A critical study of Covid-19 pandemics on crime rates in India

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Abstract

Covid - 19 pandemic has wide ranging repercussions including the direct and massive impact on the employment sector. The sudden outbreak of this virus affected the labor market in immeasurable ways and in order to curb this menace, the need of the hour was a nationwide lockdown. As a result, people ran out of jobs and unemployment rates escalated. People were bogged down into situations of poverty, starvation, and misery. Sadly, many of them indulged in activities like robbery, dacoity, etc. in order to sustain and support their families. Thus, covid aftermath wasn't restricted to rise in unemployment rates, but also led to spike in crime rates in India. Through this paper, we have studied the impact of the pandemic on crime rates. Our paper treats literacy rate, infant mortality rate, per capita income and unemployment rate as factors affecting crime rates, with unemployment rate being a major determinant. Multiple regression model is used to test the hypothesis that the pandemic scaled up unemployment rates, thereby leading to a surge in crime rates.

1. Introduction

Crime has always been a miserable cloud surrounding a country and hampering its growth. Complete freedom from crimes is a fictitious, fabricated goal with special reference to India. India is home to a large population, with people having different opinions and viewpoints. Differences seem to be a prominent reason for arguments, quarrels, fights and ultimate crimes like murders, rape etc. However, discord is just a part of a whole. Surge in crimes have wide-ranging reasons, but what we have underscored through this paper is the fact that unemployment escalates crime rates much significantly when compared with other factors.

Unemployment refers to a situation where all those who are willing to work, and are looking for work are unable to find jobs. Employment sector is considered to be the backbone of a country. Being unemployed is nothing but a situation of complete misery and despondency because more than just earning a livelihood, people have to look after their families and fulfill their daily needs. In order to escape this grimness people often opt for hard labor which further shoots up disguised unemployment. Thus, an unemployed person is no less than a liability for the country.

The year 2020 brought with itself numerous casualties. With manifold increase in covid-19 cases, the entire world was shaken up to the core. In India, this unprecedented pandemic started spreading so hastily that the govt. adopted nationwide lockdown in order to restrain the spread. But instead of a positive outcome, lockdown was followed by repercussions and a massive unbalance everywhere. Due to lockdown, all activities and jobs were shut down, with the new labor market enterers not being able to find jobs for themselves. Also, the existing ones were laid off from their work. Thus, the result was unemployment rates surging up. People could not work, could not earn money, and hence were highly stressed out. This stress, anxiety and misery further forced a large chunk

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of this population to head towards crimes like robbery, dacoity, loot, murders etc. Henceforth, through unemployment rates, covid finally led to a spike in crime rates.

Lockdown exacerbated pandemic driven downturn by enhancing economically-motivated crimes. Covid - 19 pandemic upraised unemployment rates in India thereby snatching away disposable income from its citizens. Lower levels of income paved the way for money driven crimes in India. Covid - 19 pandemic made people switch to the virtual / online work mode. Online dependency and digital divide inflated victimization from online scams, fraudulent transactions, and cyber-bullying too.

Thus, in this paper, we have studied how different factors affect crime rates (in terms of no. of FIRs registered) with unemployment rate playing a significant role and have tried to unfold the effect of covid - 19 pandemic on unemployment rates and ultimately on crime rates by deriving their relation through regression model. The urgent need at this point is to improve the employment rate in India. The downturn was uncontrollable and unfortunate, but now we should buck up so that India can get back to normalcy. It is very important that freshers find new jobs and the ones laid off get their jobs back so that they are motivated to not involve themselves into criminal activities.

2. Literature review

COVID-19 has impacted the world in ways which no one predicted. The whole world went into lockdowns which changed the daily routine of people. The UNODC research in March 2020 aimed at providing observations on 4 different types of crimes- robbery, burglary, theft & homicide. This research showed that unprecedented changes related to pandemic differ by type of crime, country, region and time. The research paper titled : 'Has COVID-19 Changed Crime? Crime Rates in the United States during the Pandemic' indicated the extent to which governmental responses to COVID-19 have impacted crime rates in the USA. A poll conducted in March showed that 90% of Americans including essential workers are staying at home (Washington Post, 2020) describing the employment and labour market status in the USA. But similar polls were not conducted in other countries. Another paper titled 'Is poverty the mother of crime' by Atlantic Review shows how education & income affect crime. Other variables like number of FIRs, Infant Mortality Rate, and Unemployment Rate are used in this paper after extensive research as research articles like Pridemore (2008) have attempted to resolve a striking incongruence between two bodies of literature on social structure and homicide.

3. Objectives of the study

In the light of the above review, this study aims to understand the significance of various factors that determine crime rate and its relative significance in the wake of the pandemic.

The objectives of the study are:

1) To compare the role of unemployment on the determination of crime rate in pre and post Covid period in India.

2) To understand the impact of Covid-19 on crime rates.

3) To analyze the role of dropout rate in increasing crime rates.

4) To assess the role of police deployment on crime rate in the period pre and post Covid.

Based on the review of literature and objectives, we frame the hypothesis with respect to the following variables of study: unemployment rate across various states of India, the police deployments per sq.km across states, secondary school dropout rates and per capita income while controlling for other factors such as infant mortality rate (an indicator of development status of the state) and rural population.

We hypothesize that the relative significance of aforementioned variables would increase in the period post Covid since these metrics have undergone significant changes owing to increase in unemployment, dropout rates, police deployment and reduction in per capita incomes. All of these variables result in an increase in crime rates. The statement of null hypothesis towards the objectives of the study is detailed below:

H_{0a}: There is no role of unemployment in the determination of crime rate in pre and post Covid period in India.

H_{0b}: There is no change in overall crime rate in pre and post Covid period in India.

H_{0c}: There is no role of dropout rates on crime rates in pre and post Covid period in India.

H_{0d}: There is no change in relative significance of police deployment on the determination of crime rate in pre and post Covid period in India.

H_{0e}: There is no change in relative significance of income on the determination of crime rate in pre and post Covid period in India.

4. Data & Methodology

To show a comparison between the crime rates of Year 2019 & 2020 we collect secondary data for variables like Unemployment Rate, secondary school dropout rate, Infant Mortality Rate, Per Capita Income and Crime rates for all states of India. Factors such as IMR, rural population provide evidence of the socio-economic development in a state. We sourced the secondary data from government websites.

Table 1. The variables, their definitions and sources

Variable	Definition	Source
Crime rate	Number of crimes reported per 1,00,000 population	NCRB(National crime bureau records)
Unemployment Rate Growth in %	Monthly (Y/Y) % Change in Unemployment rate	CMIE(centre for monitoring Indian economy)
Secondary school dropout rates	Proportion of pupils from a cohort of grade 9th -12th standard enrolled in a given grade at a given school year who are no longer enrolled in the following school year.	UDISE (Unified District Information System for Education)
Police deployed per sq km area	No. Of actual police force deployed per sq. km area	BPRD(Bureau of Police Research & Development)
Per capita Income (annual in Rs.)	Per capita income or average income measures the average income earned per person in a given area in a specified year	RBI (Reserve Bank of India)
Infant Mortality Rate	The infant mortality rate is the number of infant deaths for every 1,000 live births.	Census India 2011
Rural Population	No. of persons living in rural areas	Census 2011

Source: Authors' Compilation

Table 2. Descriptive statistics for the variables used in the model

Variable	Mean	Minimum	Maximum
No. of FIRs Registered	26277.20	0.89	316380
Unemployment Rate Growth in %	1.102003	-.898(Assam)	58.6(Karnataka)
Literacy Rate- %	79.235	66.4(Andhra Pradesh)	96.2(Kerala)
Per capita Income (annual in Rs.)	116268.4	31827 (Bihar)	283636(Delhi)
Infant Mortality Rate	29.5	10(Kerala)	47(Madhya Pradesh)

Source: Authors' Calculations

5. Methodology

The choice of variables was made considering factors of inclusivity coupled with foundations of existing literature such as (Insert citations of studies that have used these variables). We collected data for the year 2020 for all the variables but to show some comparison between pre & post Covid we collected data for unemployment both in 2019 & 2020 for employment to find the change in unemployment rates.

We construct two cross section data sets for all states and union territories of India for a period pre Covid (2019) and post Covid (2020). Subsequently, we run an OLS multiple regression test to derive the T statistics of variables impacting the crime rate.

  a) Equation 1 for 2020

Crime rate$_i$ = β0 + β1Police deployed/sq.km + β2 Unemployment Rate + β3Infant Mortality Rate + β4Per Capita Income + β5 rural population + β6 secondary school dropout rate + u$_i$

  b) Equation 1 for 2019

Crime rate$_i$ = α0 + α1Police deployed/sq.km + α2 Unemployment Rate + α3Infant Mortality Rate + α4Per Capita Income + α5 rural population + α6 secondary school dropout rate + v$_i$

 We used STATA software for the test.

Descriptive Statistics:

Regression Results and Analysis:

Table 3. OLS estimates for 2020

CrimeRate2020	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
policeperkm2020	2980.49	2377.595	1.25	0.245	-2502.254	8463.234
secondarydropout2020	-2361.07	5843.64	-0.4	0.697	-15836.53	11114.39
percapitaincomefy21inrs	0.317199	0.418071	0.76	0.47	-0.6468735	1.281272
ruralpopin1000	4.00235	0.964804	4.15	0.003	1.777509	6.227191
Unemployment rate 2020	4715.606	3858.246	1.22	0.235	3285.907	5753.039
IMR	3010.525	4738.216	0.64	0.543	-7915.82	13936.87
Constant	85948.81	186800.6	0.46	0.658	-344814.10	516711.8

Table 4. OLS estimates for 2019

CrimeRate2019	Coef.	Std. Err.	t	P>t	[95% Conf.	Interval]
Police per km2019	2870.129	2290.531	1.25	0.223	-1880.142	7620.4
Secondary droput 2019	-1311.15	3469.395	-0.38	0.709	-8506.233	5883.937
Percapita income fy20inrs	0.254502	0.29071	0.88	0.391	-0.3483943	0.857399
Rural pop in 1000	3.531838	0.713574	4.95	0	2.051976	5.011699
Unemployment rate 2019	1953.54	4702.165	0.42	0.689	-8889.672	12796.75
IMR	922.3535	2847.129	0.32	0.749	-4982.23	6826.937
Constant	28599.89	122426.9	0.23	0.817	-225297.90	282497.7

The relative significance of the factors can be indicated through the change in the t value for each of the independent variables. As can be seen, the impact of unemployment rate both in terms of coefficient value and significance in determining crime rate increased in the period of Covid (2020) as compared to pre Covid (2019). This leads us to reject our null hypothesis. Further to assess the impact of Covid on crime rate overall can be indicated by the significance of constant term which too has increased in terms of coefficient value and significance in 2020 as compared to 2019. We reject our null hypothesis that Covid has no impact on crime rate overall. The significance of secondary school dropout rate in determining crime rate reduces in 2020 as compared to 2019. The dropouts are incidental to the lockdowns and access to digital modes of education coupled with finances to fund education. Compared to 2019, the dropouts determining crime rates reduce. Further, deployment of police force/sq.km's significance on crime rate also decreased in 2020 compared to 2019. Lastly, per capita income's impact on determining crime rate increased in terms of coefficient value and significance in 2020 as compared to 2019, leading us to reject the null hypothesis.

6. Conclusion

This paper uses a panel data of 20 Indian states for the months Jan-Nov 2020 to assess the incidence of crime due to Covid -19. FIRs registered were used as the dependent variable (a good proxy for incidence of crime) while controlling for factors like unemployment rate, literacy rate, per capita income and infant mortality rate. This paper aims at testing the hypothesis that the ongoing Covid - 19 pandemic has an impact on crime rate in the country. The GLS estimates (using the software STATA) provide two main conclusions. Firstly, change in unemployment rate is one of the most statistically significant factors that influences the crime rate as it can be observed that when unemployment changes by one unit the number of FIRs registered increases on an average by 2185 cases. This relationship can be explained logically as due to the ongoing pandemic a lot of people have lost their jobs and thus people have started to get into criminal activities to make ends meet. Secondly, another statistically significant variable is crime rate itself, as it can be observed that due to the pandemic the number of FIRs registered increased by 11,422 cases on average in the country. Thus, it is extremely important to control the increasing number of crimes in the country to be able to avoid the socio-economic consequences. Conscious lifting of lockdown and restrictions will help us avoid such unwanted consequences.

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