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IZA DP No. 17756

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ABSTRACT

The Short-Term Effects of COVID-19 on Labour Market Outcomes of Recent Immigrants to Canada*

Our difference-in-difference analysis indicates that Covid-19 had a disproportionately adverse effect on the *employment* of recent immigrants relative to the Canadian-born and this was especially the case in lower-level occupations and in industries hard hit by the pandemic. The effects of Covid on *hours worked* for those who remained employed were modest as were the differential effects for recent immigrants, highlighting that most of the adjustment occurred in the extensive margin of reduced employment rather than the intensive margin of hours worked. Covid was associated with *higher wages* for recent immigrants who remain employed relative to their Canadian-born counterparts, and this is especially the case for recent immigrants in lower-level occupations and hard-hit industries. Reasons for these patterns are discussed.

Keywords: recent immigrants, Canada, COVID-19, difference-in-difference, employment, hours, wages

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1. INTRODUCTION

Recent immigrants are disproportionately affected in an adverse fashion by negative economic shocks in general (Barrass and Shields 2017; Borjas and Cassidy 2020; Liu and Edwards 2015; Lydon, Mathä, and Millard 2019). This is so because being new arrivals, immigrants are engaging in job search at the time of negative shocks when new jobs are scarce and layoffs are prominent. As such, they are generally the last to be hired and the first to be laid off (Chan, Morissette and Qiu 2020; Hou, Picot and Zhang 2020).

Recent immigrants also tend to have lower wages and other undesirable labour market outcomes when compared to comparable Canadian-born persons. However, immigrants assimilate into the labour market and approach, and sometimes even surpass, the wages of comparable domestic-born workers over time -- about 7 to 12 years in Campolieti et al. (2013). Hou, Picot, and Zhang (2020) also document the substantially improved labour market position of immigrants to Canada just prior to the pandemic. If such improvements are inhibited by an unanticipated shock like Covid, there is a risk that this can contribute to reversing the closing of the earnings gap between immigrants and non-immigrants that has occurred (Statistics Canada, 2020).

This raises the issue of whether the recent unanticipated Covid shock affected labour market outcomes of recent immigrants, and whether it had a disproportionately negative effect on recent immigrants relative to the Canadian-born. This is the research question that is the focus of our analysis. Particular attention is paid to immigrants in lower-level occupations and in industries that are harder-hit by the pandemic given their equity implications since recent immigrants in lower-level occupations are already more disadvantaged and vulnerable, and those in industries hard-hit by the pandemic would be subject to a double whammy of already being in

hard-hit sectors and having their employment probabilities disproportionately reduced in those sectors for being a recent immigrant.

As indicated subsequently in the data section, the lower-level occupations tend not to require a high level of education, training, experience, task complexity and responsibility. Examples include office support, care providers, service support, trades helpers, and labourers. Industries that are hard-hit by the pandemic are those that experienced an above-average reduction in their employment rate from the pandemic. Examples include construction, manufacturing, retail trade, transportation, and services including business support, education, and accommodation and food.

The paper begins with a discussion of the directly related literature, followed by a brief discussion of why we may expect a disproportionately negative effect for recent immigrants. It then moves to a discussion of the data and the estimating equation. Results are discussed and the paper ends with an overall summary and concluding observations.

2. DIRECTLY RELATED LITERATURE

While there is extensive literature on the impact of Covid-19 in Canada in general, only a few studies, reviewed below, tend to examine its disproportionate effects on recent immigrants. As reviewed below, those that analyze the effect on immigrants tend to have limitations: some focus on specific groups such as youths or the self-employed; some do not relate to the comparison group of the Canadian-born; some only include a brief period after Covid; and some are limited to a single outcome rather than the three outcomes (employment, hours, and wages) used in our analysis. The studies reviewed below, however, do include one or more variants of our three outcomes.

The World Education Services (2020), for example, conducted a survey of immigrant applicants for credential assessments. They find that 14 percent lost their job due to Covid-19 and a further 13 percent are working reduced hours or receiving reduced pay. However, they do not compare these to effects on comparable Canadian-born persons.

The Labour Market Information Council (2023) uses Labour Force Survey data but with a focus only on immigrant and Canadian-born youths. They document that the 49% employment rate of recent immigrant youth (landed within the last 10 years), was slightly less than the rate for Canadian-born youth (54.5%) prior to the pandemic. However, immigrant youth recovered more rapidly so that in the post-pandemic period the gap had reduced, with immigrant youth having an employment rate of 48.3% compared to 51.9% for Canadian-born youth. They find that the effect of the pandemic on hours of work were similar. For wages, they found that immigrant youth experienced slightly lower wage growth and more wage volatility from the pandemic.

Based on the 2021 Longitudinal Immigration Database, Statistics Canada (2022) focuses only on wage outcomes associated with the pandemic. It documents that the median entry wage in the tax year 2020, the year of the pandemic, dropped by 6.5 percent compared to new immigrants admitted earlier in 2018 prior to the pandemic. This was the first time that the wages of new immigrants dropped relative to the wages in their previous year. The drop was particularly large for female immigrants and for those without knowledge of either English or French. It was also in contrast to a slight increase in the wages of the overall Canadian population in 2020.

Hou, Picot and Zhang (2020) focus on the transitions from employment to non-employment for recent immigrants, established immigrants and the Canadian-born for the first two months of the pandemic (March and April 2020) compared to the partial recovery in the next

three months. Prior to the pandemic, the transition rates were similar for the three groups. In the first two months of the pandemic, the transitions to non-employment increased the most for recent immigrants compared to established immigrants and the Canadian-born. The transition rates to non-employment declined for all three groups in the next three months, but slower for recent immigrants. The disproportionate adverse effects were most pronounced for recent female immigrants in low-wage and short-tenured jobs.

Béland, Fakorede and Mikola (2020a) use Labour Force Survey data to compare the employment and hours worked of unincorporated self-employed business owners before Covid and four months after Covid. They find a substantial negative effect for all self-employed, with the effect on employment being substantially larger for self-employed immigrants (-16.1%) compared to self-employed non-immigrants (-10.6%), and the effect on hours worked being substantially larger for self-employed immigrants (-44.3%) compared to self-employed non-immigrants (-27.0%).

Béland, Fakorede and Mikola (2020b) extend their earlier analysis to also include the employees of the self-employed owners of small business, and for a slightly longer period of 6 months post-covid. They again find disproportionately large negative effects on employment and hours for the immigrant self-employed and their employees compared to non-immigrant self-employed and their employees.

Lamb, Banerjee and Emanuel (2022) is the most comprehensive analysis, using Labour Force Survey data to compare outcomes before Covid (2018, 2019) and after Covid (2020, 2021) for recent and long-term immigrants compared to the Canadian-born. Their outcomes involve five labour force states (employed in a standard job, employed in a nonstandard job, self-employed, unemployed, not in the labour force) as well as hourly earnings and the distribution of

hourly earnings. They find that Covid-19 had no impact on the five labour force states for recent or long-term immigrants relative to the Canadian-born. Covid-19 was associated with an increase in the earnings of men but only for recent immigrant men below the median earnings. For women, it was associated with higher earnings only below the median earnings, and more so for recent immigrants than for established immigrants, both relative to Canadian-born women. Recent immigrant women with higher earnings experienced a slight reduction in their earnings relative to Canadian-born women.

Zhang and Gunderson (2022) use Labour Force Survey data between June 2019 and July 2021 with March 2020 denoting the start of Covid. They examine seven labour market outcomes: employment, full-time employment, temporary employment, hourly wages, weekly hours worked, changes in hours between actual and scheduled hours worked, and unpaid overtime hours. For the continuous outcomes they also examined the distributional effects. They examine the effects of Covid for recent and established immigrants relative to the Canadian-born. They find that Covid had a negative effect for all workers, especially for immigrants and especially recent immigrants and those at the bottom of the outcome distributions. The negative effects were generally larger for the earliest waves of Covid, and especially for recent immigrants who were female, less educated, with child responsibilities and for jobs at greater risk of exposure to Covid.

Clearly, the existing studies use a wide range of different empirical procedures, data, outcomes, time periods, immigrant groups and comparison groups. Our study utilizes difference-in-difference analysis to provide estimates of the differential impact of Covid-19 on three outcomes: employment, hours and hourly wages. Comparisons are made for recent immigrants

relative to comparable Canadian-born persons prior to the pandemic, and the differential effect of the pandemic on recent immigrants relative to the Canadian-born. Our study is closest to the Lamb, Banerjee and Emanuel (2022) and the Zhang and Gunderson (2022) studies, which also use difference-in-difference analyses and a range of outcomes. Our main contribution to the literature, however, is that we also do the comparisons in a separate intersectional fashion for individuals who are in lower-level and higher-level occupations as well as in industries that are low-hit and hard-hit by the pandemic. Our study also provides a robustness analysis of various alternative specifications and sampling periods to determine if the results are robust with respect to these alternatives.

3. EXPECTED RELATIONSHIPS

There are various theoretical reasons as to why recent immigrants may experience severe labour market effects from the unanticipated COVID shock, and why these effects may be disproportionately large relative to observationally equivalent domestic-born Canadians. These expected relationships help in interpreting our empirical results.

As indicated previously, recent immigrants are disproportionately affected in an adverse fashion by negative economic shocks *in general*, and the Covid-19 pandemic would certainly qualify as a severe negative economic shock. In such circumstances, recent immigrants are engaging in job search at a time when new jobs are scarce and layoffs are prominent. Being a new-hire with little seniority, they are generally the last to be hired and the first to be laid off (Chan, Morissette, and Qiu 2020; Hou, Picot, and Zhang 2020).

New immigrants are often visible minorities given the shift in source countries over time. As such, immigrants may be subject to the additional discrimination that is otherwise dissipated

when competition is prominent, and labour markets are tight and recruitment is difficult (Baert et al. 2015; literature cited in Gunderson 2020). Such discrimination can be fostered by perceptions that immigrants are taking jobs away from Canadian-born workers, especially in times when layoffs are prominent.

New immigrants often work in temporary jobs that are used to buffer demand shocks with those jobs disappearing under negative shocks like Covid (Zhang and Banerjee 2021). New immigrants disproportionately work in jobs that are hard-hit by the pandemic such as public transit, nursing and residential care, personal and food services and leisure and domestic work (Dinç 2021; Hou, Picot, and Zhang 2020; Statistic Canada 2020). They are often hit by a double-whammy of being in jobs that are not only hard-hit by the pandemic but that are also often low-wage and part-time jobs (Hou, Picot, and Zhang 2020; Lemieux et al. 2020; Messacar, Morissette, and Deng 2020; Mo et al. 2020). New immigrants tend not to work in jobs that can be protected from the pandemic by working from home (Béland, Brodeur, Mikola and Wright 2022; Gallacher and Hossain 2020).

New immigrants are often exposed to the risk of the virus through front-line or essential service jobs (Koebel and Pohler 2020; Statistics Canada 2020). In such circumstances, their employment opportunities may be enhanced, and they may work longer hours and receive wage bonuses as hazard pay.

For these reasons, recent immigrants may experience mixed labour market effects from the unanticipated COVID shock, and these effects may be disproportionately large relative to the effects for observationally equivalent Canadian-born workers. Given the empirical ambiguity of many of these relationships, it is important to examine the evidence.

4. DATA AND ESTIMATION EQUATIONS

4.1 Data

Our analysis is based on individual data from repeated cross-sections of the public-use monthly files of the Canadian Labour Force Survey (LFS) over the period January 2018 to July 2020 surrounding the month of March 2020 when the World Health Organization declared COVID-19 as a global pandemic on March 11, 2020. The LFS uses a rotating six-month panel sample. In response to Covid, a wide range of regulations were imposed that would affect markets including the labour market. Examples included proclaiming a state of emergency with border closings, lockdowns, school closings, child-care closings, restrictions on indoor restaurant dining, and social distancing and masking requirements. Especially hard-hit were the service sectors where personal interaction was prominent. Since March would only be partially affected by these actions, March 2020 is excluded from the analysis (as in Fairlie, Couch and Xu 2020). We end our post-covid period by July 2020 since some restrictions were relaxed around that time and the labour market adjustments are expected to be fairly immediate. As such, our *COVID* variable is coded 1 for the post-Covid period from April to June 2020, and 0 for the pre-Covid period from January 2018 to February 2020.

We restrict our analysis to individuals aged 25 to 54 who worked in the past 12 months with positive earnings so as not to confound the effect of youths transitioning into the labour market or older workers transitioning into retirement. Our three dependent variable outcome measures are being employed or not, actual hours worked, and hourly wages. We analyze the unconditional employment probability of the individuals based on the full sample. The hours and wage outcomes are estimated on the sub-sample of those who were employed both before

and during Covid. For this sub-sample, the restriction to positive hours and wages eliminates those who could retain their employment around Covid but not work positive hours or be paid wages. The hourly wage measures are also trimmed so that the top 5% percentiles (earning more than \$55 per hour) are removed, and it is adjusted by the monthly Consumer Price Index.

We create a higher-level and lower-level occupation measure by mapping the 40 NOC codes available in the LFS into higher-level and lower-level categories (provided in Appendix 1, available on request). Essentially, the higher-level category is composed of managerial and professional occupations that tend to require a high level of education, training, or preparatory routes involving experience, complexity and responsibilities before entering employment. The lower-level category consists of all other NOC groups that tend not to require such a high level of education, training, experience, complexity and responsibility. Obviously, they may require some of those components for doing their tasks, but generally do not require high levels of many of them. The NOC codes themselves were developed through ongoing discussions between Employment and Skills Development Canada and Statistics Canada as well as consultations with stakeholders.

Our hard-hit industry measure is more straightforward and is based on industries that experienced an above-average reduction in the employment rate after Covid. Our mapping of the 21 industry codes into hard-hit and low-hit industries is given in Appendix 2, available on request.

Our key explanatory variable is a recent immigrant (*RecImm*) coded 1 for a recent immigrant who was within 10 years of arrival, and 0 if they were Canadian-born. The LFS also contains information on established immigrants who have been in the country for more than 10 years. We excluded them from the analysis, rather than including them in the comparison group

of Canadian-born, so as to get a sharper picture of how the pandemic affected recent immigrants relative to the Canadian-born.

Our control variables are conventional ones used in the literature cited previously. For the employment outcome, they include education as a measure of human capital, as well as personal and family characteristics such as age, gender, marital status and child status. Provincial controls are also included. For the hours worked and hourly wage outcomes for those who are employed, control variables also include additional job characteristics (multiple-job holder status, public-private sector status, part-time employment status, temporary employment status, tenure, union membership status and firm size).

Regression results for our control variables (Appendix 3 and 4 available on request) are in the expected direction and consistent with the literature. This gives credence to our key results for recent immigrants. For example, after controlling for the effect of other variables, wages are higher for males than females, for British Columbia, Ontario and Alberta relative to other provinces, for full-time compared to part-time employees, for permanent as opposed to temporary employees, for union compared to nonunion employees and for large firms compared to small firms.

Descriptive statistics, separately for the pre-Covid and post-Covid period and the statistical significance of the change over that period, are given in Table 1A for the full sample of employed and not-employed, and Table 1B for the subsample of employed as appropriate for the hours and wage dependent variables.

As indicated in Table 1A, the probability of being employed post-Covid dropped substantially from 0.85 to 0.73. The percentages for the control variables are fairly similar in the

pre-Covid and post-Covid periods (generally at the lower end of the third digit level), suggesting that there was little change in the overall nature of the samples over that period.

As indicated in Table 1B, average hours worked did not change much pre-and post-Covid, although this may reflect offsetting tendencies with some working part-time and in jobs where the contraction was met by reducing hours, and others working longer hours, especially in front-line jobs and to compensate for any reduction in the employment of co-workers. Real hourly wages increased from an average of \$29.44 to \$31.88, likely reflecting compositional changes as higher wage workers were more likely to retain their jobs. This is documented in Schirle (2021) and in the next row of Table 1B where the proportion of highly skilled workers increased from 27 percent pre-covid to 32 percent post-Covid, and the proportion of lower-skilled workers fell correspondingly. Except for that change, the percentages for the control variables are similar in the pre- and post-Covid periods, with the changes generally being small.

3.2 Difference-in-Differences for Recent Immigrants vs. Canadian-born

We use a conventional Difference-in-Difference (DiD) equation to estimate the differential effects of the COVID-19 lock-down on recent immigrants' labour market outcomes compared to the comparable Canadian-born. Such an approach has been used to estimate the impact of COVID-19 on various demographic groups (Bauer and Weber 2020; Cho et al. 2020; Fairlie et al. 2020). Our conventional DiD equation is:

$$Y_{i,t} = \beta_0 + \beta_1 RecImm_{i,t} + \beta_2 COVID_t + \beta_3 (RecImm_{i,t} \times COVID_t) + \beta_4 X_{i,t} + \varepsilon_{i,t} \quad (1)$$

where i denotes the individual i in the survey data, t denotes the studied period, $Y_{i,t}$ represents the labour market outcomes for individual i during the period after the shock at t . The labour market outcome dependent variables $Y_{i,t}$ are employed vs. not employed, hours worked and hourly wages as discussed. The binary variable $RecImm_{i,t}$ equals 1 if the individual is a recent immigrant, and 0 if Canadian-born. Its coefficient β_1 is the difference in the outcome between recent immigrants and the Canadian-born in the pre-Covid period. The binary variable $COVID_t$ is coded 1 for the post-covid period after March 2020, and 0 for the pre-covid period before March 2020. Its coefficient β_2 is the common difference between the pre-Covid and post-Covid period in the outcomes for both recent immigrants and Canadian-born individuals. The $RecImm_{i,t} \times COVID_t$ interaction term is the key difference-in-difference interaction term with its coefficient β_3 giving the differential effect of the Covid pandemic on recent immigrants relative to the Canadian-born. The vector $X_{i,t}$ represents control variables for personal characteristics as given in Table 1A, as well as job characteristics for the subsample of employed as given in Table 1B. The models also include the seasonal (monthly) fixed effects, year fixed effects, and provincial fixed effects. Standard errors are clustered at the month, year and province level.

5. RESULTS

Our Difference-in-Difference results for the three outcomes of employment, hours and wages are reported for all workers in the analysis sample as well as separately for workers in lower-level and higher-level occupations, and workers in hard-hit and low-hit industries, respectively.

4.1. Employment

Table 2 presents the Difference-in-Difference results comparing recent immigrants with their Canadian-born counterparts, for the three outcomes: employment, hours worked and hourly wages. Since the employment outcome is dichotomous, coded 1 if employed and 0 if not employed, we use Probit analysis and report marginal effects.

For the employment outcome (column 1), in the pre-covid period (row 1), recent immigrants had a probability of being employed that is 1 percentage point less than their comparable Canadian-born counterparts. As indicated, this likely reflects their job search process in their early years in Canada and as their credentials and experience are not yet recognized and revealed. Covid has a common effect of reducing the probability of being employed by 12.9 percentage points for both recent immigrants and Canadian-born workers (row 2) reflecting the substantial effect of this unanticipated shock. The key difference-in-difference effect (row 3) indicates the disproportionate adverse effect on recent immigrants, reducing their employment probability by a further 3.1 percentage points relative to their Canadian-born counterparts, thereby increasing their pre-Covid employment gap. Adding the 12.9 percentage points common effect for both recent immigrants and Canadian-born workers to the additional 3.1 percentage points for recent immigrants indicates that the Covid shock reduced the employment opportunities of recent immigrants by a total of 16 percentage points (row 4). For Canadian-born workers (i.e., where $RecImm_{i,t}$ equals 0 so there is no additional interaction effect) their total effect is simply the common effect of Covid of 12.9 percentage points.

Columns 2 and 3 indicate that these negative effects on the probability of being employed were all larger for individuals in lower-level occupations (column 3) compared to higher-level occupations (column 2), and this was especially the case for lower-level recent

immigrants (column 3, row 3). Combining the common negative effect of Covid for both recent immigrants and Canadian-born workers (row 2) with the disproportionate adverse effect for recent immigrants (row 3) highlights that the adverse effect of Covid on reducing the probability of being employed for recent immigrants relative to the Canadian-born was approximately three times greater for lower-level recent immigrants (-0.209, column 3, row 4) relative to higher-level recent immigrants (-0.066, column 2, row 4). In essence, the disproportionate adverse effect on the employment of recent immigrants was especially prominent for lower-level recent immigrants.

Similarly, as indicated in Table 3 the negative effect of Covid on employment was substantially greater for recent immigrants compared to their Canadian-born counterparts in hard-hit industries compared to less hard-hit industries.

Our Probit results for the binary coded employment variable are very similar to those from an OLS regression (results available on request in Appendix 5 for the high-level and lower-level occupations, and in Appendix 6 for the hard-hit and low-hit industries.)

4.2 Hours Worked

Column 4 in Table 2 for the hours worked outcome, indicates that in the pre-Covid period recent immigrants worked 0.8 percent fewer hours than their Canadian-born counterparts (row 1). Covid has a common effect of reducing the hours of work by 1.9 percent for both recent immigrants and Canadian-born workers. The key difference-in-difference effect of row 3 indicates that the disproportionate effect on the hours worked of recent immigrants relative to their Canadian-born counterparts was small and statistically insignificant.

Such modest reductions in hours of work for immigrants, also found in Beland et al. (2020), highlight that most of the reductions occurred on the extensive margin of employment and not the intensive margin of hours worked conditional on being employed. Obviously, the total unconditional hours reduction would be substantial reflecting the reduction to zero hours for those who are no longer employed.

As indicated in columns 5 and 6, the modest reduction in hours worked for all recent immigrants relative to their Canadian-born counterparts is a result of various offsetting forces depending upon the occupation level. Specifically, the combined effect of the common impact of Covid for both recent immigrants and Canadian-born workers (row 2) plus the disproportionate effect for recent immigrants (row 3) yielded an overall increase of 2.3 percent (row 4) for higher-level recent immigrants and an overall decrease of 2.6 percent for lower-level recent immigrants, both relative to the Canadian-born (row 4).

Overall, the changes in hours worked for those who remained employed were modest although lower-level recent immigrants experienced a slight reduction in their hours of work relative to their lower-level Canadian-born counterparts. Most of the adjustment occurred in the extensive margin of reduced employment, rather than the intensive margin of hours worked.

4.3 Wages

For the wage outcome, column 7 of Table 2 indicates that in the pre-Covid period recent immigrants had wages that were 16.7 percent lower than their Canadian-born counterparts, reflecting the usual negative entry effect upon first arrival. Covid is associated with common wage reductions of about 1.9 percent for both recent immigrants and Canadian-born workers who remained employed. The key difference-in-difference effect of row 3 indicates that recent

immigrants experienced an additional 4.1 percent increase in their wages relative to their Canadian-born counterparts in the post-Covid period. Adding the overall effect for all workers to the additional effect for recent immigrants indicates that Covid is associated with an increase of 2.2 percent in wages for recent immigrants relative to their Canadian-born counterparts (row 4). For Canadian-born workers (i.e., where $RecImm_{i,t}$ equals 0 so there is no additional positive interaction effect) their total effect is simply the common effect of Covid of wage reductions of about 1.9 percent.

Some of these positive wage effects associated with Covid for recent immigrants who remain employed can reflect a compositional effect from the more skilled immigrants being less likely to lose their jobs, as well as some recent immigrants receiving bonus payments for working in jobs exposed to the virus. Such a selection effect was documented by Schirle (2021) where the higher-wage women tended to retain their jobs, giving rise to the appearance of a narrowing of the male-female wage gap.

Columns 8 and 9 indicate that prior to Covid the wage deficit was substantially larger for lower-level recent immigrants (19.5 percent) relative to their comparable lower-level Canadian-born workers, compared to the wage deficit of 8.7 percent for higher-level recent immigrants relative to their comparable higher-level Canadian-born workers (row 1). Covid had a greater disproportionate positive and statistically significant effect of 3.5 percent on the wages of lower-level recent immigrants (row 3) compared to their Canadian-born counterparts than was the case for higher-level recent immigrants (1.9 percent, insignificant, row 3). Adding rows 3 and 4 indicates that Covid is associated with slightly higher wages for lower-level recent immigrants (1.7 percent) compared to the slightly negative effect (0.8 percent) for higher-level recent immigrants. The slightly higher wages for lower-level recent immigrants can reflect a

combination of the selection effect and the wage bonuses associated with working in jobs with greater exposure to Covid risk.

4.4 Differential Effect for Low-hit and Hard-hit Sectors

Table 3 gives the differential effect of Covid for recent immigrants relative to the domestic-born separately for *low-hit and hard-hit industries*. As indicated previously, hard-hit industries are those that had an above-average reduction in their employment rate after Covid. The intent is to determine if the effects of Covid for recent immigrants relative to the Canadian-born were also greater in industries that were hardest hit by Covid. Since the common effects of Covid are the same for both recent immigrants and Canadian-born workers in Table 2 and 3 (i.e., columns 1, 4 and 7), we focus our discussion only on the differential effects between hard-hit and low-hit sectors.

For the employment outcome, the main differential effects are that Covid had a much greater negative effect on reducing the probability of employment for all workers in hard-hit industries (-0.172 column 3 row 2) where reductions in employment were already above average, compared to low-hit sectors (-0.072) where reductions in employment were already more modest. The key difference-in-difference effect of row 3 indicates that this adverse effect on employment in hard-hit sectors was disproportionately greater for recent immigrants in hard-hit sectors (-0.044) compared to low-hit sectors (-0.025). As indicated in row 4, adding this differential effect of -0.044 to the common effect of Covid for both recent immigrants and Canadian-born workers of -0.172 indicates that relative to comparable Canadian-born workers, recent immigrants experienced reductions in their probability of being employed that was over twice as great in hard-hit sectors (-0.216, column 3, row 4) compared to low-hit sectors (-0.097, column 2, row 4). In essence, recent immigrants experienced a double whammy of being in hard-

hit sectors with above-average reductions in their employment rate and having their employment probabilities disproportionately reduced in those sectors.

For the hours worked outcome the disproportionate adverse effects for recent immigrants relative to the Canadian-born are not large, highlighting again that the effects tend to occur on the extensive margin of employment and not on hours worked.

For the wage outcome, the differential effects between low-hit and hard-hit sectors tend to be small (column 9 compared to column 8). However, the D-in-D disproportionate positive wage effect for recent immigrants relative to the Canadian-born (row 3) is about twice as high at 4.9 percent in hard-hit sectors compared to 2.5 percent in low-hit sectors. This likely reflects a combination of a compositional effect as higher-wage immigrants are more likely to retain their jobs, as well as the effect of a bonus wage paid for workers to compensate for the risk of working in sectors that are hardest hit by the pandemic.

Overall, our comparisons between sectors that are hard-hit and less-hit by the pandemic indicate that recent immigrants experienced a double whammy of being in hard-hit sectors with above-average reductions in their employment rate and having their employment probabilities disproportionately reduced in those sectors. For the hours worked outcome the disproportionate adverse effect for recent immigrants relative to the Canadian-born are not substantial, highlighting again that the effects tend to occur on the extensive margin of employment and not on hours worked. For the wage outcome the different effects between low-hit and hard-hit sectors also tend to be small, although the disproportionate (positive) effect for recent immigrants relative to the Canadian-born is about twice as high in hard-hit sectors compared to low-hit sectors. Again, this likely reflects a combination of a compositional effect as higher-

wage immigrants are more likely to retain their jobs, as well as a bonus-wage effect paid for immigrant workers in sectors that are hardest hit by the pandemic.

These results based on the pre-Covid time period being January 2018 to February 2020 and the post-Covid time period from April 2020 to July 2020 are robust with respect to updated data using a longer post-Covid time period ending in March 2022 (Appendix 7 for the high-level and lower-level occupations, and Appendix 8 for the hard-hit and low-hit industries, available on request). As expected, the effects of Covid were generally smaller when the economy was coming out of the pandemic and returning to normal. For example, for the employment outcome, which is where most of the adjustment occurred, the disproportionate adverse effect of the pandemic on recent immigrants relative to their Canadian-born counterparts in lower-level occupations is reduced in the longer time period to about half of the initial immediate adverse effect. In essence, there is still a disproportionately negative effect for recent immigrants in lower-level occupations, but the disparities have narrowed.

6. CONCLUDING OBSERVATIONS

Our concluding observations will focus on row 4 results of Table 2 for lower-level and higher-level workers and Table 3 for low-hit and hard-hit sectors since this is a main contribution to the literature. These capture the common effect of Covid for both recent immigrants and Canadian-born workers (row 2) as well as the differential effect on recent immigrants relative to their Canadian-born counterparts (row 3).

For the employment outcome, our analysis indicates that Covid-19 had a disproportionately adverse effect on the *employment* of recent immigrants relative to the

comparable Canadian-born and this was especially the case in lower-level occupations compared to higher-level occupations.

The effects of Covid on *hours worked* for those who remained employed were modest although lower-level recent immigrants experienced a slight reduction in their hours relative to their comparable lower-level Canadian-born counterparts. Most of the adjustment occurred in the extensive margin of reduced employment, rather than the intensive margin of hours worked.

Covid is associated with slightly *higher wages* for recent immigrants who remain employed relative to their Canadian-born counterparts, and this is especially the case for lower-level recent immigrants. This can reflect compositional effects if the lower-level recent immigrants are less likely to remain employed, as documented previously. It can also reflect wage bonuses associated with working in jobs with greater exposure to Covid risk.

Comparisons between sectors that are *hard-hit and low-hit* by the pandemic indicate that recent immigrants experienced a double whammy of being in hard-hit sectors with above-average reductions in their employment rate and having their employment probabilities disproportionately reduced in those sectors. For the hours worked outcome the disproportionate adverse effect for recent immigrants relative to the Canadian-born in hard-hit compared to low-hit industries is not substantial, highlighting again that the effects tend to occur on the extensive margin of employment and not on hours worked. For the wage outcome the differential effects between low-hit and hard-hit sectors tend to be small, although the disproportionately positive wage effect for recent immigrants relative to the Canadian-born is about twice as high in hard-hit sectors compared to low-hit sectors. Again, this likely reflects a combination of a compositional effect as higher-wage immigrants are more likely to retain their jobs, as well as the effect of a bonus wage paid for immigrant workers in sectors that are hardest hit by the pandemic.

Overall, our results indicate that recent immigrants have severe adverse employment effects associated with Covid-19 as is the case for both recent immigrants and Canadian-born workers, but the adverse effects are disproportionately large for recent immigrants compared to their Canadian-born counterparts. This is especially the case for recent immigrants in lower-level occupations and in industries hard-hit by the pandemic. For those who remain employed, the effects on hours of work are not substantial, as is the case for the differential effect of Covid on recent immigrants relative to their Canadian-born counterparts. This is also the case for the differential effects by lower-level and higher-level occupations and in industries that are hard-hit and low-hit by the pandemic. In essence, most of the adjustment occurs on the extensive margin of employment and not on the intensive margin of hours worked.

The substantial adverse effect of Covid on the employment of recent immigrants, both absolutely and relative to their Canadian-born counterparts, has important implications for the assimilation of immigrants into the Canadian labour market. The fact that this adverse effect is disproportionately felt by recent immigrants in lower-level occupations has equity implications since these are already more disadvantaged and vulnerable workers. The fact that the adverse effect is disproportionately felt by recent immigrants in industries hard-hit by the pandemic highlights the double whammy of being in hard-hit sectors with above-average reductions in their employment rate and having their employment probabilities disproportionately reduced in those sectors.

Disruption in the labour market assimilation of immigrants can inhibit them from earning their living and contributing to tax revenues and lead them to be “have-nots” in receipt of transfer payments, despite the evidence that immigrants are no more likely than Canadian-born persons to receive such transfers (Crossley, McDonald and Worswick 2001). Dependency on

transfer payments can foster backlashes, polarization, and xenophobia associated with immigrants often perceived as “importing” the virus (Gover, Harper and Langton 2020; Miconi et al, 2021). Negative labour market experiences for immigrants can contribute to long-lasting downward career mobility and talent waste that can inhibit the ability of Canada to compete for international talent (Al Ariss et al, 2012). It can lead to a legacy of longer run even intergenerational negative scaring effects in various dimensions (Morissette, Zhang and Frenette. 2007; OECD 2020; von Wachter 2020). Clearly this issue merits policy attention, and the policy attention should focus on lower-skilled jobs and sectors that are hardest hit by negative shocks since that is where the disproportionate adverse effects are experienced for recent immigrants.

With respect to policies to assist immigrants in the lower-skilled jobs, many may be in those jobs because their higher-skill foreign credentials are not recognized (Gou 2007). Not able to obtain jobs commensurate with their credentials at the higher-end of the skill distribution, they may be crowded into the very bottom of the distribution into low-wage service jobs (Gomez et al, 2015). Policies to mitigate this problem include governments working with regulatory agencies to facilitate the licensing of internationally trained professionals, as in Ontario Ministry of Citizenship and Immigration (2006) and Ontario’s Bill 124, the *Fair Access to Regulated Professions Act* to facilitate occupational licensing for immigrants.

In addition to *recognizing* foreign skills, *enhancing* the skills of recent immigrants can also increase their employability and earnings. Given the growth of the knowledge economy such important skills include core ones in such areas as communication, socio-emotional, digital and basic literacy and numeracy skills, as well as soft skills such as those related to interpersonal relationships, leadership, communication, conflict resolution, teamwork and time management (Future Skills Centre 2023, p.1).

Assessing the skills of recent immigrants and providing timely and local labour market information (LMI) as well as mentoring, training, and information on Canadian workplace cultural norms can also help match the skills of recent immigrants with employer needs. An example is Facilitating Access to Skilled Talent (FAST) designed by the Immigrant Employment Council of BC (IEC-BC) with extensive employer input (Future Skills Centre 2022). Since the interventions can be sector-specific, they can also focus on sectors that are hardest-hit by negative shocks.

Recent immigrants may also be restricted to lower-skill jobs because of insufficient knowledge of either of our official languages, given the importance of such language proficiency for immigrants to Canada (Campolieti et al., 2013). Free language training can help overcome that deficiency as in *Language Instruction for Newcomers to Canada* (LINC). The same applies to increasing the points given for language proficiency in the Canadian points-based system for entry into Canada (Beach et al. 2011, p. 11 – 13).

Policy initiatives can also involve further research to deal with some of the limitations of our analysis. These includes expanding our focus on recent immigrants to also include established immigrants, as well as expanding the analysis to include a longer post-Covid period. Examining the possible longer-run scarring effects is also merited. Also, it would be informative to include more than our three outcomes, to incorporate additional outcomes as used in Lamb, Banerjee and Emanuel (2022) and Zhang and Gunderson (2022) as reviewed previously. It would also be informative to do a distributional analysis as in Lamb, Banerjee and Emanuel (2022) and Zhang and Gunderson (2022) to determine how the effects differ across the distribution of the outcomes.

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Table 1A. Descriptive Statistics for Full Sample of Employed and Not Employed

Variable	Pre- COVID mean	Post- COVID mean	Change
Employment outcomes: being employed	0.850	0.729	-0.123***
Immigration status			
Canadian-born	0.913	0.915	0.002***
Recent immigrants	0.087	0.085	-0.002***
Gender			
Male	0.511	0.509	-0.002
Female	0.489	0.491	0.002
Youngest child			
0 – 6	0.204	0.203	-0.001
6 – 12	0.164	0.167	0.003**
13 – 17	0.093	0.095	0.002**
18 – 24	0.539	0.535	-0.004***
Education			
0 to 8 years	0.011	0.009	-0.002***
Some secondary	0.051	0.046	-0.005***
Gr 11 to 13, graduate	0.176	0.163	-0.012***
Some post-secondary	0.046	0.045	-0.001**
Post secondary certificate or diploma	0.419	0.418	-0.001
Bachelor’s degree	0.207	0.221	0.014***
Graduate degree	0.092	0.098	0.007***
Marital status			
Married	0.491	0.499	0.008***
Living in common law	0.204	0.201	-0.003***
Widowed	0.004	0.004	-0.001***
Separated	0.031	0.029	-0.001***
Divorced	0.036	0.034	-0.002***
Singel, never married	0.234	0.233	-0.001
Age			
25 to 29	0.163	0.152	-0.012***
30 to 34	0.171	0.169	-0.002
35 to 39	0.174	0.178	0.004***
40 to 44	0.164	0.168	0.004***
45 to 49	0.160	0.162	0.002*
50 to 54	0.168	0.170	0.002**
Province			
Newfoundland and Labrador	0.036	0.033	-0.004***
Prince Edward Island	0.029	0.028	-0.001
Nova Scotia	0.051	0.053	0.002***
New Brunswick	0.050	0.052	0.002***

Quebec	0.181	0.189	0.008***
Ontario	0.253	0.258	0.005***
Manitoba	0.085	0.087	0.003***
Saskatchewan	0.082	0.079	-0.004***
Alberta	0.117	0.114	-0.004***
British Columbia	0.115	0.106	-0.009***
<hr/>			
Population	955,411	123,866	

Notes: Pre-Covid period is from January 2018 to February 2020; post-Covid period is from April 2020 to July 2020.

Table 1B. Descriptive Statistics for Sub-Sample of Employed

	Pre- COVID mean	Post- COVID mean	Change
Employment outcomes			
Hours worked	38.062	37.830	-0.232***
Hourly wages	29.439	31.878	2.439***
Occupation level			
High level	0.272	0.319	0.048***
Lower-level	0.728	0.681	-0.048***
Sector			
Hard- hit sectors	0.565	0.515	-0.050***
Low-hit sectors	0.435	0.485	0.050***
Job status			
Multiple job holder	0.060	0.040	-0.021***
Single job holder	0.940	0.960	0.021***
Class of workers			
Public sector employees	0.710	0.674	-0.036***
Private sector employees	0.290	0.326	0.036***
Full-time or part-time job			
Full-time	0.897	0.920	0.022***
Part-time	0.103	0.080	-0.022***
Permanent or temporary job			
Permanent	0.898	0.915	0.018***
Temporary	0.102	0.085	-0.018***
Tenure			
Less than 1 year	0.183	0.145	-0.038***
From 1 to 5 years	0.318	0.320	0.002
More than 5 years	0.494	0.529	0.036***
Union member			
Union member	0.330	0.356	0.026***
Not union member	0.670	0.644	-0.026***
Firm size			
Less than 20 employees	0.176	0.159	-0.017***
20 to 99 employees	0.164	0.155	-0.009***
100 to 500 employees	0.153	0.158	0.005***
More than 500 employees	0.506	0.527	0.021***
Gender			
Male	0.512	0.521	0.010***
Female	0.488	0.479	-0.010***

Youngest child			
0 – 6	0.189	0.186	-0.002*
6 – 12	0.165	0.169	0.004***
13 – 17	0.094	0.100	0.006***
18 – 24	0.552	0.544	-0.008***
Education			
0 to 8 years	0.009	0.006	-0.002***
Some secondary	0.046	0.037	-0.010***
Gr 11 to 13, graduate	0.173	0.152	-0.021***
Some post-secondary	0.045	0.041	-0.004***
Post secondary certificate or diploma	0.423	0.419	-0.004**
Bachelor's degree	0.214	0.239	0.025***
Graduate degree	0.090	0.105	0.015***
Marital status			
Married	0.482	0.504	0.022***
Living in common law	0.206	0.203	-0.003**
Widowed	0.004	0.003	-0.001***
Separated	0.031	0.030	-0.001**
Divorced	0.035	0.035	-0.001
Singel, never married	0.241	0.225	-0.016***
Age			
25 to 29	0.168	0.146	-0.022***
30 to 34	0.171	0.65	-0.005***
35 to 39	0.174	0.176	0.003**
40 to 44	0.166	0.175	0.009***
45 to 49	0.160	0.166	0.006***
50 to 54	0.162	0.172	0.010***
Province			
Newfoundland and Labrador	0.036	0.032	-0.004***
Prince Edward Island	0.028	0.028	0.000
Nova Scotia	0.052	0.053	0.001
New Brunswick	0.051	0.054	0.003***
Quebec	0.181	0.191	0.010***
Ontario	0.259	0.257	-0.002
Manitoba	0.086	0.093	0.007***
Saskatchewan	0.081	0.079	-0.002*
Alberta	0.115	0.111	-0.004***
British Columbia	0.112	0.103	-0.009***
<hr/>			
Population	705,734	79,682	
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Notes: Pre-Covid period is from January 2018 to February 2020; post-Covid period is from April 2020 to July 2020.

Table 2. Difference-in-Differences Results, Three Outcomes, All Workers and Higher-level and Lower-level Occupation Separate (Probit marginal effects for the binary-coded employment outcome; OLS for the hours and wage outcomes)

Sample by NOC	Probability of employment			Log of actual hours worked			Log of hourly wages		
	All	Higher-level	Lower-level	All	Higher-level	Lower-Level	All	Higher-level	Lower-level
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Sample mean	0.838	0.863	0.827	38.04	38.41	37.90	27.76	35.90	25.03
<i>1. Rec.Img</i>	-0.010** (0.004)	-0.001 (0.005)	-0.010*** (0.003)	-0.008*** (0.002)	-0.025*** (0.003)	0.001 (0.002)	-0.167*** (0.004)	-0.087*** (0.004)	-0.195*** (0.004)
<i>2 Covid</i>	-0.129*** (0.012)	-0.060*** (0.009)	-0.164*** (0.015)	-0.019*** (0.007)	-0.003 (0.010)	-0.027*** (0.007)	-0.019*** (0.004)	-0.027*** (0.006)	-0.018*** (0.005)
<i>3.Rec.Img x Covid</i>	-0.031*** (0.009)	-0.006 (0.015)	-0.045*** (0.009)	0.007 (0.005)	0.026*** (0.008)	0.001 (0.006)	0.041*** (0.015)	0.019 (0.014)	0.035*** (0.012)
<i>4. Covid + Rec.Img x Covid</i>	-0.160***	-0.066***	-0.209***	-0.012***	0.023***	-0.026***	0.022***	-0.008***	0.017***
Sample size	1,079,277	316,923	762,354	785,416	217,296	568,120	746,096	187,370	558,726

Significance at: *** p<0.01; ** p<0.05; * p<0.1.

Notes: Weighted regression models. Standard errors in parentheses are clustered at province and month-year level. Controls include individual characteristics (age, gender, education, marital status, child status, and province). Dependent variables (4)-(9) also include additional job characteristics (multiple-job holder status, public-private sector status, part time employment status, temporary employment status, tenure, union status, and firm size).

Source: Statistics Canada Monthly Labour Force Survey Public User Micro File (January 2018 to February 2020 and April 2020 to July 2020).

Table 3. Difference-in-Differences Results, Three Outcomes, All Workers and Low-Hit and Hard-Hit Sectors Separate
(Probit marginal effects for the binary-coded employment outcome; OLS for the hours and wage outcomes)

Sample by NOC	Probability of employment			Log of hours worked			Log of hourly wages		
	All (1)	Low-Hit (2)	Hard-Hit (3)	All (4)	Low-Hit (5)	Hard-Hit (6)	All (7)	Low-Hit (8)	Hard-Hit (9)
Sample mean	0.838	0.854	0.826	38.04	37.60	38.38	27.76	29.55	26.38
<i>1. Rec.Img</i>	-0.010** (0.004)	-0.014*** (0.004)	-0.004 (0.005)	-0.008*** (0.002)	-0.002 (0.003)	-0.012*** (0.003)	-0.167*** (0.004)	-0.149*** (0.004)	-0.177*** (0.004)
<i>2. Covid</i>	-0.129*** (0.012)	-0.072*** (0.008)	-0.172*** (0.017)	-0.019*** (0.007)	-0.009 (0.007)	-0.030*** (0.008)	-0.019*** (0.004)	-0.024*** (0.004)	-0.017*** (0.006)
<i>3. Rec.Img x Covid</i>	-0.031*** (0.009)	-0.025** (0.010)	-0.044*** (0.012)	0.007 (0.005)	0.001 (0.007)	0.007 (0.007)	0.041*** (0.013)	0.025** (0.011)	0.049*** (0.015)
<i>4. Covid + Rec.Img x Covid</i>	-0.160***	-0.097***	-0.216***	-0.012***	-0.008	-0.023***	0.022***	0.001***	0.028***
Sample size	1,079,277	461,956	617,321	785,416	345,847	439,569	746,096	325,387	420,709

Significance at: *** p<0.01; ** p<0.05; * p<0.1.

Notes: Weighted regression models. Standard errors in parentheses are clustered at province and month-year level. Controls include individual characteristics (age, gender, education, marital status, child status, and province). Dependent variables (4)-(9) also include additional job characteristics (multiple-job holder status, temporary employment status, and part time employment status, firm size, union membership status, tenure, categories of industry, and occupation).

Source: Statistics Canada Monthly Labour Force Survey Public User Micro File (January 2018 to February 2020 and April 2020 to July 2020).