions were (repeatedly) extended. However, the Parliament passed a law, which temporarily gave the Government increased opportunities to quickly take measures to limit the spread of COVID-19, and the PHA presented a national strategy for increased sampling for COVID-19 in Sweden.

2.2 Advance notice of layoffs during the first wave of the COVID-19 pandemic

The restrictions imposed to limit the spread of infection in Sweden, which were discussed in the previous section, were not as stringent or far-reaching as in most other countries. The stated strategy to combat COVID-19 was intended not only to minimise mortality and morbidity due to COVID-19 but also to limit other negative consequences for the individual and society by instead trying to slow down the spread of infection enough not to overload healthcare system while trying to protect the most vulnerable (i.e. those belonging to any of the risk groups). Despite this, the Swedish labour market was hit hard, although the consequences may not have been quite as dramatic as elsewhere.

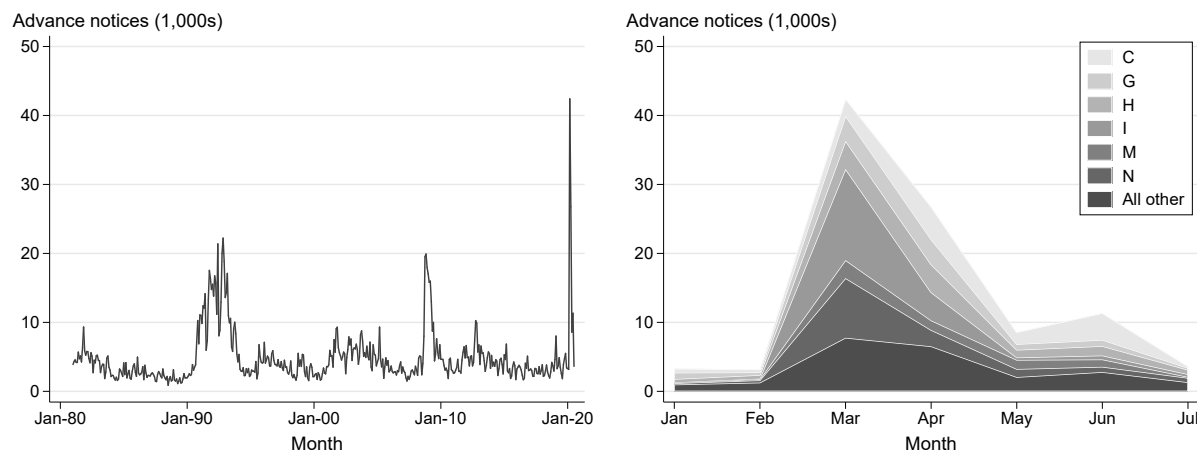
Employers' response to the restrictions was immediate. During March alone, 42,400 employees received advance notice of layoff. A figure unprecedented in modern time, and twice as many as in the peaks during both the 1990s crisis and the financial crisis (see left graph of Figure 2). Of these 42,400 notified employees, 13,000 were employed in accommodation and food service activities (NACE code I; incl., e.g., hotels and restaurants), 8,600 in administrative and support service activities (NACE code N; incl., e.g., travel agencies and rental and leasing activities), and 4,100 in transportation and storage (NACE code H). In April, an additional 26,800 employees were notified, but there was a weakening of

²The mortality figures include those with a laboratory confirmed COVID-19 diagnosis who have been reported deceased in the database SmiNet. Similarly to the method of monitoring seasonal flu, this includes all cases where death occurred within 30 days from positive testing regardless of the underlying cause of death.

³As a comparison, the average weekly number of new ICU cases and deaths (regardless of diagnosis and cause of death) during 2010–2019 were 876 and 1745, respectively.

the concentration of advance notices to the two sectors of accommodation and food service activities and administrative and support service activities. Instead, the number of advance notices were more evenly distributed across the five sectors administrative and support service activities (NACE code N), accommodation and food service activities (NACE code I), transportation and storage (NACE code H), wholesale and retail trade (NACE code G), and manufacturing (NACE code C). In May the number of advance notices fell abruptly to 8,600, and by July they had returned to pre-pandemic levels (i.e., 3,600).

Figure 2: The monthly number of advance notices during 1981–2020 (left) and the monthly number of advance notices by industry (NACE code) during January–July 2020 (right)



Source: The Swedish Public Employment Service. Own calculations.

Note: The correspondence between the NACE codes (in the right graph) and economic areas: C–Manufacturing; G–Wholesale/retail trade and repair of motor vehicles/motorcycles; H–Transportation and storage; I–Accommodation and food service activities; M–Professional, scientific and technical activities; and N–Administrative and support service activities.

2.3 The Government’s efforts to save businesses and jobs and tackle rising unemployment

This section aims to provide a brief description of the Government’s efforts to save businesses and jobs and to tackle rising unemployment during the first wave of the COVID-19 pandemic (see also Table B1). To mitigate the adverse impact on the labour market of the restrictions introduced in spring 2020 to limit the spread of COVID-19 the Government announced a number of “crisis packages” included in nine additional amending budgets, in addition to the annual spring amending budget, submitted to the Parliament.

The very first sector to be affected by the pandemic, and the restrictions to limit the spread of infection, was the transport industry and especially the aviation industry. The advises to avoid unnecessary travel and the Government’s stop of non-essential travel to Sweden severely reduced the demand for flights. Hence, in order to protect otherwise viable Swedish airlines, the Government proposed, in its first Additional Amending Budget (17 March), credit guarantees to Swedish airlines during the period that they were affected by the spread of COVID-19.

The first crisis package was proposed two days later, when the Government proposed a “crisis package for Swedish businesses and jobs” in its second additional amending budget (19 March). It included several measures to mitigate the adverse impact of the pandemic on companies: First of all, a new supplementary system for short-term layoffs was introduced. In its design it was similar to short-time work, but the subsidy level was higher. Under the original short-term work scheme, the state covered one third of the costs associated with employees temporarily reducing their work hours, while in the new system the state would cover three quarters of the costs. Second, the state was proposed to assume employers’ cost of sick pay during April and May 2020. Third, to mitigate temporary liquidity problems, companies were proposed to get the opportunity to defer payment of employers’ social security contributions, preliminary tax on salaries, and value added tax.

On 25 March, the Government announced a “crisis package for small enterprises in Sweden” containing several measures targeted mainly to small and mid-sized companies: (i) a state credit guarantee for

loans to small and medium-sized companies experiencing financial difficulties, due to the COVID-19 pandemic, but were otherwise deemed viable;⁴ (ii) a temporary reduction of employers' social security contributions during March–June 2020; (iii) a temporary reduction in sole proprietors' individual contributions; (iv) an expansion of the opportunities to defer tax payments that were proposed in the previous “crisis package”; (v) temporarily changed rules for tax allocation reserves so that sole proprietors would receive tax cuts;⁵ and (vi) a temporary discount for rental costs to companies especially in the retail trade and the hotel and restaurant sector.⁶

Five days later, on 30 March, the Government announced a “crisis package for jobs and transition” focusing on tackling a rising unemployment rather than saving firms and jobs. The measures included: (i) a temporarily reinforced unemployment insurance;⁷ (ii) increased funding to the PES and to labour market policy programmes; and (iii) an expansion of the number of student slots and distance learning in higher education.⁸

On 14 April, the Government announced an “up-scaling of crisis measures for jobs and businesses” by temporarily reinforcing the support for short-term layoffs.⁹ Two weeks later, on 30 April, it was followed by the announcement of a new financial support—reorientation support—to businesses with reduced turnover due to COVID-19. The support corresponded to a maximum of 75 percent of the companies' fixed cost and could be received by companies with a loss of turnover of at least 30 percent during March to April 2020, compared to the same month of 2019, due to any of the COVID-19 restrictions. The aim was to keep companies afloat while they reoriented or adapted their activities.

The Spring Amending Budget of 2020, submitted to the Parliament by the Government on 15 April, also contained two measures to provide jobs for young people, newly arrived immigrants, and long-term unemployed people. For young people, the Government proposed grants to municipalities for providing more summer jobs. For newly arrived immigrants and long-term unemployed people, the Government proposed the “Green jobs initiative” to improve integration, develop the skills and employability, as well as alleviating the skills deficit in green industries, and strengthen nature conservation and forest management.

Apart from the more general measures above to mitigate the adverse financial impact of the pandemic for companies and individuals, the Government also proposed targeted financial support to sectors that had been especially hurt: Both culture and sport received increased funding to cover for the lost revenues due to the restriction on gatherings and public events.¹⁰ Crisis support was also provided to government funded cultural institutions that had to close temporarily or limit the number of visitors.¹¹ News media had lost much of their revenues from advertisement, but to ensure the public's access to information and reliable news the Government proposed both a permanently reinforced media support and a new temporary support to general news media.¹² The regions and municipalities also repeatedly received increased government grants to cover the extra costs associated with the pandemic.¹³

⁴Proposed in the third Additional Amending Budget of 2020 submitted to the Parliament by the Government on 26 March.

⁵Measures (ii)–(v) were proposed in the fourth Additional Amending Budget of 2020 submitted to the Parliament by the Government on 30 March.

⁶Proposed in the fifth Additional Amending Budget of 2020 submitted to the Parliament by the Government on 1 April.

⁷Proposed in the fifth Additional Amending Budget of 2020 submitted to the Parliament by the Government on 1 April.

⁸Measures (ii)–(v) were proposed in the Spring Amending Budget of 2020 submitted to the Parliament by the Government on 15 April.

⁹Proposed in the sixth Additional Amending Budget of 2020 submitted to the Parliament by the Government on 14 May.

¹⁰Proposed in the fifth Additional Amending Budget of 2020 submitted to the Parliament by the Government on 1 April.

¹¹Proposed in the sixth Additional Amending Budget of 2020 submitted to the Parliament by the Government on 14 May.

¹²Proposed in the Spring Amending Budget of 2020, and in the fifth Additional Amending Budget of 2020, submitted to the Parliament by the Government on 15 April and 20 May, respectively.

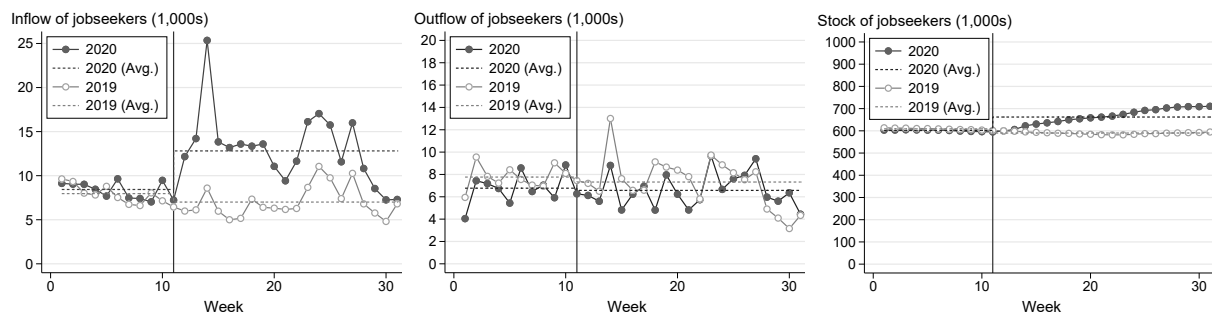
¹³Proposed in the Spring Amending Budget of 2020, and in the second, seventh, and eighth, Additional Amending Budget of 2020, submitted to the Parliament by the Government on 15 April, 19 March, 20 May, and 10 June, respectively.

2.4 The Swedish labour market during the first wave of the COVID-19 pandemic

In Section 2.2, we could see that the measures taken by the government and its agencies, during the first wave of the COVID-19 pandemic to reduce the spread of infection, and which were discussed in Section 2.1 (see also Table A 1), resulted in an spike in the number of advance notices of layoff unprecedented in modern times. However, an increased number of advance notices is only an indication of what may come in the form of rising unemployment, and the strategy Sweden chose through the first wave of the pandemic probably led to less dramatic labour market responses than elsewhere where full-scale lockdowns of society were enforced.¹⁴ Moreover, the measures taken to save businesses and jobs, summarised in Section 2.3 and TableB1, are also likely to have mitigate the consequences for the labour market.

Figure 3 shows how the first wave of the COVID-19 pandemic (including the measures taken to limit the spread of infection, people’s changed behaviour, and the measures taken to save businesses and jobs) affected the weekly inflow, outflow, and stock of jobseekers registered with the Swedish Public Employment Service (PES). Because of extended periods of advance notice and the fact that all advance notices of layoff do not result in actual job losses, one would expect a dampened and delayed effect on the inflow to unemployment. Hence, the rapid increase also in the inflow of new jobseekers to the PES, seen in the left graph of Figure 3, is likely to largely be a result of fixed-term contracts not being prolonged. While the inflow during the first 11 weeks of 2020 did not deviate from the same weeks of 2019, it almost doubled in week 12 and continued to increase to its peak in week 14. In that week, more than 25,000 new jobseekers registered with the PES, which is more than three times the number of new jobseekers in week 14 of 2019. Thereafter, the inflow slowly neared the figures of 2019, but nevertheless remained about twice as high until week 23.

Figure 3: The number of advance notices by industry (NACE code) and the inflow, outflow, and stock of jobseekers registered with the Swedish Public Employment Service (PES)



Source: The PES. Own calculations.

Note: The dashed horizontal lines represent averages during weeks 1–10 and 11–31, respectively.

Although the first wave of the COVID-19 pandemic had a dramatic impact on the inflow of new jobseekers, the outflow in absolute numbers seems to have been largely unaffected (see mid graph of Figure 3). Hence, the stock of jobseekers, depicted in the right graph of Figure 3, increased week by week: from 602,000 during the first 10 weeks of the year (compared 609,000 in 2019) to 710,000 in week 31 (compared to 595,000 in 2019). The rest of the paper will document how this burden of unemployment was distributed across various demographic groups.

3 Data and method

The data were drawn from publicly available aggregated figures at the webpage of the PES and contain the weekly inflow of newly registered jobseekers, the weekly outflow of jobseekers to employment, and the weekly stock of all registered jobseekers by gender, nativity (i.e., Swedish/foreign born), and

¹⁴Juranek et al. (2020) estimate that the Nordic neighbours that enforced stricter lockdowns would have experience 25–50 percent less unemployment and furlough spells during weeks 10–21 if they instead had followed the Swedish model.

age (≤ 24 , 25–29, 30–39, 40–49, 50–59, and ≥ 60 years).¹⁵ Registered jobseekers include not only unemployed jobseekers, but also jobseekers who participate in various active labour market programs, those with subsidised employment, and part-time unemployed jobseekers. Unemployed jobseekers and jobseekers who participate in active labour market programs each constitute about one third of the total number of registered jobseekers. Hence, as a measure of the number of truly unemployed, the number of registered jobseekers is an overestimate. However, for certain groups, not eligible for unemployment insurance, such as youths, it might instead be an underestimate. As the focus of the study is on how the measures changed over time rather than their actual levels, the former issue seems less problematic. Moreover, none of the measures include those on the short-time layoff scheme. The activation of this scheme is likely to greatly have limited the increase in unemployment (see Skans 2020).

To investigate how the inflow, outflow, and stock of jobseekers (for each of the demographic groups) were affected by the first wave of the COVID-19 pandemic, I provide both a graphical analysis in Section 4.1, and a difference-in difference analysis in Section 4.2. In the graphical analysis, the weekly inflows, outflows, and stocks of jobseekers are plotted for the first 31 weeks of both 2020 and 2019. Because there is seasonal variation in these measures, that also differ across demographic groups, it is not sufficient to compare pre- and post-outbreak outcomes (i.e., the outcomes before and after the turn of week 10 of 2020). Neither is it sufficient to compare the outcomes in weeks 11–31 of 2020 and 2019 unless there is no trend in the outcomes. However, if we are willing to assume that the seasonal variation is similar from year to year, a combination of the two comparisons might take us close to the impact of the first wave of the COVID-19 pandemic. Hence, to quantify this impact on the inflow, outflow, and stock of jobseekers I will estimate—separately for each demographic group—the following difference-in difference model:

$$\Delta_{Abs}^{DD} = (\bar{Y}_{2020}^{w11w31} - \bar{Y}_{2020}^{w1w10}) - (\bar{Y}_{2019}^{w11w31} - \bar{Y}_{2019}^{w1w10}) \quad (1)$$

or equivalently

$$\Delta_{Abs}^{DD} = (\bar{Y}_{2020}^{w11w31} - \bar{Y}_{2019}^{w11w31}) - (\bar{Y}_{2020}^{w1w10} - \bar{Y}_{2019}^{w1w10}), \quad (2)$$

where \bar{Y}_g^{w1w10} and \bar{Y}_g^{w11w31} are the average weekly outcomes (i.e., inflow, outflow, and stock of jobseekers) during weeks 1–10 and 11–31, respectively, in year $g \in \{1999, 2000\}$.¹⁶ This model differs from the usual difference-in-difference model, where two groups are observed before and after a particular event that is exposed only to one of the two groups. The exposed group is then the study group and the non-exposed group serves as a comparison group. However, in the current setting, where the event is the outbreak of the COVID-19 pandemic, there is no group that can be deemed non-affected and serve as a comparison group.

To make the estimates more comparable across demographic groups, I present not only the difference-in-difference in absolute terms (i.e., Δ_{Abs}^{DD}) but also in percentage of the counterfactual during the post-outbreak period (obtained using the assumption of parallel trends between 2020 and 2019). This relative impact can be defined as

$$\Delta_{Rel}^{DD} = 100 \times \Delta_{Abs}^{DD} / [\bar{Y}_{2020}^{w1w10} + (\bar{Y}_{2019}^{w11w31} - \bar{Y}_{2019}^{w1w10})] = 100 \times \Delta_{Abs}^{DD} / [\bar{Y}_{2020}^{w11w31} - \Delta_{Abs}^{DD}] \quad (3)$$

using the same notation as in Eq. (1)

4 Results

4.1 A graphical analysis

This section, contains a graphical illustration of how the weekly inflow, outflow, and stock of jobseekers registered with the PES evolved during the first 31 weeks of both 2019 and 2020, separately for each demographic group (i.e., men and women, Swedish and foreign born, and six age groups).

¹⁵As one can unregister with the PES for other reasons than finding employment, the total outflow is larger than the outflow to employment.

¹⁶A similar empirical strategy to estimate the effects of the COVID-19 pandemic has been used in Angelov & Waldenström (2021a,b).

Figure 4 depicts the inflows of male and female jobseekers registered with the PES. It is evident that during the first 10 weeks of the year there were only minor differences in the inflows of jobseekers; both across years and across genders. Following week 11, the increased inflows in 2020 were also equally dramatic among men and women. In no single week the gender difference was larger than 1,000 jobseekers (refers to the peak in week 14). On average (see the dashed lines in Figure 4), the increased weekly inflows corresponded to 3,100 male jobseekers (from 3,600 in 2019 to 6,600 in 2020) and 2,700 female jobseekers (from 3,500 in 2019 to 6,200 in 2020).

Figure 4: The inflow of new jobseekers, registered with the PES, by gender, during the 31 first weeks of 2019 and 2020

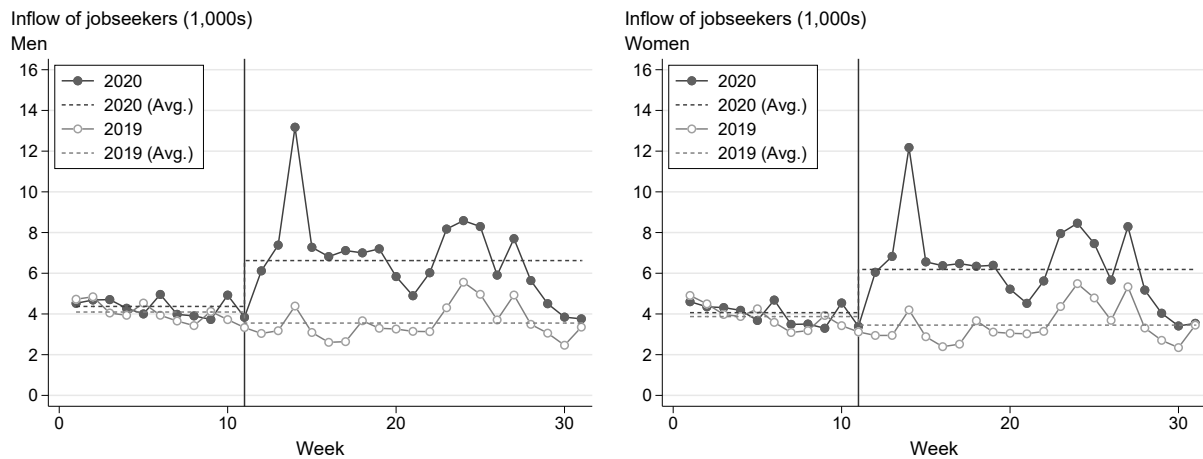


Figure 5 instead depicts the outflow of male and female jobseekers, registered with the PES, to employment. The outflow has generally been somewhat larger among men and also somewhat more volatile. However, a comparison of the average weekly outflow before and after week 11 across the two years, suggests that the first wave of the COVID-19 pandemic had limited impact on the outflow to employment—both among men and among women.

Figure 5: The outflow of jobseekers, registered with the PES, to employment, by gender, during the 31 first weeks of 2019 and 2020

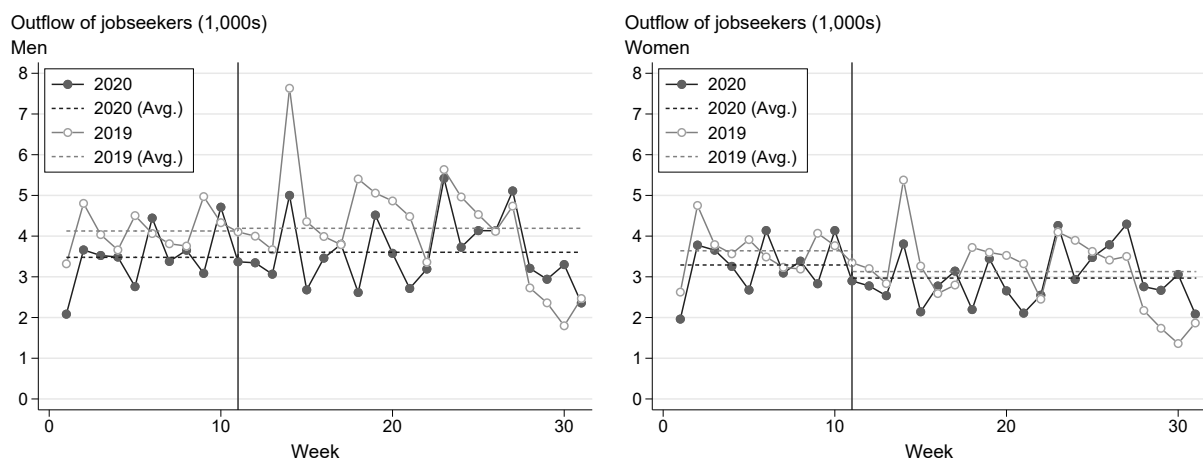
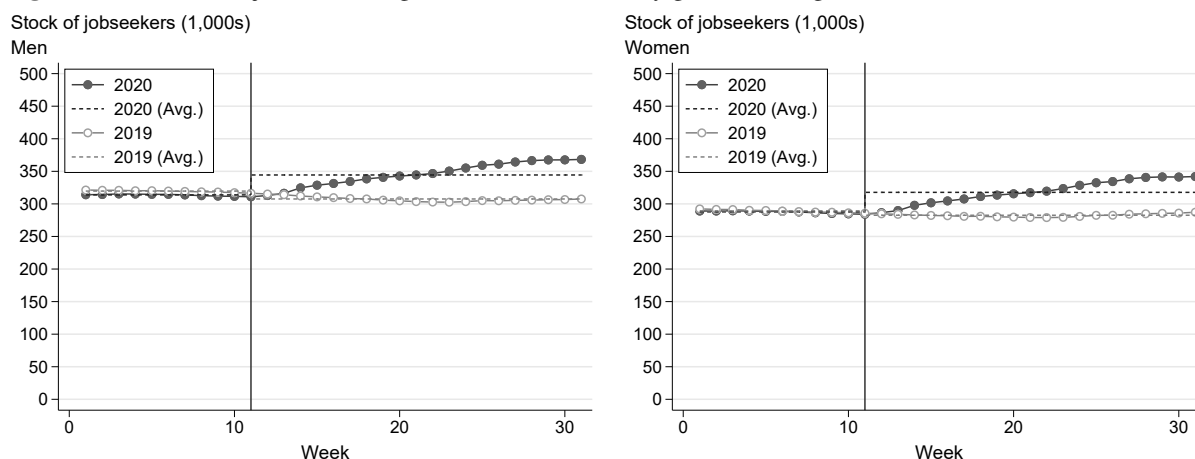


Figure 6 depicts the stock of male and female jobseekers registered with the PES. The stock of male jobseekers has generally been somewhat larger than the stock of female jobseekers: on average 312,000 men and 285,000 women were registered as jobseekers during the first 31 weeks of 2019 and the pre-pandemic weeks of 2020. However, for both genders, the differences across the two years were only minor during weeks 1–10. The increased inflow of jobseekers during the first wave of the COVID-19 pandemic resulted in a stock of jobseekers that by week 31 had increased by 61,000 men and 55,000 women relative to the same week of 2019. Hence, while there was a gender gap in the stock of jobseekers, there seem to be no larger gendered impact, in either direction, of the first wave of the COVID-19 pandemic.

Figure 6: The stock of jobseekers, registered with the PES, by gender, during the 31 first weeks of 2019 and 2020



In general, foreign born have a more difficult labour market situation than Swedish born. However, because the share of foreign born in the population (ages 15–74 years) is less than a quarter (see Table C1), this is not reflected in Figures 7 and 9 depicting the inflows and stocks of Swedish and foreign born jobseekers in absolute numbers.

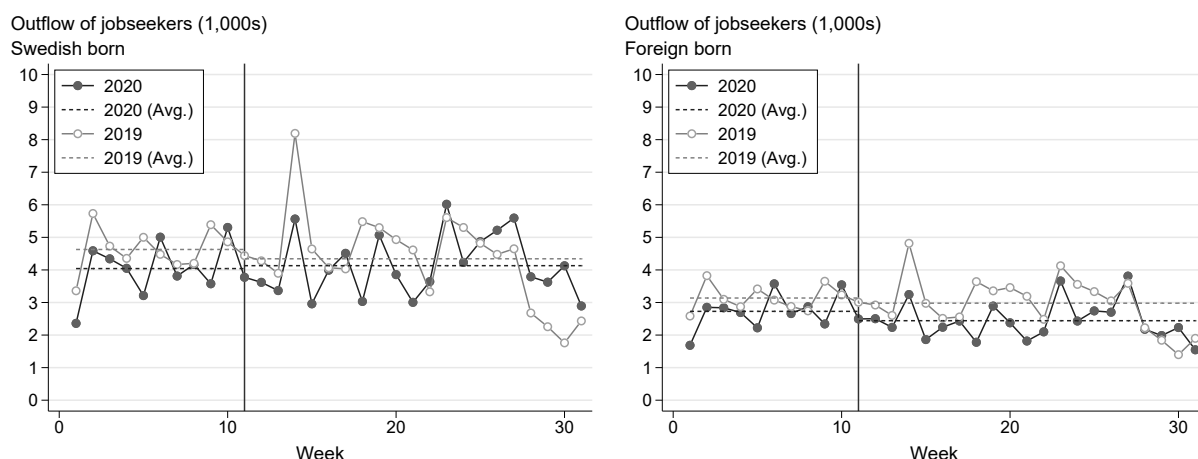
During weeks 1–10 of 2020 (2019), the average weekly inflow was 5,100 (4,900) among Swedish born jobseekers and 3,300 (3,100) among foreign born jobseekers. During the first wave of the pandemic (i.e., weeks 11–31 of 2020), Swedish born also constituted the majority of the inflow of new jobseekers. In week 14, when the inflow peaked, 16,800 and 8,500 Swedish and foreign born, respectively, registered as jobseekers. Among Swedish born, the average weekly inflow during weeks 11–31 of 2020 increased by 4,000 jobseekers relative to the same weeks of 2019 (from 4,200 to 8,200 jobseekers), while the corresponding increase among foreign born was 1,800 jobseekers (i.e., from 2,800 to 4,600).

Figure 7: The inflow of new jobseekers, registered with the PES, by nativity, during the 31 first weeks of 2019 and 2020



Also the outflow to employment has generally been larger among the Swedish born in absolute numbers. On average during weeks 1–10 of 2020 (2019), 4,000 (4,600) Swedish born and 2,700 (3,100) foreign born jobseekers left the PES for employment. In 2019, the average weekly outflow diminished slightly during the following 21 weeks: by 290 and 160 Swedish and foreign born jobseekers, respectively. However, in 2020, when the same 21 weeks represent the first wave of the pandemic, the outflow of foreign born jobseekers diminished slightly more (i.e., by 290 jobseekers per week), while the outflow of Swedish born jobseekers actually increased slightly (90 jobseekers per week). Hence, although the dramatic impact of the first wave of the COVID-19 pandemic was limited to the inflow of jobseekers, there seem to have been a tendency of differential impact on the outflow with respect to nativity.

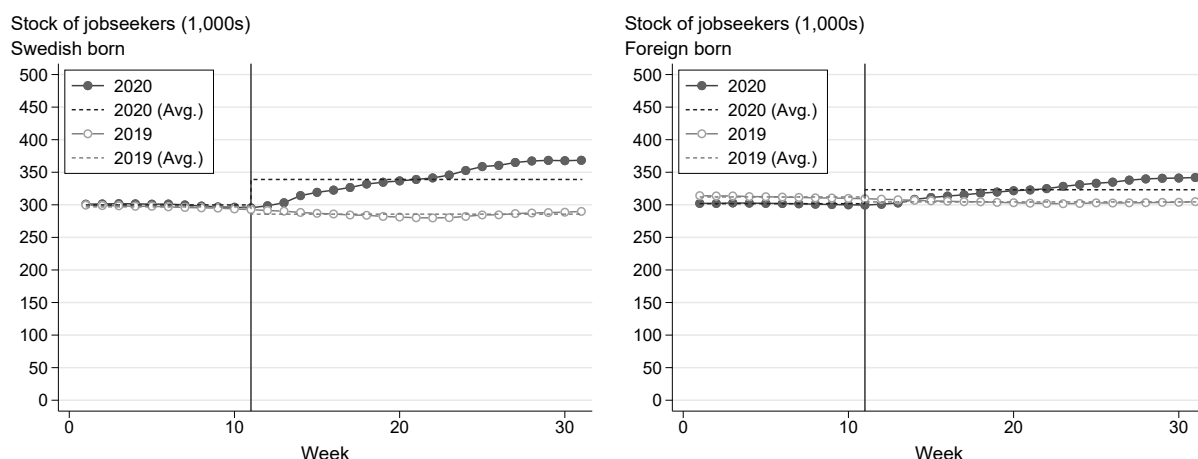
Figure 8: The outflow of jobseekers, registered with the PES, by nativity, during the 31 first weeks of 2019 and 2020



The stocks of Swedish and foreign born jobseekers had been rather constant prior to the pandemic. During the first 10 weeks of 2019 and 2020 they corresponded to on average 297,000 and 300,000 Swedish born jobseekers, and to 312,000 and 302,000 foreign born jobseekers. The increased inflow during the pandemic resulted in a monotonically increasing stock of jobseekers following week 11 of 2020. In week 31, the stock of Swedish born jobseekers had increased to 368,000, which can be compared to 290,000 in the same week of 2019. The corresponding figures for foreign born are 342,000 and 305,000, respectively.

Hence, to what extent Swedish or foreign born bore the larger burden of unemployment associated with the COVID-19 pandemic is partly a matter of what measure we focus on—the inflow was larger among Swedish born, but so was also the outflow—and partly a matter of whether we relate it to respective population size—the increase in inflow and stock of Swedish born jobseekers was about twice as large as the corresponding increases of foreign born jobseekers, but the population of Swedish born is more than three times the population of foreign born.

Figure 9: The stock of jobseekers, registered with the PES, by nativity, during the 31 first weeks of 2019 and 2020



Also age is a key determinant of the inflow and outflow of jobseekers. Generally, unemployment among the younger is characterized by repeated shorter spells, while there is a reversed pattern with fewer, but longer, spells among the older. Prominent explanations are last-in-first-out rules regarding layoffs, age discrimination in hires, temporary jobs as “stepping stones” for the young, and compositional differences between sectors with various degrees of sensitivity to business cycle fluctuations.

Figure 10: The inflow of new jobseekers, registered with the PES, by age, during the 31 first weeks of 2019 and 2020

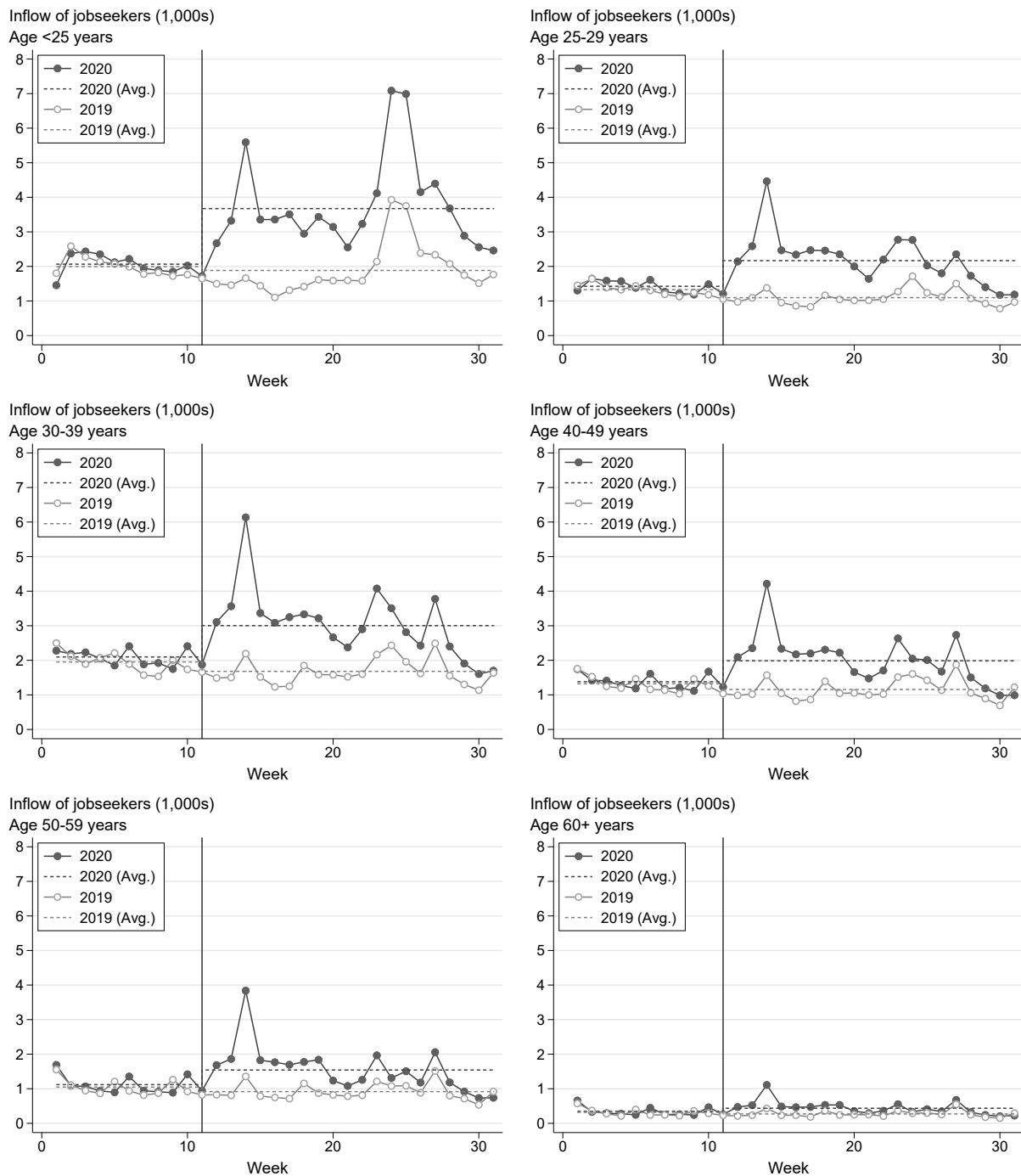


Figure 10 also confirms that the inflow was diminishing by age during weeks 1–10 of both 2019 and 2020. Notably, there were no differences across years. The increases during weeks 11–31 of 2020 relative to 2019 were also the largest among the younger, but not limited to the youngest. On average, the weekly inflow increased by 1,800 and 1,100 jobseekers among those of ages younger than 25 and 25–29 years, respectively: from 1,900 in 2019 to 3,700 in 2020 for ages younger than 25 years, and from 1,100 to 2,200 for ages 25–29 years. For the older age groups the inflow increased by on average 200–1,300 jobseekers per week. Within all age groups, the inflow peaked in week 14 of 2020, but among the youngest there was also a second and even higher peak following the end of the spring term, suggesting that the total inflow was not only the result of an increased number of job losses but also an increased number of school leavers who were unable to find jobs.

Comparing outflows in absolute numbers across age groups is somewhat problematic because of large variations in the stock of jobseekers (i.e., those who potentially could leave for employment). What is, nevertheless, evident from Figure 11 is that the first wave of the COVID-19 pandemic did not affect the outflow to employment among older age groups. However, for the two youngest age groups, especially those of ages younger than 25 years, there were increased outflows to employment. The outflow among the youngest increased by on average 400 jobseekers per week during weeks 11–31 of 2020 compared to the 10 first weeks of the year (the corresponding increase in 2019 was 30 jobseekers). That more jobseekers actually found employment during the pandemic may at first seem puzzling, but there are several potential explanation such as the increased inflow of new jobseekers during the same time being four times as large, an increased demand for labour in restaurants and hotels during the summer (after the many layoffs during the spring this sector improved during the summer of diminishing COVID-19 cases), and it is also conceivable that the uncertainty associated with the pandemic implied that some school leavers with easy access to employment, nevertheless, registered with the PES.

Figure 11: The outflow of jobseekers, registered with the PES, to employment, by age, during the 31 first weeks of 2019 and 2020

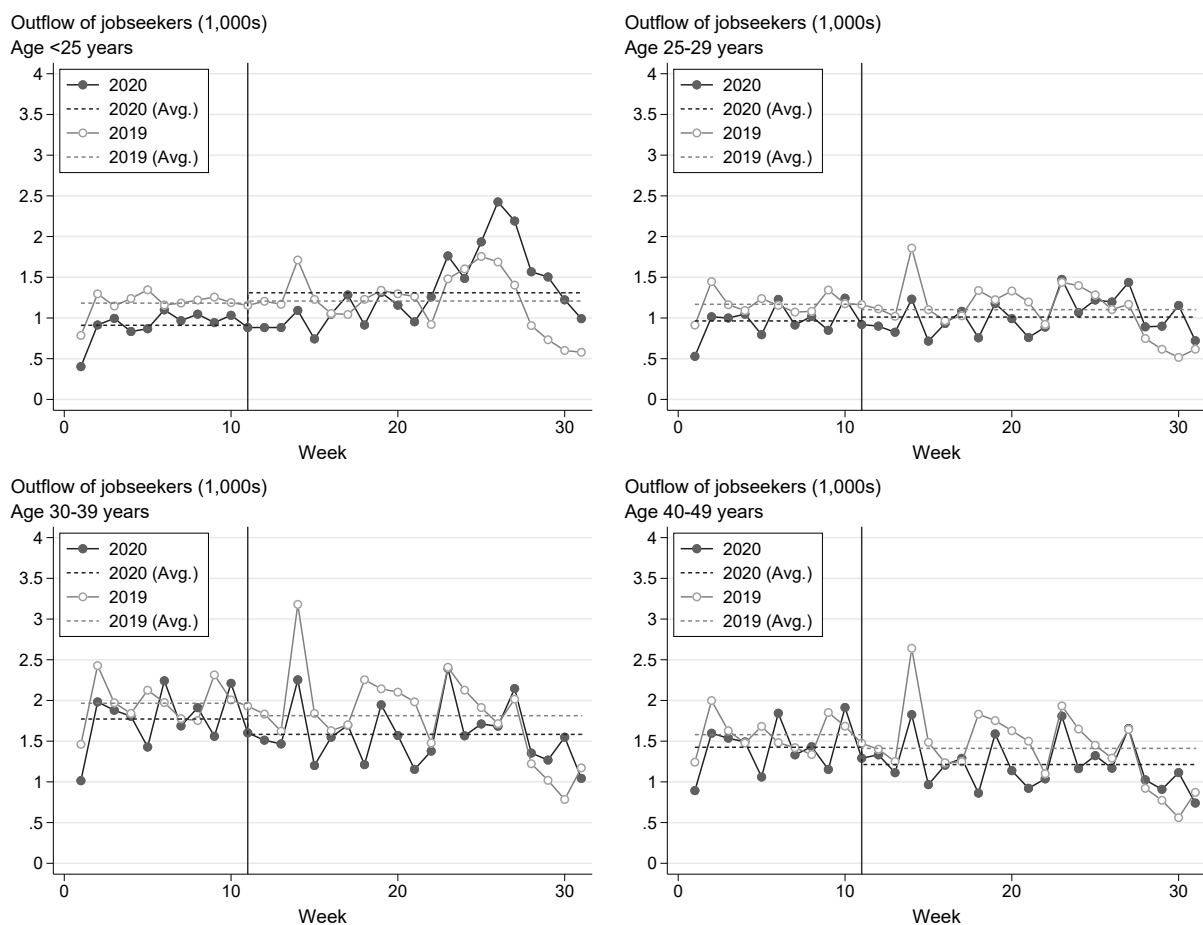
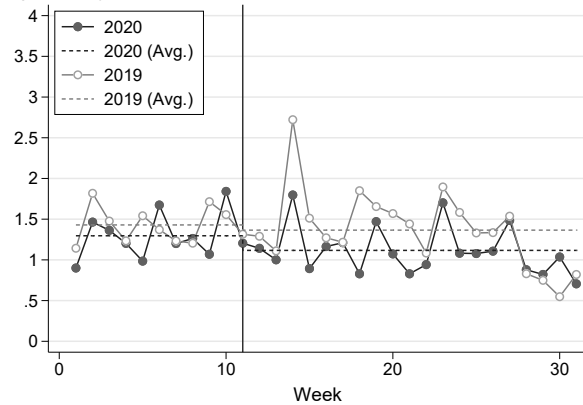
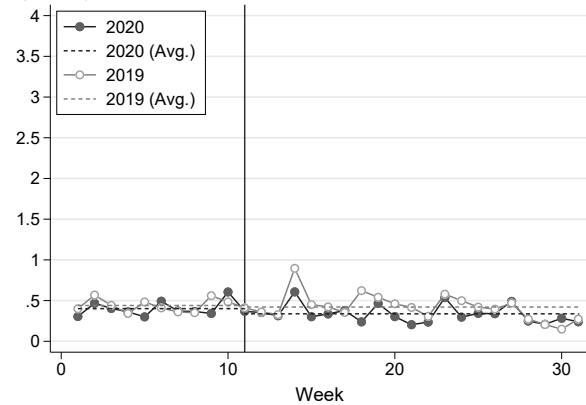


Figure 11: Cont'd.

Outflow of jobseekers (1,000s)
Age 50-59 years



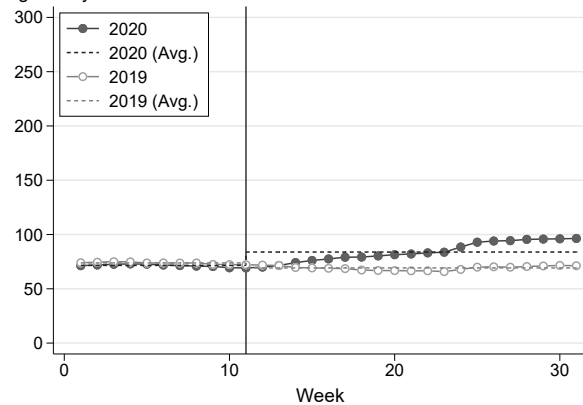
Outflow of jobseekers (1,000s)
Age 60+ years



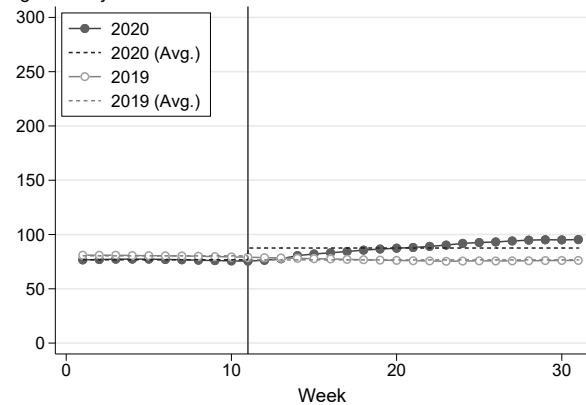
Finally, the stock of jobseekers registered with the PES, by age group, is depicted in Figure 12. The stock of jobseekers, regardless of age group, increased monotonically during the first wave of the pandemic, both relative to pre-pandemic levels and to the same weeks of 2019. In week 31 of 2020, the increases relative to the same week of 2019, for age groups <25, 25–29, 30–39, 40–49, 50–59, and 60+ years, were 25,100 (71,300 compared to 96,400), 19,200 (76,100 compared to 95,300),¹⁷ 28,500 (148,300 compared to 176,800), 20,400 (125,400 compared to 145,800), 16,900 (123,500 compared to 140,400), and 5,500 (50,200 compared to 55,700) jobseekers, respectively. Hence, although it is clear that the adverse impact of the first wave of the COVID-19 pandemic was diminishing with age, it is equally clear that people of all age groups were adversely affected.

Figure 12: The stock of jobseekers, registered with the PES, by age, during the 31 first weeks of 2019 and 2020

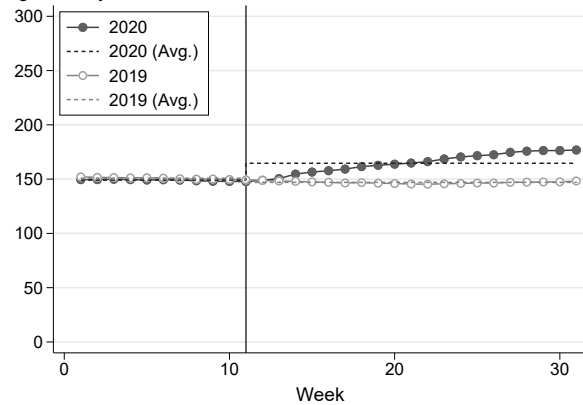
Stock of jobseekers (1,000s)
Age <25 years



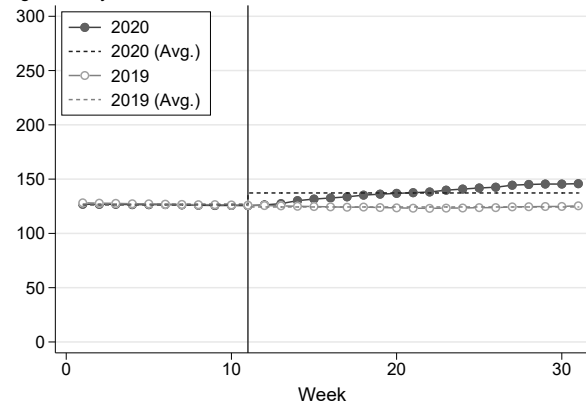
Stock of jobseekers (1,000s)
Age 25-29 years



Stock of jobseekers (1,000s)
Age 30-39 years

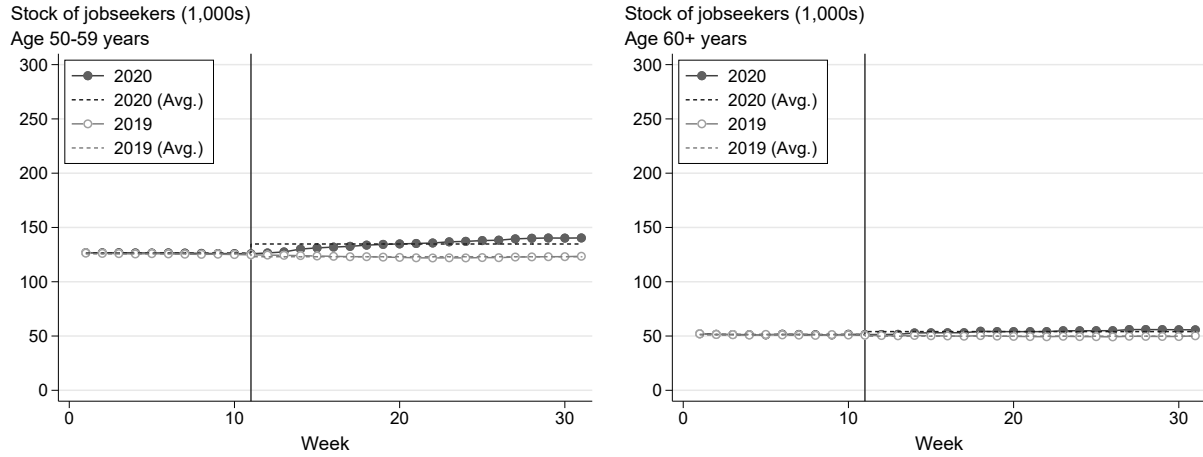


Stock of jobseekers (1,000s)
Age 40-49 years



¹⁷Note the shorter age span for the age category 25–29 years.

Figure 12: Cont'd.



4.2 A difference-in-difference analysis

In the previous section, I provided a graphical analysis of how the first wave of the COVID-19 pandemic affected various demographic groups in terms of inflows, outflows, and stocks of jobseekers registered at the PES. The purpose of that analysis was to illustrate how these measures evolved over time for those groups during the first 31 weeks of 2020, and contrast that to the same weeks of 2019. However, it did not provide any estimates of the impact of the pandemic thus far. Moreover, in the graphical analysis all measures were presented in absolute numbers, but given that demographic groups differ by population size, such comparisons may be somewhat misleading. Therefore, in Table 1, I report both the absolute and relative impact (Δ_{Abs}^{DD} and Δ_{Rel}^{DD} defined by Eq. 1 and 3, respectively) of the first wave of the COVID-19 pandemic on the inflow, outflow, and stock of jobseekers, separately by gender, nativity and age.¹⁸

Table 1: Difference-in-difference estimates of the impact of the first wave of the COVID-19 pandemic on the inflow, outflow, and stock of jobseekers across demographic groups

Variable	Inflow of jobseekers			Outflow of jobseekers			Stock of jobseekers		
	Δ_{Abs}^{DD}	(s.e.)	Δ_{Rel}^{DD}	Δ_{Abs}^{DD}	(s.e.)	Δ_{Rel}^{DD}	Δ_{Abs}^{DD}	(s.e.)	Δ_{Rel}^{DD}
Panel A: Gender									
Men	2.796	(0.537)	73.032	0.058	(0.443)	1.638	42.666	(4.267)	14.140
Women	2.543	(0.547)	69.783	0.189	(0.371)	6.805	36.713	(4.291)	13.065
Panel B: Nativity									
Swedish born	3.813	(0.793)	86.231	0.375	(0.503)	9.985	50.298	(5.403)	17.426
Foreign born	1.525	(0.341)	50.011	-0.128	(0.306)	-4.974	29.081	(3.131)	9.887
Panel C: Age									
15–24 years	1.720	(0.366)	88.017	0.373	(0.147)	39.898	16.886	(2.135)	25.216
25–29 years	0.975	(0.183)	81.779	0.113	(0.116)	12.605	14.545	(1.469)	19.923
30–39 years	1.180	(0.262)	64.670	-0.036	(0.201)	-2.243	19.413	(2.125)	13.369
40–49 years	0.773	(0.198)	63.711	-0.043	(0.173)	-3.452	13.659	(1.481)	11.051
50–59 years	0.555	(0.192)	56.173	-0.115	(0.168)	-9.365	10.944	(1.047)	8.839
60–74 years	0.136	(0.073)	45.264	-0.044	(0.058)	-11.619	3.932	(0.376)	7.840

Notes: Δ_{Abs}^{DD} is the absolute impact, in 1,000s, as defined in Eq. (1 and Eq. (2). Δ_{Rel}^{DD} is the relative impact, in percent, as defined in Eq. (3). Each Δ_{Abs}^{DD} was obtained from a separate estimation. Reported standard errors (s.e.) were obtained using the sandwich estimator of variance.

The graphical analysis suggested that there have been no larger gendered impact, in either direction, of the first wave of the COVID-19 pandemic. This is confirmed by the estimates in Panel A of Table 1. The weekly inflow of jobseeker increased by 2,800 men and 2,500 women or by 73 and 70 percent,

¹⁸Relative effects facilitate comparisons between various demographic groups, but do not eliminate the difficulty of comparing estimated effects for groups of different population sizes.

respectively. The impact on the outflow is actually positive for both genders, but negligible relative to the inflow. This resulted in that the stock of jobseekers increased by 42,700 men and 36,700 women, or by 14 and 13 percent, respectively.

The graphical analysis also suggested that to what extent Swedish or foreign born bore the larger burden of unemployment associated with the first wave of the COVID-19 pandemic is partly a matter of which measure we focus on and partly a matter of whether these measures are related to respective population size. This is also confirmed by the estimates in Panel B of Table 1. The estimated increase in the inflow of new jobseekers due to the first wave of the COVID-19 pandemic correspond to 3,800 Swedish born (or 86 percent) and 1,500 foreign born (or 50 percent) individuals per week. Clearly, the inflow of new jobseekers was larger among Swedish than among foreign born, but once again it is necessary to keep in mind that the population of Swedish born is more than three times the population of foreign born (see Table C1). Hence, while the inflow of new jobseekers was larger among Swedish born in numbers, foreign born were nevertheless more likely to register as jobseekers with the PES.

The estimates of the impact of the first wave of the COVID-19 pandemic on the outflow to employment are small in magnitudes (approximately one tenth of the impact on the inflow and also statistically insignificant). Notably, however, they differ in sign between the Swedish and the foreign born: there was a decreased outflow among foreign born (i.e., 130 jobseekers or 5 percent per week), while the outflow actually increased among Swedish born (i.e., 380 jobseekers or 10 percent per week).¹⁹ The estimated increase in the stock of jobseekers, due to the first wave of the COVID-19 pandemic, correspond to 50,300 Swedish born (or 17 percent) and 29,100 foreign born jobseekers (or 10 percent).

Already from the graphical analysis it was evident that the adverse impact of the first wave of the COVID-19 pandemic was diminishing with age, but that people of all age groups were indeed adversely affected. This becomes even more apparent in Panel C of Table 1. The estimated increase in the weekly inflow of new jobseekers, due to the first wave of the COVID-19 pandemic, correspond to 1,700 individuals ages younger than 25 years (or 88 percent). The estimated increase diminishes, age group by age group, down to 140 jobseekers for the oldest age group (i.e., ages 60+ years)—however, in relative terms that correspond to as much as 45 percent.

The estimated impact on the outflow to employment follows a similar pattern, but the estimates for the two youngest groups are actually positive, and for the very youngest (i.e., ages younger than 25 years) it is sizeable (and also statistically significant contrary to the estimates for the other age groups): 370 jobseekers or 40 percent. Predictably, the estimated impact on the stock of jobseekers in percent follows the same pattern: from a 25 percent increase among the youngest (i.e., ages younger than 25 years) to an 8 percent increase among the oldest (i.e., ages 60 years and older). In absolute numbers, however, the stock increased the most among those ages 30–39 years (19,400), but with that one exception also the impact on the stock in absolute numbers diminishes with age: from 16,900 for ages younger than 25 years to 3,900 for ages 60 years and older.

4.3 Validity of the empirical approach

The difference-in-difference analysis in Section 4.2 relies on a number of assumptions, whereof the parallel-trend assumption is the most crucial. That is, in absence of the pandemic, the outcomes in 2020 would have followed the same time trend as in 2019. Albeit this assumption is fundamentally untestable, support for it is often lent from showing that the outcomes have parallel trends during the “pre-exposure” (i.e., pre-outbreak) period. Reassuringly, from the graphical analysis in Section 4.1, one could not detect that the outcome trends of 2020 and 2019 would deviate from each other during weeks 1–10. However, a more formal test would be to estimate the following OLS regression model:

$$Y_{gw} = \gamma_g + \mu_w w + \varepsilon_{gw}, \quad (4)$$

where Y_{gw} is the outcome in week $w \in \{1, 2, \dots, 10\}$ of year $g \in \{2019, 2020\}$, γ_g is a year-specific effect, and μ_w is a year-specific linear trend, followed by a test of whether $\mu_{2020} - \mu_{2019} = 0$.

¹⁹If potential employers prefer to hire Swedish born, over foreign born, jobseekers, an increased stock of Swedish born jobseekers would produce this result.

The results from this exercise are summarized in Table 2. As in Section 4.2, the model has been estimated for each of the three outcomes, separately by demographic group. In only 2 out of 30 cases the estimated difference between the two linear trends (i.e., $\mu_{2020} - \mu_{2019}$) is statistically significant and, more importantly, it is in no case economically significant. For foreign born and ages 40–49 years the difference between the pre-outbreak trends of the stock of jobseekers are statistically significant, but correspond to no more than 210 and 80 jobseekers, respectively. If we recall, from Table 1 in Section 4.2, that the corresponding estimated effects of the first wave of the COVID-19 pandemic were 29,000 and 14,000 jobseekers, respectively, these differences are clearly negligible.

Table 2: Test of pre-pandemic parallel trends

Variable	Inflow of jobseekers		Outflow of jobseekers		Stock of jobseekers	
	$\mu_{2020} - \mu_{2019}$	<i>p</i> -val.	$\mu_{2020} - \mu_{2019}$	<i>p</i> -val.	$\mu_{2020} - \mu_{2019}$	<i>p</i> -val.
Panel A: Gender						
Men	0.070	0.291	0.077	0.473	0.077	0.486
Women	0.068	0.363	0.070	0.575	0.153	0.108
Panel B: Nativity						
Swedish born	0.094	0.440	0.074	0.611	0.021	0.875
Foreign born	0.044	0.485	0.073	0.388	0.209	0.006
Panel C: Age						
15–24 years	0.045	0.445	0.021	0.518	-0.019	0.889
25–29 years	0.018	0.466	0.026	0.432	0.044	0.459
30–39 years	0.048	0.228	0.035	0.569	0.057	0.175
40–49 years	0.018	0.658	0.029	0.581	0.077	0.001
50–59 years	0.007	0.880	0.027	0.575	0.034	0.096
60–74 years	0.003	0.887	0.010	0.536	0.038	0.504

Notes: μ_{2020} and μ_{2019} are obtained from separate estimations of Eq. (4) by demographic groups, using only weeks 1–10 of 2019 and 2020. Reported standard errors (s.e.) were obtained using the sandwich estimator of variance.

Another approach to support the validity of the empirical strategy is to conduct a placebo analysis. If we were to apply the same “difference-in-difference” method as in Section 4.2 to two consecutive years that do not contain the pandemic, there should then be no significant “exposure effect”. The results from such a placebo analysis, using 2019 as the “exposure year” and 2018 as the comparison year, are presented in Table 3.

Table 3: Placebo difference-in-difference estimates of the impact of the first wave of the COVID-19 pandemic on the inflow, outflow, and stock of jobseekers across demographic groups

Variable	Inflow of jobseekers			Outflow of jobseekers			Stock of jobseekers		
	Δ_{Abs}^{DD}	(s.e.)	Δ_{Rel}^{DD}	Δ_{Abs}^{DD}	(s.e.)	Δ_{Rel}^{DD}	Δ_{Abs}^{DD}	(s.e.)	Δ_{Rel}^{DD}
Panel A: Gender									
Men	0.065	(0.320)	1.852	-0.195	(0.496)	-4.437	1.827	(1.562)	0.597
Women	0.030	(0.371)	0.863	-0.124	(0.376)	-3.798	-0.169	(1.067)	-0.060
Panel B: Nativity									
Swedish born	-0.008	(0.536)	-0.184	-0.131	(0.539)	-2.938	4.421	(1.666)	1.572
Foreign born	0.102	(0.208)	3.741	-0.187	(0.326)	-5.899	-2.763	(0.772)	-0.899
Panel C: Age									
15–24 years	0.066	(0.246)	3.628	-0.090	(0.144)	-6.953	1.498	(0.764)	2.211
25–29 years	0.048	(0.099)	4.599	-0.099	(0.128)	-8.226	-0.451	(0.421)	-0.585
30–39 years	-0.012	(0.165)	-0.699	-0.070	(0.208)	-3.732	-0.709	(0.428)	-0.480
40–49 years	0.003	(0.132)	0.279	-0.056	(0.175)	-3.801	0.680	(0.397)	0.550
50–59 years	-0.004	(0.128)	-0.447	-0.023	(0.181)	-1.678	0.654	(0.378)	0.535
60–74 years	-0.007	(0.058)	-2.625	0.020	(0.064)	5.069	-0.014	(0.222)	-0.027

Notes: The table mimics Table 1, but using 2018 and 2019, instead of 2019 and 2020, and with the pandemic artificially moved to weeks 11–31 of 2019. Δ_{Abs}^{DD} is the absolute impact, in 1,000s, as defined in Eq. (1). Δ_{Rel}^{DD} is the relative impact, in percent, as defined in Eq. (3). Each Δ_{Abs}^{DD} was obtained from a separate estimation. Reported standard errors (s.e.) were obtained using the sandwich estimator of variance.

Again, only two estimates are statistically significant: the estimated placebo effect on the stock of Swedish and foreign born jobseekers. The absolute placebo effects are 4,400 and -2,800 jobseekers, while the relative placebo effects are 1.6 and -0.9 percent. However, none of these estimates amount to more than one tenth of its corresponding estimate in Table 1. Hence, I conclude that none of the two exercises in this section, casts any serious doubt on the validity of the empirical approach used to quantify the impact of the first wave of the COVID-19 pandemic on the inflow, outflow and stock of jobseekers among various demographic groups.

5 Summary and conclusions

The enforced measures to combat the COVID-19 pandemic of 2020 have led to a decline in economic activity unprecedented since the Great Depression. Millions, and yet millions, of people have lost their jobs—either temporarily or permanently. At first, the COVID-19 pandemic was characterised as a great leveller, because no one could be certain of not contracting the virus as long as there was no vaccine. Since then it has become increasingly clear that it is nothing of the sort. Neither the morbidity and mortality burden of the disease itself nor the burden of the various measures enforced to limit the spread of infection has been equally distributed over populations. In terms of joblessness and unemployment recent studies have shown that already disadvantaged groups have suffered the most.

To some extent, the present study draws the same picture in the Swedish context, despite the lack of lockdowns and other more stringent measures. Overall, there has been a dramatic increase in the inflow of new jobseekers that registered with the PES. The first measures to combat the pandemic in Sweden were taken in week 11, already the next week the number of new jobseekers doubled, and two weeks later it peaked with 25,000 new jobseekers (more than three times the number of new jobseekers in the same week of 2019). However, the outflow to employment was largely unaffected by the first wave of the pandemic. This implied that the stock of jobseekers increased week by week, from 602,000 during the first 10 weeks of the year (609,000 in 2019) to 710,000 in week 31 (595,000 in 2019).

The results from analyses of the impact of the first wave of the COVID-19 pandemic on the inflow, outflow, and stock of jobseekers across demographic groups revealed that: (i) there was no substantial gendered impact of the first wave of the COVID-19 pandemic; (ii) the adverse impact on the inflow and stock of jobseekers was substantially larger among Swedish born than among foreign born, but relating these increases to respective population size would reverse the findings (i.e., more Swedish born registered as jobseekers, but foreign born were more likely to do so); and (iii) the adverse impact on the inflow and stock of jobseekers was diminishing with age.

In line with previous studies, these findings suggest that younger age groups and possibly also immigrants were more adversely affected during the first wave of the COVID-19 pandemic. The younger, on the one hand, seem to have been affected not only by job losses but also by the lack of vacant jobs at the time of leaving school at the end of the spring term. Foreign born, on the other hand, seem to have been affected also by reduced opportunities to find new employment, possibly due to increased competition over jobs from large inflows of Swedish born jobseekers. Both findings might be expected as the sectors that initially were the most affected, such as restaurants and hotels, provide entry jobs to many school leavers and immigrants. Hence, although the nature of the current pandemic-induced recession is very different from previous recessions, it is not farfetched to assume that the present lack of such entry jobs will have scarring effects similar to those found in earlier studies of the consequences of entering the labour market in a recession.²⁰

Moreover, contrary to many of the recent international studies, these findings suggest that there was no substantial gendered impact of the first wave of the pandemic in Sweden. Men have generally suffered more in terms of job losses and unemployment during previous recessions, due to being more likely to be employed in highly cyclical industries, but studies of the pandemic have instead shown the reverse pattern. In that perspective, the findings in the present study stands out. However, although

²⁰See von Wachter (2020) for a review of the literature.

I do not find that women have been disproportionately affected during the first wave of the COVID-19 pandemic, neither do I find the reverse. Moreover, there are country differences regarding both gender division in affected sectors and policies enforced to limit the spread of infection that speaks against a gendered impact in favour of men: The sector most affected initially was restaurants and hotels, but in Sweden only 48 percent of the employees in this sector are women, compared to 53 percent in the US.²¹ Moreover, in Sweden neither pre-schools nor compulsory schools were closed.

Finally, although it was not possible in the present study to determine whether the first wave of the COVID-19 pandemic disproportionately affected already disadvantaged groups such as low-educated and low-wage workers but only various demographic groups, one can nevertheless conclude that thus far the COVID-19 pandemic has in no way acted as a leveller on the labour market.²² However, although vaccination of the population proceeds at the time of writing, we cannot be confident that it will protect us from future mutations of the virus. Hence, the exact extent to which the pandemic will lead to increased inequalities is ultimately a question of when we can return to a normal situation.

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²¹The figures are drawn from the Swedish Labour Force Survey and the labour market statistics in the U.S. Current Population Survey. Both figures refer to 2019.

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Appendix A Measures taken to limit the spread of infection

Table A1: Selected measures taken by the Government and its agencies to limit the spread of COVID-19

Date	Measure
17 January 2020	The Public Health Agency of Sweden (PHA) report that diagnostics for COVID-19 at their own clinical microbiological laboratory.
26 January 2020	The Ministry for Foreign Affairs advised against non-essential travel to the Hubei province in China.
1 February 2020	The Government decided, in accordance with a request from the PHA, that the regulations in the Swedish Communicable Diseases Act should be applied to COVID-19.
5 February 2020	The PHA urged people who may have been exposed to infection, who show respiratory symptoms or fever, to call the medical services for assessment and possible sampling.
13 February 2020	The PHA reported that capacity to diagnose COVID-19 had been established in a total of eight clinical microbiological laboratories around the country, in addition to their own laboratory.
17 February 2020	The Ministry for Foreign Affairs advised against travel to the Hubei province and non-essential travel to the rest of China except for Hongkong and Macau.
24 February 2020	The PHA urged anyone who had recently been in a country with ongoing spread of COVID-19, and who had a cough and fever, to contact the Health Care Hotline 1177 by phone.
25 February 2020	The PHA assessed the risk of more import cases as high, while the risk of community transmission in the country was low.
2 March 2020	The Ministry for Foreign Affairs advised against travel to Iran.
2 March 2020	The PHA recommended testing for COVID-19 in people who had visited northern Italy and who developed symptoms within 14 days.
4 March 2020	The PHA call to all clinical microbiological laboratories in the country to, if possible, extend sampling and analysis indication for COVID-19 by routinely test for the virus in samples from patients with respiratory symptoms without known cause.
6 March 2020	The Ministry for Foreign Affairs advised against non-essential travel to the northern Italy, the town Daegu and the Gyeongbuk province in South Korea.
6 March 2020	The PHA convened the National Pandemic Group (consisting of representatives from the PHA, the National Board of Health and Welfare, the Swedish Civil Contingencies Agency, the Swedish Association of Local Authorities and Regions, the Swedish Medical Products Agency, the Swedish Food Agency, and the Swedish Work Environment Authority) to coordinate increased preparedness throughout society.
9 March 2020	The PHA recommended testing for COVID-19 in people who had visited the state of Tyrol in Austria and who developed symptoms within 14 days.
10 March 2020	The Ministry for Foreign Affairs advised against travel to Italy.
10 March 2020	The PHA urged anyone with symptoms of respiratory infection, even mild ones, to refrain from social contacts that are at risk of spreading infection.
10 March 2020	The PHA advised relatives to avoid unnecessary visits to healthcare and elderly care.
11 March 2020	The Ministry for Foreign Affairs advised against non-essential travel to the state of Tyrol in Austria.
12 March 2020	The Government decided, in accordance with a request from the PHA, to ban gatherings and public events with more than 500 people (SFS 2020:114).
13 March 2020	The PHA recommended testing for COVID-19 in persons in need of inpatient hospital care, as well as of staff working in health care and care of the elderly with a fever or respiratory symptoms.
13 March 2020	The PHA advised anyone with a cold or flu-like symptoms to stay at home.

Table A1: Cont'd

Date	Measure
14 March 2020	The Ministry for Foreign Affairs advised against non-essential travel to all countries until 14 April 2020.
16 March 2020	The Government commissioned the National Board of Health and Welfare to ensure at national level the availability of protective equipment and to distribute protective equipment and other materials as a result of the spread of COVID-19.
16 March 2020	The PHA recommended: (i) That the employers who had the opportunity to allow employees to work from home could consider this; and (ii) That people over the age of 70 should limit close contact with others as far as possible.
17 March 2020	The PHA recommended that teaching in upper secondary schools and at universities and colleges should not be conducted on site, but through remote education or distance learning.
17 March 2020	The Government decided to temporarily stop non-essential travel to Sweden from all countries except EEA countries and Switzerland until 17 April 2020 (SFS 2020:127).
19 March 2020	The Government submitted a proposal for a second Additional Amending Budget of 2020 (Government Bill 2019/20:132) to the Parliament, containing among other things: (i) To temporarily abolish the sickness benefit deduction (i.e., the waiting day) in that the central government would pay sickness benefit for the first day of sickness; (ii) To temporarily abolish the requirement of a medical certificate from the eighth calendar day of a sick pay period; (iii) Increased government grants to municipalities and regions to reimburse the extra costs in health and medical care associated with COVID-19.
19 March 2020	The Parliament passed a law that allowed the Government to close preschools and schools and that secured care for the children of guardians working in essential services (SFS 2020:148).
19 March 2020	The PHA recommended everyone to refrain from unnecessary travel.
24 March 2020	The PHA stipulated, on the basis of the Communicable Diseases Regulation (SFS 2004:255), that restaurants, bars, cafes, etc. should ensure that there was no crowding and that visitors could keep distance between each other. Visitors must be seated when consuming food and beverages. Standing services at bars would not be allowed (HSLF-FS 2020:9).
29 March 2020	The Government decided, in accordance with a request from the PHA, to ban public gatherings and public events with more than 50 participants (SFS 2020:162, SFS 2020:114).
30 March 2020	The Government decided on a temporary (April–June 2020) ban on visits to special housing for the elderly to prevent the spread of COVID-19 (SFS 2020:163).
1 April 2020	The PHA stipulated that all organisations activities must ensure that they implement suitable measures to avoid the spread of infection. The PHA issued general guidelines related to everyone's responsibility to prevent COVID-19 infections (HSLF-FS 2020:12). These included: (i) That everyone should keep their distance from each other, refrain from participating in larger social contexts, and refrain from unnecessary travel; (ii) That people over the age of 70 and other at-risk groups should limit their social contacts and avoid being in places where people gather; (iii) That people who were, or suspected to be, infected by COVID-19 should stay at home and avoid social contacts; (iv) That employers should ensure that staff, if possible, kept their distance from each other, worked from home, avoided unnecessary travel at work, and were able to adjust their working hours to avoid travelling at rush hour; (v) Public transport should ensure that sufficient services were offered to minimise the risk of crowding and limit the number of passengers per vehicle; (vi) Shopping centers, department stores, shops, etc. should limit the number of customers present at the same time; (vii) Sports clubs should, whenever possible, hold training sessions and other sports activities outdoors, as well as postpone matches, training matches, tournaments, and cups.
3 April 2020	The Ministry for Foreign Affairs extended its advice against non-essential travel to all countries until 15 June 2020 (HSLF-FS 2020:12).
16 April 2020	The Government extended the temporary entry ban to the EU via Sweden until 15 May 2020 (SFS 2020:240).
13 May 2020	The Ministry for Foreign Affairs extended its advice against non-essential travel to all countries until 15 July 2020.

Table A1: Cont'd

Date	Measure
14 May 2020	The Government extended the temporary entry ban to the EU via Sweden until 15 June 2020 (SFS 2020:296).
20 May 2020	The Government commissioned the PHA to develop a national operational plan for future vaccination against COVID-19.
4 June 2020	The Government submitted a proposal to parliament for changes in the supervisory responsibility for the temporary communicable disease control measures at eating and drinking establishments, which meant that municipalities would be responsible for the entire chain of supervision from inspection to decision (Government Bill 2019/20:172).
9 June 2020	The PHA decided on further general guidelines (HSLF-FS 2020:12) from 13 June, including among other things: (i) If possible, to walk, cycle, or use other alternative modes of transport; and (ii) To avoid travelling by public transport where seating reservations were not available (HSLF-FS 2020:31).
10 June 2020	The Government submitted a proposal for an eighth Additional Amending Budget of 2020 ((Government Bill 2019/20:181) to the Parliament, containing, among other things, increased general government grants to municipalities and regions to, among other things, ensure access to welfare and enable increased capacity for testing and infection tracing.
11 June 2020	The PHA lifted the advice against non-essential travel from 13 June 2020.
11 June 2020	The Government extended the temporary ban on visits to special housing for the elderly to prevent the spread of COVID-19 until August 31 (SFS 2020:506).
12 June 2020	The Government extended the temporary entry ban to the EU via Sweden until 30 June 2020 (SFS 2020:504).
17 June 2020	The Ministry for Foreign Affairs extended its advice against travel to countries outside the EU, EEA and Schengen until 31 August 2020, and lifted its advice against non-essential travel to Belgium, France, Greece, Iceland, Italy, Croatia, Luxembourg, Portugal, Switzerland and Spain from 30 June 2020.
25 June 2020	The Government extended the temporary entry ban to the EU via Sweden until 7 July 2020 (SFS 2020:581).
1 July 2020	The PHA's regulations and general advice on infection control measures in restaurants and cafes etc. (HSLF-FS 2020:9) were repealed (HSLF-FS 2020:36) and replaced by the Act on temporary infection control measures at serving places (SFS 2020:526).
2 July 2020	The Government extended the temporary entry ban to the EU via Sweden until 31 August 2020 (SFS 2020:714).
17 July 2020	The Government decided on exceptions for 12 countries in the temporary entry ban to Sweden (SFS 2020:735).
29 July 2020	The Ministry for Foreign Affairs lifted the advice against non-essential travel to Denmark, Norway, Switzerland and the Czech Republic.

Appendix B Measures taken to save businesses and jobs and tackle rising unemployment

Table B1: Selected measures taken by the Government to save companies, jobs, and tackle rising unemployment during the first wave of the COVID-19 pandemic

Date	Measure
17 March 2020	The Government submitted a proposal for a first Additional Amending Budget of 2020 (Government Bill 2019/20:136) to the Parliament, containing credit guarantees to airlines during the period that they were affected by the spread of COVID-19.
19 March 2020	The Government submitted a proposal for a second Additional Amending Budget of 2020 (Government Bill 2019/20:132) to the Parliament, containing among other things: (i) The introduction of short-term layoffs, similar to short-time work but with an increased subsidy level; (ii) That the central government would assume the entire cost of all sick pay during April and May 2020; (v) Increased government grants to municipalities and regions to reimburse the extra costs in health and medical care associated with COVID-19; and (vi) An opportunity for companies to defer payment of employers' social security contributions, preliminary tax on salaries, and value added tax in order to mitigate temporary liquidity problems.
26 March 2020	The Government submitted a proposal for a third Additional Amending Budget of 2020 (Government Bill 2019/20:142) to the Parliament, containing a central government loan guarantee primarily targeted to small and medium-sized Swedish companies that had experienced financial difficulties due to COVID-19, but were otherwise deemed viable.
30 March 2020	The Government submitted a proposal for a fourth Additional Amending Budget of 2020 (Government Bill 2019/20:151) to the Parliament, containing among other things: (i) A temporary reduction of employers' social security contributions during March–June 2020; (ii) A temporary reduction in sole proprietors' individual contributions; (iii) Expansion of the new opportunities to defer tax payments; (iv) Temporarily changed rules for tax allocation reserves so that sole proprietors would receive tax cuts.
1 April 2020	The Government submitted a proposal for a fifth Additional Amending Budget of 2020 (Government Bill 2019/20:146) to the Parliament, containing among other things: (i) A temporary relief in the working and membership conditions of the unemployment insurance; (ii) A possibility to introduce a temporary increase in the basic amount of the unemployment insurance; (iii) A temporary abolition of the waiting period in the unemployment insurance; (iv) Increased government funding to the cultural sector and sports movement to mitigate the adverse economic impact of the spread of COVID-19; and (v) A temporary discount for rental costs to companies, especially in the retail trade and the hotel and restaurant sector.
15 April 2020	The Government submitted the 2020 Spring Fiscal Policy Bill and the Spring Amending Budget of 2020 (Government Bill 2019/20:99) to the Parliament, containing among other things: (i) Additional support to general news media to ensure the public's access to information and mitigate the negative economic impact on news media because of the COVID-19 pandemic; (ii) Funding for the Green jobs initiative to improve integration, develop the skills and employability of newly arrived immigrants and long-term unemployed people, as well as alleviating the skills deficit in green industries, and strengthen nature conservation and forest management; (iii) Increased funding to the PES and to active labour market policy; (iv) Increased funding to expand the number of student slots at universities, higher vocational education, and regional adult education; (v) Increased government grants to municipalities and regions to strengthen welfare; (vi) Increased government grants to municipalities and regions to reimburse extra costs for healthcare due to COVID-19; and (vii) Increased government grants to municipalities for providing more summer jobs for young people.
14 May 2020	The Government submitted a proposal for a sixth Additional Amending Budget of 2020 (Government Bill 2019/20:166) to the Parliament, containing among other things: (i) A temporarily reinforced support for short-term work; (ii) A temporary removal of the preferential taxation on free parking at the workplace and on gifts to employees that together amounted to a maximum of SEK 1,000 per employee; and (iii) A temporary and targeted financial support to several government-funded cultural institutions.

Table B1: Cont'd

Date	Measure
20 May	The Government submitted a proposal for a seventh Additional Amending Budget of 2020 ((Government Bill 2019/20:167) to the Parliament, containing among other things: (i) Additional capital injections to state-owned Almi Företagspartner AB; (ii) Increased government grants to municipalities and regions to reimburse extra costs for healthcare due to COVID-19; (iii) An extension of the emergency support distributed to news media; and (iv) A temporarily increased ceiling in the income-related unemployment insurance from day 101 onwards.
4 June 2020	The Government submitted a proposal to parliament for changes in the supervisory responsibility for the temporary communicable disease control measures at eating and drinking establishments, which meant that municipalities would be responsible for the entire chain of supervision from inspection to decision (Government Bill 2019/20:172).
10 June 2020	The Government submitted a proposal for an eighth Additional Amending Budget of 2020 ((Government Bill 2019/20:181) to the Parliament, containing, among other things, a new financial support, reorientation support, to businesses with reduced turnover due to COVID-19.
15 June 2020	The Government submitted a proposal for a ninth Additional Amending Budget of 2020 ((Government Bill 2019/20:187) to the Parliament, containing among other things: (ii) Increased government grants for regional and local cultural activities; (iii) Increased capital injections to three state-owned enterprises: SAS, Swedavia and Lernia; and (iv) Compensation of loss of revenue to the Civil Aviation Authority in order to maintain the capacity of air navigation services.

Appendix C The Swedish population by demographics

Table C1: The Swedish population ages 15–74 years, by demographics, in 2020 and 2019, respectively

Demographic group	2020		2019	
	N (1,000)	%	N (1,000)	%
Men	3,837.0	50.9	3,830.8	50.9
Women	3,703.7	49.1	3,697.1	49.1
Swedish born	5,780.1	76.7	5,799.0	77.0
Foreign born	1,760.7	23.3	1,728.8	23.0
15–24 years	1,156.0	15.3	1,156.6	15.4
25–29 years	717.8	9.5	739.7	9.8
30–39 years	1,398.7	18.5	1,366.5	18.2
40–49 years	1,301.5	17.3	1,298.4	17.2
50–59 years	1,310.2	17.4	1,297.9	17.2
60–74 years	1,656.6	22.0	1,668.9	22.2
Total	7,540.8	100.0	7,527.9	100.0

Source: Statistics Sweden. Own calculations.