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Abstract

Using nationally representative panel data for 21,799 individuals between May 2018 and April 2020, this paper investigates whether the Covid-19 pandemic was indeed a “Great Leveler” in the sense that it imposed similar and equivalent labour market shocks on different caste groups. We find that while all caste groups lost jobs in the first month of the lockdown, the job losses for lowest-ranked caste are greater by factor of three. The data shows that the disproportionate effects stems from lower levels of human capital and over-representation in vulnerable jobs for the lowest ranked caste groups in the country.

Keywords: Covid-19, lockdown, caste, employment, India

JEL Codes: I14; J15; J21; J70

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1 Introduction

In his book “The Great Leveler”, Walter Scheidel, the Austrian economic historian, argues that throughout human history, there have been four types of catastrophic events that have led to greater economic equality: pandemic, war, revolution and state collapse (Scheidel, 2018). Currently, the world is going through one of them: a massive Covid-19 pandemic. In Scheidel’s analysis, the decline in inequality is a result of excess mortality that raises the price of labour. While the validity of Scheidel’s argument for the current pandemic can only be assessed after it is over, the pandemic has been described as a leveler more loosely, both because the disease can strike anyone, and also because the resultant lockdowns have led to widespread job losses and economic hardships across the range of the income and occupational distribution.

Focusing on the looser description of the pandemic, preliminary data and early indirect evidence from several parts of the world indicates that the incidence of the disease is not class-neutral: poorer and economically vulnerable populations are more likely to contract the virus as well as to die from it. To the extent economic class and social identity (e.g. race, ethnicity or caste) overlap, this suggests that socially marginalised groups would be at higher risk of mortality due to Covid-19. The risks extend beyond mortality as the economic consequences of the current pandemic are likely to be most concentrated among the low wage earners, and less educated workers, segments of the labour force where racial and ethnic minorities are over represented. Early evidence from the United Kingdom (Blundell et al., 2020; Platt and Warwick, 2020) and United States (Cajner et al., 2020; Cho and Winters, 2020) shows that racial and ethnic minorities are indeed the ones most likely at the risk of unemployment.

Most of the empirical evidence on the ‘unequal’ effects of the pandemic is from the developed countries. What has been the role of social identity in the developing country context? We examine data from a large emerging economy, India, home to a third of the world’s population. Unfortunately, Covid-19 incidence and mortality data, differentiated by social categories,
are not still available. Thus, it is not possible to comment on mortality differences based on social identity.

A key element of the pandemic control strategy everywhere has been to shut down economic and social activity, and to impose social distancing with varying degrees of strictness. India’s lockdown, imposed in the last week of March 2020, has been among the most stringent: by 25th of March, India had reached the maximum possible shutdown of economic activity, according to the Oxford Blavatnik School of Government Covid-19 tracker.2 The first month of the severe lockdown, April 2020, witnessed a sharp rise in unemployment. Was this sudden unemployment due to an exogenous negative shock neutral with respect to social identity?

We examine the impact of the lockdown on employment, unemployment and labour force participation across broad caste groups in India, and show that the lockdown affected the marginalised, stigmatized group of lower-ranked castes much more severely than the higher-ranked castes. Thus, we show that in its first month, the lockdown was not only not a great leveler, it exacerbated labour market inequality between caste groups. Moreover, consistent with the global evidence, we find that the disproportionately negative effects stem from lower levels of human capital, as well as over representation of lower-ranked caste groups in jobs with no security or tenure, that is daily wage or casual jobs.

Most commentaries on the impact of the lockdown on jobs in India are either based on small localised surveys (Azim Premji University, 2020) or on extrapolations combining older national data with smaller surveys (Majid, 2020). While these provide valuable insights which broadly confirm the results of this paper, the attempt here is to go further to examine the national picture. We use national level high-frequency longitudinal data which allows us to compare the post-lockdown employment status of individuals to their pre-lockdown status and precisely estimate the causal effects of the lockdown using a difference-in-differences (DID) setup with individual fixed effects.

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2 See https://www.bsg.ox.ac.uk/research/research-projects/coronavirus-government-response-tracker

3 Also see http://www.ncaer.org/data_details.php?dID=28 for evidence again based on phone surveys for Delhi.
To the best of our knowledge, this is the first exercise to empirically examine the first national level effects of the lockdown on caste-differentiated labour market outcomes in India. The evidence from India is important for several reasons. It is a large emerging economy. It registered strong growth for two decades after economic liberalisation in 1991, but over the last six-seven years, has been struggling with slowing growth, rising inequality and resultant social tensions. If the lockdown has indeed affected caste inequality in the labour market adversely, it holds a lesson for other countries, and suggests that it is important to understand the factors that underlie these differences to devise an evidence-based and appropriate policy response.

1.1 Summary of Main Findings

We see that proportion of employed persons in all caste groups remained fairly stable from May 2018 to December 2019. All caste groups experienced a fall in employment between December 2019 and April 2020. But the drop in employment for lower-ranked caste groups was far greater in magnitude than that for upper castes - the share of the upper castes losing jobs is 7 percentage points, compared to 21 percentage points for the lowest-ranked Scheduled Castes.

We then examine differences in education levels across caste groups, as well as the nature of employment contracts that individuals hold. The analysis shows that lower levels of human capital and higher likelihood of holding daily wage jobs explain the differential effects of the lockdown on caste groups.

2 Data and Methodology

2.1 Data and Sample Construction

This paper investigates shifts in employment and unemployment rates using data from the Centre for Monitoring Indian Economy (CMIE)’s Con-
sumer Pyramids Household Survey (CPHS) database, which is a private data provider, collecting weekly data at the national level since January 2016. It is a longitudinal data set covering 174,405 households (roughly 10,900 households per week, and 43,600 per month). Each household is followed three times per year. Since data from the official National Sample Survey are only available for 2017-18, the CMIE CPHS data are currently the only national-level source for assessing changes in employment in real time, especially if we want to assess the immediate effect of the national lockdown which started on the 23rd of March, 2020.

We use unit-level data from six waves of CPHS: Wave 14 (May - August 2018), Wave 15 (September - December 2018), Wave 16 (January - April 2019), Wave 17 (May-August 2019), Wave 18 (September - December 2019), and Wave 19 (January - April 2020).

We construct a balanced sample of individuals using the CMIE data that spans the six waves. We retain individuals for whom information on their caste group, as well as on labor force participation is available for all six periods, including April 2020, the period after the lockdown. This results in a sample of 21,799 individuals interviewed in August 2018, December 2018, April 2019, August 2019, December 2019 and April 2020 for a total of 130,794 observations over six quarters.

2.2 The Caste Groups

We are interested in analyzing how the impact of the lockdown on employment outcomes varies by the caste identity of the individual. India’s caste system consists of several thousand jatis or castes. The formerly untouchable castes and several marginalized tribal communities are the most socioeconomically disadvantaged groups in the country. These groups receive preferential affirmative action, for the purpose of which these are listed in a government schedule, and called Scheduled Castes and Scheduled Tribes (SC and ST). A group of intermediate to low-ranked castes and communities, which also receive affirmative action, are called the “Other Backward Classes” (OBCs). The CPHS data divides the remaining (non-SC-ST-OBC) castes into two broad groups, Upper Castes (UCs) and Intermediate Castes.
While SC and ST are official, administrative categories, Dalit, meaning oppressed and Adivasi meaning “indigenous people” are often used to describe individuals belonging to these categories. We thus are able to classify the Indian population into five broad caste groups: (i) Upper Castes (UCs); (ii) Intermediate Castes (ICs); (iii) Other Backward Classes (OBCs); (iv) Scheduled Castes (SC); and (v) Scheduled Tribes (ST).

2.3 Methodology

In order to analyze the impact of the lockdown on employment status across groups and over time, the primary methodology is to implement a difference-in-differences (D-I-D) estimator (Angrist and Pischke, 2008, ch.5) using the balanced sample with individual and period fixed effects, as well as lagged employment status. More specifically, we implement the following equation:

\[ S_{i,t} = \alpha + \gamma S_{i,t-1} + \sum_{t=1}^{4} \beta_{1t} SC_i \ast \phi_t + \sum_{t=1}^{4} \beta_{2t} OBC_i \ast \phi_t + \sum_{t=1}^{4} \beta_{3t} IC_i \ast \phi_t + \]
\[ + \sum_{t=1}^{4} \beta_{4t} ST_i \ast \phi_t + \delta_1 SC_i + \delta_2 OBC_i + \delta_3 IC_i + \delta_4 ST_i \phi_t + \delta_i + \epsilon_{i,t}, \]

(1)

where \( S_{i,t} \) is a dummy that takes value 1 if individual \( i \) reports as being employed in period \( t \) and zero otherwise. \( S_{i,t-1} \) is the lagged employment status of individual \( i \). The possibilities are - employed, out of labor force, unemployed willing and looking for a job and unemployed willing and not looking for a job. The inclusion of lagged employment status implies that the period labeled Wave 14 (August 2018) drops out when we generate lagged employment status for all individuals in the sample. \( SC_i, OBC_i, IC_i \) and \( ST_i \) are a set of dummy variable that take the value 1 in case individual \( i \) belongs to the caste group of SC, OBC, IC and ST, respectively, and 0 otherwise. Thus, the omitted caste group is the upper castes. \( \phi_t \) and \( \delta_i \) refers to period and individual fixed effects. Standard errors are clustered at the level of the individual.
The coefficient associated with $\phi_t$ allows us to discern the time trend in employment flows, where the omitted period is December 2019. Thus, $\phi_t = 0$ for $t < 4$ would imply that the employment levels remained stable in the year preceding the lockdown associated with Covid-19 and $\phi_4 < 0$ would imply a fall in the employment due to the imposition of the lockdown. The coefficients, $\beta_{gt} = 0$ for $g = 1, 2, 3, 4$, associated with the interaction of the caste dummy with the period dummy, captures the differential effect of the lockdown on the other caste groups, namely, the SC, OBC, IC and ST, respectively, relative to the upper castes, the omitted caste category.

The D-I-D estimator retrieves the causal effect of the lockdown under the assumption that the groups being compared are good counterfactuals for each other, that is, the groups display parallel trends in employment before the implementation of the lockdown. In other words, for the identifying assumption to hold, we require that $\beta_{gt} = 0$ for $g = 1, 2, 3, 4$ and $t < 4$.

3 Results

3.1 Descriptive Statistics

Table 1 shows the number of individuals in the sample by caste for each period, as well as the share employed, unemployed and out of the labor force. Our total sample of 21,799 individuals is a balanced panel, i.e. individuals for whom we have employment status data for all six waves. We see that proportion of employed persons in all caste groups remained fairly stable from August 2018 to December 2019. All caste groups experienced a fall in employment between December 2019 and April 2020. Deshpande (2020) shows trends in monthly data from CMIE from January 2016, which establishes the fact that the fall in employment March and April 2020, i.e. during the month of the lockdown, was not a part of an annual cyclical trend, but very clearly a result of the lockdown.

Table 1 shows that the proportion of employed upper castes dropped from

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4The number of individuals in the sample by caste is not identical in every period because some of the observations are assigned a weight of zero in the CMIE data.
39 to 32 between December 2019 and April 2020, a fall of seven percentage points. The corresponding fall for SCs was from 44 to 24 percent i.e. a fall of 20 percentage points. For ICs, OBCs and STs the fall was from 42 to 34, 40 to 26 and 48 to 33 percent. Thus, the drop in employment for SCs and STs was far greater in magnitude than that for upper castes.\footnote{The pre-lockdown employment figures are higher for SC-STs than for upper castes. This is because this sample has both men and women, and female employment and labour force participation rates are lower for upper castes than SC-STs.}

### 3.2 Difference-in-Differences Estimates

The results of estimating the Equation 1 are shown in Figure 1. The omitted period is December 2019. In Panel A, the period dummies trace the effect of time on employment probabilities of upper castes, and shows that the share employed remained constant over the past year till April 2020, when it dropped by 6.8% points. Panel B, which shows the trends for SCs relative to UCs, indicates two points. One, these groups are good counterfactuals and the D-I-D is zero and insignificant for the three quarters preceding December 2019. Two, in April 2020, employment for SCs falls by 14% points more than that for UCs. We can verify this also from Table 1, where we see that the drop in employment for SCs between December 2018 and April 2020 is 20 percentage points, and our estimates from Equation 1 show a drop of 20.8 percentage points (the slight difference is due to rounding off). Thus, our estimates reveal that the negative effect of the lockdown on SC employment is thrice as large as that for UCs. Comparing Panels A and C, we see that the drop in employment for OBCs is 6.8 percentage points more than for UCs. Finally, for Intermediate Castes (Panel D), we note that there are no differential effects of the lockdown on employment outcomes relative to the upper castes. Thus, the lockdown shock has affected the employment of the upper castes the least, with the biggest gap being between upper castes and SCs.

\footnote{The corresponding regression results are shown in Column (1) of Table A1 in the Online Appendix.}
3.3 Role of Education and Job Type

The results from Section 3.2 show that the labor market effects of the lockdown were much more severe for the more disadvantaged caste groups in the country; the probability of job loss is three and two times higher (relative to UCs) for individuals belonging to the SC and OBC category, respectively.

The global evidence suggests that job losses associated with Covid-19 are much more concentrated among individuals with low levels of human capital and those with vulnerable jobs with no tenure or security. Figure 2 plots by caste group the share of individuals with 12 or more years of completed schooling and the proportion holding daily wage or casual jobs, that is, jobs which are contracted on a daily basis and have no job security or tenure.

Panel A shows there are important disparities in human capital. The share of individuals with more than 12 years of schooling is 37 percent for UCs, and 17 percent for SCs. Panel B shows that the stigmatized caste groups are also disproportionately more likely to hold daily wage jobs which provide no job security or tenure. We see that three percent of UCs hold daily wage jobs, whereas the proportion is 16 percent, that is more than 5 times higher, for individuals belonging to the SC group. Figure 2 thus suggests that the higher job losses for the subaltern groups could be due to differences in the level of human capital and due to the higher representation in vulnerable jobs.

To further explore the importance of these two factors, we re-estimate Equation 1 but restrict the sample to individuals who had at least 12 or more years of schooling in December 2019, and were not employed in daily wage jobs in December 2019. The results of the exercise are shown in Figure 3. Panel A which plots the time dummies shows that the share employed remained constant over the past year till dropping by 4.4% points in April 2020. Recall that the job loss for the entire sample was 6.8% points, thus, higher educated and people not holding daily wage jobs are less affected by

\footnote{It is important to note that the kind of employment arrangement is not available for 63.19, 60.32, 63.85, 62.23 and 58.05 percent of the UC, ICs, OBCs, SC and ST sample, respectively.}

\footnote{The corresponding regression results are shown in Column (2) of Table A1 in the Online Appendix.}
the lockdown imposed by the government. Interestingly for this sample, we observe that the additional rate of job loss for the individuals from the SC group, relative to the UCs, is 2.9% points as compared to 14% points in Figure 1. Moreover, this effect is not statistically significantly different from zero. Panel D shows that the intermediate castes again do not display a differential trend as compared to the UCs. Panel C, however, shows that the OBCs face additional job losses to the tune of 4 percentage points, and this is statistically significant at the 95% percent level.

These results suggest that the disproportionately negative effects on the employment outcomes for the stigmatized groups largely stem from lower levels of human capital and from differences in type of employment contracts the individuals hold. However, caste differences are not fully a proxy for caste differences; while caste differences are minimised among the better-off workers (those with more than 12 years of schooling and those without daily wage jobs), they are not completely eliminated.

4 Discussion and Concluding Comments

Using nationally representative panel data for 21,799 individuals between May 2018 and April 2020, this paper investigates whether the Covid-19 pandemic was indeed a “Great Leveler” in the sense that it imposed similar and equivalent labour market shocks on different caste groups. We find that while all caste groups lost jobs in the first month of the lockdown, the loss was the lowest for upper castes (6.8 percentage points). The stigmatized caste groups - OBC, SC and ST - all lost significantly more compared to UCs. The gap was the highest between SCs and UCs; the probability of job loss for SCs was 14 percentage points higher than that for UCs, in other words, the rate of job loss was three times higher for the SCs.

The data shows that the rate of job loss for individuals involved in daily wage jobs, relative to December 2019, is more than 9 times higher (64 vs 7 percentage points)\(^9\). The other moderating factor is the levels of human capital; again, the data shows that rate of job loss relative to December 2019

\(^9\)See Table A2 in the Online Appendix.
for individuals with greater and less than 12 years of schooling was around 8 and 16 percentage points, respectively.\footnote{See Table A2 in the Online Appendix.}

A prima facie look at worker characteristics suggests that the higher negative impact on SCs might be accounted for, one, by their five times higher representation within the precarious, vulnerable daily wage jobs, and two, by their lower levels of human capital. Consistent with this, we find no caste differences in job loss rates when comparing individuals who do not hold daily wage jobs and have more than 12 years of schooling.

The crucial role of human capital suggests that closing caste gaps in education might be crucial to address long standing inequities. Deshpande and Ramachandran (2019) show that caste gaps at higher levels of education have either remained static or widened over the last three decades.\footnote{Figure A1 shows the proportion with 12 or more years of schooling by caste groups in our sample for two age groups: (1) aged 20-40 and Age>=40. The data shows that whereas the proportion of UCs with 12 or more years of schooling increased by 22 percentage points (28 to 50), it only increased by 20 percentage points (8 to 28) for the SC showing a further widening of absolute gaps. Refer to Deshpande and Ramachandran (2019) for a discussion of the correct notions of gaps - absolute vs. relative - when analysing educational attainment.}

These gaps also might have their origins in early childhood caste differences in nutritional and anthropometric outcomes which have long run implications for educational and cognitive outcomes. Caste disparities in malnutrition reveal that children from the SC-ST group are 40 percent more likely to be stunted than children belonging to the UC group (Deshpande and Ramachandran, 2020).

The current pandemic is further likely to exacerbate these educational differences. Data from another nationally representative survey, India Human Development Survey for 2011-12 (IHDS-II) shows that 51 percent of SC households have adult women who have zero years of education, i.e. are illiterate, and 27 percent illiterate adult males member. These proportions are in stark contrast to UC households, where the corresponding proportions are 11 and 24 percent respectively. Thus, in the face of current school closures, parents of SC children would be much more ill-equipped to assist their children with any form of home learning, compared to parents of UC children.
There are other crucial differences: the proportion of households with access to internet is 20% and 10% for UC and SC households, respectively. Only 49% of the SC have bank savings, as compared to 62% of UC households. Thus, differential access to information technology, as well as disparities in the ability to invest into technology will be critical in shaping access to online education, if the pandemic forces schools to close for a substantial period of time.

Early impacts of the pandemic-induced lockdown indicate that the resultant economic distress is exacerbating pre-existing structures of disadvantage based on social identity, and investments into education and health that close gaps between social groups would be essential to build resilience in the face of future shocks.

References


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Notes: The table shows the number of individuals in the sample by caste for each period, as well as the share employed, unemployed and out of the labor force. The sample is a balanced panel of individuals who are present in all six periods in the data, as well as have information on employment status available in April 2020.

Table 1: Labor Market Participation by Period and Caste - Panel Data
Notes: The above plots the Difference-in-difference estimates arising from estimating Equation 1. The omitted period is December 2018. The dependent variable is a dummy for being employed in period $t$. The regression estimates are shown in Table A1 in the online appendix.

Figure 1: Difference-in-Differences Estimates of the Effect of Covid-19 by Caste Groups on Employment Outcome - Panel Data
Notes: The sample is a balanced panel of individuals who are present in all six periods in the data, as well as have information on employment status available in April 2020.

Figure 2: Caste Differences in Education and Type of Employment Arrangement
Notes: The above plots the Difference-in-difference estimates arising from estimating Equation 1. The omitted period is December 2018. The dependent variable is a dummy for being employed in period t. The regression estimates are shown in Table A2 in the online appendix.

Figure 3: Difference-in-Differences Estimates of the Effect of Covid-19 by Caste Groups on Employment Outcome - Sample of Individuals with 12 or more Years of Schooling and not Holding Daily Wage Jobs in December 2019 - Panel Data
Notes: The sample is a balanced panel of individuals who are present in all six periods in the data, as well as have information on employment status available in April 2020

Figure A1: Caste Differences in Education by Age Groups
## Table A1: Difference-in-Difference Estimates: Trends in Employment by Period and Caste

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</table>

Clustered standard errors at the individual level in brackets

| *** p<0.01, ** p<0.05, * p<0.1 |

Notes: The table shows the number of individuals in the sample by caste for each period, as well as the share employed, unemployed and out of the labor force. The sample is a balanced panel of individuals who are present in all six periods in the data, as well as have information on employment status available in April 2020.

R-squared: 0.778, 0.798
Observations: 108600, 31111
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<th>Daily Job</th>
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<th>Non-Daily Wage Job &amp; &gt;= than 12 Yrs. of Schooling</th>
<th>Non-Daily Wage Job &amp; &lt; than 12 Yrs. of Schooling</th>
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<td>Dec 18</td>
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<td>-0.00765**</td>
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<td>(0.00768)</td>
<td>(0.00507)</td>
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<td>(0.00503)</td>
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<td>-0.0767***</td>
<td>0.000940</td>
<td>-0.00510*</td>
<td>0.00429</td>
<td>0.0110***</td>
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<td>(0.00277)</td>
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<td>(0.00286)</td>
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<td>-0.0493***</td>
<td>-0.00290</td>
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<td></td>
<td>(0.00227)</td>
<td>(0.00704)</td>
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<td>-0.639***</td>
<td>-0.0824***</td>
<td>-0.159***</td>
<td>-0.0658***</td>
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<td>11664</td>
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Clustered standard errors at the individual level in brackets

*** p<0.01, ** p<0.05, * p<0.1

Notes: The table shows the number of individuals in the sample by caste for each period, as well as the share employed, unemployed and out of the labor force. The sample is a balanced panel of individuals who are present in all six periods in the data, as well as have information on employment status available in April 2020.

Table A2: Trends in Employment by Education and Employment Arrangement