

IMPACT OF MACRO ECONOMIC VARIABLES ON ECONOMIC CRIME IN INDIA: AN EMPIRICAL ANALYSIS

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Abstract

This paper attempts to shed light on the relationship between Economic crime and Institutional factors (police and court) in twenty Indian major states using Panel Data analysis. Major states are Andhra Pradesh, Assam, Bihar, Goa, Gujrat, Haryana, Himachal Pradesh Kerala, Karnataka, Madhya Pradesh, Maharashtra, Meghalaya, Nagaland, Odisha, Punjab, Rajasthan, Tamil Nadu, Tripura, Uttar Pradesh, West Bengal. The selection criteria of major Indian states are highest population density in last census 2011. Data are taken from the Reserve Bank of India the and National Crime Record Bureau. Results declare that the economic crime rate increases with economic growth. Industrial Worker is the proxy of Urbanization. Urbanization leads to more economic crime. Police and Court are two institution which control Crime. Charge sheet rate is the performance indicator of Police and Convicts rate is the court's performance indicator. Institutional factors like charge sheet and convict rate significantly reduce Economic crime in major states. As a policy prescription may conclude that law and order should be strengthened to control economic crime in India.

Keywords: Economic Crime, SGDPPC, C-D ratio, Charge sheet rate and Convicts rate.

Introduction

Crime is the source of insecurity and discomfort of our society. Economists have recognized that it is the result of Underdevelopment. Various literature shows that unemployment, illiteracy, inflation, and poverty play an important role in crime. Most of the studies reveal a negative relationship between crime and economic growth. But it gives the opposite result in Pakistan, Economic growth has no role to increasing crime.⁶¹ Crime increases with poverty, unemployment, and income inequality. But paper reveals the opposite result crime rate decreases with the poverty in Pakistan.⁶² In Indonesia Unemployment negative impact on

⁶¹ Ahmed., A., Ali, S., and Ahmed, N. (2014), "Crime and Economic Growth in Developing Country", Journal of Basic and Applied Scientific Research., Vol.- 4(4), pp 31-41.

⁶² Ibid.

crime.⁶³ Crime decreases as Crime decreases in sheds light on education. Crime may control by police personnel and conviction rate.⁶⁴ There are two legal sections IPC and SLL according to the law and enforcement in India. Here we have discussed Economic crime which is under the IPC. Breach of trust, Counter hefting, Forgery, and Cheating is included in Economic crime. There is dearth of literature which focused on the detecting factors of economic crime. Main objective of this paper is to identify the socio demographic factors which responsible for crime and impact of institutional factors which combating crime. There is main two institutions police and prosecution which combat the crime. The performance indicators of police and court are chargesheet rate and convict rate. In this study, we have selected twenty major Indian states in India according to the population density in the census 2011 during the period of 1994-2018. Paper is organized in following ways: it begins with the literature review, second part is discussed about the sources of data and using methodology, third part of this study focused on the result analysis and fourth pat, we have discussed conclusion, policy suggestion.

Literature Review

We have discussed some literature which also focused on the relationship between socio-economic factors of crime. Some literature uses time series data, panel and country level data.

Adekoya et.al(2017): This paper explores the relationship between crime rate with economic growth in Nigeria during the time period of 1970-2013. The economic growth was reduced by 8% as crime rate increased at 1% in Nigeria. There is a negative relationship between economic growth and Crime. Cost of prosecution increases the economic growth rate.

Ebomoyi et.al(2017): This study focused on the relationship between socio-economic demographic determinants and crime during 1981-2015 in Nigeria. The authors have applied ECM model. The results highlight the positive relationship between crime and unemployment, and inflation respectively. Crime rate decreases with the increasing level of education and per capita income.⁶⁵

Raphael (2001). This study reveals the relationship between unemployment and crime in US states. Two stage least square were applied in this study. Author chooses seven types of offences like property crime(including Auto theft, Burglary, Larceny)Violent crime (includes

⁶³ Armin., F, Indris. 2019. Analysis of the Effects of Education, Unemployment, Poverty, and Income Inequality on crime in Indonesia. *Advance in Economics, Business and Management Research*, vol 124, pp 368-374.

⁶⁴ Tella.D.R.,Schagrodsky, E.,2004. Do Police Reduce Crime? Estimates Using the Allocation of Police force After a terrorist attack. *American Economic Review*, vol 94, no 1, pp 115-133

⁶⁵ Ebomoyi., I, Igbinioms.,O,S .2017.Socio Economic Determinants of Crime in Nigeria, *Annals of the University of Petrosani Economics*, vol 17(1), pp 101-114.

in Robbery, Murder, Rape, Assault). Unemployment has a positive impact on both types of crime.⁶⁶

Teles (2004): This paper investigates how to impact on fiscal and monetary policy on crime. Inflation and Crime are closely co-related with each other. The fiscal policy included in lump-sum taxes, government expenditure, and monetization of public deficit on criminal impacts.

Tamayo (2013): This study examines the relationship between inflation and crime in Philippines during 2003-2007. Author applied Durbin Watson test. Result reveals that there is positive relationship between crime and inflation.⁶⁷

Ahmed et.al (2014): This study explores the connection between crime and economic variables like higher education, unemployment, per capita GDP, Poverty and unemployment in Pakistan during the period of 1972-2011. ECM model applied in this study. Crime decreases with the increasing higher education rate. Unemployment has positive impact on crime where poverty has negative impact on crime.

Idris et al(2019): This paper analyze the effects of poverty, unemployment, income inequality, poverty and education on crime rate during 2013-17 in 31 province in Indonesia. Multiple regression model in panel data have applied. Crime rate increases with the income inequality and poverty. Crime rate decreases with unemployment and education.

Din and Saleemi (2019): This paper inspected the relationship between crime and governance in 11 Asian Country during 1984-2014. Authors have considered four types of crime Homicide, Robbery, Burglary and Kidnapping. Governance is the proxy of socio-economic factors likes GDP per capita, unemployment, poverty, GDP growth, law and order, internal conflict, external conflict, military in politics, investment profile, religious tensions, ethnic tensions, and bureaucratic quality, used as a quality of the governance. GMM tools applied in this paper. Apart from socioeconomic variables others indicators of quality of governance are indicated by ICRG index. Results reveal that GDP per capita and income inequality are negatively significant with the Homicide rate. Quality of governance is significantly related to all types of crime.⁶⁸

⁶⁶ Raphael., S. Ebner, W,R., 2001. Identifying the effect of unemployment on crime. *The Journal of Law and Economics*, vol 44(1), pp 259-83

⁶⁷ Tamayo, M,A., Chavez, C., Nabe, N., 2013. Crime and Inflation rate in Philipines: A co integration Analysis. *International Journal of Finance and Management*. Vol 2(5), pp 380-385

⁶⁸ Saleemi, W,M., Din,U,A,R., 2019, " How Does Quality of Governance Influence Occurrence of Crime? A Longitude Analysis of Asian Countries "., *MPRA no 94142*.

Chakroborty (2014): Authors have considered two types of crime here property and violent crime in India. They measured the impact of deterrent factor police on crime. OLS and 2SLS methods have been applied in this study. Violent crime may be controlled by police but property crime may not be controlled by police personnel. Except the deterrent factors Authors have considered several social factors like population density, GDP growth, Literacy rate, population share in SC and ST, population share in urban, working age population. Literacy rate and population density are negatively significant with crime rate. Property crime control through increase the literacy rate.⁶⁹

BerkOzler (2005):Objective of this paper is the impact of local inequality on violent and property crime in South Africa. There are two types of crime Violent and Property has been discussed. The result shows that inequality leads to crime in general. Author does not find any evidence that inequality between racial groups fosters interpersonal conflict at local level.⁷⁰

Montolio (2008) : This paper capture is the impact of socio-demographic factors on crime in Spain during the period of 1993-1999. Education level and GDP per capita may controls the property crime. But unemployment is negatively significant with crime. Clear up rate is the institutional factors which control crime.⁷¹

Nicolas et.al (2009): This paper expressed a relationship between various criminal activities in Greece during 1971-2006. Time series analysis applied on it. The result express that economic depression creates criminal activities and opportunities and economic prosperity created for gaining profit from illegitimate action.⁷²

Anwar et.al(2017): This paper analyze the impact of socio -economic determinants on crime in Pakistan it covers the time period of 1973-2014. They applied ARDL model. The results shows that crime increases with the poverty and education where unemployment is negatively significant with crime. Crime may be controlled by the police strength.

Yildiz et.al(2022): This paper explore to the relationship between economic crime and socio-economic determinants in Turkey during the period of 2008-2019. Applied panel data techniques GMM. Results highlights that economic crime increases with the GDP per capita,

⁶⁹ Chakroborty, R. 2012. Deterrent Effects of some Violent and Property. crimes: An Empirical Investigation., *Arthaniti Journal of Economic Theory and Practice*, vol 11(1-2), pp 47-76

⁷⁰ Ozler, B., 2005. Crime and Local Inequality in South Africa. *Policy Research World Bank*, paper no 2925.

⁷¹ Montolio, D., Vanin, P. 2009. Does Capital Reduce Crime? *Journal of Law and Economics*, vol 52, no 1, pp 145-170.

⁷² Nikolas, D., Alexandros, G. 2009. The effects of socio-economic determinants on crime rate: Empirical research in case of Greece with co integration Analysis, *International Journal of Economic Science and Applied Research* 2(2), pp 51-64

Education attainment rate and migration. Unemployment is negatively significant with economic crime.⁷³

Omotor(2010): This Study examines the relationship between socio-economic determinants and crime in Nigeria during the period of 2002-2005. The author using the pooled ordinary least square and Pooled EGLS. This study highlights that crime combat force controls crime where GDP per capita and population density are negatively significant in all types of crime.⁷⁴

Data

The Economic Crime and related data and other data like GDP per capita, own tax, non own tax, C-D ratio, Social expenditure are collected from the NCRB and from the RBI. Data covers the period from 1994- 2018. For our analysis purpose we have selected 20 major states as per population density in the last census report 2011. Our selected 20 major states cover around 88.2% of the population, 77.22% of geographical areas, and 83.8% of crimes in India.⁷⁵

Methodology

Panel dataset is used in this study. Panel data analysis is relevant for in depth understanding the results and interpretations. The basic linear model for panel data analysis is discussed below:

$$y_{it} = \beta_0 + \beta x_{it} + u_{it} \quad (1)$$

Where y is dependent variable (property crime), x is the set of independent variables (economic, social, financial and institutional factors), u is the disturbance term, i denotes individuals and t denotes time. The Ordinary Least Square (OLS) regression is applied to this equation (1) ignoring time variation, and then it is pooled panel regression. Pooled panel data analysis is applied under the assumption of normal distribution of u_{it} , with zero mean and constant variance, i.e.,

⁷³ Yildiz., U, Gunay., K,E.,Gunsoy., G., Gunsoy, B., 2022. Socio-Economic Determinants of Economic Crime in Turkey: Dynamic Panel Data Analysis. *Journal of Management and Economic Research*, vol 20(3), pp 253-275

⁷⁴ Omotor,G,D., 2010. Demographic and Socio Economic Determinants of Crime in Nigeria.*Journal of Applied Business and Economics*. Vol 11, issue1, pp 181-195

$uit \sim N(0, \sigma^2)$. It is a restrictive model to increase number of observations only ignoring time varying data. It is useful only when cross sectional observations are small as well as those individuals have time series values, and form panel data. It could be applied from long/short time and small/large number of individual identical cross-sectional data. Otherwise, alternative models such as fixed effect model (FEM) and random effect model (REM) are required to be estimated for the study purpose considering both ‘time’ and ‘individual’. Time ‘year’ and individual ‘state’ (cross sectional data) are approximately same. Panel data analysis techniques like fixed effect model (FEM) and random effect model (REM) are appropriate and applied here.

Selection of REM and FEM: Hausman χ^2 (Chi-square) Test

Hausman χ^2 test criteria is used to select appropriate model between REM and FEM. The Hausman test criteria is as discussed below:

H0: Random Effects Model is appropriate.

H1: Fixed Effects Model is appropriate.

The test statistic is the Hausman χ^2 which is defined as

$$\chi^2 \equiv (\hat{\beta}_{RE} - \hat{\beta}_{FE})' [V_{RE} - V_{FE}]^{-1} (\hat{\beta}_{RE} - \hat{\beta}_{FE})$$

Where β_{RE} and β_{FE} denote the vector of REM and FEM estimates, respectively; and V denotes variances of them.

Decision Rule: If, calculated χ^2 is more than tabulated χ^2 value, then null hypothesis (H0) is rejected and accept alternative hypothesis (H1), otherwise.

Least Square Dummy Variable Model (LSDVM)

In this study, the Hausman Chi-square test has suggested mostly fixed effect (FE) model. Fixed effect model is also known as within effect that are unable to capture or estimate state specific individual features. Here, α_i is individual fixed effect which is time invariant and it is unobservable characteristics of individual and does not change over time, i.e., it remains fixed for all t. Hence,

α_i may be correlated with observed variables (x_{it}), i.e., $cov(x_{it}, \alpha_i) \neq 0$. Now, question arises how to estimate these parameters α_i . In this context, to estimate individual characteristics which

are fixed for state specific level that might be captured in their respective dummy variables. Here, Least Square Dummy Variable (LSDV) model is more appropriate to measure individual effect with other determining factors.

There are three different fixed effect estimation methods: Within Group (within), Least Square Dummy Variable (LSDV) and First Difference (FD) methods. In panel data analysis generally, we use within group estimation method and it is popularly known as FE. Individual fixed effects are

estimated in LSDV method. LSDVM provides same result as FE, however, in addition, it also estimates dummy variables to capture individual effects.

Now we discuss the models for estimating individualistic parameters α_i in details. It is solved using binary or dummy variables in equation (3) or/and equation (4). Let $D1_i = 1$ if $i=1$, otherwise zero;

$D2_i = 1$ if $i=2$, otherwise zero; and so on. Now, consider a reference state corresponding D_n is omitted here, then, equation (3) and/or equation (4) can be written as

$$y_{it} = \alpha_0 + \beta x_{it} + \gamma_1 D1_i + \gamma_2 D2_i + \dots + \gamma_{n-1} D_{n-1} + \epsilon_{it} \dots \dots \dots (8) \text{ Or}$$

$$y_{it} = \alpha_0 + \beta x_{it} + \sum_{i=1}^{n-1} \gamma_i D_i + \epsilon_{it} \dots \dots \dots (9)$$

Where $i= 1, 2, 3, \dots \dots \dots, n$; and $t=1, 2, \dots \dots, T$

Y_{it} = Crime,

α_0 = constant term,

β = set of coefficients of socio- economic, fiscal, financial and institutional variables,

ϵ_{it} = disturbance term,

D = dummy variable,

It should be noted that one reference state is selected according to the rank criteria for property and economic crime. Dummy (D) is used for each state except reference state, which is would be used for comparison with all other state dummies.

So, there are two equivalent ways to write the fixed effects regression model, eq (3) and eq (8) (or eq (9)), and in both formulations, the slope coefficient of x is the same. Hence, in principle, the binary or dummy variable specification of the fixed effect regression model can be estimated by OLS.

Similarly, dummy can be used for each time (here, year). Now, we may consider binary or dummy variables for both individual and time effects. Hence, both dummy variables are used in equation

(6) and it turns to LSDVM which can be written as

$$y_{it} = \mu + \beta x_{it} + \sum_1^{n-1} \gamma_i D_i + \sum_1^{t-1} \varphi_t D_t + u_{it} \quad \dots = \dots (10)$$

Where μ is common constant; D_i and D_t are dummy variables for individual and time effects, respectively; and u_{it} is the disturbance term.

Considering individual effect, time effect, or both effects LSDV is better than FE (within) method. However, degree of freedom is lost in LSDVM due to large number of (dummy) variables. For the analysis of LSDV model we select the reference state according to the bottom ranking of economic crime rate among the 20 major states. Here From ranking order, we have bottom 7 states among 20 major states for, economic crime. We choose Odisha which lies consistently in bottom rank in 5 years interval 1994,1999,2004,2009,2014 and 2019 respectively.

Table 1: Ranking of Economic crime rate at bottom

1994	1999	2004	2009	2014	2019
Tripura	Tripura	Nagaland	Nagaland	Madhya Pradesh	Madhya Pradesh
Odisha	West Bengal	Tripura	Madhya Pradesh	Nagaland	Tamil Nadu
West Bengal	Odisha	West Bengal	Odisha	Gujarat	Gujarat
Meghalaya	Meghalaya	Odisha	Bihar	Tripura	Nagaland
Punjab	Nagaland	Madhya Pradesh	Gujarat	Odisha	Bihar
Bihar	Himachal Pradesh	Meghalaya	Tamil Nadu	Uttar Pradesh	Tripura
Madhya Pradesh	Bihar	Tamil Nadu	West Bengal	Tamil Nadu	Uttar Pradesh

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Table 1 represents summary statistics of variables in panel data set consisting 20 major states. Mean, standard deviation (SD) and observation are shown in last three columns. Variables are taken in natural logarithm (ln). Mean value of variable is expressed in original value of the concern variable. Overall mean of property crime rate is 38.32 while that of economic crime rate is 7.67.

Similarly, overall mean value of State GDP per capita, C-D ratio, Charge sheet rate, and Convict rate are 65709.71, 52.27, 74.93 and 25.09 respectively. It should be noted that standard deviation (SD) of each variable has three separate values for overall SD, between groups SD and within group SD. From SD values (Table 2) we observe variation of each variable within states and between states.

Table 2 : Summary Statistics of variables in panel data set

Group factors	Variable(ln)		Mean	S D	Observation
Crime	Property crime	Overall	38.32	19.59	N=50
		Between		16.15	0
		Within		11.63	n=20 T=2 5
	Economic Crime	Overall	7.67	5.39	N=500
		Between		4.26	n=20
		Within		3.42	T=25
Development	SGDP Per capita	Overall	65709.71	45763.6	N=500
		Between		33231.6	n=20
		Within		32296.8	T=25
Financial	C-D ratio	Overall	52.27	24.18	N=50
		Between		22.41	0
		Within		10.33	n=20 T=25
Institutional	Charge sheet rate	Overall	74.93	13.67	N=500
		Between		12.01	n=20
		Within		7.04	T=25

	Convicts rate	Overall	25.01	20.63	N=50 0 n=20 T=25
		Between		17.94	
		Within		10.91	

Source: : NCRB, RBI Hand Book, Author's own calculation

Result and Discussion:

Table 3 represents the results of FEM of economic crime and highlights both institutional factors such as police and court. Economic crime should be controlled by the increasing charge sheet and convicts rate. Economic crime is controlled by institutional factors. This results also supported by Omotor (2010) and Anwar(2017). Economic crime increases with the Economic growth. These results also supported by Yidiz et.al(20222) and Omotor (2010). Own tax revenue and industrial worker have positive impact on Economic crime. Industrial worker is the proxy of urbanization or industrialization. So, we may conclude that more economic crime happens in urban area.

Table 3: Estimation result of FEM for the Role of Institution in Economic Crime

Group factors	Variables	M1	M2	M3	M4	M5	M6	M7
Development	SGDPPC	0.461*** (10.18)	0.565*** (13.07)	0.562*** (13.24)	0.472*** (12.13)	0.604*** (16.73)	0.471*** (10.96)	0.494*** (11.45)
	Industrial worker	0.281** (6.73)			0.289** (7.09)		0.276** (6.68)	0.278** (6.69)
Social	Social Expenditure	0.056 (0.93)			0.084** (3.28)			
Financial	C-D ratio	0.061 (0.77)	0.131 (1.60)	0.132 (1.62)			0.060 (0.76)	0.076 (0.96)
Fiscal	Own Tax	0.019 (0.37)	0.066** (2.45)	0.071*** (3.16)		0.070*** (2.60)	0.064*** (3.00)	
	Non- Tax	0.003 (0.18)	0.007 (0.32)			0.010 (0.48)		0.032* (1.84)
Institutional	Charge Sheet rate	-0.220 (-1.60)	-0.313** (-2.20)	-0.311** (-2.19)	-0.235* (-1.82)	-0.380*** (-2.78)	-0.224* (-1.65)	-0.149 (-1.12)
	Convictsrate	-0.218* (-8.16)	-0.223* (-7.98)	-0.222* (-8.00)	-0.216* (-8.15)	-0.220** (-7.88)	-0.218* (-8.21)	-0.221* (-8.21)
	Constant	-4.28*** (-6.69)	-3.39*** (-5.21)	-3.36*** (-5.19)	-4.19*** (-6.98)	-3.08*** (-4.95)	-4.19*** (-6.63)	-4.54*** (-7.30)
Model specification	F statistics	70.62*** (0.000)	79.35*** (0.000)	95.27*** (0.000)	113.11*** (0.000)	94.40*** (0.000)	94.04*** (0.000)	92.08*** (0.000)
	Hausman	28.10***	7.43	10.61**	11.15**	11.58**	17.87***	12.78**
	χ^2 test	(0.000)	(0.28)	(0.05)	(0.04)	(0.04)	(0.000)	(0.04)

Note: Figures in parentheses are t-values. *, ** and *** denote significance at 10%, 5% and 1% level, respectively

LSDVM Analysis

To capture the individual state effect the least square dummy variable model (LSDVM) is appropriate where coefficients of explanatory variables remain unaffected. Here, we have selected Odisha as the reference state as per its consistent bottom rank in India over the study period. Now we have seen the individual effect of states referring Odisha. For the economic crime analysis other states dummy variables are coded as West Bengal (D1), Andhra Pradesh (D2), Assam(D3), Bihar(D4), Goa(D5), Gujarat(D6), Haryana(D7), Himachal Pradesh(D8), Karnataka(D9), Kerala (10), Madhya Pradesh (D11), Maharashtra(D12), Meghalaya(D13),

Nagaland(D14), Punjab(D15), Rajasthan(D16), Tamil Nadu(D17), Tripura(D18), and Uttar Pradesh (D19). Table 4 provides the estimated results of LSDVM for economic crime rate in major states in India. The estimated coefficients of SGDPPC and convicts' rate are respectively significant as in the above sections. The significantly positive coefficients of dummy variables are Andhra Pradesh (D2), Assam (D3), Bihar (D4), Kerala (D10), Madhya Pradesh (D11), Punjab (D15), Rajasthan (D16) and Uttar Pradesh (D19). These findings suggest that economic crime rates of Andhra Pradesh (D2), Assam (D3), Bihar (D4), Kerala (D10), Madhya Pradesh (D11), Punjab (D15), Rajasthan (D16) and Uttar Pradesh (D19) are higher compared to the referral state Odisha.

Table 4: LSDVM Analysis of Economic crime in Major states.

Variables	M1	M2	M3	M4
C	-4.54*** (-6.59)	-4.89*** (-6.78)	-4.22*** (-5.64)	-4.60*** (-6.34)
GSDPPC	0.455** * (11.17)	0.468** * (10.13)	0.551** * (11.97)	0.447** * (9.76)
C-D		0.108 (1.27)	0.220** * (2.55)	0.090 (1.08)
Social Exp	0.086** * (3.19)			
WORKER	0.297** * (7.12)	0.284** * (6.67)		0.281** * (6.65)
OWN TAX				0.061* ** (2.71)
NON-TAX		0.029 (1.60)		
Charge Sheet rate	-0.229* (-1.72)	-0.130 (-0.93)	-0.146 (-1.03)	-0.199 (-1.01)
Convict rate	- 0.225** * (-8.14)	- 0.228** * (-8.16)	- 0.224** * (-7.69)	- 0.226** * (-8.18)
WB	-0.073	-0.101	-0.077	-0.105

	(-0.23)	(-0.32)	(-0.23)	(-0.34)
AP	1.00*** (3.20)	0.888** * (2.81)	1.08*** (2.32)	0.921** * (2.94)
ASSAM	0.674** (2.11)	0.675** (2.08)	0.693** (2.03)	0.701** (2.17)
BIHAR	1.14*** (3.64)	1.13*** (3.57)	0.775** * (2.37)	1.14*** (3.65)
GOA	-0.082 (-0.25)	-0.021 (-0.06)	0.429 (1.17)	-0.001 (-0.01)
GUJRAT	0.021 (0.07)	-0.051 (-0.16)	0.235 (0.71)	-0.025 (-0.08)
HARIYANA	0.450 (1.40)	0.386 (1.20)	0.690* * (2.05)	0.410 (1.28)
HP	-0.178 (-0.57)	-0.141 (-0.44)	0.111 (0.33)	-0.102 (-0.32)
KARNATAK	0.394 (1.24)	0.318 (1.00)	0.441 (1.34)	0.321 (1.02)
Kerala	0.957** * (3.02)	0.879** * (2.78)	1.00*** (3.06)	0.905** * (2.87)
MP	0.402 (1.33)	0.306 (1.02)	0.212 (0.68)	0.343 (1.15)
Maharashtra	0.115 (0.38)	0.017 (0.06)	0.144 (0.45)	0.026 (0.09)
Meghalaya	0.436 (1.34)	0.526 (1.54)	0.284 (0.79)	0.546 (1.60)
Nagaland	0.479 (1.48)	0.572* (1.70)	0.336 (0.96)	0.638* (1.90)
PUNJAB	0.709** (2.21)	0.616* (1.92)	0.921** * (2.77)	0.649** (2.03)
RAJASTHAN	1.94*** (6.18)	1.86*** (5.92)	1.81*** (5.52)	1.89*** (6.05)
TAMILNADU	-0.052 (-0.16)	-0.169 (-0.52)	0.114 (0.34)	-0.153 (-0.48)
TRIPURA	-0.263 (-0.85)	-0.212 (-0.67)	-0.191 (-0.57)	-0.155 (-0.49)
UP	1.03*** (3.30)	1.00*** (3.15)	0.938** * (2.83)	1.01*** (3.22)
F test	81.28** ** (0.000)	76.66** * (0.000)	73.92*** (0.0000)	77.83** * (0.000)

Note: Figures in parentheses are t-values. '***', '**' and '*' denote significance level at 1%, 5% and 10%, respectively. Odisha is the referral states, and other states with dummy code are West Bengal (D1), Andhra Pradesh (D2), Assam(D3), Bihar(D4), Goa(D5), Gujarat(D6), Haryana(D7), Himachal Pradesh(D8), Karnataka (D9), Kerala (D10), Madhya Pradesh (D11), Maharashtra (D12), Meghalaya(D13), Nagaland(D14), Punjab(D15), Rajasthan(D16), Tamil Nadu(D17), Tripura(D18), and Uttar Pradesh (D19).

Conclusion

This paper has discussed the impact of socio economic and institutional factors on economic crime in major states in the first part of our study then we have discussed the detecting factors of economic crime in major twenty Indian states. Here we have selected as the proxy of crime

detecting socio-economic and institutional factors like economic growth (state GDP per capita), Industrialization (Industrial worker), Fiscal indicator (Own –tax revenue, Non own tax revenue), Social factor (Social expenditure), Financial indicator (C-D ratio), Institution factors (Charge sheet rate, Convict rate). The findings are discussed accordingly. Economic crime increases with the economic growth. Social expenditure, Own tax revenue, industrial worker has positive impact on economic crime. Economic crime decreases with the institutional factors charge sheet rate and convict's rate. Economic crime is directly related with economic growth, social expenditure, industrial worker and fiscal instrument like own tax in major twenty Indian states. However, economic crime is inversely related with institutional factors. Economic crime may control by the institutional factors in major states. As a policy prescription, we may suggest that law and order must be strengthen to control economic crime.

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