

Alessandra Casarico and Salvatore Lattanzio

Who Lost the Most? The Heterogeneous Effects of Covid-19 on the Labor Market

INTRODUCTION

The Covid-19 pandemic is having dramatic consequences on society. In order to contain the spread of the virus, many governments around the world adopted unprecedented interventions that in most cases resulted in lockdowns of entire regions or countries. Lockdowns were first implemented around March 2020 in European countries, and then again with the second wave of the virus in fall 2020, with slight different timing depending on the severity of the spread and availability of vaccines. In both periods, the suspension of economic activities had severe repercussions on employment and earnings of individuals, and on profits of firms. According to early 2020 estimates by IMF, global GDP growth was projected at – 4.4 percent (IMF 2020) in 2020, with considerable heterogeneity between advanced (– 5.8 percent) and emerging economies (– 3.3 percent). The most recent OECD Economic Outlook (OECD 2021) places recovery for most advanced countries after the end of 2021, and for countries such as Spain and Iceland after the end of 2022. Governments responded to the economic downturn with encompassing packages of fiscal measures. Preventing or reducing the disruption of the labor market was among the main goals of government intervention, and the specific instruments adopted varied across countries, also in light of pre-existing labor market institutions. Figure 1 shows total employment as a share of that registered in the fourth quarter of 2019, and suggests that the loss in employment is uneven across countries and was particularly strong in Spain and the US. Also, the reduction in employment (and in income) was overall smaller than that in GDP, thanks to policies put in place by the different governments.

Despite the fact that the Covid-19 pandemic hit all countries and all workers, not all countries and all workers were hit the same. For example, Adams-Prassl et al. (2020) compare the United Kingdom, the United States and Germany and show that the job losses were higher in the first two countries, which are characterized by more flexible labor markets. In this article, we explore the effects of Covid-19 on labor market flows in 2020, we identify which categories of workers suffered the most, and investigate how policy put in place by the government to shield workers from the disruption of economic activity mitigated the impact of the pandemic. We cover some of the analyses developed in Casarico and Lattanzio (2020 and 2021) and extend the period of investigation to all quarters in 2020. We use administrative data on a large sample of contracts active in 2020 in Italy to illustrate the heterogeneous labor market consequences of Covid-19, highlighting the differences for labor market flows between the two lockdowns the country went through.

Italy was the first country in Europe to be hit by Covid-19 and the first to implement a national lockdown in March 2020. The government introduced the definition of essential and non-essential economic activities, the former to be continued, the latter to be interrupted. The lockdown was shortly after followed by two further policy measures relevant for labor market dynamics: a ban on layoffs and an ease of the requirements to access short-time work (STW) compensation schemes. The former is unique to Italy for its breadth and length: its lift has been repeatedly postponed until 30 June 2021. Since that date, the ban has remained only for a limited number of sectors (see OECD 2020, for details on government policy responses across OECD countries).

We first provide descriptive evidence on the personal and job characteristics of workers employed as of January 2020, differentiating among essential and non-essential activities. The latter were mainly concentrated in services, such as restaurants, bars, hotels and some categories of wholesale and retail shops, in line with government decisions in other countries. Second, we analyze the change in net hirings, computed as hirings net of separations. Separation can be the result of layoffs, endings of fixed-term contracts and quits. To calculate the change, we compare the flows in each week of 2020 with the average in the same weeks of 2017–19. For each



Alessandra Casarico

is Associate Professor of Public Economics at Bocconi University, member of the Dondeña Research Center on Social Dynamics and Public Policy Research, Fellow at CESifo Munich and member of the Scientific Advisory Council of the ifo Institute, Munich.



Salvatore Lattanzio

is PhD candidate in Economics at the University of Cambridge.

labor market flow, we provide graphic evidence of the cumulative weekly change for all workers and for subgroups based on age, gender and education level.

There is a growing literature on the effects of the pandemic recession on the labor market and the policy responses put in place by governments. Evidence using real-time survey data (Bick and Blandin 2020; Adams-Prassl et al. 2020; von Gaudecker et al. 2020), administrative data (Cajner et al. 2020) and a combination of both (Forsythe et al. 2020), highlights the severe and unequal consequences of the pandemic recession on the labor market. A strand of this literature specifically focuses on how different categories of workers were affected by the pandemic (Blundell et al. 2020; Crossley et al. 2021; Bonacini et al. 2021), with particular focus on age (Belot et al. 2020) and gender (Alon et al. 2020; Hupkau and Petrongolo 2020; Farré et al. 2020). We provide new evidence based on detailed administrative data on a sample of active, new and terminated contracts, coming from the *Comunicazioni Obbligatorie*, i.e., the compulsory information firms need to provide on their workforce. These data are highly reliable and less subject to measurement errors with respect to survey data and allow us to explore many dimensions of heterogeneity to get a comprehensive picture of Covid-19's unequal impact. We also assess the short run impact of a government policy that explicitly forbids layoffs and extends the generosity of STW compensation schemes, laying the groundwork for a long term assessment of their impact on the labor market.

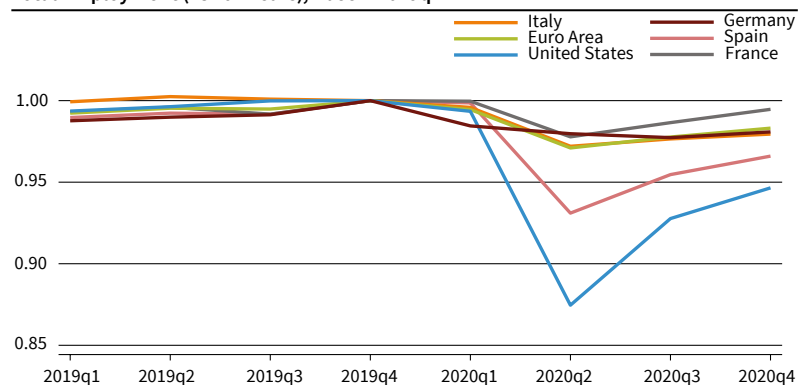
DATA AND INSTITUTIONAL CONTEXT

Data

We use data from a random sample of mandatory notifications (*Campione Integrato delle Comunicazioni Obbligatorie*, CICO) that firms submit to relevant public agencies in Italy and to the Ministry of Labor and Social Policy. The data collects information on a sample of contracts activated and terminated between 2009 and the fourth quarter of 2020 for public- and private-sector workers, farming and domestic workers.¹ For each contract, we have information on the exact start date and, if the contract ends, on the end date and the reason for its ending (mainly, layoffs, expiration of temporary contracts, voluntary quits). Furthermore, we have information on the type of contract (open-ended, apprenticeship or temporary/fixed-term, full-time or part-time), detailed occupational and sectoral codes (4-digit Isco and 6-digit Ateco 2007, respectively) and individual characteristics of workers, such as gender, the year of birth, the region of domicile and work, and the education level. We keep only workers in the private sector in our analysis and we further exclude workers in agri-

¹ For further details about the data and the restrictions we impose to obtain the sample of analysis, see Casarico and Lattanzio (2021).

Figure 1
Total Employment (15–64 Years), Base = 2019q4



Source: Eurostat data; authors' calculations.

© ifo Institute

culture and domestic workers, as information on these workers is less reliable.

Overall, our sample contains information on approximately 1.4 million workers, representing 11.2 percent of the population of private-sector employees in Italy.

Covid-19 in Italy and Public Policy

The first cases of Covid-19 in Italy date back to 31 January, 2020, but the disease began to spread exponentially in the second half of February. At first, the virus mainly spread around Northern regions and the first Covid-related death was registered in Veneto on February 21. Following the diffusion of the virus in the North, two “red zones” were implemented, involving 11 municipalities in Lombardy and Veneto, that were in effect lockdowns. At the same time, many Northern regions opted to close schools, a measure that extended to the whole nation on March 4. On March 10, the entire country went into lockdown. The lockdown was lifted between May and June, but the second wave in October pushed the government to introduce less stringent lockdown measures based on local evaluations on the prevalence of the disease. Specifically, a 3-tier system was introduced, with regions classified as either yellow, orange or red, based on a combination of parameters involving the number of cases, the number of patients in hospitals and the reproduction number of the disease. The three “colors” introduced lockdown measures that were less stringent in yellow zones and became progressively more stringent in orange and red zones, with the last zone color denoting a full lockdown, though mobility for work-related reasons was allowed.

The decree establishing the nationwide March lockdown also specified the activities that were deemed essential and could continue to operate, and those that were classified as non-essential and were forced to be suspended: the former mainly include agriculture, some manufacturing, energy and water supply, transports and logistics, ICT, banking and insurance, professional and scientific activities, public

administration, education, healthcare and some service activities; shutdown sectors include most manufacturing activities, wholesale and retail trade, hotels, restaurants and bars, entertainment and sports activities. In light of these closures, the government adopted a Decree Law on March 17 that considerably increased worker's employment protection. Two main labor market policies were adopted, which are still in place as of June 2021:²

1. A special Covid-related STW compensation scheme (lasting 9 weeks), that applied retroactively starting 23 February. This measure aimed at preserving employment relationships and allowing firms to cut labor costs during the lockdown period, by reducing business hours thanks to a wage subsidy granted by the government. The measure extended the regular STW by allowing firms with fewer than 15 employees and firms that were already using the extraordinary STW (one of the sub-species of STW granted by the Italian employment protection legislation) to use it. Moreover, firms using the Covid-related STW could renew temporary contracts, waiving the norms of the standard regulation.
2. A ban on layoffs (that prohibited them for 60 days), starting 17 March and that could be applied retroactively to pending layoffs (i.e., those that were yet to be validated) from 23 February. Since 30 June, 2021, the ban has remained only for some sectors.

THE DISTRIBUTION OF WORKERS IN ESSENTIAL AND NON-ESSENTIAL ACTIVITIES BEFORE THE PANDEMIC

Using data from CICO up to January 2020, we show the distribution of workers in essential and non-essential activities (i.e., between open and lockdown sectors, as defined by the Prime Minister's decree of

² Two later decrees extended the validity of these measures until the end of the year. Thus, the Covid-related STW compensation scheme and the ban on layoffs were valid throughout the entire period we consider for our analysis.

March 11 based on sectoral codes) at the onset of the pandemic. Figure 2, panels (a)-(c), shows the distribution of workers by gender, age and education level across essential and non-essential activities. Panel (a) shows that women are over-represented in non-essential activities (52.3 percent) whereas men split almost equally between the two sets of activities: this result is in line with the evidence provided, for example, by Blundell et al. (2020) for the UK.

Panel (b) shows the distribution by age, dividing workers into age groups: 15–34, 35–54 and 55 or older. The figure shows that, while young workers are over-represented in non-essential activities, middle-aged and older workers are more present in essential activities. Hence, shutting down non-essential sectors has a stronger impact on young workers, 58% of whom are employed in shutdown sectors.

Panel (c) shows the distribution by education level. While 55.2 and 50.4 percent of workers with lower and upper secondary education are in shutdown sectors, only 33.5 percent of individuals with university degree work in non-essential activities, suggesting a disproportionate impact of the pandemic on workers with lower levels of education.

This analysis is a snapshot of the Italian labor market at the onset of the pandemic. We now turn to the inspection of the impact of the crisis on hirings and separations in 2020.

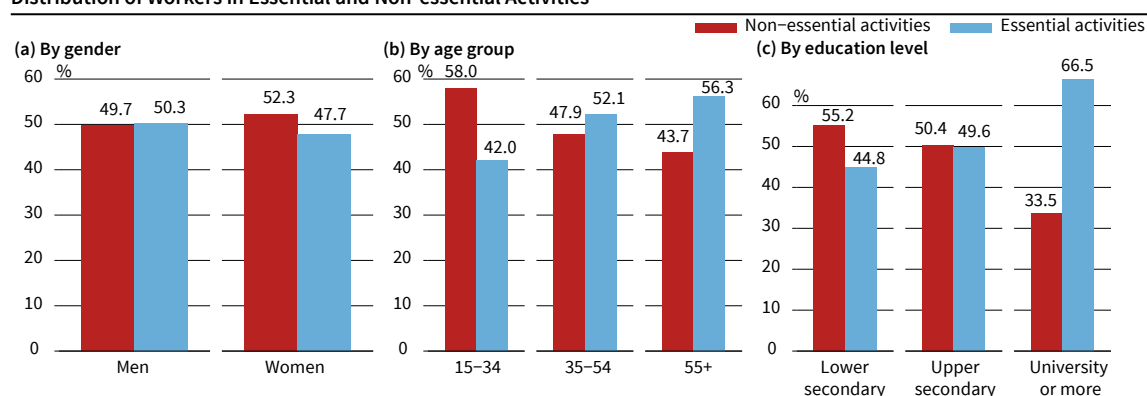
THE IMPACT OF THE RECESSION ON LABOR MARKET FLOWS

Measurement

In this section, we analyze the dynamics of hirings, separations and net hirings, computed as the difference between hirings and separations.³ Specifically, we compute the cumulative weekly change in each flow between 2020 and the average of 2017–19, with respect to the total stock of workers in our sample,

³ Our definition of hirings is broad, since we use this term to indicate the activation of new contracts, which can be new hirings or transformations of fixed-term contracts into permanent contracts.

Figure 2
Distribution of Workers in Essential and Non-essential Activities



Source: Authors' calculations.

© ifo Institute

as of January 2020—before the pandemic started. We normalize the change to be 0 in week 8 of the year, that is, the one between February 19 and 25—before the onset of the pandemic—and compare changes relative to that week.

Total Change

Figure 3 reports the cumulative change in hirings, separations and net hirings for each week in 2020 relative to the average in 2017-19 for all workers. Separations are computed as an aggregate of layoffs, endings of fixed-term contracts and quits, while net hirings are the difference between hirings and separations. The figure shows that net hirings were on a parallel trend before the onset of the pandemic, but after the 9th week (i.e., after the first cases and deaths were recorded), they go down, due to a decline in hirings and an increase in separations. Starting from week 12-13, separations begin to decline, too, as a consequence of the layoff ban, the Covid-related STW compensation scheme and the contraction in economic activity, which lowers job turnover. We observe that the decline is particularly marked for endings of fixed-term contracts. Until week 18 (i.e., the end of the strict lockdown) the slope of the decline in hirings is steeper than the decline in separations, therefore producing a continuing drop in net hirings. After week 18, when businesses began to return to a new normal, there is a change in the slope of net hirings as activations of new contracts started to recover, and separations continued to be below their past levels (as the ban on layoff and STW were still in place). Overall, by the end of 2020, we find a net change of 4.5 fewer net hirings per 100 workers, determined by a change in hirings of -18.5 and in separations of -14.0 per 100 workers, with respect to the average of 2017-19 and relative to week 8 of the year. The large decline in job creation is naturally a consequence of the pandemic recession and the subsequent lockdown of economic activities. It is possible that the ban on layoffs had a negative effect, too. However, the graph shows that when restrictions on mobility were lifted from week 18, the slope of the curves changes and net hirings start to converge back to their levels in the past, even in the presence of the layoff ban, mainly through a recovery of hirings, which started to fall again after the summer (around week 36). Although this is only suggestive evidence, as it is impossible to clearly and separately identify the effect of the lockdown from that of the policy, it seems that the recession induced by the pandemic (and the non-pharmaceutical intervention to contain its spread) contributes more to the drop in net hirings than the layoff ban.

Net Hirings

Figure 4, panels (a)–(c), shows the cumulative change in net hirings per 100 workers between 2020 and the

Figure 3
Cumulative Change in Labor Market Flows



Note: The figure shows the cumulative change in net hirings (hirings minus separations), hirings and separations up until each given week in 2020 with respect to the average of 2017-19 over the same period of the year and relative to the week before the pandemic (week 8). Values are expressed per 100 workers. The dashed vertical lines indicate the beginning and end of the first wave. The solid vertical line indicates the beginning of the second wave.
Source: CICO data; authors' calculations. © ifo Institute

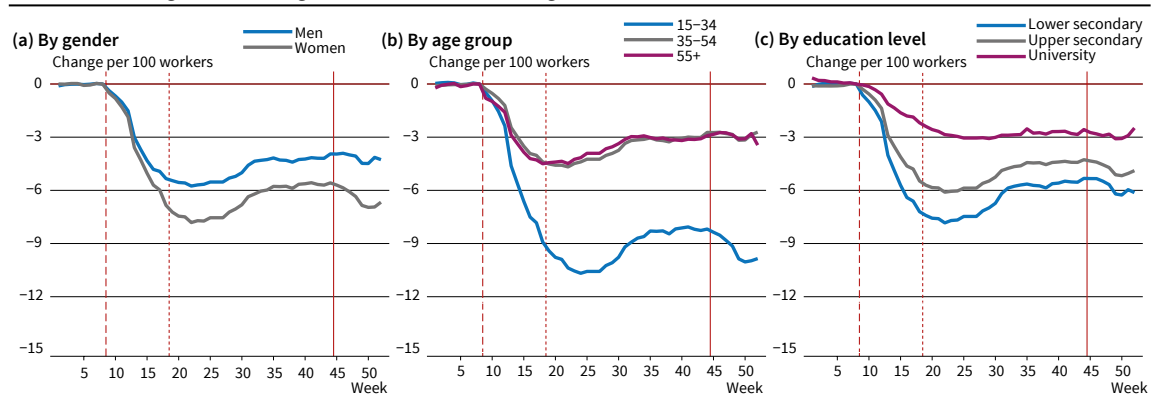
average 2017-19 for different subgroups of workers, relative to week 8. Panel (a) reports results by gender and shows that the pandemic had a stronger impact on female net hirings, which dropped by 6.7 units as opposed to 4.3 for men. Panel (b) reports the changes for different age groups and shows that the impact of the pandemic recession was harsher for young workers (age group 15-34) relative to middle-aged (35-54) and old workers (over 55). At the end of 2020, net hirings were 9.8 units lower for young workers, relative to week 8, compared to 2.7 for middle aged workers and 3.4 for old workers. Panel (c) reports the impact across different education groups and shows that low educated workers are suffering more the negative consequences of the recession: workers with lower secondary and upper secondary education experience a change in net hirings of -6.1 and -4.9, respectively, relative to -2.5 for university graduates.

CONCLUSION

Before the pandemic, a higher share of female compared to male, young compared to old and low educated compared to high educated workers is employed in non-essential activities. When looking at the change in hirings and separations and breaking it down by age, gender and education level, we find that from the 9th week of the year—when the virus started to spread exponentially across the country—there was a pronounced drop in hirings and in separations, the latter reflecting the effects of the ban on layoffs and the easing of access to STW compensation schemes. The ban on layoffs may also have contributed to the decreasing dynamics of hirings, as the higher employment protection for workers may have decreased turnover, but the fact that the drop in hirings halted by the end of second quarter of 2020 points to the dominant role of the lockdown in determining the decrease in hirings observed during the pandemic. While we focus on short-term outcomes and cannot account for changes in hours worked, our evidence contributes to the understanding of labor

Figure 4

Cumulative Change in Net Hirings between 2020 and Average 2017–2019



Note: The figure shows the cumulative change in net hirings (hirings minus separations) up until each given week in 2020 with respect to the average of 2017–19 over the same period of the year and relative to the week before the pandemic (week 8). Values are expressed for 100 workers in the same subgroup. The dashed vertical lines indicate the beginning and end of the first wave. The solid vertical line indicates the beginning of the second wave.

Source: CICO data; authors' calculations.

© ifo Institute

market and policy responses in the wake of and during the pandemic. The use of detailed administrative data allows us to separately analyze how net hirings have evolved relative to normal times and how different categories of workers have been affected. Given the critical importance of the ban on layoffs and the special STW compensation scheme in affecting labor market flows, it will be important to monitor the labor market transitions when these policies are lifted, to understand whether it is more vulnerable workers who will suffer the most.

REFERENCES

- Adams-Prassl, A., T. Boneva, M. Golin and C. Rauh (2020), "Inequality in the Impact of the Coronavirus Shock: Evidence from Real Time Surveys", *Journal of Public Economics*, 189, 104245.
- Alon, T., M. Doepke, J. Olmstead-Rumsey and M. Tertilt (2020), "The Impact of COVID-19 on Gender Equality", *Covid Economics: Vetted and Real-Time Papers*, 4, 62–85.
- Belot, M., S. Choi, J. C. Jamison, N. W. Papageorge, E. Tripodi, and E. van den Broek- Altenburg (2020), "Unequal Consequences of Covid-19 Across Age and Income: Representative Evidence from Six Countries", *Covid Economics: Vetted and Real-Time Papers*, 38, 196–217.
- Bick, A. and A. Blandin (2020), "Real Time Labor Market Estimates During the 2020 Coronavirus Outbreak", Unpublished Manuscript, Arizona State University.
- Blundell, R., M. Costa Dias, R. Joyce and X. Xu (2020), "COVID-19 and Inequalities", *Fiscal Studies*, 41(2), 291–319.
- Bonacini, L., G. Gallo and S. Scicchitano (2021), "Working From Home and Income Inequality: Risks of a 'New Normal' with COVID-19", *Journal of Population Economics*, 34(1), 303–360.
- Casarico, A. and S. Lattanzio (2020), "The Heterogeneous Effects of COVID-19 on Labor Market Flows: Evidence from Administrative Data", *Covid Economics: Vetted and Real-Time Papers*, 52, 152–174.
- Casarico, A. and S. Lattanzio (2021), "The Heterogeneous Effects of COVID-19 on Labor Market Flows: Evidence from Administrative Data", *Mimeo*.
- Cajner, T., L. D. Crane, R. A. Decker, J. Grigsby, A. Hamins-Puertolas, E. Hurst, C. Kurz and A. Yildirmaz (2020), "The US Labor Market During the Beginning of the Pandemic Recession", *NBER Working Paper*, National Bureau of Economic Research.
- Crossley, T. F., P. Fisher and H. Low (2021), "The Heterogeneous and Regressive Consequences of COVID-19: Evidence from High Quality Panel Data", *Journal of Public Economics*, 193, 104334.
- Farré, L., Y. Fawaz, L. Gonzalez and J. Graves (2020), "How the COVID-19 Lockdown Affected Gender Inequality in Paid and Unpaid Work in Spain", *IZA Discussion Papers* 13434, Institute of Labor Economics (IZA).
- Forsythe, E., L. B. Kahn, F. Lange and D. Wiczor (2020), "Labor Demand in the Time of COVID-19: Evidence from Vacancy Postings and UI Claims", *Journal of Public Economics*, 189, 104238.
- Hupkau, C. and B. Petrongolo (2020), "Work, Care and Gender During the Covid-19 Crisis", *CEP Covid-19 Briefings cepcovid-19-002*, Centre for Economic Performance, LSE.
- IMF (2020), *World Economic Outlook, October 2020: A Long and Difficult Ascent. Report*, International Monetary Fund.
- OECD (2021), *OECD Employment Outlook 2021*.
- Von Gaudecker, H.-M., R. Holler, L. Janyas, B. Siflinger and C. Zimpelmann (2020), "Labour Supply in the Early Stages of the Covid-19 Pandemic: Empirical Evidence on Hours, Home Office, and Expectations", *IZA Discussion Papers* 13158, Institute of Labor Economics (IZA).