The Adverse Effect of the COVID-19 Labor Market Shock on Immigrant Employment

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June 2020

Abstract: Employment rates in the United States fell dramatically between February 2020 and April 2020 as the repercussions of the COVID-19 pandemic reverberated through the labor market. This paper uses data from the CPS Basic Monthly Files to document that the employment decline was particularly severe for immigrants. Historically, immigrant men were more likely to be employed than native men. The COVID-related labor market disruptions eliminated the immigrant employment advantage. By April 2020, immigrant men had lower employment rates than native men. Part of the relative increase in the immigrant rate of job loss arises because immigrants were less likely to work in jobs that could be performed remotely and suffered disparate employment consequences as the lockdown permitted workers with more "remotable" skills to continue their work from home. Undocumented men were particularly hard hit by the pandemic, with their rate of job loss far exceeding the rate of job loss of legal immigrants.

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1. Introduction

In less than 2 months, the COVID-19 pandemic has produced dramatic and historic aftershocks throughout the U.S. labor market. Federal, state, and local governments reacted to the spread of the virus by adopting measures that "paused" economic activity in many sectors. The economic lockdown had swift employment repercussions. The unemployment rate rose from a near-record low of 3.5 percent in February 2020 to 14.7 percent by April 2020, a level of unemployment not witnessed since the Great Depression.

The pandemic-related economic pause and lockdown differentially affected the employment opportunities of persons working in different sectors. Workers whose jobs could be performed remotely from home, such as teachers and customer support specialists, continued to work from their home office. Workers who provided essential services, such as health care professionals and grocery store clerks, continued their usual work routine. But job opportunities for many other workers outside these protected groups quickly evaporated.

Immigrants now make up 17.6 percent of the workforce. They have historically had different employment rates than their native-born counterparts (Borjas, 2017). The employment rate of immigrant men has been substantially *higher* than that of natives for the past two decades. In 2019, at the peak of the economic boom, the employment rate of immigrant men was 88.7 percent as compared to 82.7 percent for natives. In contrast, immigrant women have generally had *lower* employment rates than their native counterparts. In 2019, the employment rate for immigrant women was 63.1 as compared to 73.8 for native women.

We use data from the CPS Basic Monthly files to document the disproportionately adverse impact that the COVID-19 pandemic had on the employment of immigrants. We exploit the panel nature of the data to track the employment opportunities of specific persons over time. The relative rate of job loss increased dramatically for (initially employed) immigrants as the economic lockdown took hold, while the relative probability of finding work declined for (initially out-of-work) immigrants. The job loss effect was particularly severe for undocumented immigrants, with almost one-third of undocumented workers losing their jobs between March and May 2020. As a result, the employment advantage that immigrant men had long enjoyed not only disappeared but was, in fact, reversed.[1]

Part of the adverse employment effect that the COVID-19 labor market shock had on immigrant employment can be traced to the fact that immigrants and natives tend to do different jobs. Immigrants are less likely to be employed in jobs that can be done remotely and suffered accordingly as the lockdown allowed workers with "remotable" skills to work from home. The difference in the types of jobs that immigrants and natives perform (measured in terms of both occupational and industry characteristics), however, only explains about a third of the relative decline in immigrant employment opportunities in the first few months of 2020.

2. Data and descriptive evidence

Our analysis of how the COVID-19 pandemic differentially affected employment opportunities for natives and immigrants uses the CPS Basic Monthly files, downloaded from the

[1] A rapidly growing literature explores the differential effect of the COVID-19 employment shock on various demographic groups. Montenovo et al. (2020) report large employment declines for Hispanics and less skilled workers, while Fairlie, Couch, and Xu (2020) report the employment effect for African-Americans. Cajner et al (2020) present a broader perspective on the labor market effects.

Integrated Public Use Microdata Series (IPUMS).[2] Throughout the analysis, we analyze the subsample of persons who are 18-64, not enrolled in school, and not in the Armed Forces.

We begin by illustrating the monthly trend in the employment rate of immigrants and natives (by gender) between January 2019 and April 2020.[3] Figure 1 shows that immigrant men were more likely to be employed than native men throughout 2019, while immigrant women were less likely to be employed than native women. The employment trends for immigrants and natives (for each gender) tend to be roughly parallel through calendar year 2019.

The employment advantage among immigrant men changed as a result of the COVID-19 pandemic. The data reveal a somewhat steeper decline in the employment rate of immigrant men, from 88.6 to 85.3 percent between February and March 2020. This contrasts with the smaller drop of 1.4 percentage points for native men. The decline in immigrant employment accelerated between March and April, with the employment rate of immigrant men falling by a dramatic 18 percentage points, as compared to a 12-point drop for natives. In fact, the decline in immigrant employment was so precipitous that April 2020 became the first month in the 21st century in which the employment advantage long enjoyed by immigrant men not only disappeared but was, in fact, reversed. By April 2020, the employment rate of immigrant men stood at 67.1 percent, more than 2 percentage points below the 69.5 percent employment rate of natives. Finally, the figure shows the beginning of a recovery in May 2020, but the employment rate of immigrant men still lags slightly behind that of natives.

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[2] Flood et al. (2020).

[3] The employment rate is given by the fraction of the relevant population that is working. Our definition of "work" is based on a person's employment status in the reference week of the Basic Monthly sample. In particular, we use the IPUMS variable reporting a person's employment status (*empstat*) and classify a person as working if he or she is "at work." The economic slowdown and lockdown led to a large increase in the number of persons classified as: "has job, not at work last week." The Online Appendix shows that our finding of the pandemic having a disproportionately adverse effect on the employment of immigrants is robust to alternative definitions of "work."

The differences in the employment trends of immigrant and native women seem less striking (at least superficially). The trend lines for the two groups are roughly parallel between January and May 2020. Both groups began to experience a decline in employment between February and March 2020, with the employment rate for immigrant women falling by about 3.4 percentage points as compared to a 2-point drop for native women. The decline between March and April was again somewhat larger for immigrants (14.0 versus 12.7 percentage points). Note, however, that immigrant women have had lower employment rates than native women, so that the *percent* decline in immigrant employment resulting from the pandemic was quite large. The pre-pandemic (February 2020) employment rate of immigrant women was 62.7 percent. By April 2020, their employment rate had dropped to 45.2 percent, so that employment fell by almost 30 percent. In contrast, the employment of native women fell by only 20 percent.

It is useful to decompose the change in the employment rate into its key components. Let E_t be the number of persons in a particular population employed at time *t*, N_t be the number who are not employed, and *P* be the (constant) population. Further, let F_t be the number of persons who were not employed at time *t*, but who found a job by time *t*+1. Similarly, let L_t be the number of persons who were employed at time *t* and lost their job by time *t*+1. The change in the employment rate observed between *t* and *t*+1 is:

$$\begin{aligned} \frac{E_t - E_{t-1}}{P} &= \frac{(F_t - L_t)}{P}, \\ &= \frac{N_t}{P} \cdot \frac{F_t}{N_t} - \frac{E_t}{P} \cdot \frac{L_t}{E_t}, \\ &= (1 - \pi_t) f_t - \pi_t \ell_t. \end{aligned} \tag{1}$$

where π_t is the employment rate at time t; f_t is the job-finding rate, or the fraction of persons out of work who find a job by time t+1; and ℓ_t is the job-loss rate, or the fraction of employed persons who are not working by the next time period. The month-to-month change in the employment rate is a weighted average of the job-finding rate and the job-loss rate.

The sampling frame of the CPS (a person is interviewed for 4 continuous months, not interviewed for the next 8 months, and interviewed again for an additional 4 months) lets us calculate the job-finding and the job loss rates. In particular, we can observe the employment status of the persons who happen to appear in two consecutive months t and t+1.[4] Figure 2 shows the trends in the job loss (Panel A) and job-finding (Panel B) rates between January 2019 and May 2020.

Before the pandemic, the job loss rate of immigrant and native men was roughly the same: about 3 to 4 percent of the employed population in month t in either group was not employed in month t+1. The relative job loss rate for immigrant men began to increase in March 2020 and shot up dramatically between March and April 2020, when the job loss rate was 16.8 percent for natives and 24.7 percent for immigrants. Immigrant men had very high employment rates prior to the COVID-19 labor market shock. Equation (1) then suggests that the key reason for the substantial drop in the relative employment rate of immigrant men was the disproportionate increase in their job loss rate.

The figure also illustrates the trends in the job-finding rate. The job-finding rate for immigrant men was higher than that of native men throughout 2019.[5] In January 2020, the job-

[4] We used the matching variable created by IPUMS (*cpsidp*) to match specific persons across CPS cross-sections.

[5] Albert (2020) examines why the job-finding rate for immigrants is relatively higher in the context of a job search model.

finding rate for (out-of-work) immigrant men was 32.8 percent, while it was only 19.7 percent for comparable natives. The relative immigrant job-finding rate then fell dramatically as a result of the pandemic. By April, the job-finding rate for immigrants had dropped by over 8 percentage points, to 24.3 percent. In contrast, the job-finding rate for natives declined by only 4.4 percentage points. Further, the job-finding rate of natives increased faster as the recovery began in May 2020: The job-finding rate of natives rose by 6.1 percentage points, while that of immigrants rose by only about 3.5 percent.

Figure 2 also shows the job loss and job finding rates of women. The job loss rate for immigrant women increased substantially as a result of the pandemic. At the beginning of 2020, the job loss rate for immigrant women was slightly above the respective statistic for native women (5.7 percent for immigrants and 4.2 percent for natives). The job loss rate for native women between March and April 2020 rose to 20.9 percent, while the rate for immigrant women rose to 29.3 percent, a gap of 8.4 percentage points.

Immigrant women typically have lower job-finding rates than native women. The raw data again reveal the particularly difficult conditions faced by immigrants after the COVID-19 shock. The job-finding rate of native women dropped by only 1.3 percentage points between January and March (from 12.5 to 11.1 percent). The job-finding rate of immigrant women, however, dropped by more than twice as much, from 9.8 percent to 6.9 percent.

The economic lockdown resulted in a large number of workers unable to go to their place of work. Some jobs, however, are relatively easy to perform remotely, such as customer support specialist, while other jobs, such as graders and sorters, cannot be performed remotely. The extent to which a job can be performed remotely—its “remotability” index—may be critical for understanding employment trends during the pandemic.

To measure the remotability of each occupation, we use data from the Bureau of Labor Statistic's Occupational Information Network (O*NET), which contains a rich set of characteristics describing occupations. Specifically, we use the Work Context and Work Activities surveys to calculate a remotability index for each occupation. The occupational characteristics we use are: 1) frequency with which a worker uses email; 2) frequency with which a worker uses the telephone; 3) the importance of interaction with computers; and 4) the importance of analyzing data or information. We chose these four characteristics on the presumption that occupations which score highly on these four dimensions are occupations where remote work is easier.[6] We collapse these four measures into a single index using Principal Component Analysis, which we reweigh to have a standard normal distribution. Additional details of how we calculate the remotability index are presented in the Online Appendix.

To easily illustrate the results, we divide occupations into three categories—high remotability, medium remotability, and low remotability—based on the value of their index (with the threshold values of the index chosen so that the three groups have about the same number of workers). Panel A of Figure 3 plots the fraction of natives and immigrants who are in highly remotable occupations by month, separately for men and women. Natives are more likely than immigrants to be in high remotability occupations, while women are more likely than men to be in high remotability occupations. Not surprisingly, there was a considerable increase in the fraction of workers employed in high remotability occupations in April 2020.

[6] Montenovo et al. (2020) and Dingel and Neiman (2020) also examine the link between occupational remotability and job loss during the pandemic using O*NET data.

Panel B of the figure shows the trends in the job loss rate separately for the three types of occupations. Prior to the pandemic, low remotability occupations experienced had a somewhat higher rate of job loss. In March 2020, however, the spike in the job loss rate was far higher for low remotability occupations than for either medium or high remotability occupation. The job loss rate for men in low remotability occupations climbed by 22 percentage points between January and March, while it only climbed by 6 percentage points for high remotability occupations. The fact that immigrants are much less likely to work in remotable jobs suggests a potential explanation for why they suffered far greater job losses than natives during the pandemic.

3. Regression Results

This section uses data from the pooled January 2019-May 2020 CPS Basic Monthly files to explore why the pandemic differentially affected employment trends for natives and immigrants. The analysis examines the role of both socioeconomic and job characteristics as determinants of the immigrant-native gap. The last section suggested that much of the action was driven by a substantial spike in the number of workers who lost their jobs. This section, therefore, focuses on the differential trends in the rate of job loss for immigrants and natives.[7] For expositional convenience, any reference to a job loss occurring in month *t* in what follows refers to the job loss that occurred between month *t* and month *t*+1.

[7] A comparable regression analysis that would relate the job-finding rate to both individual and job characteristics is problematic. The construction of the job-finding rate requires a person be out of work in the initial period. The occupation and industry of the worker, therefore, is not observed. In fact, the occupation/industry information is missing for about 77 percent of the potential sample that could be used in job-finding regressions, and the information for the remaining 23 percent refers to the characteristics of the worker's previous job.

The analysis obviously requires that we account for differences in the rate of job loss between the two groups prior to the pandemic. We define the period between January 2019 and January 2020 to be the "baseline" pre-pandemic period. Our regression analysis then explores the determinants of what happened to the (relative) rates of job loss in each of the subsequent months through May 2020.

Let the index *t* indicate a calendar month between January 2019 and May 2020; and let the index *p* indicate a "pandemic month," with *p*=0 being the pre-pandemic period before February 2020, $p = 1$ in February 2020, $p = 2$ in March 2020, and $p = 3$ in April 2020. We then estimate the following generic regression model in the pooled data:

$$y_{it} = \theta_t + \gamma_p + M_{ip} + \beta_p x_{it} + \varepsilon, \qquad (2)$$

where y_{it} equals one if (employed) person *i* loses his or her job between calendar months *t* and *t+1,* and equals zero otherwise; θ_t is a vector of calendar month fixed effects (to adjust for seasonal variation); γ_p is a vector of pandemic month fixed effects (with the pre-pandemic period being the left out category); M_{ip} is a vector of interactions between the pandemic month fixed effects and a variable indicating if person *i* is an immigrant; and x_{it} is a vector of socioeconomic and job characteristics (discussed below). Note that the coefficients of the variables in *x* vary by pandemic month, so that all variables are interacted with index *p* to allow for the possibility that the impact of these variables changed during the pandemic.

The coefficient vector γ_p gives the adjusted change in the job loss rate in the post-February pandemic months, relative to the pre-pandemic period. The coefficient vector M_{ip} then

describes how the rate of job loss changed differentially between immigrants and natives during the pandemic.

Table 1 reports the regression results. The regressions in columns 1 and 5 (for men and women, respectively) do not include any variables in the vector *x*. The coefficients then reproduce the raw differences illustrated in Panel A of Figure 2. In the early stage of the pandemic (February 2020), the job loss rate rose slightly more for immigrants than for natives (2.1 percentage points more for men and 3.6 percentage points more for women). By the middle of the pandemic (March 2020), the job loss rate rose much more for immigrants than natives (8.3 points more for men and 7.4 points more for women). Finally, by the beginning of the recovery period (April 2020), the job loss rate remained higher for immigrants than natives (2.1 points for men and 1.7 points for women).

Natives and immigrants differ along many dimensions (e.g., educational attainment and residential location), and these differences might explain the immigrant-native gap in the job loss rate during the pandemic. Columns 2 and 6 add various socioeconomic characteristics to the regression, including education, age, state of residence, and metropolitan status. Recall that each of these variables is interacted with the pandemic month fixed effects. The inclusion of these socioeconomic controls barely changes the size of or the trend in the immigrant-native gap during the pandemic.

Columns 3 and 7 introduce a vector of detailed job characteristics, as measured by occupation and industry fixed effects, and these fixed effects are again interacted with the pandemic month. The data show that the size of the immigrant-native gap in the rate of job loss, particularly at the peak of the pandemic, is far more sensitive to adjusting for job characteristics than for individual characteristics. Adding occupation and industry to the regression reduces the

March 2020 immigrant-native gap from 8.1 to 6.3 percentage points for men, and from 7.2 to 4.7 percentage points for women. In rough terms, approximately a quarter to a third of the relative increase in the job loss rate of immigrants arose because of differences in the types of jobs that the two groups perform.

As noted earlier, natives are far more likely than immigrants to have remotable jobs. The regression presented in columns 4 and 8 replace the industry/occupation fixed effects with the remotability index (which is interacted with the pandemic month fixed effects). The regressions clearly show that a higher index of remotability lowers the probability of job loss substantially, and that this reduction is particularly large in March 2020. Specifically, a one-standard-deviation increase in the index resulted in 5.4 and 9.0 percentage point reductions in job loss rates for men and women, respectively (recall the remotability index has a standard normal distribution).

Equally important, the immigrant-native gap in job loss rates in March 2020 also falls noticeably after including the remotability index in the regression. In fact, the size of that gap is nearly as sensitive to the inclusion of a single variable capturing the ability of the worker to perform his job remotely as it is to the inclusion of fixed effects precisely detailing the worker's occupation and industry. The introduction of the remotability index reduces the magnitude of the immigrant-native job loss gap in March 2020, from 8.1 to 6.8 percentage points for men and from 7.2 to 4.3 percentage points for women. To the extent that job characteristics matter, therefore, it seems that the one factor that easily captures why immigrants suffered heavier employment losses at the height of the pandemic was that immigrants were less likely to work in jobs that could be transferred to a home setting.

4. Job losses and undocumented status

The Department of Homeland Security estimates there were 12.0 million undocumented immigrants in the United States in January 2015, accounting for 27.8 percent of the foreign-born population (Baker, 2019). The immigration status of a foreign-born person is likely to affect labor market opportunities, and that impact may be particularly severe during the historic economic downturn caused by the COVID-19 pandemic.

Although the Basic Monthly CPS does not report if a particular foreign-born person is undocumented, several recent studies use imputation methods that assign every foreign-born person in the sample an "immigration status" code. These imputation methods have been used to study labor supply differences between legal and undocumented immigrants (Borjas, 2017), the impact of the Deferred Action for Childhood Arrivals (DACA) executive action (Hsin and Ortega, 2018; and Amuedo-Dorantes and Antman, 2017), and the wage penalty to undocumented immigration (Borjas and Cassidy, 2019). It is of interest to determine if the historic labor market changes in March-May 2020 had a particular deleterious effect on undocumented immigrants because their employment contract is so tenuous, or if the kinds of jobs often held by undocumented workers (such as jobs in agriculture) "protected" them from the economic consequences.

We build on the work of Passel and Cohn (2014) to impute the immigration status indicator for the foreign-born persons sampled in the Basic CPS files. The Passel-Cohn algorithm identifies the foreign-born persons in any particular sample who are likely to be legal, and then classifies the residual group of foreign-born persons as likely to be undocumented. Specifically, the algorithm classifies a foreign-born person as a *legal* immigrant if a number of conditions hold. The conditions used to assign legal status include: whether the foreign-born person is a citizen; or receives SSI or Social Security benefits; or receives Medicare or Medicaid;

or is a veteran; or works in the government sector; or lives in public housing; or has an occupation that requires some form of licensing. The residual group of persons who do not meet any of these conditions is then assigned undocumented status.

We use this algorithm to create the undocumented status identifier in the March 2019 ASEC file.[8] It is not possible to apply the algorithm directly to the Basic Monthly files because many of the variables required to impute undocumented status (such as receipt of various types of public benefits) are not available in the Basic files. After imputing the immigration status of each foreign-born person in the 2019 ASEC data, we then used the IPUMS-created identifier for a particular person in the CPS sample (*cpsidp*) to match the subsample of persons who appear in both the March 2019 ASEC file and in at least one of the Basic Monthly files used in our analysis.

Measurement error can enter the exercise at several stages, including the imputation algorithm itself, the restriction that we can only identify the undocumented status of persons who appear in both the March 2019 ASEC and the monthly Basic files, and the fact that the person-level (*cpsidp*) does not perfectly match the same person across different CPS cross-sections. Nevertheless, this exercise provides the only (admittedly rough) information that can be gathered about how the COVID-19 labor market shock affected the employment opportunities of undocumented immigrants.

To minimize the measurement problems, we use the available data judiciously.[9] The pre-pandemic period is defined as December 2019-February 2020, and we use the monthly files to

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[8] See Borjas and Cassidy (2019) for details.

[9] The sample is composed of persons who could be matched between the March 2019 ASEC and any of the Basic Monthly Files between December 2019 and May 2020. The sample consists of 10,762 (11,446) native men (women), 1,465 (1,642) legal immigrants, and 588 (537) undocumented immigrants.

determine if a specific individual lost a job sometime in that 3-month period. Similarly, we define the pandemic period to be between March 2020 and May 2020, and construct an analogous variable indicating if a specific individual lost a job during those pandemic months. The raw data indicates that undocumented men were particularly hard-hit by the pandemic. Among men, the job loss rate in the pre-pandemic period was roughly similar among the groups: 5.6 for natives, 5.3 percent for legal immigrants, and 4.5 percent for undocumented immigrants. The job loss rate rose dramatically for all men during the pandemic, but the increase was particularly steep for undocumented men: 16.8 percent for natives, 23.5 percent for legal immigrants, and 31.9 percent for undocumented immigrant. The raw data also show that undocumented immigrant women were not particularly hard hit by the pandemic. The respective job loss rates in the female sample during the pandemic were 22.4, 31.3, and 29.8 percent for natives, legal immigrants, and undocumented immigrants, respectively.

We estimate a slight variation of the model in equation (1). Specifically, the immigration variable differentiates between legal and undocumented immigrants. Table 2 presents the regression results. Columns 1 and 4, as before, do not include any variables in x, so that the coefficients simply replicate the raw data. Despite the smaller sample (and aggregation), the results are roughly similar to those reported in Table 1. The immigrant-native gap in the job loss rate increased by over 4 percentage points during the pandemic (both for men and women). The regression also shows, however, that the increase in the job loss rate for undocumented immigrant men was particularly severe, an additional 9.2 percentage points, and this additional effect is marginally significant.

The remaining columns of the table show that differences in individual characteristics do not explain the increased gap in job loss rates between legal and undocumented immigrant men

during the pandemic, but that differences in job characteristics do, with the gap falling from 9.2 to 4.7 percent. A small part of that decline is related to the differences in the remotability index among groups. This index is far higher for natives (0.03) than it is for legal immigrants (-0.12), and far higher for legal immigrants than it is for undocumented immigrants (-0.40). The specification in column 4 that controls for the remotability index (instead of the industry and occupation fixed effects) indicates that the difference in job loss rates between legal and undocumented immigrants falls to 8.4 percent.

5. Summary

Immigrant men have historically had higher employment rates than native men, while immigrant women have had lower employment rates than native women. We used data from the CPS Basic Monthly files to document the disproportionately adverse impact that the COVID-19 pandemic had on the employment of immigrants, both legal and undocumented. The employment rate of both natives and immigrants declined precipitously as the economic consequences of the pandemic spread through the labor market. The employment decline, however, was much larger for foreign-born workers and particularly for undocumented men. The employment advantage that immigrant men had long experienced was, in fact, reversed. By April 2020, the employment rate of immigrant men was 2 percentage points below that of native men.

We exploited the panel nature of the CPS files to track the employment opportunities of specific workers over time. The tracking exercise lets us calculate the rate of job loss: the fraction of persons who are employed at a particular point in time but who are not at work in the subsequent month. The panel analysis reveals that the relative rate of job loss for (initially employed) immigrant men and women increased dramatically between January and April 2020,

and that the relative probability of finding work declined for (initially out-of-work) immigrant men and women. Furthermore, the job finding rate for immigrant men remained lower than native men during the recovery period of April to May 2020.

Our study suggests that part of the adverse effect that the COVID-19 pandemic had on relative immigrant employment did not result from the very large differences in socioeconomic characteristics that distinguish the immigrant and native populations. Some of the adverse effect, however, can be attributed to the very different kinds of jobs that immigrants and natives hold. Specifically, immigrants were less likely to be employed in jobs that could be performed from a remote setting and suffered disparate employment consequences because the lockdown allowed more native workers to stay at home and remain employed.

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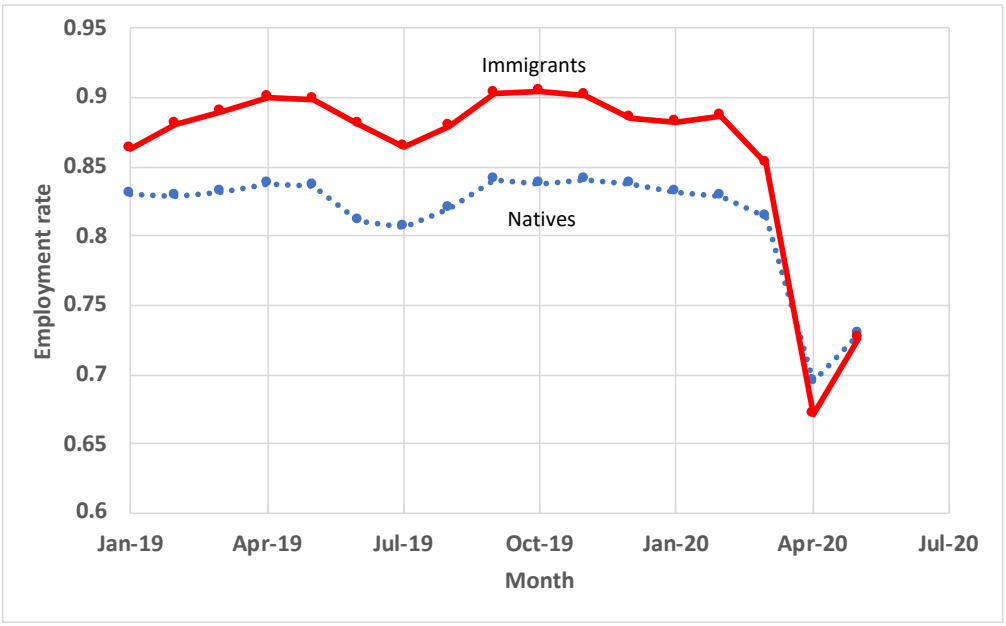
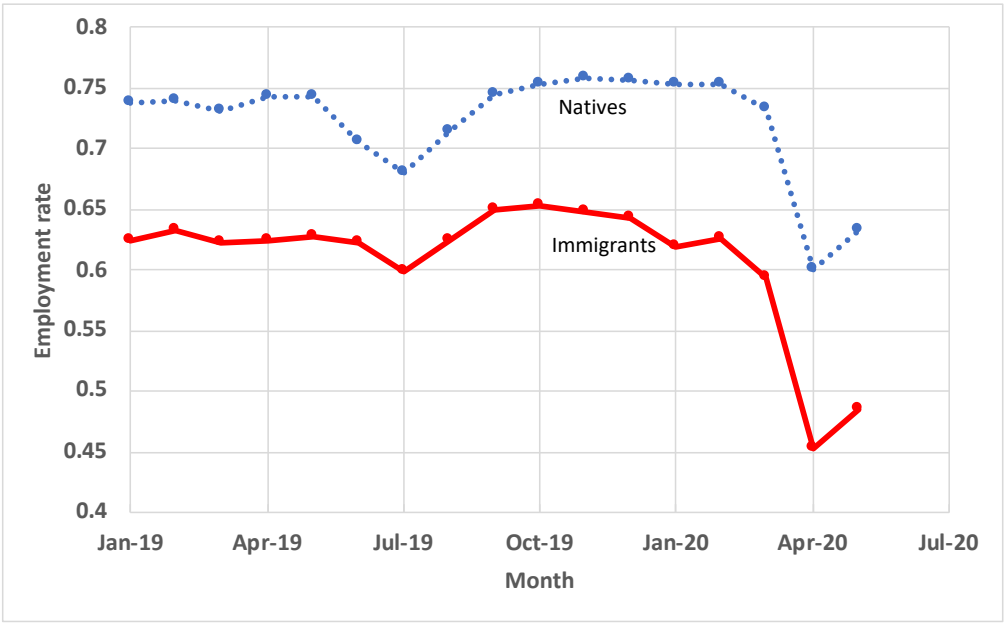
Figure 1. Employment rates in Basic Monthly CPS, January 2019-April 2020

A. Men



B. Women



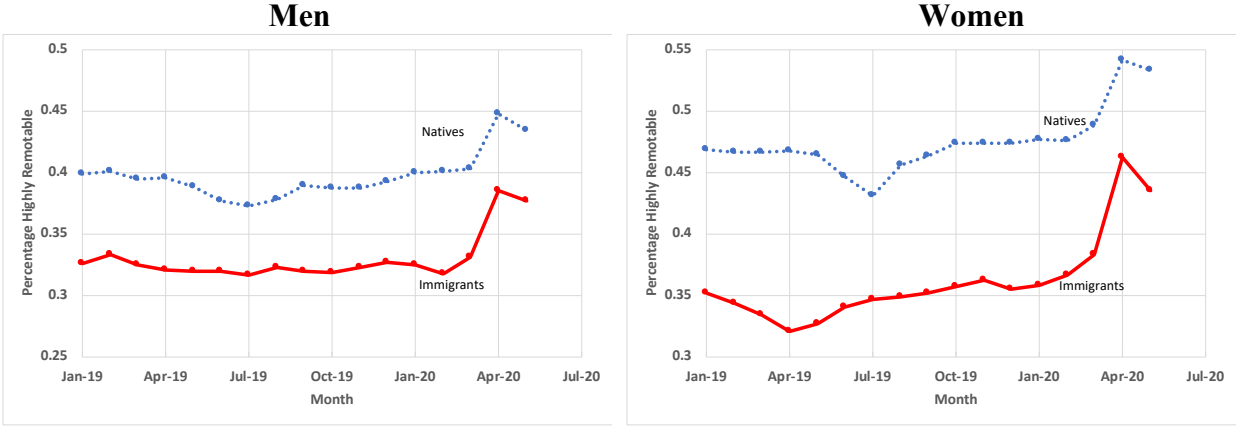
Notes: All samples consist of persons aged 18-64 who are not enrolled in school. The employment rate gives the fraction of persons who are "at work."

Figure 2. The job loss and job-finding rates, January 2019-May 2020

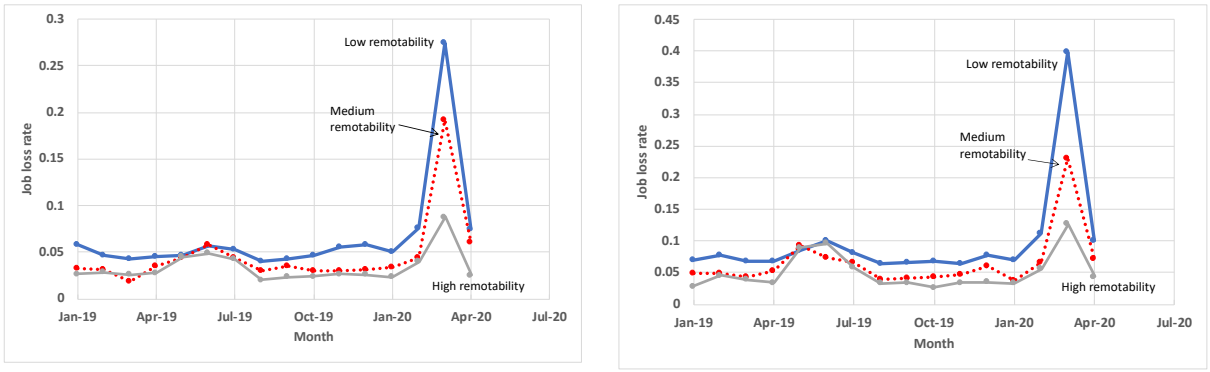
Notes: The job loss rate gives the fraction of persons who were "at work" at time *t* but were not "at work" at time *t*+1. The job-finding rate gives the fraction of persons who were not "at work" at time *t* but were "at work" at time *t*+1. The sample consists of persons who can be matched across two consecutive CPS files.

Figure 3. Job loss and the remotability of work

A. Employment in high-remotability jobs



B. Job loss rate, by degree of remotability



Notes: The job loss rate gives the fraction of persons who were "at work" at time *t* but were not "at work" at time *t*+1. The sample consists of persons who can be matched across two consecutive CPS files. The remotability index uses data from O*NET to measure the ease with which a job can be performed from a remote setting; see text for details on the construction of the index.

Table 1. Panel regressions on month-to-month conditional probability of job loss (January 2019-May 2020)

	Men				Women			
Variable	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Immigrant	-0.003	-0.005	-0.008	-0.006	0.010	0.006	0.003	0.002
	(0.001)	(0.001)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
× Feb 2020	0.021	0.012	0.005	0.009	0.036	0.036	0.036	0.032
	(0.007)	(0.007)	(0.008)	(0.007)	(0.010)	(0.010)	(0.010)	(0.010)
× March 2020	0.083	0.081	0.063	0.068	0.074	0.072	0.047	0.043
	(0.013)	(0.013)	(0.012)	(0.013)	(0.015)	(0.015)	(0.014)	(0.015)
× April 2020	0.021	0.019	0.023	0.019	0.017	0.019	0.014	0.020
	(0.008)	(0.009)	(0.009)	(0.009)	(0.011)	(0.012)	(0.011)	(0.012)
Remotability index				-0.006				-0.011
				(0.001)				(0.001)
× Feb 2020				-0.008				-0.012
				(0.003)				(0.004)
× March 2020				-0.054				-0.090
				(0.005)				(0.006)
× April 2020				-0.004				-0.006
				(0.003)				(0.005)
Includes:								
Education, age	No	Yes	Yes	Yes	No	Yes	Yes	Yes
State, metropolitan status	No	Yes	Yes	Yes	No	Yes	Yes	Yes
Industry	No	No	Yes	No	No	No	Yes	No
Occupation	No	No	Yes	No	No	No	Yes	No

Notes: Robust standard errors in parentheses, clustered by the CPS individual identifier. The dependent variable is set to unity if the person was employed at time *t* but was not employed at time *t*+1, and zero otherwise. The remotability index is defined to have zero mean and unit variance. All independent variables are interacted with observation period, where four periods are included: 1) pre-pandemic (Jan 2020 and earlier); 2) February 2020; 3) March 2020; and 4) April 2020. All specifications also include controls for calendar month. The regressions in the male (female) sample have 206,635 (181,061) observations.

Table 2. Undocumented immigration and the conditional probability of job loss

	Men				Women			
Variable	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Immigrant	-0.003	-0.008	-0.032	-0.010	0.018	-0.001	-0.009	-0.004
	(0.014)	(0.015)	(0.016)	(0.015)	(0.017)	(0.018)	(0.022)	(0.018)
× Pandemic	0.070	0.065	0.065	0.053	0.071	0.072	0.057	0.043
	(0.025)	(0.026)	(0.028)	(0.026)	(0.032)	(0.033)	(0.034)	(0.032)
Undocumented Immigrant	-0.008	-0.033	-0.015	-0.034	0.034	0.021	0.069	0.018
	(0.021)	(0.021)	(0.025)	(0.021)	(0.037)	(0.037)	(0.043)	(0.037)
× Pandemic	0.092	0.096	0.047	0.084	-0.050	-0.070	-0.091	-0.069
	(0.048)	(0.047)	(0.049)	(0.046)	(0.065)	(0.065)	(0.070)	(0.064)
Education, age	No	Yes	Yes	Yes	No	Yes	Yes	Yes
State, metropolitan status	No	Yes	Yes	Yes	No	Yes	Yes	Yes
Industry	No	No	Yes	No	No	No	Yes	No
Occupation	No	No	Yes	No	No	No	Yes	No
Remotability index	No	No	No	Yes	No	No	No	Yes

Notes: Robust standard errors in parentheses, clustered by the CPS individual identifier. The pre-pandemic period covers the period between December 2019 to February 2020. The pandemic period covers from March 2020 to May 2020. The dependent variable is set to unity if the (initially employed) person lost a job during the relevant period. All independent variables are interacted with the two period fixed effects. The regressions in the male (female) sample have 8,184 (7,477) observations.