

A CAUSAL ANALYSIS OF NON-VIOLENT CRIME IN INDIA

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Abstract

This paper examines the relationship between various socio-economic conditions and non-violent crime rate in India. We explore the intersection of behavioural economics and crime and attempt to investigate if changes in socio-economic conditions can alter criminal behaviour leading to a change in the overall crime rate of a country. The study focuses on the effects of factors like unemployment, poverty and per capita income on non-violent crime across the country. Besides these factors, the study also reveals the importance of deterrence variables—conviction, arrest and police strength—in explaining crime rates. Additionally, we focus on property crime and economic offences as our independent variables. While witnessing the peaks, troughs, and turning points in our panel data set, we examine the impact of our dependent variables through a LASSO regression model. This paper uses data from 2005-20 that has been collected from various government data portals including NCRB (National Crime Records Bureau) and the Ministry of Education, GOI, among others. Through our study, we aim to update the existing literature on crime in developing countries. We recognise the India-specific limitations of the police-recorded crime data and want readers to consider the findings of the study with caution.

Keywords: property crime, economic offences, criminal behaviour, economic incentives, deterrence

Introduction

On the surface, the Crime in India reports show a decline of 7.6% in registration of cases over between 2020 and 2021 and a decline of 41.9 per lakh population in the crime rate. But simultaneously, we witnessed a 18.5% rise in property crimes from 6,43,583 cases in 2020 to 7,62,368 cases in 2021 (NCRB, 2021). Adding to the problem, the number of cases registered under economic offences has increased from 1.14 lakh cases in 2012 to an all-time high of 1.74 lakh cases in 2021, registering an increase by 52% in ten years (NCRB, 2021). According to a crime victimisation and safety perception survey in Delhi and Mumbai, theft was the most commonly experienced crime with mobile phones being objects that were most commonly

stolen. Of the households surveyed, 10.14% in Delhi and 12.36% in Mumbai had been victimised by theft (CHRI, 2015). These rates are high for property and economic crimes despite several cases going unreported. Less than half of the incidents of cell phone and luggage theft, which are exceedingly common, are reported to the police. It is only for high value items like jewellery, computers or laptops, and cars with the utilitarian concern that claiming insurance for these items requires showing a copy of the FIR registered by police, that the case was actually reported.

However, there's no one common cause behind crimes of such kind. Society's *evils* like poverty, unemployment, poor growth and development, among others, have been considered to go hand in hand with high incidence of crime. However, while in recent years, the discussion of crime rate in pro-poor growth agenda remains absent, it is stressed that income distribution might be a judicious solution to reduce crime and violence (Anser et al., 2020). In addition to this, these factors show a stronger relation to property crime in specific than those like violent crimes, due to the economic and pecuniary linkages in the act. In using data from the United States to study felony and unemployment, we see a substantial decline in property crime rates during the 1990s, attributable to the decline in the unemployment rate. Meanwhile, the evidence for violent crime is considerably weaker (Raphael et al., 2001).

To counter crime, education and the provision of social services have also been considered instrumental. The higher the level of education an individual has attained, the lower the risk of both criminal behaviour and penal sanction. It is estimated that the social savings from crime reduction associated with high school graduation (for men) is about 14–26 % of the private return. Additionally, schooling increases individual wage rates, thereby increasing the opportunity costs of crime as well as incarceration (Lochner et al.). The stigma of a criminal conviction is larger for white collar workers than blue collar workers (Jeffrey Kling, 2002).

As the world unabashedly committed crimes, society developed penal codes and criminal laws to define criminal behaviour and specify the forms of punishments and corrective measures a criminal would have to encounter. In hand with this, went the dehumanisation of criminal law and punishments—prisons became punishment centres from the intended rehabilitation/correction facility that they were intended to be. This fear of punishment has been proclaimed to deter those with criminal tendencies from actually committing the crime. Be it a steadily increasing police strength which in 2020 was at 155.78 per lakh population, increasing rate of arrests, or even the decadal average rate of conviction after legal procedures being 30.75%—they serve to reinstate the negative consequences of committing a crime, and

thus the indirect benefits of abiding the law (Ministry of Home Affairs, 2021; Prisons in India, 2011 to 2020).

Despite instating a system to prevent crimes, criminal behaviour persists and thrives, indicating that the linkages are more complex than perceived above. This paper thus places its lens on non-violent crime to understand its causes and deterrents, with a specified interest in India since 2005.

Determinants of Crime

A total of 60.96 lakh cognizable crimes including over 36.63 lakh Indian Penal Code (IPC) crimes and 24.32 lakh Special and Local Laws (SLL) crimes were registered in 2021. Simultaneously, we witnessed a 18.5% rise in property crimes from 6,43,583 cases in 2020 to 7,62,368 cases in 2021 (NCRB, 2021). While these numbers are not historically alarming and are an improvement from the past, they do make it clear that crime, in all its forms, is an unfortunate part of our society. But most of us are not criminals. So what drives a small number of us to commit criminal acts?

Through years of research criminology suggests that while each person who commits a crime has their own unique reasons and life situation, there are a few overarching factors that can contribute to criminal behaviour. These can include psychological factors like adverse childhood experiences, negative social environment and substance abuse (Walden University, 2022) or financial desperations like lack of food, clothing and shelter, among others.

In their paper 'Understanding the determinants of crime', Ayse Mrohor, Antonio Merlo, and Peter Rupert present several properties of the benchmark economy calibrated to deliver a crime rate of 5.6% to match the crime rate in the U.S. in 1980. In particular, they investigate the implications of their model with respect to the composition of the criminal population. First, note that their model predicts that about 79% of the people engaging in criminal activities are employed and only the remaining 21% are unemployed. This implies that approximately 5% (16%) of the employed (unemployed) population engages in criminal activities. This (perhaps surprising) implication of the model is consistent with the data. According to the Bureau of Justice Statistics, in 1979, 71% of all state prisoners were employed prior to their conviction. 11 Studies by Grogger (1998) and Witte and Tauchen (1994) that use other data sets provide further evidence in support of this finding. Next, they turn their attention to the composition of the criminal population by age and educational attainment. Their model predicts that about 76% of the people who commit property crimes are 18 years of age or younger.

According to the Federal Bureau of Investigation, in 1980, 47.7% of all people arrested for property offences were 18 years of age or younger. While the figure in the data is much lower than the one generated by the model, juvenile property offenders are often released without being formally arrested and charged of a crime. Furthermore, the model-predicted fraction of criminals without a high school diploma is equal to 46.1%. In 1979, 52.7% of the correctional population in state prisons did not have a high school diploma. Hence, the model seems to be capable of reproducing certain dimensions of the socio-demographic composition of the criminal population fairly well. In addition, the model matches the capital output ratio and the share of consumption in output for 1980.

There is a significant body of research on crime, and the macroeconomic and social conditions that could be correlated to criminal activity, and the effects of crime on the economy. Gaviria and Pagés, 2002, Mathur, 1977, Stevans, 1983, Meera and Jayakumar, 1995, and Masih and Masih, 1996 states that there are basically three determinants of crime: economic, demographic and deterrent factors. Here, this paper deals with finding a relationship that highlights whether factors such as GDP, unemployment and poverty have any effect on Property Crime in India and how effective deterrence factors like total number of persons arrested, conviction and police strength.

Property Crime here refers to theft or damage to private property that includes, among other crimes, burglary, larceny, theft, motor vehicle theft, arson, shoplifting, and vandalism. These are often non-violent. In 2021, 20.8% of crimes were property related (NCRB, 2021). They often go unreported as shown by, “from 2006 to 2010, the highest percentages of unreported crime were highest among household theft (67%)” (BJS, 2010). Therefore this paper chose property crimes as the dependent variable for the study.

1. The Relationship between GDP per Capita and Crime

Existing research when focusing on GDP and Crime mainly considers two hypotheses in the case of low GDP 1. Crime rates will increase as people get poorer and more desperate for money and 2. The victims of crime will get hit, thus reducing the opportunities for criminals to steal (The Economist, 2011; Roman, 2013). Neither could conclusively prove either hypothesis but the Economist was able to conclude that those states hit hardest by the recession had the biggest drop in crime rates (using data from US Department of Justice). This conclusion backs up the second hypothesis.

2. The Relationship between Unemployment and Crime

Of the numerous factors that might influence criminal activity, Raphael and Winter-Ebmer (2001) showed that unemployment is a major contributor to criminal activity, especially property crime (Howsen et al., 1987; Carmichael et al., 2001; Andresen, 2012). In addition, unemployment can influence criminal activities via criminal motivation and criminal opportunity based on the Cantor-Land model (Phillips et al., 2012). The economic theory of crime, states that the opportunity cost of engaging in criminal activities reduces when unemployment increases (Becker, 1974).

In EU-28 countries, Ayhan and Bursa found a positive relationship between unemployment and crime (Ayhan et al., 2019). In EU-28, the crime rate increase by 1.53 unit when unemployment rises by 1 unit.

3. Poverty and Crime

Pare and Felson (2014) critically analyse the relationship between poverty and crime. Most academicians are of the opinion that poverty and destitution induces criminal behaviour. The inadequacy of fair opportunities backed by discriminatory attitudes towards economically weaker sections drives them towards a horde of negative experiences that propels them into the world of crime (Merton, 1938; Agnew, 1999). The neighbourhoods people live in also play a significant role in influencing them to commit crimes, with the poor typically residing in areas that display high social dysfunctionality with low levels of collective efficacy (Bursik 1988; Sampson, Raudenbush, and Earls, 1997). If the neighbourhood is rife with violence, the propensity of residents to adopt arms as a mode of self-defence and exhibit aggressive demeanour, rises (Anderson, 1999; Felson and Paré, 2010). Poverty has certain societal disadvantages that in turn prompt such individuals to partake in deviant practices of violence as a response to the disrespect they faced (Anderson, 1999; Miller, 1958; Wolfgang and Ferracuti, 1967). Insufficient access to the judicial system also triggers poor people to deal with their grievances via riotous crime (Black, 1976, 1983).

According to (Becker, 1968), if the gains from committing an offence exceed their associated costs, a person is more liable to engage in offensive behaviour. Since the economically underprivileged witness increasing returns from each property crime committed, they are more likely to commit such crimes vis-à-vis the general populace.

4. Other explanatory variables: Unemployment Insurance and Level of Urbanisation

The coverage of people under some sort of social security net like unemployment insurance policy determines their propensity to engage in criminal activity. As per an empirical analysis of property crime and its explanatory factors in USA between 2011 and 2015, holding other variables constant, if the number of employees covered by unemployment insurance policy increases by 1000, approximately, property crime increases by 89 cases (Yin, 2017). This is contrary to the more recognised negative correlation, where increase in unemployment insurance assures a decline in property crime. This is validated in a study showing that a one-standard-deviation increase in unemployment benefits is associated with 2.4% and 1.9% lower property and violent crime rates for a county at average unemployment (Behambari, 2020). In our study, we consider unemployment insurance as a subcategory of the variable, social sector expenditure.

Meanwhile, economic offences such as property thefts, automobile thefts, pick pocketing, cheating etc, are more in urban areas than in rural areas. A 2010 crime analysis of Pakistan found a positive association between crime occurrence and urbanisation, especially the lack of planned urbanisation and the consequent land shortages and resource scarcities that motivate people toward crimes (Iqbal et al., 2010).

Crime and Deterrence

Deterrence is the intuitively psychological mechanism of weighing the perilous risks of committing a crime vis-à-vis its perceivable benefits prior to offending deployed by potential perpetrators (Jacobs, 2010). It is the idea that people will be discouraged from indulging in crime when the threat of punishment looms large.

In Cesare Beccaria (1963, 1764), prevention of crime can only occur if the law forces potential criminals to make an accurate “association” of ideas between crime and punishment. Thus deterrence variables like probabilities of being arrested and convicted determine the expected returns from crime (Becker, 1968; Ehrlich, 1973, 1975, 1996; Grogger, 1991).

When assured that their chances of getting caught are a fair few, perpetrators are emboldened to continue their criminal wrongdoings since the anticipated benefits far exceed the risks. Thus, the very concept of deterrence strives to discourage offenders from committing crimes by psychologically linking crime with a severe negative repercussion that is strong enough to prevent future offenses on their account.

About the promptness of punishment, first, Beccaria believed that the shorter the time period between a crime and chastisement for the crime, “the stronger and more permanent is the human mind’s association of the two ideas of crime and punishment, so that imperceptibly the one will come to be considered as the cause and the other as the necessary and inevitable result” (Beirne, 1991).

When potential benefits exceed the possible threats involved in committing a crime, offenders are often incentivised to commit crimes. Thus, raising the perils is more likely to result in crime prevention (Jacobs, 2010).

Boosting police strength and endowing them with the latest technology, enhancing the speed of arrests and rates of conviction, determining a suitable degree of punishment severity, are all measures that can be undertaken to deter potential offenders from indulging in crime (Thapa, 2022). According to Mello (2019), an additional officer prevented 2.9 violent crimes and 16.23 property crimes in the US from 2009-2013.

In a panel study of England and Wales from 1989 to 1996, a 1% rise in police force resulted in a 1.32% fall in vehicle crime and a 0.38% fall in property crime (Witt et al., 1999).

If we move onto the statistics in India, it is observed that between the years 1999 to 2005, an increased strength in the police force accounted for a 0.02 units fall in crime rates (Thapa, 2022). Whereas, a rise in the rates of conviction and arrests showed a significant rise in criminal activity which could be ascribed to the rampant status quo corruption and bureaucratic red-tapism that permeates the nation since time immemorial (Dutta et al., 2009). This can be attributed to the preposterous “positive punishment effect” (Wood, 2007), which talks about the increased tendency of former fugitives to indulge in recidivism.

Amaral et al. (2014) found mixed results on the presence of police force on different crimes at the district level from 1990-2007. There was an increase in economic and property crimes with an enhanced police strength. But violence and crime against women decreased. Not to mention, arrest rates declined the crime rates in all categories, with property crime accounting for just 0.19%.

Methodology

The objective of the study is to examine the relationship between various socio-economic variables, deterrent variables and non-violent crimes. The study employs detailed panel data for the period 2005-2020, collected from various government data portals including NCRB

(National Crime Records Bureau) and OGD (Open Government Data Platform India). To proceed with our analysis, we first calculate significance value (p) and Pearson correlation of all the explanatory variables employed in our study. Thereafter, we formed a regression model with the statistically significant variables and tested it for multicollinearity. Finally, we adjusted the model for any discrepancies and calculated a coefficient of determination to determine the significance of the relationship between explanatory and response variables.

Variable Description

1) Response Variables

Two types of non-violent crimes are included in this analysis as dependent variables: Property Crime (**PC**) and Economic Offences (**EO**). The analysis for both these variables is conducted separately. We analyse both these variables through the incidence of cases recorded in the Crime in India (CII) report published by the NCRB.

Property Crime: People own two types of property, movable and immovable. Offences against property and their punishments are defined in Chapter XVII of Indian Penal Code in Sections 378 to 460. Mainly, ten offences are identified under Crimes against property under the IPC. Theft, Extortion, Robbery and dacoity, Criminal misappropriation of property, Criminal breach of trust, Receiving stolen property, Cheating, Fraudulent deed and disposition of property, Mischief, Criminal trespass.

Economic Offences: Economic offences are booked under the IPC in three major heads. These are criminal breach of trust; forgery, cheating and fraud; and counterfeiting. Sections 406 to 409 of IPC cover 'criminal breach of trust', Sections 231-243, 255 and 489A to 489E IPC cover 'counterfeiting' and Sections 420, 465, 468, 471, 231-243, 255 and 489A to 489E IPC cover 'forgery, cheating and fraud'.

2) Explanatory Variables

i) Deterrence Variables: Our study includes three types of deterrence variables. Namely, Arrests (**A**), Conviction (**CONV**) and Police Population Ratio (**PPR**). Arrests is defined as the total number of persons arrested in the country for each crime head. Conviction is included as the percentage of cases that went through a complete courtroom trial. Lastly, Police population ratio is defined as the number of police officers per lakh citizens.

ii) Socio-Economic Variables: Our Socio-Economic Variables include Unemployment (**Unemp**), Poverty (**POV**), Gross Domestic Product (**GDP**) and Urbanisation (**U**). The

unemployment rate is measured as the total unemployed per thousand, poverty is measured as the percentage of people below the poverty line, gross domestic product is measured as the value of final goods and services produced for the market within a country's border and urbanisation is measured as a percentage increase in the proportion of population living in urban areas.

iii) Control Variables: To ensure accuracy in our results, we employed two control variables: Higher Education (**Hed**) and Social Sector Expenditure (**SS**). Higher education includes yearly enrollment in courses like bachelors, masters and other professional courses. Social sector expenditure is the expenditure by the government in billions (Rs.) in social services like family welfare, water supply, sanitation, welfare and unemployment insurance etc.

Preliminary Tests

Summary Statistics

Variable	Mean	Standard Deviation	Minimum	Maximum
Unemployment	5.6126875	0.643236475	5.27	7.997
GDP	1874520000000	647701000000	820382000000	2831550000000
Poverty	24.251875	10.52633093	10	37.93
Arrests	424550.3125	126680.407	321764	693943
Police Population Ratio	177.955625	17.6560777	142.25	198.56
Conviction	31.29545455	2.585202229	23.05	34.5
Higher Education	20.625	5.737304826	11	27
Social Sector	27615.6875	11387.97699	9282	44649
Urbanisation	31.9375	1.768945072	29	35
Observation Count:16				

We began our analysis by conducting a Pearson’s correlation test and a p test to check the validity of our hypothesis for our two independent variables.

Firstly, a correlation analysis was performed to assess the relationship between property crime (PC) and our study’s independent variables.

Correlation Matrix (Pearson)

	Property Stolen.	Unemployment	GDP	Poverty	Arrests	PPR	Conviction	Higher Education Social Sector	Urbanisation	
Property Stolen	1.00000000									
Unemployment	-0.21117051	1.00000000								
GDP	0.18277135	0.19607637	1.00000000							
Poverty	-0.24968528	-0.23304721	-0.9746293	1.00000000						
Arrests	-0.08971783	0.06773619	0.8380743	-0.7943446	1.00000000					
PPR.	0.33311026	0.10801059	0.8980613	-0.8573442	0.69168610	1.00000000				
Conviction	0.28193342	-0.81426437	-0.4463208	0.4854336	-0.47761954	-0.2854276	1.00000000			
Higher Education	0.34239122	0.16538436	0.9630697	-0.9665051	0.72738461	0.9175368	-0.3486329	1.00000000		
Social.Sector	0.02976738	0.11980827	0.8378129	-0.7620316	0.69605968	0.8874334	-0.3303763	0.7695540	1.00000000	
Urbanisation	0.18181422	0.34267478	0.9678907	-0.9623376	0.80803191	0.8647059	-0.5734333	0.9237384	0.82190226	1.00000000

The given matrix indicates no significant correlation between property crime and our study’s independent variables. Moreover, we find very high multicollinearity between some of our independent variables further weakening our hypothesis.

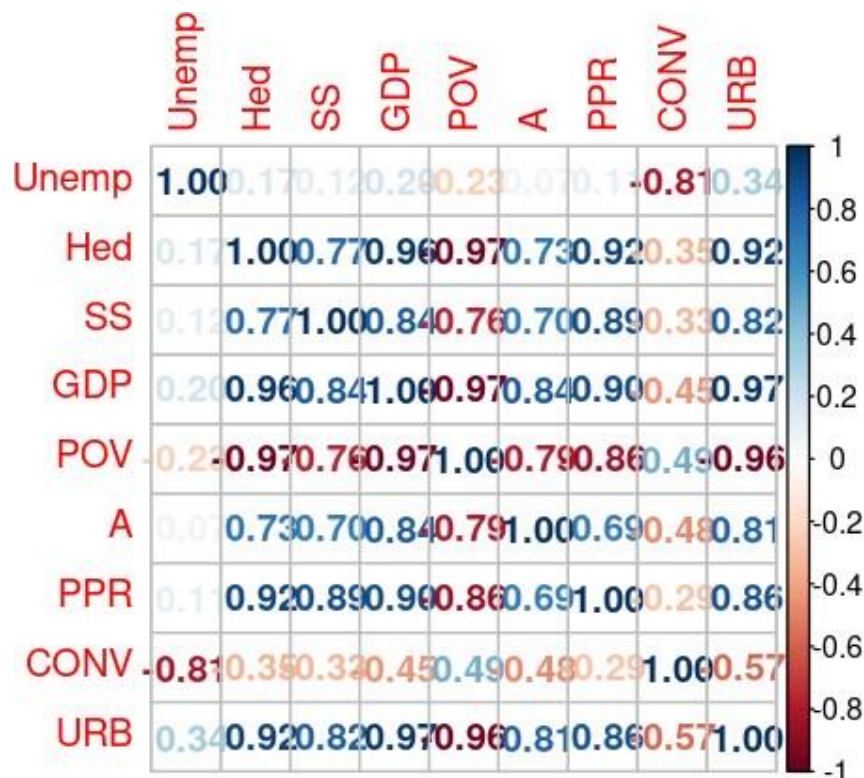


Figure 1: Correlation Plot assessing multicollinearity between independent variables

We then performed a test for statistical significance. The observations in the table below indicate that none of the independent variables has a significant relationship with property crime (all p values > 0.1). Hence, all independent variables were rejected for further analysis.

Variable	P value
Unemployment	0.4324
Higher Education	0.1942
Social Sector Budget	0.9129
GDP	0.4961
Poverty	0.351
Arrests	0.7411
PPR	0.2074
Conviction	0.2901
Urbanisation	0.5004

The analysis for Property Crime is terminated here with the conclusion of having accepted the null hypothesis and declaring that changes in property crime cannot be explained by the changes in the given independent variables.

Next, we analysed the relationship between economic offences (**EO**) and the independent variables of our study using the same steps.

	Econ Offence	Unemployment	GDP	Poverty	Arrests	PPR	Conv	Hed	SS	URB
Econ Offence	1.00000000									
Unemployment	0.09049289	1.00000000								
GDP	0.96007827	0.19607637	1.00000000							
Poverty	-0.95211666	0.23304721	-0.9746293	1.00000000						
Arrests	0.78640572	0.06773619	0.8380743	-0.7943446	1.00000000					
PPR.	0.87308963	0.10801059	0.8980613	-0.8573442	0.69168610	1.00000000				
Conv	-0.39519557	-0.81426437	-0.4463208	0.4854336	-0.47761954	-0.2854276	1.00000000			
Hed	0.95551371	0.16538436	0.9630697	-0.9665051	0.72738461	0.9175368	-0.3486329	1.00000000		
SS	0.78936027	0.11980827	0.8378129	-0.7620316	0.69605968	0.8874334	0.7695540	-0.3303763	1.00000000	
URB	0.93484095	0.34267478	0.9678907	-0.9623376	0.80803191	0.8647059	-0.5734333	0.9237384	0.8219023	1.00000000

The given matrix indicates a significant correlation between economic offences and all of our study's independent variables except conviction rate and unemployment. Here, too, we find extremely high multicollinearity between independent variables.

We then performed a test for statistical significance. The observations in the table below indicate a very strong statistical relationship between economic offences and all independent variables except unemployment and conviction rate.

Variable	P value
Unemployment	0.7389
Higher Education	<0.001
Social Sector Budget	0.0002769
GDP	<0.001
Poverty	<0.001
Arrests	0.0003027
PPR	<0.001
Conviction	0.1298
Urbanisation	<0.001

Due to their statistical insignificance, unemployment and conviction rate will be dropped from any further analysis.

To further understand our variables, we first must deal with the problem of multicollinearity. To understand the extent of multicollinearity, a variance in inflation (VIF) measure was calculated for all statistically significant variables.

Variables	Tolerance	VIF
Hed	0.01506078	66.397614
SS	0.10181243	9.821983
GDP	0.01351869	73.971638
POV	0.02112552	47.336123
A	0.18957408	5.274983
PPR	0.04970689	20.117934
URB	0.04337951	23.052358

It can be seen that all variables exhibit high degrees of multicollinearity but they cannot be completely eliminated from the analysis due to their correlation with the dependent variables. As an alternate remedial measure to eliminating the variables, we conducted a LASSO regression to disqualify the effects of multicollinearity from our analysis.

To fit the LASSO regression model, we used the `glmnet()` function in R. Through our analysis, we found that the lambda which produces the lowest test mean squared error is 1674.79. This helped us in obtaining a better fit for our model.

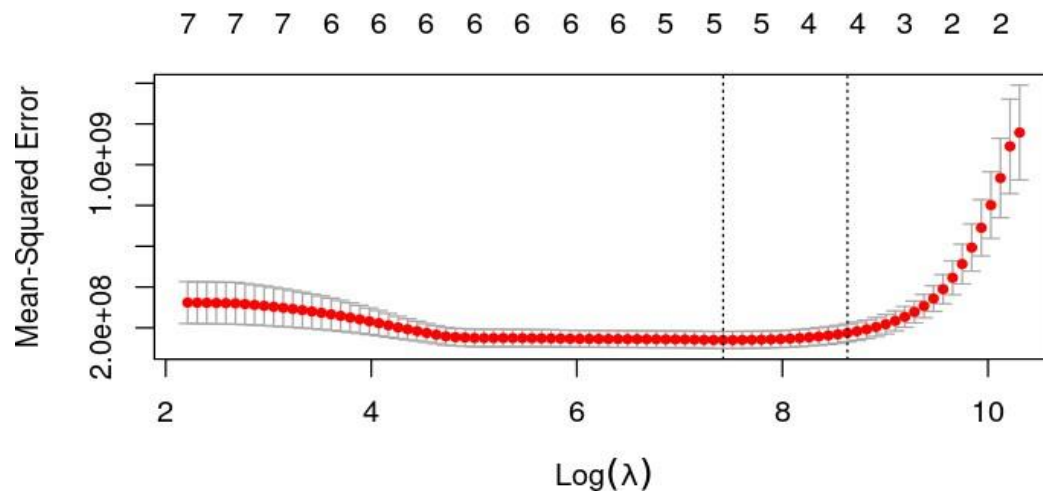


Figure 2: Cross validation to find optimal lambda

Next, we analysed the final model produced by the optimal lambda value. We obtained the following coefficients in our analysis:

(Intercept)	-2.478173e+04
Hed	2.409506e+03
SS	.
GDP	1.585017e-08
POV	1.327477e+02
A	7.759526e-03
PPR	.
URB	2.019122e+03

This analysis declared SS and PPR as non-influential and they were dropped from the model.

Lastly, we calculated the coefficient of determination of our final model which equated to 0.9340183. This outcome proves the statistical significance of our model and declares that upto 90% of variation in economic offences can be explained by changes in Hed, GDP, POV, A and URB.

Results and Inference

An empirical analysis of reported non-violent crimes, including property crimes and economic offences reported in India for the period between 2005 and 2020, and possible variables with regard to socio-economic status of the country as well as other deterrent factors was conducted. However, while they both are non-violent in nature and inflict pecuniary losses on individuals, they show varying results.

Here, unemployment and poverty show a very weak negative correlation with property stolen. Thus an increase in either or both of these variables, would result in a decrease in the occurrence of property crimes. This is contrary to majority of the literature reviewed, which suggest that some semblance of economic deprivation or a lack of a steady income source may be an underlying factor for a higher property crime rate. For instance, a review of about 30 studies from the United Kingdom, the United States, Canada, and Australia concludes that unemployment is not the sole determinant or even the major determinant of crime. They indicate that crime often increases during periods of low unemployment and that many crimes are committed by employed people and those of school age, such that unemployment is not identified as a powerful determinant of crime (Tarling, 1982).

The sixteen year period saw a significant transformation in the functioning of the police force and level of urbanisation, two factors that have direct implications for the occurrence of property crime. An increase in the level of urbanisation and the consequent resource deprivation (with unplanned urbanisation, overpopulation, etc.) can be a causal link for increase in property crimes, and is reflected in a weak positive correlation in our analysis. Meanwhile, the number of arrests has increased in the considered period, increasing the risk associated with committing the crime, and thus reducing the incentive level for the same. This is reflected in a very weak negative correlation as calculated in our analysis. Level of higher education shows a weak positive correlation with property crime. An explanation could be that individuals with higher education more often live in large cities, where as stated above, as a consequence of urbanisation, the propensity to commit a crime is higher. Further, individuals with higher education may have a higher propensity to report crimes (Lundqvist, 2018).

Overall, the occurrence of property crime displays a very weak correlation with number of arrests, the GDP of the country, social sector expenditure and level of urbanisation. We observe a weak correlation of property crime with the variables of unemployment, poverty, police per population ratio, conviction rate and higher education levels. Thus, while we have considered

them to be explanatory factors for the occurrence of property crime, none of them in isolation can be a strong indicator for the same. The p-values obtained too suggest that there exists no significant relationship between property crime and any of the chosen variables (as $p > 0.1$).

Thus, for property crimes we can infer that socio-economic variables (like GDP, poverty level, etc.) deterrent factors (like police strength and functioning of the judicial system, as reflected by conviction rate, among others) do not explain the occurrence of such crime. Given that it is a highly complex phenomenon, possible criminological theories that look at the biological and sociological upbringing of an individual may be appreciable.

Meanwhile, for economic offences, barring unemployment and conviction rate, all chosen variables show a strong correlation with the occurrence of economic crimes. We however exclude them from further analysis as $p > 0.1$ signifying that there is no significant relationship with the economic offences. Of the rest, unemployment, GDP, arrests, police per population, higher education, social sector expenditure and urbanisation show a positive correlation with economic offences. This indicates that an increase in any or all of these variables will cause an increase in the occurrence of economic offences, and vice versa. Only poverty and conviction rate show a negative correlation with economic offences.

Our findings here show greater conformity with the existing literature. A possible reason for this despite its similarity in nature and incentives as for property crime might be the magnitude of the incentive for economic offence and even greater reporting, given the gravity of the crime. Economic offences not only inflict pecuniary losses but also evoke serious concern and impact on the nation's security and governance (Bharti, 1957). The Government of India had recognized economic offences as a separate category of crimes that require special attention, to ensure swift disposal of cases and meting of punishment (Lakshminikaran et al., 2022).

In totality, we observe that property crimes and economic offences, subsumed under non-violent crimes, have a lower chance of being explained by a certain set of chosen variables as compared to violent crimes.

Given that violent crimes have greater origins in underlying aggressions and deviances as instrumental behaviours, it is easier to find a correlation with a specific factor that might be a significant causal factor for committing the crime. Additionally, the fact that much violence

stems from interpersonal (and group) conflict, it suggests that social and psychological context is more relevant for such crimes—and, socioeconomic status is thus primarily related to violent crime but not other crime. (Felson, 2009). Non-violent crimes might have more nuanced explanations, for instance, communities with high levels of temptations and/or provocations and low levels of social control could be considered risk communities for non-violent offences (Cuervo et al., 2017).

Limitations

The paper only covers the reported crimes as collected by the National Crime Records Bureau and as per Safety Trends and Reporting of Crime Survey upto 92 to 94% may not be reflected in any official record. Thus the actual occurrence or prevalence of crime exceeds that analysed in our paper. Our analysis has also been restricted by gaps in data. A shorter period of 16 years has been considered to overcome the same, and any lapses have been rectified by using the closest data available in the time series, with the assumption being that the performance of the variable may have remained the same but has not worsened in the given period. This is in line with the general observation that there has been an improvement in the performance of individual variables in the time period.

Conclusion

This study analysed the impact of socio-economic conditions on two major non-violent crime categories for India. The sample covers data ranging from 2005 to 2020.

The analysis reflected a poor relationship between socio-economic variables and property crime but a fairly strong relationship between Hed, POV, GDP, A, URB and economic offences. However, despite this relationship, it is hard to draw a parallel between criminal behaviour for non-violent crimes and socio-economic factors. These discrepant results add to an ever growing literature on the determinants of non-violent crimes. They offer us the insight that non-violent crimes should be studied through a nuanced lens, especially in developing countries like India.

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