A SPATIAL ANALYSIS OF URBAN CRIMES IN INDIA, 1998.

Dissertation submitted to Jawaharlal Nehru University in partial fulfilment of the requirements for the award of the Degree of

MASTER OF PHILOSOPHY

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CERTIFICATE

I, Swagata Basu, certify that the dissertation entitiled " **A SPATIAL ANALYSIS OF URBAN CRIMES IN INDIA, 1998.**" submitted by me for the degree of **MASTER OF PHILOSOPHY** is my bonafide work and may be placed before the examiners for evaluation.

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New Delhi.
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Swagata Basu
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CHAPTER-I

INTRODUCTION

The study of crime is one of the most important pursuits of the social scientists, for two very different reasons: 1). Crimes are inherently dramatic events. They cause great harm and elicit a strong social response. People find tales of mass murder more interesting than reports of an increase in food-grain production or a decline in fertility ratio. People are entertained by a thief's coup in taking a jewel from a heavily guarded museum, but they are bored by the everyday heroics of sanitation workers, miners or bankers. Robin Hood is a legend but the Param Vir Chakra recipients of the country remain unknown. As a result, much of social life can be studied through crime and communicated to an audience unreached by parallel studies of similarly important but less dramatic events. 2). Crime is the actual focal point of consideration of many of the most important issues of social organization. Crime implies punishment and raises the issue of power. It relates the individual citizen to the society and government. Crime reflects social decisions about appropriate distribution of status privilege and wealth and about the methods people use to attain them. The patterns of crime have long been seen as a touchstone that reveals that reveals the inner composition of society.

1. STATEMENT OF THE PROBLEM

The process of social change in both developed and developing countries entails various processes of disorganization and dislocation, and among them the most serious is the general increase in criminality. Anti-social and deviant behavior arises in the wake of technological innovations and changes in social, economic, and political spheres of society. Every changing society has to cope with them. In developing countries including India, inadequate attention has been given to the questions of the types of criminality connected with social change. This is understandable in view of the preoccupation of the developing countries with wider

problems of economic development and raising the standard of living of their people. Increasing crime rate is perhaps the price they have to pay for the neglect of the social consequences of economic change. It is surprising, however, that even among the social sciences in general, and sociology and criminology in particular, interest in the questions of inter-relation between crime and processes of social change is more or less lacking.

Economic development and modernization can be analyzed in terms of two most important processes of change; namely, Industrialization and Urbanization. The present study aims to look at crime in the urban setting as urban and rural areas in developing nations have both different patterns and levels of criminality. While little change has happened in the types of crimes found in the rural areas, a dramatic transformation has occurred in the urban environment. The process of development has caused the crime–prone age groups to exit from the countryside, reducing the potential for criminality in an area already highly immune to criminality and magnifying the problem in the recipient urban areas already highly susceptible to problems of criminal behavior.

Uncontrolled urban growth has been a direct consequence of the conditions of rural life and the process of urbanization. Agricultural areas are incapable of supporting the ever-increasing number of rural inhabitants, and the transition from labour intensive to highly mechanized agriculture has made much of the rural population superfluous. Migration from rural areas has become increasingly necessary as developing societies convert to cash economies making it obligatory for some of the family members obtain paying jobs in urban areas. Urban areas that have grown rapidly as a result of the industrial revolution serve as magnets for the underemployed rural population. As population mobility is unrestricted in India, few efforts are made to decelerate the process of urbanization or divert individuals to areas that might benefit from an increase in manpower. Therefore unprepared cities are receiving masses of youthful immigrants without preparing adequately for the employment, medical, and residential needs of the new urban work force.

The city is attractive to the most crime prone age group of youthful males who, because of their lack of responsibilities, possess increased personal mobility. The very factors that contribute to the ready mobility of the youthful male population are the same conditions that make them susceptible to the disorienting and criminological consequences. These young males relieved of traditional family responsibilities and removed from the usual constraints of close family life, are much more prone to misconduct than individuals more established in the family.

Many of the migrants, poorly educated and ill prepared for the demands of the more developed area, are incapable of finding employment, and must resort to illicit means to support themselves. The conditions under which these recent urban migrants live are hardly amenable to the maintenance of community order. A sharp difference exists between the expectations of the migrants and the conditions that wait them. Urban life is more attractive to migrants because of access to conveniences made possible by electricity, transportation, medical care, and the general excitement associated with the city. Unfortunately these benefits are not available to most of the recent arrivals. The migrants start dwelling in the slums. The cohesive family structure and the association patterns based on kinship characteristic of rural society disappear in the urban slum as individuals are separated from their extended family and encounter the tribulations of city life. The extended family converts into a nuclear family and marriage bonds are loosened where now the principal objective is individual coupling rather than family alliance. The social and economic factors that account for differences between urban and rural criminality will ensure the community of this divergent behavior. As the cities are more affected by modernization, than the rural communities, a significant difference persists between the crime patterns of both the environments.

2. SELECTION OF THE STUDY AREA

When one looks at the incidence and rate of crime in the cities, and the corresponding states in India, one notices a higher rate in the cities. The

comparative crime rates for two time periods are being analysed to validate this argument.

TABLE 1.1. COMPARATIVE RATES OF CRIME (IPC) IN CITIES AND STATES.(1965)

STATE	CRIME RATE	CITY	CRIME RATE	RATIO OF CITY TO STATE
Andhra Pradesh	93.12	Hyderabad	204.31	2.19
Gujarat	136.4	Ahmedabad	244.98	1.78
Madras	185.5	Madras	441.87	2.39
Maharashtra	193.44	Bombay	535.65	2.76
Mysore	113.19	Bangalore	301.46	2.67
Uttar Pradesh	178.19	Kanpur	579.81	3.25
West Bengal	193.96	Calcutta	719.65	3.72

Source: Dhanagare,D.N.(1969) Urbanism and Crime, Economic and Political Weekly, pp 1239

TABLE 1.2. COMPARATIVE RATES OF CRIME (IPC) IN CITIES AND STATES.(1998)

STATE	CRIME RATE	CITY	CRIME RATE	RATIO OF CITY TO STATE
Andhra Pradesh	165.2	Hyderabad	173.3	1.04
Gujarat	267.3	Ahmedabad	395.7	1.48
Tamil Nadu	245.2	Madras	114.5	0.45
Maharashtra	201.6	Bombay	174.6	0.86
Karnataka	216.8	Bangalore	550.1	2.53
Uttar Pradesh	112.4	Kanpur	380.0	3.39
West Bengal	88.0	Calcutta	90.4	1.02
Madhya Pradesh	260.4	Indore	581.3	2.23
Rajasthan	322.0	Jaipur	626.1	1.94

Source: Crime in India,(1998) NCRB, Govt. of India, pp105

The Tables 1.1 and 1.2 reveal, that the cities have higher rates of crimes than their domain states. This is the basis for selecting the major towns of India as the study area. The present study investigates the crime pattern of fifty-nine major towns of India for which the Crime in India publishes data for the crimes under the Indian Penal Code. Since these fifty-nine towns are spread over entire length and breadth of the country, they represent the diversity of India's physiography and culture, and thus they give a clearer idea the impact of the surrounding region on the

city, and how the cities behave differently from one another, owing to their regional orientation. Table 1.3 shows the towns that have been selected for this study.

TABLE 1.3. CITIES INCLUDED IN THE STUDY

Sl. No.	City	Sl. No.	City	Sl. No.	City
1	Hyderabad	21	Bhopal	41	Udaipur
2	Vijaywada	22	Gwalior	42	Chennai
3	Vishakapatnam	23	Indore	43	Coimbatore
4	Guwahati	24	Jabalpur	44	Madurai
5	Patna	25	Amravati	45	Salem
6	Ranchi	26	Aurangabad	46	Thirunelveli
7	Ahmedabad	27	Mumbai	47	Trichy
8	Bhavnagar	28	Nagpur	48	Agra
9	Rajkot	29	Nasik	49	Aligarh
10	Surat	30	Pune	50	Allahabad
11	Vadodhara	31	Solapur	51	Bareilley
12	Bangalore	32	Amritsar	52	Gorakhpur
13	Belgaum	33	Jalandhar	53	Kanpur
14	Bijapur	34	Ludhiana	54	Lucknow
15	Gulbarga	35	Ajmer	55	Meerut
16	Hubli-dharwad	36	Bharatpur	56	Moradabad
17	Kochi	37	Bikaner	57	Varanasi
18	Kozhikode	38	Jaipur	58	Kolkata
19	Trivandrum	39	Jodhpur	59	Delhi(city)
20	Bhilai	40	Kota		

Figure 1.1 shows the location of the fifty-nine cities selected for the study area. For the crimes under Special and Local laws the study has been restricted to the twenty-three mega cities as data for all the fifty-nine towns were not available with the National Crime Records Bureau[1].

[1] Crime in India, National Crime Records Bureau, Ministry of Home Affairs, Government of India.

INDIA
SPATIAL DISTRIBUTION OF THE CITIES INCLUDED IN THE STUDY

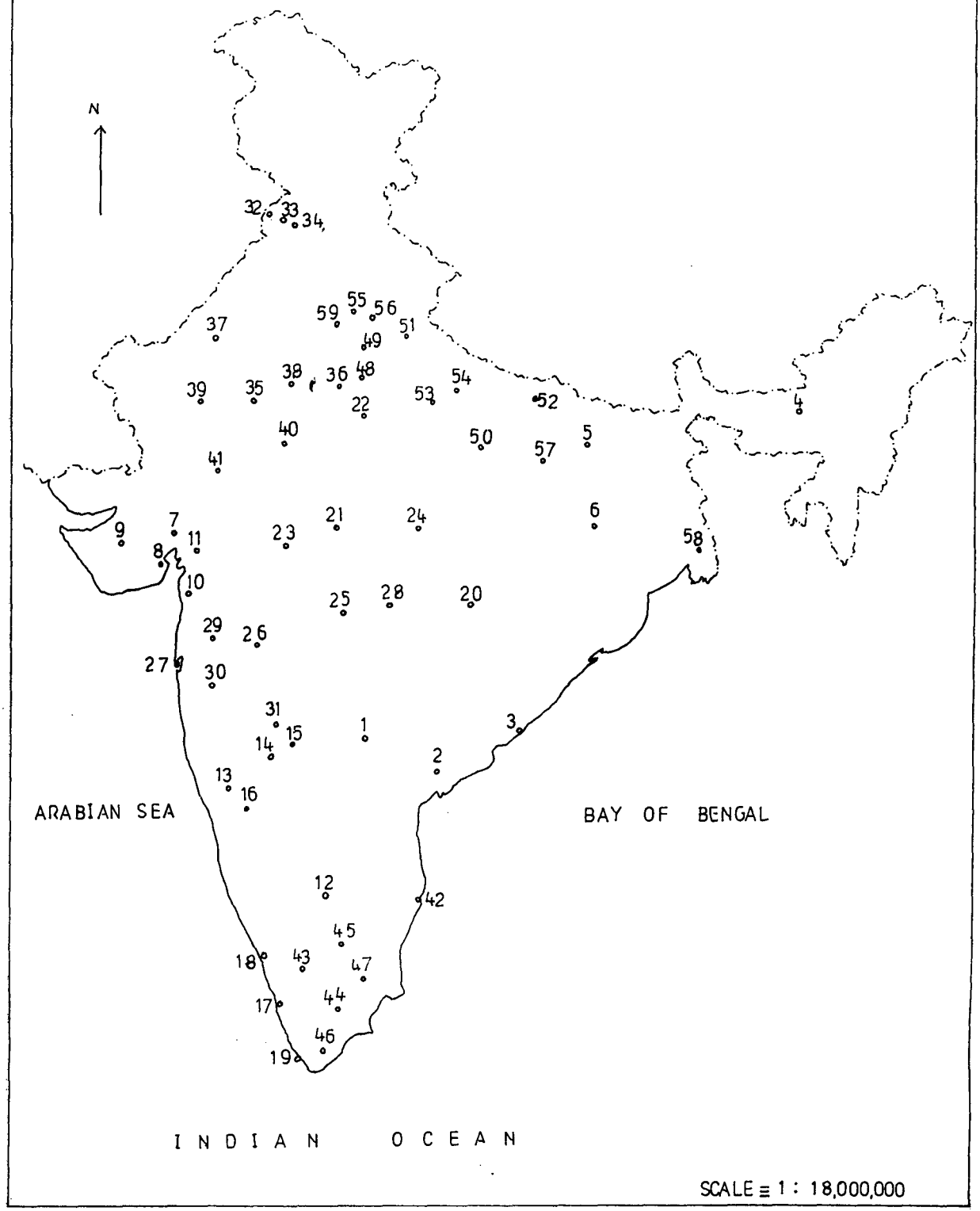

FIG - 1.1

TOWNS SELECTED FOR THE STUDY

Sl. No.	City	Sl. No.	City	Sl. No.	City
1	Hyderabad	21	Bhopal	41	Udaipur
2	Vijaywada	22	Gwalior	42	Chennai
3	Vishakapatnam	23	Indore	43	Coimbatore
4	Guwahati	24	Jabalpur	44	Madurai
5	Patna	25	Amravati	45	Salem
6	Ranchi	26	Aurangabad	46	Thirunelveli
7	Ahmedabad	27	Mumbai	47	Trichy
8	Bhavnagar	28	Nagpur	48	Agra
9	Rajkot	29	Nasik	49	Aligarh
10	Surat	30	Pune	50	Allahabad
11	Vadodhara	31	Solapur	51	Bareilley
12	Bangalore	32	Amritsar	52	Gorakhpur
13	Belgaum	33	Jalandhar	53	Kanpur
14	Bijapur	34	Ludhiana	54	Lucknow
15	Gulbarga	35	Ajmer	55	Meerut
16	Hubli-dharwad	36	Bharatpur	56	Moradabad
17	Kochi	37	Bikaner	57	Varanasi
18	Kozhikode	38	Jaipur	58	Kolkata
19	Trivandrum	39	Jodhpur	59	Delhi(city)
20	Bhilai	40	Kota		

3. OBJECTIVES

The aims of the study may be briefly specified as follows:

1. To analyze the spatial patterns of crimes in the selected urban centers.
2. To investigate whether the crime patterns of the cities' are related to the inherent characteristics of the urban center.
3. To determine the aspects of social change that give an impetus to the rise in criminality in the urban centers.
4. To verify whether there has been a change over the pattern of crime over the last ten years.
5. To find whether the findings of the present study relates to studies conducted by others in the urban areas of India and other societies.

4. RESEARCH QUSTIONS

To achieve the above aims, it is necessary to raise some of the key questions involved and to locate them in a proper theoretical context:

1. Whether crime is inherent in; or the necessary consequence of urbanization where urbanization is perceived in the terms of city size, sex-ratio, percentage of migrants, percentage of slum dwellers, work participation rate, female work participation rate, etc,
2. Whether urban crime as a phenomenon is uniform over space or crimes taking place in urban areas of diverse locations yield differing patterns.
3. Do the various characteristic features of a city in terms of its' ecological, cultural, functional traits abet criminogenic tendencies among its' residents.
4. Do Special and Local Laws, which are meant for regional crime control; have cases of arrest within the urban areas. If this were the case then one could say that the urban centers are an extension of the socio-cultural milieu of the adjoining region.
5. Whether the sociological and criminological theories developed in the west are applicable to the etiology of urban crime patterns in India.

5. DATA BASE

In order to realize the above-mentioned objectives and research questions, a number of data sources had to be tapped. The data used for the analysis are given below in a systematic tabular form.

TABLE 1.4. DATA BASE FOR THE STUDY

Source	Nature of Data	Year	Publisher
Crime in India	Incidence and the rate of crimes under the Indian Penal Code and The special and Local Laws of the fifty-nine cities selected for the study.	1990, 1991, 1992, 1997, 1998, 1999.	National Crime Records Bureau, Ministry of Home Affairs, New Delhi.
Ramachandran,R, Urbanisation and Urban systems in India.	Dates of Origin of the Cities, taken up for the Study.	1989	Oxford University Press.
Agro-ecological sub-regions of India for Planning and Development.	Agro-ecological sub-regions of India.	1999	National Bureau of Soil Survey and Land Use Planning,(ICAR), Nagpur.
Census of India	City-wise Nine Industrial Category of workers.	1991	Census of India Publication, Directorate of Census Operations.
Census of India	City-wise Population.	1991, 2001.	Same as above.
Census of India	Sex Ratio	1991.	Same as above.
Census of India	Literacy Rate	1991	Same as above.
Census of India	Work Participation Rate	1991	Same as above.
Census of India	Female Work participation rate	1991	Same as above.
Census of India	City-wise Total income	1991	Same as above.
Census of India	City-wise Percentage of migrants	1991	Same as above.
Census of India	City-wise percentage of Scheduled Castes and Scheduled Tribes.	1991	Same as above.
Census of India	City-wise percentage of slum dwellers	1991	Same as above.
Census of India	City-wise percentage of non-workers available for jobs and are seeking jobs.	1991	Same as above.
Census of India	City-wise religious composition	1991	Same as above.

6. METHODOLOGY

The methodology adopted to process the above mentioned database could be divided in to three parts.

(i). Disaggregation of Cities.

The fifty-nine cities of India on which the present study is based, have varying characteristics owing to their age, socio-cultural attributes, physiographic location and functional specialization. To highlight these special characteristics of the cities, the similar cities had to be grouped together. The methodology adopted for this purpose is discussed below.

(a) Dates of the origin of the fifty-nine cities were used in order to classify them on the basis of the four major historical periods, namely, Ancient towns, Medieval towns, European-Indian towns and Post-Independence towns.

(b) Socio-cultural attributes were measured in terms of :

(i) Major Religious groups residing in the city.

J.C.Weaver's technique of combinational analysis was applied to find out how many major religious groups live in a city[2]. For this analysis the actual percentage of a particular religious group was compared with a hypothetical percentage. This theoretical percentage of religious composition is different in different hypothetical situations. For example for a hypothetical situation of a city with one major religious group, the theoretical percentage share of that religion would be 100. For a city with two major religious groups, it is 50 percent for each religion. For a city with three major religious groups, it is 33.33 percent for each and so on. It starts with the assumption of one major religious group in a city, then two major groups, three major religious groups and so on. Each time an index σ^2 is worked out as given below. The minimum of σ^2 gives the best fit.

[2] Weaver J C, as cited in Mahmood, Aslam, (1977), Statistical Methods in Geographical Studies, Rajesh Publications, New Delhi. pp 117-120.

$$\sigma^2 = [\{\Sigma(Xi-\bar{X})^2\}/N].$$

(Where $\bar{X}$ is the theoretical percentage, Xi, the actual percentage and N is the number of religions we include in the test.)

(ii) Major language groups residing in a city:

Since the 1991 Census did not have data regarding the number of people speaking different languages within a city, hence the cities' have been grouped according to the major language spoken in the state within which the city is located.

(c) Agro-Ecological regions within which the cities' are located:

A map showing the agro-ecological regions of India was obtained from the National Bureau of Soil Survey and Land Use Planning, (ICAR), Nagpur. The cities' selected for the present study, were then classified according to the Agro-ecological region they are located in.

(d) Functional Classification of cities:

This classification been done with the help of a Ternary Diagram. A ternary diagram is a triangle showing the influence of three variables.[3] The diagram consists of an equilateral triangle, the sides of which form three scales graduated 0 to 100 percent, so that the apex forms zero on two scales and 100 percent on the third. Any such set of three percentages, (in this case percentage of workers engaged in Industry, Trade and Transport and Services.) can be represented by a point on the diagram, the position of which within the triangle reflects the relative dominance of each component.

[3] Mahmood, Aslam, (1977), Statistical Methods in Geographical Studies, Rajesh Publications, New Delhi. pp 122-124.

These methods have been used to group cities having varying characteristics into uniform cohorts. The next sets of techniques have been used to process the data available on Crime in the cities' selected for this study.

(ii). Processing the crime statistics:

The crime statistics that were collected from the publications of National Crime Records Bureau, had to be standardized in order to make it comparable with other statistics used in the study.

The incidence of the various crime rates of the cities had to be have been converted in to rates of crimes and for that the incidence of crimes were averaged for the three years of 1997, 1998, and 1999. The population for each city for the year 1998 was calculated by working out the growth rate of population between the years 1991 and 2001 and then projecting the population of 1998.

The incidence of crime rates per lakh population for the Fifty-nine cities were then worked out by dividing the average values of incidence of crime for 1997, 1998 and 1999 by the population of 1998 and multiplied by the 100,000.

Rate of crime (1998) = [{(Average value of incidence of crime rate in1997, 98,99)/(population of the cites in1998)}*100,000]

This procedure was repeated to calculate the rate of crimes for the cities for the year 1991.In this case the average value of the incidence of crime was calculated for the years 1990, 1991 and 1992.

(iii). Analysis of the crime data in relation to the study area:

(a) For analyzing the relative position of cities in terms of a certain crime *z*-scores of the crime rates of the different cities were calculated. A *z*-score indicates the distance between a raw score and the mean, using standard deviation units to

measure the distance. A *z*-score has two parts: the sign (positive or negative) and the numerical value. The sign specifies whether the score is above the mean (positive) or below the mean (negative). The numerical value of the *z*-score specifies the distance from the mean by counting the number of standard deviations between X and μ. The relation between values and *z*-scores can be expressed symbolically in a formula. The formula for transforming raw scores into z-scores is

$$Z = (X - \mu)/\sigma$$

Where X is the raw score, μ, the mean of the distribution and σ, the standard deviation.[4]

(a) These *z*-scores have been plotted on the map of India showing the cities selected for the study, to analyze the position of each city in terms of a particular type of crime.

(b) The twenty-three types of crimes under the Indian penal code has been grouped together into seven categories so that comparisons of crime types in relation to cities becomes simpler as the motives of certain crimes are common hence the etiology for such a group of crime may be generalized.

(c) Analysis of temporal changes of crime rates has been conducted by choosing two periods of time, namely 1991 and 1998. A comparison of the z-scores distribution of the cities give an idea whether the crime situation of a city in relation to other cities has deteriorated or improved with time.

(d) Regression analysis of major crime types and socio-economic indicators of the cities have been done in order to find out whether the socio-economic conditions of the city could account for it's crime situation. Regression analysis would also reveal, those indicators, which account for the maximum explanation for the occurrence of a particular type of crime in those cities.

(e) Crimes within each category of cities have been listed in order to explore whether more cities of the similar category report the same kind of crimes.

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[4] Gravette J.F. and Wallnau L.B. (1987) Statistics for the Behavioral Sciences, Tata Mc-Graw Hill Publishing Co. Ltd. New Delhi, pp 146-151.

7. LITERATURE REVIEW.

To place this study in a proper perspective, it was considered imperative to look in to similar kind of studies conducted by other researchers. A substantial number of studies of metropolitan crime rates analysis were conducted in the 1970s. The main focus of the studies done by a number of researchers to understand the social economic and environmental correlates, of crimes. The pattern that emerged from these analyses were fairly stable, and they form the base from which explanations for geographical patterns of crime may be constructed. The studies that are being discussed here pertain to only inter-city crime pattern analysis.

Pressman and Carol (1971) analyzed crime patterns of 95 SMSAs, for 1965 with respect to number of police per capita, net immigration, racial composition, family level incomes, educational levels unemployment rates, population density and unemployment.

Martin (1973) analyzed 1971 crime rates for 30 largest cities by the council of municipal performance. This study related crimes with poverty, racial mix of the population temperature of the cities.

Spector (1975) analyzed violent crimes on 103 SMSAs and related crime rates to population density, unemployment, crowding of homes.

Flango and Sherbenou (1976) used factor analysis and regression to compare 1970 crime rates for 840 cities and incorporated fifty-nine variables into socioeconomic factors that were independent of one another. It used factors e.g. urban affluence, economic specialization, stage in life cycle, poverty culture to analyze crimes.

Harries (1976) used canonical correlation analysis to analyze 1970 crime rates of 726 cities with population more than 25000. He related total crimes, robbery, assaults, burglary and auto thefts, with population density, family structure, age, racial and ethnic mix education, housing quality and character and police per capita.

Danziger (1976) studied related the population density and rates of unemployment with rates of violence in the cities.

Kvalseth (1977) analyzed 199 SMSAs of the United States with demographic variables.

Worden (1980) analyzed crime rates of 120 SMSAs for 1960 and 1970 using correlation and regression techniques and stepwise regression. He related crimes to racial mix and ethnic composition.

The ***Brantinghams'*** (1980) analyzed 1970 crime rates for SMSAs of population over 250000 and related it with a set of variables on employment, occupational and socioeconomic variables.

Messner (1982) compared 204 SMSAs of United States and related the crime pattern of these cities with the poverty and inequality by taking family income as the indicator.

Cohen and Land (1984) analyzed crime rates of twenty five cities of the United States and related crimes with city size, density, mobility, poverty, inequality, unemployment, household size and divorced population, age stucture, commuter population, police force etc.

Bailley (1984) worked on 204 SMSAs of United States and related the crime pattern of these cities with the absolute and relative deprivation of the people.

Alsukhwaikhat and Garba (1997) compared 10 cities of Saudi Arabia, 25 cities of United States, and 25 cities of Japan.with the population size and density of the cities.

Ackerman (1998) studied the crime patterns of different cities' of Ohio, and related crimes with poverty, socio-economic conditions and city size for 1976-84 and1985-94 data.

Sindwani and Paul Choudhury (1996) analyzed 1991 crime rates of Delhi and Houston by relating it to poverty, loose family structure and efficiency of the police force.

Guha Roy and Mishra (1997) compared the crime rates of Delhi and Bombay, and related them with the rise in the land values of the cities' and the proportion of unemployed in the cities.

Rao Venugopal.(1981) analysed the crime patterns of the major cities of India, and tried to establish a model of the causes of crimes in the urban areas.

Dutt,A.K. and others(1998) used factor analysis to group the common crimes occurring in seventy-three large cities of India and the ranked the cities in terms of their crimes.

Jos Mary. (1988) studied the crimes occurring in the mega cities of India . The study shows the difference in the crime rates of the cities the states, within which they are located.

Mukherjee Doel. (1999) analysed the crimes taking place against women in selected cities of South East Asia.

8. SCHEME OF CHAPTERS

It is evident from the foregoing discussion that crime is a multidimensional and complex process. At the same time it has a high degree of variability over time and space. Moreover change in the socio-cultural milieu and aspects of governance too have brought in changes in the nature, intensity and the concept of crime. In a nut shell the more one probes into the study of crime one is likely to venture into more complex aspects of it. These challenges were also encountered in this research work. Every new venture into the study of crime has a danger of over subjective bias on the part of the researcher. Therefore special care has been taken to make the study objective by adopting a scientific approach of study. In this regard problemmatizing the concept of urban crime, objective of study, research question, database methodology and review of literature have been included in the first chapter under Introduction.

To be scientific, means to evolve the capacity to do certain things on objective basis and, also to be in a position to do the same, time and again. Meaning thereby, the aspect of experimentation is intrinsic to any scientific study where the scope for improvisation remains with every new experiment. The second chapter too makes a scientific probe into the experiences and experiments conducted by different scholars at different points of time. Here an in-depth study of literature to

strengthen the theoretical and conceptual base, the aspects of improvisation have been included by looking critically at the theories of crime in general and urban crimes in particular.

No objective study is possible without an appeal to factual information. Facts are essential to all scientific study. But at the same time facts too have a time and space dimension. The third chapter tries to bring in the space dimension by looking into the personality of the study area, in this case, situating the crime in the urban context of India.

Facts are like bricks but a collection of bricks do not make a house. It needs a logical and technical arrangement to do the same. In the fourth chapter, the facts collected through various sources have been processed through rigorous logical and technical process. So that, the facts are able to guide and become indicative towards the revelation of truth. Truth can be local as well as global. A scientific study would always claim to acquire the hold over global truth. In this study too the global truth regarding crime in general, and urban crime in particular have been attempted in the fourth chapter under Analysis.

A summary of the main findings, have been presented in the last chapter of this dissertation.

CHAPTER II

CONCEPTUALISING URBAN CRIME.

1. DEFINING CRIME.

Before any problem can be systematically studied, it must be adequately defined. The criminologist's major concern over the definition of "crime" is the extent to which that definition affects the field of inquiry. If "crime" is too narrowly defined, then one's research will omit much of what should be studied. On the other hand, if "crime" is too broadly defined, then the term may become meaningless and lost in a sea of conflicting or overlapping concepts.

1.1 The Relative Nature of Crime.

Crime is not absolute. It is relative. That is, crime varies with time and place. There was a period when crime was not officially defined and criminal acts were handled through private vengeance. Justice was left to the concerned individuals. Punishments were intended to satisfy revenge. No outside parties acted as referees. Reactions to crime eventually passed from those of private vengeance to the kinship or blood revenge.

Crimes as well as punishment were not typically codified under this system. The concept of crime and criminal law developed with the beginning of the state or monarchy. Initially, only acts against the monarch, was considered crimes by the state. In due course of events, the notion of collective state responsibility and financial compensation acted to eliminate private vengeance and blood feuds. Consequently, the state through the ruler's authority assumed the administration of justice by defining crimes, codifying laws and implementing the jury system.

Thus, from the days of subjective and individualistic approach to crime and it's redressal, crimes have ensembled the lives of social human the world over. However, it is interesting to note that there are few other things that have changed so widely over time and space as the nature of crimes. Today we have specific laws that pertain to tax evasion, auto thefts, white-collar crimes, and cyber crimes, etc. At the beginning of the last century such laws were nonexistent. Moreover crime is also relative to place. What is against the law in one jurisdiction may be perfectly legal in another. These are some of the important aspects that made it difficult to evolve the most acceptable definition of crime. For this purpose it is essential to consider some significant approaches adopted by scholars to define crime.

1.2. The Legal definition of Crime.

Behavior can be dealt with as criminal only when it violates the criminal law. Without the law there can be no official crime. This is not to suggest that only acts prohibited by law are "wrong". Many individuals feel that some acts currently labled as crimes should be legalized or that certain legal acts should be criminalized. Crimes may be classified in a way other than as felonies versus misdemeanors. Acts, which are "believed to be wrong in them, or naturally evil, or inherently dangerous to public welfare", are termed *mala in se*. On the other hand "acts prohibited by statute but not inherently wrong" are referred to as *mala prohibita*. Before an alleged crime becomes a legal fact, the state must present a *prima facie* (at first view) case that the crime has been commited. The essential ingredients of a *prima facie* case are known as the *corpus delicti*. The *corpus delicti* of an actual crime includes (1) *mens rea*, and (2) *actus reus*. *Mens rea* refers to a criminal state of mind The kind of *mens rea* that is necessary varies with the nature of the offence. *Actus reus*, the second major element of *corpus delicti* "refers to the actual occurrence of a criminal act. One may not be punished merely for thinking about committing crime. The criminal act may be of commission, or of omission to do something where possible, when a legal duty to act exists. Regarding the association

between *mens rea* and *actus reus*, the law requires that the criminal act (*actus reus*) to have resulted from the criminal state of mind (*mens rea).*[1]

1.3. The Social Definition of Crime

Social definition of crime allows ethical considerations of what should or should not be a criminal behavior. A social definition of crime, rather than a legal definition is more likely to allow for ethical considerations of what should and should not be criminal behavior. It can be defined as 'antisocial behavior that is injurious to those social interests, which rules of behavior (including legal codes) are designed to support'[2].

A broad socio-political definition of crime would categorize as criminal behavior such "immoral" acts as racial injustice, sexual discrimination and international aggression. Social definition raises the question of imperfect nature of our legal system. Suppose an individual commits a crime but is not caught. Would we still have a crime? In this case we would not have a criminal according to strict legal definition, because the violator has not been prosecuted and convicted. However, using a social definition, one could correctly assume both that a crime has been committed and that a criminal exists regardless of the legal outcome. However, for purposes of studying the complex phenomenon that we call crime, the following definition is appropriate: "Crime is a socially recognized status constructed by societal members or their representatives in the course of labeling someone as a criminal."[3]

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[1] "Criminology," Microsoft Encarta Encyclopedia 99. © 1993-1998 Microsoft Corporation. All rights reserved.

[2] Manley, W Henry and Hirschel J. David, (1988), Fundamentals of Criminology, Prentice Hall, NJ. pp 6.

[3] Clayton A. Hartjen, Crime and Criminalisation , as cited in Manley, W. Henry, Hirschel J. David, (1988), Fundamentals of Criminology, Prentice Hall, NJ. pp 7.

2. CRIME IN THEORETICAL PERSPECTIVE.

It was mentioned in the previous section that crime varies over time and space. However, each age has a general viewpoint about crime. In this section a broad overview about crime as articulated by important schools of thought have been presented in order to assess the relative position of crime in human history.

2.1. CLASSICAL SCHOOL

Ancient Hebrew interpreted law as an expression of God's command and crime as sinful conduct. Greek philosophers recognized law as human enterprise and its' violation offense against society and state. Medieval Christians stressed on the importance of religion as the basis of moral implications of crime. The dawning of Enlightenment (1600) altered much of these ideas. With the onset of Enlightenment, not only the Church declined in power, but also much of the medieval thinking about human behavior, the law, and the government began to change. The naturalistic philosophy of the ancient Greeks was reborn in the philosophy of the Enlightenment period. The essential feature of the Enlightenment period was it's humanistic concern for the world. Some of the prominent thinkers of Enlightenment included **Hobbes, Locke, Voltaire, and Rousseau.**[4] It was the time when existing legal systems came under attack. A notable case occurred in 1761. It involved the execution of an innocent man (Jean Calas) through unjust yet legally approved methods. A leading French philosopher took up the victim's cause. Voltaire and his associates challenged the Government for a posthumous reversal of Calas' conviction. In the process of this appeal being won, France's barbaric legal system was publicly exposed. Most important, Calas' case pointed out for a broad legal system. The echo of similar resentment against the medieval system was also heard in other places.

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[4] Manley, W. Henry and Hirschel J. David, (1988), Fundamentals of Criminology, Prentice Hall, NJ. pp 65-72.

In Italy, **Beccaria** (1738-1794) wrote "Essays on Crime and Punishment". His works contained elements of Social Contract theory, Utilatarian Philosophy and the Principle of Hedonism. He is credited to have founded the Classical school of Criminology.

The Classical School was based on a philosophical approach to man and the law that stressed freewill and rationality. The Classicists focused upon the significance of the crimes' damage to society, and not the criminal characteristics in determining punishments. Beccaria also felt that deterrence though swift, certain and reasonable punishment should be a goal of the criminal justice system and emphasized the state's obligation to promote justice and human rights through laws, which are well known, uniform and applied on equal basis. The Classical school of thought had contributed significantly in overthrowing the inhuman legal practices that had prevailed since antiquity through the medieval period. But, in its' turn the Classicists' replaced the medieval inhuman nature of justice by other forms of rigidities and codified doctrines of justice with utmost stringent condition, which too belied the very concept of human concern of legal system. Thus, this system was also questioned. The positivists' methodology then became the most prominent intellectual school of thought of the day.

2.2. THE POSITIVIST SCHOOL.

The positivist school of criminology was a response to the legal philosophical approach of the Classical School. Early Positivists emphasized the scientific study of the offender. They assumed that there were conditions that caused or determined the criminal behavior. Eventually, the Positivists' approach influenced the development of theories that searched for causes of crime among physical mental and social conditions. Positivists theories are of two categories; Biological and Psychological-psychiatric theories.

2.2.1. BIOLOGICAL THEORIES OF CRIME.

Biological theories of crime focus upon the criminal effects of **Body types** propounded by Charles Goring, Ernest Hooton, William Sheldon, Sheldon and Eleanor Gueck, Cortes and Gatti. **Glandular Disorders** by Schlapp and Smith and Ellis and Austin. **Chromosome Irregularities** and **Abnormal Brain or Nervous System Activity** by Eysenck are some of the contributions made by these scholars. Though the approach adopted by the scholar appears objective and scientific, yet, their total dependence on the perceptible biological abnormalities noticed in the accused for explaining the criminal behavior suffer from three major shortcomings. First, research samples tend to include only institutionalized or officially recognized offenders. The large number of criminals, who fail to get caught, can never be sampled. Second, the particular biological abnormality under consideration (e.g. chromosome structure, glandular system) usually accounts for only a small portion of offenders. Third, biological explanations usually fail to clearly establish what it is about the defect that leads to criminal behavior. Moreover, it also undermines the psychological determinants of criminal behavior. According to some scholars, psychological dimension of crime is more important than biological characteristics of criminals.

2.2.2. PSYCHOLOGICAL-PSYCHIATRIC THEORIES.

These theories also see crime as a product of individual defects. They differ from biological explanations by stressing mental abnormalities. These theories may be grouped into three primary areas, depending on whether they concentrate on mental capabilities, on personality structure or on personality development as related to criminal behavior. Austrian physician **Sigmund Freud** (1856-1939) described emotional development as the process of achieving a balance between conflicting desires. According to him, humans must resolve the tension between their purely self-interested tendencies, which he called the **'id'**, and the control of these forces by the combination of conscience and moral attitudes, which Freud called the **'superego'**. This process begins in infancy, at which time the **'id'** reigns without conflict.

As the child develops, conflicts occur between the **'id'** and **'superego'**, which are ultimately resolved by the **'ego'—'the sense of self'**. This process results in a person who strikes a balance between individualism and society, between hedonism (pleasure seeking) and repression of his or her desires. According to Freud, when this development process goes wrong any number of personality disorders can result, including a tendency toward criminal behavior.[5]

The weaknesses of these theories are similar to those of biological explanations. First, the samples are often restricted to officially defined group of criminals. Second, Psychological-psychiatric theories treat lightly the relationship between crime and broad social, economic and political factors. Third, both tend to rely on techniques that have questionable reliability and precision. Psychologists often use tests, which vary in their ability to measure intelligence or locate criminal mental traits. Apart from the above-mentioned theories and conceptual contributions, there are some others that have tried to minimize the limitations that persisted with the above-mentioned theories. Some important ones are discussed below.

2.2.3. SOCIOLOGICAL THEORIES.

Most sociological theories fall within the Positivist School. They favour an analysis of crime that emphasizes society's impact on individual behavior. Freewill is more or less downplayed and the person's behavior is seen as the outcome of situations or conditions created by society.

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[5]"Criminology," Microsoft Encarta Encyclopedia 1999. © 1993-1998 Microsoft Corporation. All rights reserved.

2.2.3.1. CRIME, SOCIETY AND ENVIRONMENT

According to this view, an individuals' environment may include several unfavourable variables – 1) physical conditions- slum housing, disease and malnutrition.

2) psychological factors- hostility, negativism, and despair.

3) lack of opportunities- both legitimate (employment, education), illegitimate (crime and delinquency)

Taking the above factors into consideration two groups of theories evolved. They have been discussed below.

2.2.3.1. (i). Crime and Ecology

In the early 1920s, Chicago became conscious of its growing problem with it's urban crime. Researchers like **E.Burgess, Clifford Shaw** and **Henry McKay** adopted the view that certain urban environments create more favourable conditions for crime than do others. Burgess drew up five zones of residential areas of Chicago. Shaw and Mckay applied Burgess' findings to delinquency. But some researchers too criticized this view. **Lander** criticized this approach and established that low delinquency was to be seen in areas of stable population, meaning home ownership and community permanence.

2.2.3.1. (ii). Crime and Subcultures

This group of theories intended to establish that social stability is related to social cohesion. Sociologists recognized that the normative system (rules, values and ethics) form a subculture within a cultural setting and this subculture holds together the members of the society. The theories propounded by some scholars on the lines of subculture include Durkheim, Cohen, Miller, etc.

Emile Durkheim theorized that complicated industrialized societies promote isolation of the individual. With development jobs become specialized and people

are expected to survive on individual rather than group basis. As isolation increases, social values weaken; this condition of normlessness is known as anomie.[6]

Cohen feels as the lower class child is denied the means of achieving middle class goals and as the child's environment does not prepare him to succeed in a society dominated by middle class definitions of success. To counteract feelings of failure and worthlessness some lower class adolescents create a subculture. A subculture possesses it's own norms and values. These sub-cultural norms encourage behavior that is often illegal or defined as delinquent by the larger society.[7]

Miller disagrees with Cohen and establishes his theory that the lower class adolescents do not create a set of delinquent values because they are frustrated in their efforts to achieve middle class goals. Rather there exists a lower class "focal concern". Working class individuals come in contact with the law because their behavior is based on values or norms that are not approved by the middle class.[8]
Apart from these protagonists, there were other sociologists who have made valuable contribution in this field.

Cloward and Ohlin state that individuals differ as their ability to achieve middle class goals through both legitimate and illegitimate means.[9] The **criminal subculture** is found in urban areas where adult criminals provide highly visible models and illegitimate means that are available to teenagers. The **conflict subculture** develops because some areas have instability and lack of legitimate and organized illegitimate opportunities; violence and aggression is a typical feature of this subculture. The **retreatist subculture** is a dumping ground for those who cannot adopt legitimate means to success.

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[6] Shelley,I, Louise,1980, Crime and Modernisation, Southern IllinoisUniversity Press, Carbondalle and Edwards Ville, pp 3-15.
[7] Ibid, pp 3-15.
[8] Ibid, pp 3-15.
[9] Ibid, pp 3-15.

Since the theories of crime based on ecology and subculture alone could not explain the etiology of crime completely, theories based on interaction of the individual with the members of society gained prominence in explaining causes of crime.

2.2.3.2. CRIME, SOCIETY AND INTERRACTIONAL PROCESS

In this group of theories, the process of becoming a criminal has been theoretically discussed along two dimensions. First, the influence of one's peers, and second, the behavioral effects of contact with criminal justice agency have got special importance in this respect.

2.2.3.2. (i) Differential Association, Reference groups and Crime

According to **Edwin Sutherland,** society contains a variety of values and behaviors (some of which are criminal) and then attempted to explain how criminal values are transmitted. Sustained associations with those guided by anti-social values leads the individual to accept and learn criminal behavior. This theory rejects positivist's theory stating criminals to be different – biologically, socially and psychologically from non-criminals.[10]

2.2.3.2. (ii) Labeling theory of Crime

This theory suggests that the law enforcement process itself may produce the very behavior that, it is supposed to deter. **Edwin Lemert** stated that in a society, some behaviors are viewed as threatening or undesirable by those who have the power to make or enforce laws. (For example, delinquency, crime, or deviance, etc.), people choose or haphazardly wander into a variety of activities without knowing the pros and cons of the same. Some of those behaviors might fall into negative categories. Several factors will determine whether the behavior will be labeled as bad otherwise. This theory points out that crime is committed by different segments of society (rich and poor, urban and rural). The key question then becomes

[10] Ibid, pp 3-15.

one of why are some people more likely to be picked out for official handling, while others are not.

The above-mentioned theories talk about secondary associations in society and their effect on youth. It pays marginal importance to primary association. Therefore it becomes imperative to look in to the effect of primary associations of society and their effect on the mind criminals.

2.2.3.3. CRIME, SOCIETY AND INTERNAL RESTRAINTS

This group of theories, emphasize the role of mental mechanisms, self-images, and feelings and attachment in influencing ones' behavior. The two major theories belonging to this group are;

2.2.3.3. (i) Neutralizing Theory and Crime

Sykes and Matza proposed this theory as alternatives to sub cultural theories and professed that delinquents do not form subcultures that have values contrary to the rest of the society. Through socialization children learn excuses for their behavior. While growing up they drift between approved and unapproved behavior. By neutralization the individual frees oneself from law-abiding commands and allowed to drift – and once in this state, the person commits delinquent behavior.

2.2.3.3. (ii) Control Theory and Crime

In this theory, **Hirschi** talked about the critical effect of proper socialization – the internalization of proper norms and values – on behavior. The institution of family, school, play an important role.[11] An adolescent who is attached to socially responsible people in the society who are committed to social pursuits and values, and involved in prescribed activities are the ones, who believe in the ideals of law, and possess strong moral bond to the society. This is accomplished through parents who elicit love and admiration, schools that inspire creative thought and an authority structure that breeds respect. When social bonds (attachments,

[11] Gottfredson M and Hirschi T , (1987), Positive Criminology, Sage Publications, London, pp 5-9.

commitments, involvement and beliefs) are weak because of family connection between child and key socializing agents, delinquent's pursuits are more probable.

Each of the theoretical categories discussed in this section possess serious weaknesses. The shortcomings are either theoretical or methodological. One major fault of the theories discussed so far is that they all ignore the basic point that behavior is neither bad, delinquent, nor criminal until it is declared as such by those with the power to do so. Therefore, it is essential to examine some other theories that evaluate the political implications of crime.

2.4. POLITICAL EXPLANATIONS (NEW CRIMINOLOGY)

One image of the society maintains that socialization process is not uniform. That is, society is believed to be composed of people who possess different, and often-conflicting values. This perspective further assumes that people differ concerning their political power to influence legal commands regarding what is forbidden by society. It is the basis for a theory of crime. The fundamental, primary distinction between criminals and non-criminals is the violation and prosecution of behavior that is declared illegal. All these theories discussed so far have more or less assumed a consensus view of society. Except for the labeling approach, they have offered little in the way of explaining the role of political power in deciding what is a crime and who is a criminal. This section sketches politically oriented explanations of crime that have contributed to now what is referred to as "the new criminology".

2.4. (i) Crime, Economics and Class Conflict

Political explanations of crime typically take up economic conditions as their starting point. Some however, emphasize the role of economics more than others do. A very influential social analyst of our time, **Karl Marx**, (1813-1883) gave his philosophical and economic interpretation of society, which is the official foundation for a large number of today's world governments. In actuality Marx made few direct statements that would qualify as specific theory of crime. But his theory that economic conditions determine behavior is certainly relevant to the

subject of criminal behavior. Marxist theory has undergone considerable interpretation and revision since it was first put forward in the Nineteenth Century. Marx's most fundamental point in the economic system of the society determines the entire nature of that society. Every aspect of life, social relationships, psychological attitudes, religious beliefs, international politics, living conditions and the law are viewed as a reflection of the society's economic structure. Capitalist societies, where means of production (industry and agriculture) are primarily owned and the distribution of goods and services are based on a free trade, end up having two major classes: the ruling (bourgeois) and the working (proliteriate) class. In this society, the law, according to Marx is a tool in the hands of the ruling class to keep the "workers in their place".

The ultimate solution is revolution. The workers must unite and struggle to free themselves from Capitalist dominion. The final goal is the establishment of a working class state wherein the law would be to "serve the state". The state would thus become one in which the means of production would be held in common. The community (made of the working class) would control property goods and services.[12] **Freidrich Engles**, (1820-1895) Marx's co-author for several books and pamphlets, related the class conflict between the bourgeois and proliteriate to crime. He maintained that the negative conditions imposed on the working class by Capitalism left them with a few opportunities for improvement.

Bonger (1876-1940) applied the writings of Marx and Engles specifically to crime problem. He attempted to show that there is a direct relationship between poverty and crime. His underlying theory was that of criminal motives and values result from self centered attitudes promoted by Capitalism. As individuals became greedier under Capitalist economies, criminal motives were further encouraged. Capitalism also fosters crime because it does not include moral training, which is seen as unnecessary for individual growth by the ruling class. For Bonger, the

[12] Manley, W. Henry, Hirschel J. David, (1988), Fundamentals of Criminology, Prentice Hall, NJ, pp 101-107.

solution is, to replace Capitalism with Socialism. Under a Socialist state, man would be encouraged to follow his natural instinct towards group presentation, rather than selfish interests created by Capitalism.[13]

2.4. (ii) Crime and Political Conflict

George Vold has pointed out that an understanding of crime involves two lines of questioning: One, why do some people commit crime? Several theories have been presented which attempt to answer this question. Two, Why are some behaviors defined as crime in the first place? Vold speaks to these questions: as one political group lines up against the other, both seek the assistance of the organized state to help them defend the rights and protect their interests. Thus the familiar cry that "there ought to be a law" (to suppress the undesirable) is understandable as the natural recourse of one side or the other is a conflict situation.

He gives examples of crime that express group conflict e.g.: crimes created in the name of social reforms or labour management disputes. For these groups, crime is the "means to an end". But Vold did not adequately emphasize the unequal distribution of power not the state itself acting as interest group. Marxism of one variety or other is treated as *new criminology*[14]. The new criminologists, **Quinney, Kinsberg, Chambliss** and **Seidman** say that the ruling class controls the capitalist society. This ruling class is composed of industrial conglomerates, high-ranking bureaucrats, and their representatives. They control the state and the content and application of criminal law. They control the state and law. They create conditions that spawn the criminal problem. Only when Capitalism is replaced by socialism will crime be reduced. The perspective of the new criminology proceeds the following fashion. The ruling class shapes the content of the law to serve it's purpose and interests. Example can be drug laws that criminalize some narcotics but make addictive, potentially dangerous (and highly profitable) pharmaceuticals "freely" available. Also existing legal loopholes, draft laws at times of war (wars are

[13] Ibid, pp 101-107.
[14] Ibid, pp101-107.

seen as economic stimulators) and legal principle of eminent domain (which allows state to acquire any private property with some compensation in public interest), all further the interests of the ruling class.

Crime is found in all the levels of the Capitalist society and it's characteristics result from one's class position. Lower class people commit crimes of violence and ordinary theft because of deprivation and a lack of 'refined' criminal opportunities. Members of the ruling class commit crimes that are a function of their class position (e.g. corporate crimes and government related illegalities). Because the ruling class controls the law enforcement process, it is able to impose criminal definitions on the lower class and made prosecution for it's own crimes. Even when the ruling class commits 'ordinary crimes 'they have the power and influence to receive favourable treatment. Therefore official crime appears to be concentrated among the lower class. This definition allows the ruling class greater control over the working class and helps in ensuring the ruler's privileged position.
The *new criminology* has raised some interesting issues but falls short of offering a clear and logical explanation of crime. It neither adequately explains cause nor offers specific alternatives to existing society. As an explanation, in terms (ruling class, class struggles, etc) are vague and it's statements ("the ruling class defines crime") superficial.

Among Marxist writings, it is worth mentioning historian **Eric Hobsbawm**[15], and his book *Bandits,* where he clearly brings out the causes that lead a docile peasant into becoming a bandit. The author cites anecdotes from the world over about the lives of bandits and tries to generalize the etiology of banditry. The author here tries to link banditry with the political economy of the times and in his own words, "The rhythm of hunger determined the basic structure of rhythm of brigandage".[16]Hobsbawm writes that understanding banditry can only be possible by studying it as a part of the political power, which at the highest levels, is the

[15] Hobsbawm, Eric, (1969), Bandits, Abacus, London.
[16] Ibid, pp 10.

power of empires and states. In class societies before the era of modern capitalism, the power of physical coercion was also the primary foundation of economic power. The main mechanism of acquiring surplus wealth generated by those who actually produce it from the land was force or the threat of force. This is so no longer, (i.e. the possibility of physical coercion), remains the foundations of the revenue extracted by states from the inhabitants of their territories. While bandits on the other hand, by definition resist obedience, are outside the range of power, are potential exercisers of power themselves, and therefore potential rebels. Bandits are usually men who are unwilling to accept the meek and passive social role of the subject peasants. They are an expression of the dissatisfaction of the entire class of subjects and perhaps that is the reason why the local people usually support them. Writings such as this clearly bring out the mental construct of the etiology of criminal behavior, e.g. banditry that existed among the Marxist writers and how they related deviant behavior as an expression of the reaction to social disparities.

2.5. EXISTENTIALIST WRITINGS

Existentialism, a philosophical movement or tendency, which emphasizes individual existence, freedom, and choice, had influenced many diverse writers in the 19th and 20th centuries. Because of the diversity of positions associated with existentialism, the term is impossible to define precisely. Certain themes common to virtually all existentialist writers can, however, be identified. The term itself suggests one major theme: the stress on concrete individual existence and, consequently, on subjectivity, individual freedom, and choice.[17]

Existentialist writers took up crime as a theme to explore the etiology of criminal acts and society's perception of a criminal. **Fyodor Dostoevsky** (1821–1881) presents a psychological account of crime in his novel *Crime and Punishment*

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[17]"Existentialism," Microsoft Encarta Encyclopedia 1999. 1993-1998 Microsoft Corporation. All rights reserved.

where he talks of a young man, Raskolnikov, expelled from the university, petit-bourgeois by social origin, and living in extreme poverty, after yielding to certain strange 'unfinished' ideas floating in the air, has resolved, out of light-mindedness and out of the instability of his ideas, to get out of his foul situation at one go. He has resolved to murder an old woman . . . .who lends money at interest. The old woman is stupid, deaf, sick, greedy, charges Jewish interest, is malicious . . . tormenting her younger sister, whom she keeps as servant. 'She's worthless. Why is she alive? Is she of any use to anyone at all?' And so on. These questions confuse the young man. He decides to murder her and to rob her in order to make his mother who lives in the provinces happy; to deliver his sister, who lives as a hired companion . . . from the lascivious attentions of the head of the landowner household – attentions that threaten her with ruin; and to finish the university, go abroad, and then for his whole life long to be honest, firm, unswerving in fulfilling his 'humanitarian duty to humanity', whereby, of course, 'the crime will be expiated', if in fact crime is the term for that action against a . . . malicious and sick old woman who does not know why she is alive herself and who would perhaps have died on her own in a month.[18]

Albert Camus (1913–1960) in his novel *The Outsider* explores the predicament of the individual, who is prepared to face the indifference of the universe courageously and alone. In the novel the hero, Meursault, leads an unremarkable bachelor life until he commits an act of violence under unexpected circumstances, faces the wrath of the society for his indifferent attitude towards the norms laid down by the society.[19]

Albert Camus in his other novel *The Rebel*, distinguishes between crimes of passion and crimes of logic. He says that the Penal code distinguish them on the basis of premeditation. Today's criminals use the alibi of 'philosophy' to justify

[18] Dostoevsky, F, (1866) Crime and Punishments, Wordsworth Classics, pp vi-vii.

[19] Camus, A, (1942) The Outsider, Penguin Classics.

their acts. Camus draws parallel with Heathcliff of Wuthering Heights[20] who doesn't think of saying that murder is reasonable or theoretically defensible. He would commit it; there his theory comes to a halt. This implies powerful love and character. "But as soon as a man, through lack of character, takes refuge in a doctrine, as soon as he makes his crime *reasonable*, it multiplies like Reason herself and assumes all the figures of the syllogism."

With *The Rebel*, Camus found himself tackling the central idea of revolution, hopefully the all-embracing instrument of change. So Camus decided to look at rebellion and revolt in all fields. He began with the twin notions of history and revolt. He disliked the idea of history as being set on an inevitable 'progressive' course, which went with much Marxist exegesis. In the name of making history, innumerable crimes had been carried out during revolutions, all with scintillating ideological justifications. Groups of human beings were murdered for the greater good of humanity. [21]

2.6. POST MODERNISM

Postmodernism describes the philosophy of examining the nature of meaning and knowing, although academics in many fields have debated over its precise definition. Postmodernists question the validity of the faith in science and rationalism that originated during the Enlightenment and that became associated with the philosophy known as modernism.[22]

Foucault, Michel (1926-1984), French philosopher, who attempted to show that the basic ideas which people normally take to be permanent truths about

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[20] Bronte, Emily, (1847), Wuthering Heights, Bantam Books, London.

[21] Camus, Albert, (1951) The Rebel, Penguin Classics, England.

[22] "Anthropology," Microsoft Encarta Encyclopedia 1999. 1993-1998 Microsoft Corporation. All rights reserved.

human nature and society change in the course of history. His studies challenged the influence of German political philosopher Karl Marx and Austrian psychoanalyst Sigmund Freud. Foucault offered new concepts that challenged people's assumptions about prisons, the police, insurance, care of the mentally ill, gay rights, and welfare.[23] Foucault wanted to challenge certain basic notions about the Western tradition that most Westerners take for granted. He hoped to discredit Western heritage and its powerful institutions by exposing, or "demystifying," the repressed origins and oppressive applications of that power. [24]

Foucault's theory of deconstruction may be extended to theoretical dimension of criminology too where he argues that criminality too like madness has been a product of man's definition of the phenomenon, where man is guided by the social, cultural and political values of his times.[25]

This chapter traces the development of the theoretical perspective of crime over the ages; from the Enlightenment period to Positivist school which considered crime to be rooted in the criminal's body. Later, the sociological thinkers trying to establish the fact that a criminal was a product of the society's maladjustment followed this. Next group of thinkers thought that Capitalism was the root cause of class conflicts and wielded criminals. The Existentialists writers were more sensitive to the etiology of crime, and exposed various dimensions of crime, e.g. how crimes committed in the name of revolution went scott free. Postmodernist thinkers deconstructed the very notion of a criminal and said that the society labels one as a criminal in accordance to the preset social norms and values.

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[23]"Foucault, Michel," Microsoft Encarta Encyclopedia 1999. 1993-1998 Microsoft Corporation. All rights reserved.

[24]"Criticism, Literary," Microsoft Encarta Encyclopedia *1999*. 1993-1998 Microsoft Corporation. All rights reserved.

[25] Foucault, Michel, (1961), Madness and Civilization, Vintage Books, New York.

CHAPTER-III

PERSONALITY OF THE STUDY AREA

An approach to the analysis of regional crime patterns – one that provides a higher level of geographic resolution – is the study of inter-metropolitan crime rates.[1]

Cities have dominated the crime patterns in India for half a century. When urban crime patterns are aggregated by city size, the set of largest cities have the highest crime rates, the set of the second largest has the second highest crime, and so on down to the set of smallest cities, which has the lowest crime rates[2]. The aggregate pattern can be misleading however. When the crime rates of individual cities and metropolitan areas are examined without being combined, a different clustering of cities with similar crime rates emerge. Some of these clusters are geographic, some are keyed to population size, and some are keyed to social and economic conditions or processes.

Inter-city or inter-metropolitan analyses of crime rates come much closer to the real criminal event than other levels of resolution- such as macro regional patterns; and such analysis begin to provide pattern information, that can be used by crime control planners.

The population of all the towns of India is continuously increasing as a part of the total phenomenon of growing urbanization, but it cannot be said that this growth is identical to that of the industrial cities of the West, although a number of factors relating to industrialization, trade and commerce, political power and the 'pull and push' factors operating in the rural hinterlands have contributed to their present status. While examining the trends of crime in cities, it is, therefore,

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[1] Brantingham , Paul and Patricia, (1984) Patterns in crime , Macmillan Publishing Company, New York, pp 279.
[2] Ibid, pp 280.

necessary to view them in their specific ecological settings, since cities with distinct cultural traditions and occupational leanings reflect divergent attitudinal responses as there is a limit to the modifications people can make to the cities' structure and cultural characteristics.

Therefore the 59 cities, which have been selected for analysis of crime pattern need to classified on the basis of their inherent characteristics. A classification becomes necessary for the complete comprehension of each city's character.

Indian towns have been classified since ancient times – as is found in the Pali texts of 2nd and 3rd Century B.C.[3]. The Arthashastra of Kautilya, Kamasutra of Vatsayana, Mahabharata of Pitanjali and Buddhist texts of Manasara and Devavandana. The cities were classified on the basis of their politico-administrative and functional status. The motive that prompted such classifications is valid even today i.e. for the better understanding of the importance of a city for the local community.

Indian cities have seen much change since Kautilya's age. The social, cultural and economic characteristics of cities have changed greatly. Indian cities have a history of 2500 years, in the course of which time they have been transformed by distinct cultural influences. Therefore the first classification is attempted on the basis of the city's age.

1.HISTORICAL CLASSIFICATION

A historical classification of the towns is attempted to investigate whether the historical processes that operated on the towns have any bearing on the crime pattern on the cities – whether cities that originated during the same time period have similar crime patterns; whether the cities that have a history of prevalence of

[3] Ramachandran,R(1989) Urbanisation and Urban systems in India, OUP, pp 152.

certain crimes: e.g. Varanasi of 'thugees'[4] and whether they dominate the crime scene of those cities. Keeping the historical process in mind that might have contributed to the crime pattern of the cities, the cities have been classified into:

ANCIENT	Till 700 A.D.
MEDIEVAL	700 to 1600 A.D.
EUROPEAN INDIAN CITIES	1600 to 1947 A.D.
POST INDEPENDENCE	Since 1947.

Based on Ramchandran's[5] classification of Indian cities.

TABLE – 3.1. TOWNS IN TIME.

TYPE	TOWNS
ANCIENT	Vijaywada, Patna, Surat, Jabalpur, Madurai, Allahabad, Gorakhpur, Varanasi, Nashik
MEDEIVAL	Hyderabad, Vishakapatnam, Guwahati, Ahmedabad, Bhavnagar, Rajkot, Vadodhara, Belgaum, Bijapur, Gulbarga, Hubli-Dharwad, Bhopal, Gwalior, Amravati, Nagpur, Solapur, Amritsar, Jalandhar, Ludhiana, Ajmer, Bikaner, Jaipur, Jodhpur, Kota, Udaipur, Thirunelveli, Trichy, Agra, Aligarh, Bareilley, Lucknow, Meerut, Delhi.
COLONIAL TOWNS	Ranchi, Bangalore, Trivandrum, Indore, Pune, Bharatpur, Chennai, Coimbatore, Salem, Kanpur, Moradabad, Kolkata, Aurangabad, Kochi*, Kozhikode*, Mumbai*.
POST INDEPENDENCE	Bhilai(Durg)

*even though their year of origin dates back to the medieval times but their origins were laid by the Europeans.

Table 3.1. shows that in the ancient towns category, mainly the temple towns of North and South India figure. In these towns the main occupation revolved around the temples in the initial days of it's evolution, and still have a tremendous social and cultural influence on it's inhabitants. The Medieval towns were the fortified towns, and the vestiges of the forts may be still visible. They have typical *mohallas* in the city where people of common socio-cultural background reside. The Colonial towns were mainly port towns – the leading metropolises of India – belong to this period. Post Independent cities have grown around industrial or residential

[4] Das, Shukla,(1977) Crime and Punishment in Ancient India, Abhinav Publications, New Delhi, pp 16.
[5] Ramachandran,R, op.cit. pp 167-170.

townships. This study features only one such town, Durg-Bhillai Nagar – which happens to be an industrial township.

2. SOCIO-CULTURAL CLASSIFICATION

The population of most Indian cities is heterogeneous. Cities have people speaking different languages and profess different religions; further there are differences in terms of *jatis* and *varnas,* from which people have migrated to the cities. The population mix of the city is a measure of it's cosmopolitan character.
From the viewpoint of western concepts of modernization and secularization; a cosmopolitan character is considered a desirable attribute.[6] But in terms of theoretical perspective of urban crime cosmopolitanism foments the feeling of 'anonimity' and and leads one to deviant behavior. The anomie theory and the culture conflict theory fit in well into the urban milieu. Differential association, social disorganization, delinquent subculture and relative deprivation theory all explain the etiology of criminal behavior in terms of urban community[7].

Here the cities have been classified on the basis of dominant language spoken by the inhabitants, and the religious composition to determine the degree of ethnicity of the town.

2. (i) RELIGIOUS CLASSIFICATION.

The data[8] pertaining to all the religions professed by the inhabitants of the 59 cities of the present study has been analyzed to find the combination of dominant religious groups of the cities.

Weaver's [9] combinational analysis is used to find out the dominant religious combination of the cities taken up by the study.(See Appendix- V)

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[6] Ramachandran,R , op.cit. pp 170.
[7] Shelley,I, Louise,(1980), Crime and Modernisation, Southern IllinoisUniversity Press, Carbondalle and Edwards Ville, pp 7-8.
[8] Census of India, (1991),C7 (Religion) , Govt. of India.
[9] Weaver J C , as cited in Mahmood , Aslam, (1977), Statistical Methods in Geographical Studies, Rajesh Publications, New Delhi. Pp117-120.

Table 3.2 shows the religious combinations found in the cities taken up for the study

RELIGIOUS TABLE 3.2. COMPOSITION OF TOWNS

1. CITIES WITH ONE MAJOR RELIGIOUS GROUP:	
(i)Hindus	Ahmedabad, Bangalore, Kolkata, Chennai, Coimbatore, Delhi, Indore, Jaipur, Kanpur, Madurai, Patna, Pune, Vadodhara, Varanasi, Vijaywada, Guwahati, Bhavnagar, Rajkot, Trivandrum, Bhilai-Durg, Gwalior, Jabalpur, Nashik, Solapur, Ajmer, Bharatpur, Bikaner, Jodhpur, Kota, Udaipur, Salem, Trichy, Allahabad, Gorakhpur.
2. CITIES WITH TWO MAJOR RELIGIOUS GROUPS:	
(i)Hindus and Muslims	Bhopal, Hyderabad, Mumbai, Varanasi, Lucknow, Belgaum, Bijapur, Gulbarga, Hubli-Dharwad, Kozhikode, Thirunelveli, Agra, Aligarh, Bareilley, Meerut, Moradabad.
(ii)Hindus and Sikhs	Ludhiana, Amritsar, Jalandhar.
(iii)Hindus and Buddhists	Nagpur
(iv)Hindus and Christians	Kochi
3.CITIES WITH THREE MAJOR RELIGIOUS GROUPS:	
(i)Hindus, Muslims, Christians	Ranchi
(ii)Hindus Muslims, Buddhists	Amravati, Aurangabad

3. (ii). LINGUISTIC CLASSIFICATION.

Language is a major social parameter that lends a distinct personality to a city. Twelve languages figure prominently in the Indian urban scene; within each linguistic framework, most cities show a high degree of homogeneity.[10](Table 3.3).

TABLE 3.3. LINGUISTIC COMPOSITION OF TOWNS

LANGUAGE	TOWN
Telegu	Hyderabad, Vijaywada, Vishakapatnam.
Assamese	Guwahati
Gujarati	Ahmedabad, Bhavnagar, Rajkot, Surat, Vadodhara.
Kannada	Bangalore, Belgaum, Bijapur, Gulbarga, Hubli-Dharwad,
Malayalam	Kochi, Kozhikode, Trivandrum.
Marathi	Aurangabad, Mumbai, Nagpur, Nashik, Pune, Solapur, Amravati.
Punjabi	Amritsar, Jalandhar, Ludhiana.
Tamil	Chennai, Madurai, Coimbatore, Salem, Trichy, Thiruvananthapuram.

[10] Ramachandran,R, op.cit. pp 171.

Bengali	Kolkata
Hindi	Patna, Ranchi, Bhilai-Durg, Bhopal, Gwalior, Indore, Jabalpur, Ajmer, Bharatpur, Jaipur, Jodhpur, Kota, Udaipur, Agra, Aligarh, Allahabad, Bareilley, Gorakhpur, Kanpur, Lucknow, Meerut, Moradabad, Varanasi, Delhi.

3. AGRO – ECOLOGICAL CLASSIFICATION.

The application of ecological principles to the study of crime was pioneered by Park.[11] The Chicago School drew much of it's inspiration from the ecological concept that a community within the confines of a specific geographical area, develops a typical organism. "Knowledge of ecological process ...is basic to all social sciences as social and political institutions have a spatial base; and arise and function in response to changing conditions of environment and competition. Institutional stability largely depends on space relations."[12]

The spatial dispersion of criminal area can be questioned on the ground that a 'criminal area' is not necessarily where the crime is committed but wherefrom the criminal emerges. If crime is studied as a phenomenon, the area in which it occurs is important, if it is perceived merely as an aberration, the area from which the criminal attains his status assumes importance. Both are relevant and the emphasis being dependent on the angle from which the criminality is explored. The distinction has been well made by El Saaty; between the "breeding areas and the attracting areas".[13] To Gandhiji, "the blood of the villages was the cement with which the edifice of the cities is built."[14]

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[11] Park, R, was one of the earliest ecologists who studied the effect of environment on culture adopting the anthropological method of participant observation.

[12] R.D. Mackenzie, Human Ecology, Encyclopedia of Social Sciences, 1942 edition, as quoted in Rao, Venugopal, op.cit , pp 88.

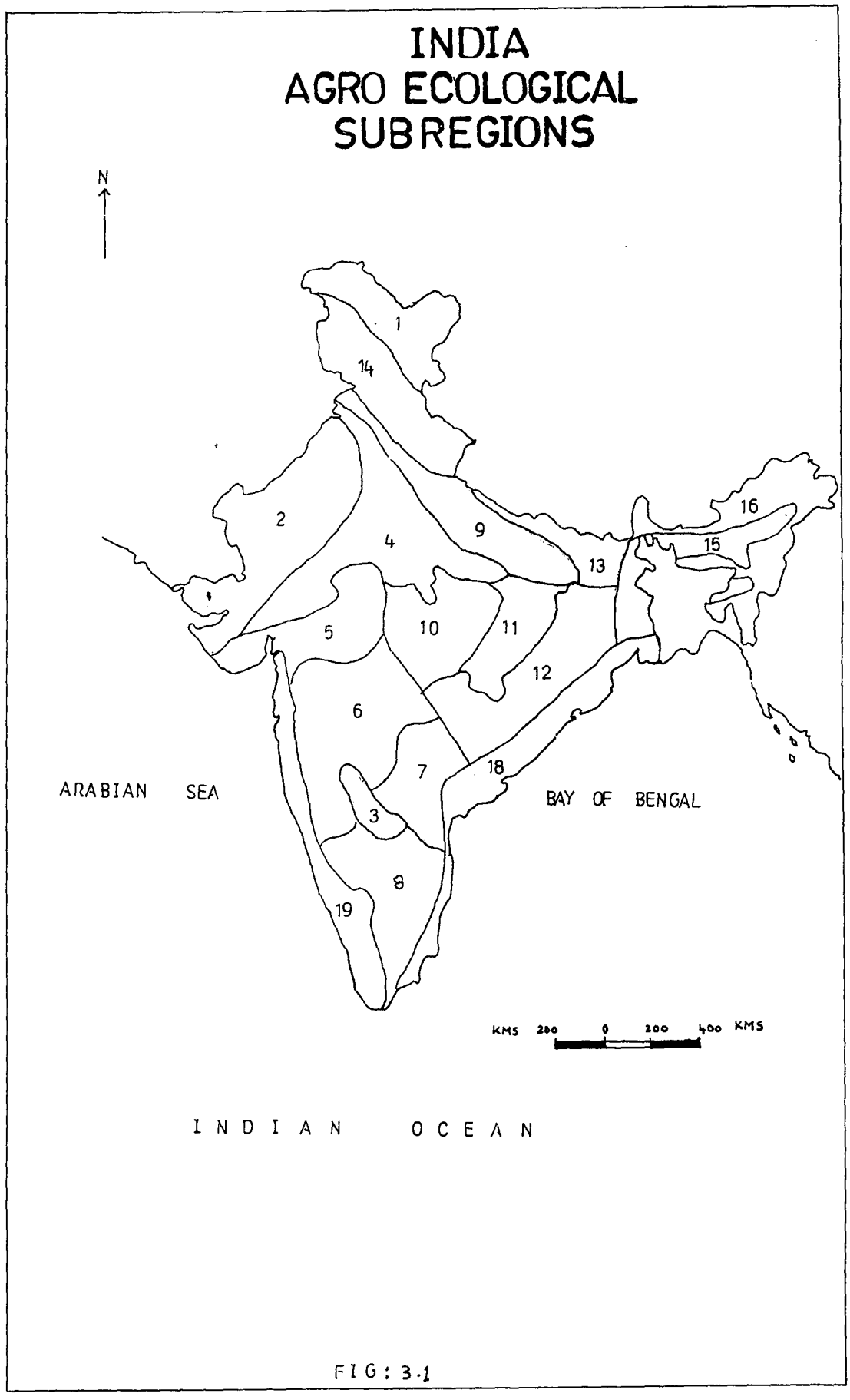
[13] El Saaty,(1984) "Juvenile Delinquency in Egypt" quoted by Terrence Morrisin in his the Criminal Area., Routlege and Relan Paul, London, 1966, as quoted in Rao, Venugopal, op.cit ,pp 88.

[14] Ganguly, B.N ,(1984) Gandhiji's social Philosophy, Vikas Publishing House, Delhi, 1973.

Several scholars while analyzing the spatial pattern of non-agricultural employment and the changes therein in rural and urban areas have come up with two divergent viewpoints. One is based on the residual sector hypothesis; which, says that the incapacity of agriculture to employ the growing population is forcing people to seek absorption in various low productive non-agricultural activities in rural areas or to migrate to urban areas. It is further postulated that the non-agricultural sector absorbing a large majority of agricultural workers is not really a dynamic or vibrant sector. It's growth therefore must not be viewed as a healthy symptom for the economy. The second viewpoint is that the is that the sustained growth in agriculture during the seventies and eighties has created employment opportunities in the rural as well as urban areas.[15]

Such aggregative results however tend to conceal the differences in the levels and patterns of development in different agro-climatic regions. [16]
In order to find out the effects of varying land productivity, and varying capacity of different regions to support the growing population. The cities have been placed within the Agro-Ecological Regions formulated by the National Bureau of Soil Survey and Land Use Planning (ICAR), Nagpur.[17](Table-3.4). Since these regions have been carved out taking into consideration climate, length of growing period - also different landforms and soil conditions, which are modifiers of climate and length of growing period. Disaggregation at this level gives an idea of whether the rate of migration from rural to urban areas and also whether there is any effect of climate on the crimes.

[15] Kundu, A, (1992) Urban Development and Urban Research in India, Khama Publishers, pp 25-47.
[16] Ibid, pp 25-47.
[17] NBSSLUP (ICAR), (1999) Agro-Ecological Sub Regions Of India;for Planning and Development, Nagpur, pp 1-16.


INDIA
AGRO ECOLOGICAL
SUBREGIONS
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ARABIAN SEA
BAY OF BENGAL
KMS 200 0 200 400 KMS
INDIAN OCEAN

FIG: 3.1

TABLE-3.4. AGRO-ECOLOGICAL REGIONS OF INDIA

No.	TYPES
1.	Western Himalayas, cold arid eco region.
2.	Western Plain, Kachch and part of Kathiawar Peninsula, hot arid eco region.
3.	Karnataka Plateau (Rayalseema), hot arid eco sub region with deep loamy and clayey mixed red and black soils.
4.	Northern plains and Central Highlands, including Aravallis.
5.	Central Highlands (Malwa), Gujarat plains and Kathiawar Peninsula, semi arid eco region.
6.	Deccan Plateau, hot semi arid eco region.
7.	Deccan Plateau, (Telangana) Eastern Ghats, hot semi arid eco region.
8.	Eastern Ghats and Tamil Nadu uplands, and Deccan (Karnataka) Plateau, hot semi arid eco region.
9.	Northern Plains, hot sub humid (Dry) eco region.
10.	Central Highlands, (Malwa and Bundelkhand) , hot sub humid (Dry)eco region.
11.	Moderately to gently sloping Chattisgarh/Mahanadi basin. Hot moist dry sub humid transitional eco sub region with deep loamy to clayey red and yellow soils.
12.	Eastern Plateau (Chotanagpur) and Eastern Ghats , hot humid eco region
13.	Eastern Plain, Hot sub humid (moist) eco region.
14.	Western Himalayas, warm sub humid eco region.
15.	Assam and Bengal Plain, hot sub humid to humid eco region.
16.	Eastern Himalayas, warm per humid eco region.
17.	North Eastern Hills, warm per humid eco region.
18.	Eastern Coastal Plains, hot to semi arid eco region.
19.	Western Ghats and Coastal Plains, hot sub humid to per humid eco region.
20.	Islands of Andaman-Nicobar and Lakshwadeep, hot humid to per humid island eco region.

Table-3.5 and Figure 3.1. shows the various Agro-Ecological regions.

TABLE – 3.5 TOWNS AND THEIR AGRO-ECOLOGICAL REGIONS

ZONE	TYPE	TOWNS
2.	Western Plain, Kachch and part of Kathiawar Peninsula, hot arid eco region.	Rajkot, Bikaner, Jodhpur.
3.	Karnataka Plateau (Rayalseema), hot arid eco sub region with deep loamy and clayey mixed red and black soils.	Bijapur.
4.	Northern plains and Central Highlands, including Aravallis.	Agra, Aligarh, Allahabad, Kanpur, Lucknow, Delhi, Meerut, Gwalior, Ajmer, Bharatpur, Jaipur, Udaipur, Ahmedabad.
5.	Central Highlands (Malwa), Gujarat plains and Kathiawar Peninsula, semi arid eco region.	Indore, Kota, Bhavnagar, Surat, Vadodhara.
6.	Deccan Plateau, hot semi arid eco region.	Aurangabad, Amravati, Nasik, Pune, Solapur, Belgaum, Gulbarga, Hubli-Dharwad.
7.	Deccan Plateau, (Telangana) Eastern Ghats, hot semi arid eco region.	Hyderabad, Vijaywada.
8.	Eastern Ghats and Tamil Nadu uplands, and Deccan (Karnataka) Plateau, hot semi arid eco region.	Bangalore, Coimbatore, Madurai, Salem, Thirunelveli, Trichy.
9.	Northern Plains, hot sub humid (Dry) eco region.	Bareilley, Moradabad, Varanasi, Amritasar, Jalandhar, Ludhiana, Patna
10.	Central Highlands, (Malwa and Bundelkhand) , hot sub humid (Dry) eco region.	Bhopal, Jabalpur, Nagpur.
11.	Moderately to gently sloping Chattisgarh/Mahanadi basin. Hot moist dry sub humid transitional eco sub region with deep loamy to clayey red and yellow soils.	Bhilai-Durg.
12.	Eastern Plateau (Chotanagpur) and Eastern Ghats, hot humid eco region	Ranchi.
13.	Eastern Plain, Hot sub humid (moist) eco region.	Gorakhpur.
15.	Assam and Bengal Plain, hot sub humid to humid eco region.	Kolkata, Guwahati.
18.	Eastern Coastal Plains, hot to semi arid eco region.	Vishakapatnam, Chennai.
19.	Western Ghats and Coastal Plains, hot sub humid to per humid eco region.	Kochi, Trivandrum, Kozhikode, Mumbai.

4. FUNCTIONAL CLASSIFICATION.

A further level of disaggregation of the towns have been attempted in order to relate crime with the dominant function of the city. The idea is to investigate whether criminal opportunities are created by different mixture of employment found in the cities.

The Brantinghams, (1980) analyzed 1970 crime rates for SMSAs with 250,000 or more population as against a set of employment, occupational, and socio-demographic variables. Prior work by Ogburn (1935), Schuessler and Slatin (1964), Flango and Sherbenou (1976) and Harries (1976) suggested that employment and occupational variables might have a strong effect on crime rates from city to city.[18]

Occupational patterns suggest the proportions of the work force that hold high-status/high-paying jobs as professional, technical, and managerial workers; medium status jobs as white collar or industrial worker; and low status jobs such as household services or unskilled labour. These patterns measure a range of potential motivations for crime and also suggest something about criminal opportunity.

In the present study has taken up the industrial category of workers classified by the Census of India.[19](See Appendix VI). For the town population the first two categories are excluded of the nine categories, as they represent the Cultivators and Agricultural labourers respectively. Here categories III to IX are compiled into three categories, as shown in the table given below.

[18] Brantingham Paul and Patricia, op.cit, pp 289-294.
[19] Census of India – B 3(F) Economic Tables, (State wise Data), 1991.

TABLE 3.6. MAJOR FUNCTIONAL TYPES.[20]

TYPE	PREDOMINANT FUNCTION	INDUSTRIAL CATEGORIES.
A	Industry	III, IV, V, VI.
B	Trade and Transport	VII, VIII.
C	Services	IX

Where, the Industrial categories represent,
III – Livestock, forestry, fishing, hunting, plantation, orchards. IV- Mining and Quarrying. V- Manufacturing and Processing. VI- Construction. VII- Trade and Commerce. VIII- Transport and storage IX- Other services.

The percentage shares of A, B and C type of towns are then plotted on a Ternary diagram based on Mitra's. [21] functional classification of towns based on 1961 Census data. In the present study the data pertains to 1991 Census. (Figures3.2). Since most of the towns appear to be diversified, the towns here have been classified according to their dominant functions.

1.Service Towns – within sub-triangles I & II.

2.Industrial Towns – within sub-triangles III & IV.

3.Trade and Transport Towns - within sub-triangles V & VI.

Table-3.6 shows the dominant functions of the fifty-nine towns taken for the present study.

[20] Based on Ashok Mitra's functional classification of Towns.
[21] Mitra, Ashok, (1967) Internal Migration and Urbanization in India, Office of the Registrar General of India ,, as cited in Mahmood , Aslam, (1977), Statistical Methods in Geographical Studies, Rajesh Publications, New Delhi, pp 122-124.

TERNARY DIAGRAM

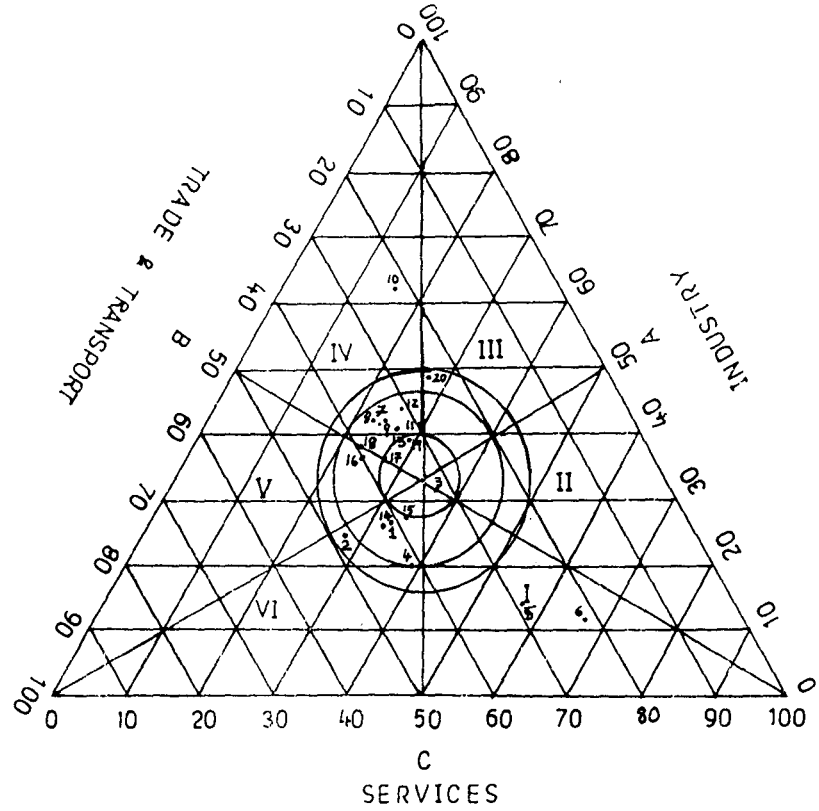

FIG : 3.2 (a)

TERNARY DIAGRAM

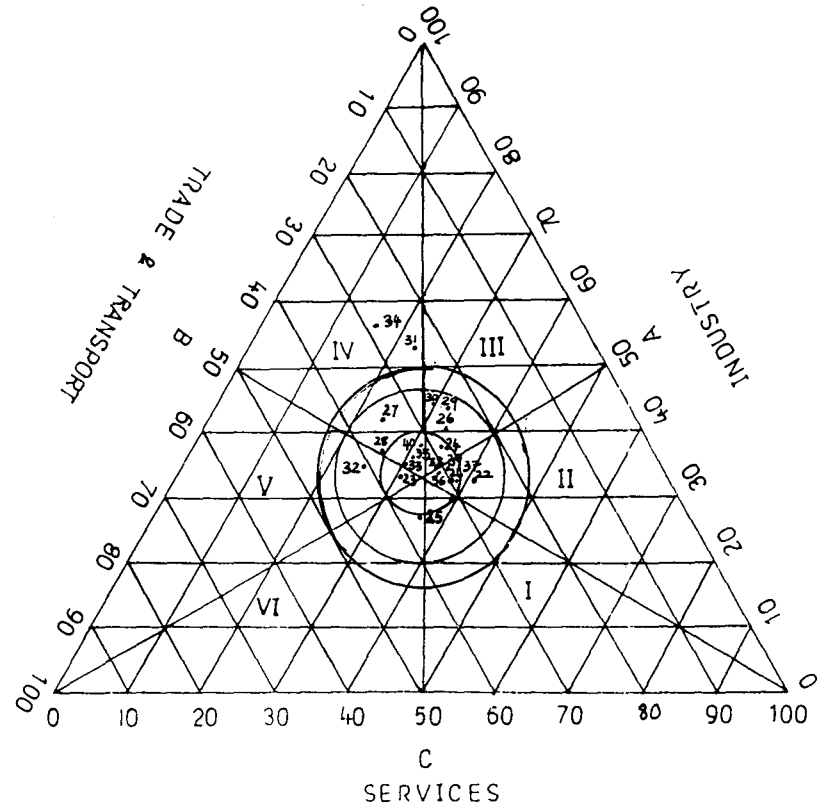

FIG : 3.2 (b)

TERNARY DIAGRAM

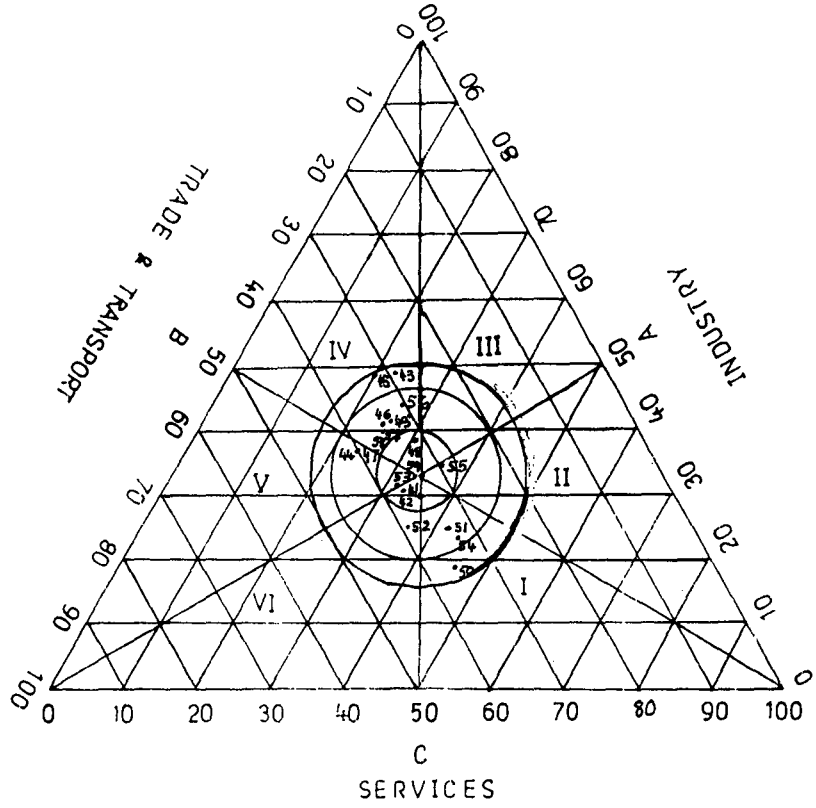

FIG : 3.2 (c)

TOWNS SELECTED FOR THE STUDY

Sl. No.	City	Sl. No.	City	Sl. No.	City
1	Hyderabad	21	Bhopal	41	Udaipur
2	Vijaywada	22	Gwalior	42	Chennai
3	Vishakapatnam	23	Indore	43	Coimbatore
4	Guwahati	24	Jabalpur	44	Madurai
5	Patna	25	Amravati	45	Salem
6	Ranchi	26	Aurangabad	46	Thirunelveli
7	Ahmedabad	27	Mumbai	47	Trichy
8	Bhavnagar	28	Nagpur	48	Agra
9	Rajkot	29	Nasik	49	Aligarh
10	Surat	30	Pune	50	Allahabad
11	Vadodhara	31	Solapur	51	Bareilley
12	Bangalore	32	Amritsar	52	Gorakhpur
13	Belgaum	33	Jalandhar	53	Kanpur
14	Bijapur	34	Ludhiana	54	Lucknow
15	Gulbarga	35	Ajmer	55	Meerut
16	Hubli-dharwad	36	Bharatpur	56	Moradabad
17	Kochi	37	Bikaner	57	Varanasi
18	Kozhikode	38	Jaipur	58	Kolkata
19	Trivandrum	39	Jodhpur	59	Delhi(city)
20	Bhilai	40	Kota		

TABLE 3.7 FUNCTIONAL CLASSIFICATION OF TOWNS

Predominant Function	**Towns.**
1.Industrial Towns	Nagpur, Ahmedabad, Bhavnagar, Rajkot, Bangalore, Belgaum, Vadodhara, Mumbai, Surat, Bhilai, Nashik, Aurangabad, Jabalpur, Jalandhar, Ajmer, Bharatpur, Jaipur, Salem, Varanasi, Kolkata, Moradabad, Aligarh, Coimbatore, Solapur, Ludhiana.
2.Trade and Transport Towns	Amritsar, Thirunelveli, Madurai, Chennai, Kanpur, Udaipur, Gorakhpur, Hubli, Kochi, Kozhikode, Vijaywada, Indore, Hyderabad, Bijapur, Gulbarga, Guwahati.
3.Service Towns	Patna, Ranchi, Vishakapatnam, Amravati, Trivandrum, Bhopal, Gwalior, Jodhpur, Bikaner, Kota, Meerut, Bareilley, Lucknow, Allahabad.

Source: Appendix VI

The cities of the study area are uniformly distributed among industrial, trade and transport and service towns. This classification would help in determining whether a particular occupational category abets certain types of crimes.

The classification brings out that India's urban centers can be classified into four groups historically. For socio-cultural attributes; language and religion have been the basis for classification. For religion, the towns have been grouped according to the number of religious groups having numerical dominance; but for linguistic classification, a simplified method has been followed by considering the major language spoken to be the same as the major language of the state. The cities have also been classified in accordance to the agro ecological region they belong to, which gives an idea of the hinterland the city caters to. Finally the cities have been grouped into their functional categories depending on the kind of occupation the city dwellers are engaged in, as certain occupations open up the opportunities for certain crimes.

CHAPTER-IV

STRUCTURAL AND ANALYTICAL CO-ORDINATES OF CRIME

To be urban means to be developed, affluent, cultured, civilized, safe, comfortable and emphatic. Urban centers in India are no exception.[1] Scholars have attributed the rise of urban centers to the onset of capitalism, modernization, and to the decline of Medieval Europe.[2] In a nutshell, the history of post industrial revolution world is that of urban centrism. During this period urbanism has emerged as a viewpoint and mode of discourse. But, recently such discourses have been challenged and deconstructed. Urbanization process and urban centers have emerged as articulation of spatial and social differentiation. These stand for a set of new relations of power and accumulation, where in the exploitation and deprivation of "other spaces" and "people" contribute to the affluence, cultural domination and development at the urban centers, and in its turn urban centers have emerged as important areas of social and environmental hazards. Today, urban centers have become synonymous with pollution, ecological crisis, alienation, and criminalisation. This phenomenon has spatial relevance in a post colonial country like India, where urbanization and evolution of urban centers shows unique mix of tradition and change, ecology and behavior, planning and market force, culture and economy. These have significant bearing on the nature and the intensity of crime in them. This chapter attempts to analyze the anatomy, taxonomy and morphology of crimes in India.

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[1] Butola, B.S, (1995), "Urbanisation and Underdevelopment in the North-Eastern India," in Urbanization and development in North-East India (ed) J. B. Ganguly, Deep and Deep Publications, New Delhi, pp 39-47.

[2] Pirenne Henri, (1978), Economic and Social History of Modern Europe, Routelege and Regan Paul, London.

1.TAXONOMY AND MORPHOLOGY OF URBAN CRIMES IN INDIA.

This section attempts to relative position of cities in terms of crimes taking place within them. It is an attempt to rank the cities in terms of their crime status. The ranking of the crimes of the cities are not taken in absolute terms, but in terms of their z scores. The rationale behind using z-scores over other ranking techniques has been explained in Chapter I, under methodology. The z scores calculated have been plotted on maps to get a visual impact of the rank of a cities' crime in relation to the other cities.

(a) Spatial distribution of crimes (IPC) in the major urban centers of India.

This analysis pertains to the fifty-nine towns selected for the present analysis. The z-scores of each crime under IPC have been plotted on maps to give an idea of the relative position of each city in terms of a particular crime.

For ease of analysis, the eighteen categories of crimes under the IPC have been grouped together into seven categories depending on the nature of crimes and the losses that lead from such crimes. At this stage, a manual grouping of the crime categories were preferred over any other statistical techniques of merging the variables (e.g. Factor Analysis) as such an exercise would group together variables with similar frequency of occurrence- while the motive behind committing such crimes might be entirely different.

The seven categories of crimes that have been grouped from the eighteen types is the grouping followed by National Crime Records Bureau in their publication 'Crime in India'.

The groups are as follows:

Table 4.1. MAJOR GROUPS OF CRIMES

Sl No.	Crime Group	Constituent Crimes
1	Crimes against Life	Murder, its' attempt, culpable homicide, kidnapping and abduction and hurt.
2	Crimes against Property	Dacoity, it's preparation and assembly, robbery, burglary and theft.
3	Crimes against Women	Rape, dowry deaths, cruelty by husbands and relatives, molestation and sexual harassment.
4	Crimes against Public	Riots and arson.
5	Economic crimes	Criminal breach of trust, cheating and counterfeiting.
6	Other crimes under IPC.	Other crimes under IPC.
7	Total crimes under IPC.	Total crimes under IPC.

Source: Crime in India, NCRB,1998, pp 26.

Even though a grouping of the eighteen types of crimes under IPC was necessary yet, grouping the crimes together under the above categories do not always reveal the correct position of cities in terms of their crimes. For e.g. Crimes against Life has crimes ranging from Murder to kidnapping to hurt. One must keep this fact in mind that each crime has a special quality of it's own. As murder being the most heinous of all crimes has the least rate of occurrence – in the aggregate crime pattern, a city with very high murder rates and lower rates in other crimes tend to fall in the category of cities with low crime rates. Thus, even though the aggregate crime pattern is discussed in this study in general, patterns forming in each crime would also be dealt with, to give a clear picture of the city's position in terms of occurrence of crimes.

1. Crimes against Life: Figure 4.1(a) reveals a clear zone formation along the north-central region, having the highest rates of crimes against life. Cities of western Uttar Pradesh, southern Rajasthan, Madhya Pradesh, Bihar have high rates of crimes against life. From the north-east, Guwahati and from the south, Vijaywada and Trivandrum dominate the crime pattern among the southern cities. Cities of the

CRIME RATES (IPC) FOR SELECTED CITIES: AVERAGE FOR THE YEARS 1997, 1998 AND 1999.

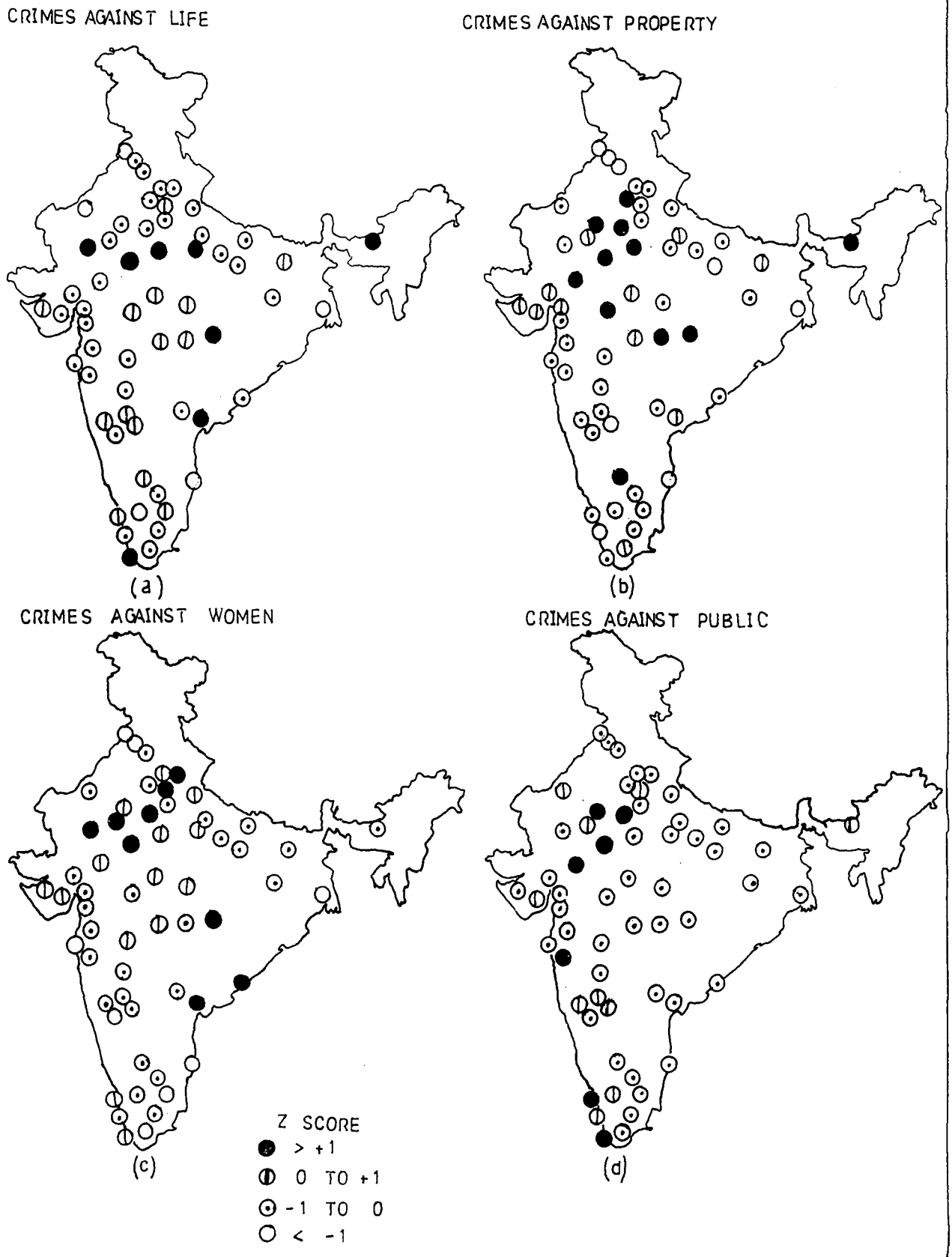
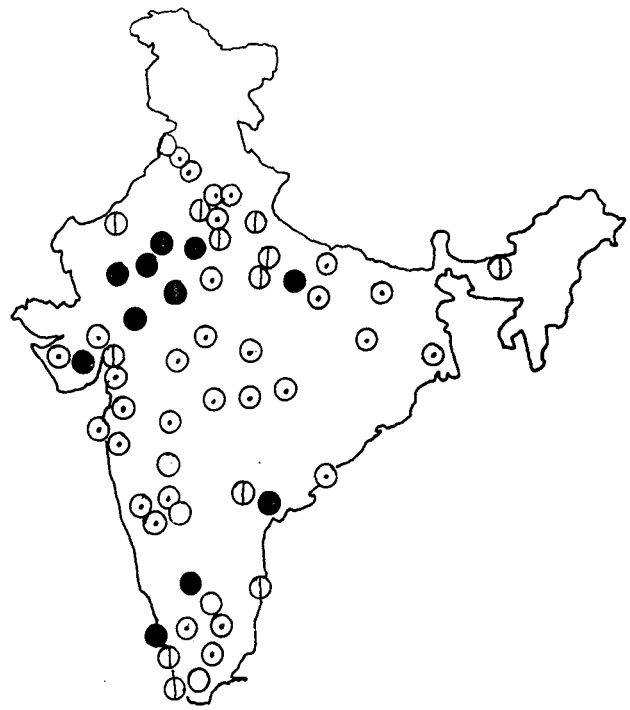


FIG : 4.1

ECONOMIC CRIMES



(e)

Z SCORE

- > + 1
- 0 TO + 1
- -1 TO 0
- < - 1

FIG : 4.1

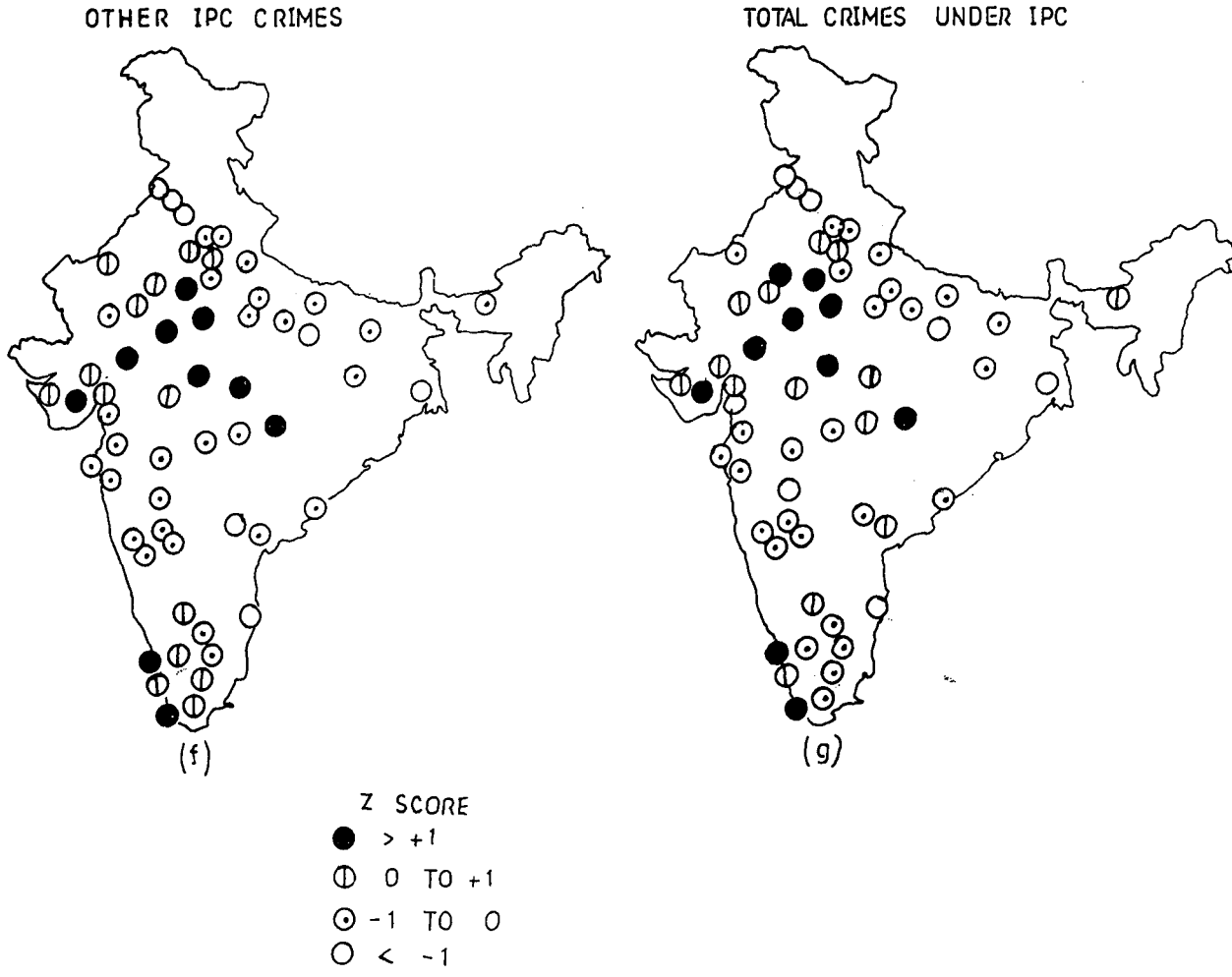

OTHER IPC CRIMES
TOTAL CRIMES UNDER IPC
(f)
(g)
Z SCORE
> +1
0 TO +1
-1 TO 0
< -1

FIG : 4.1

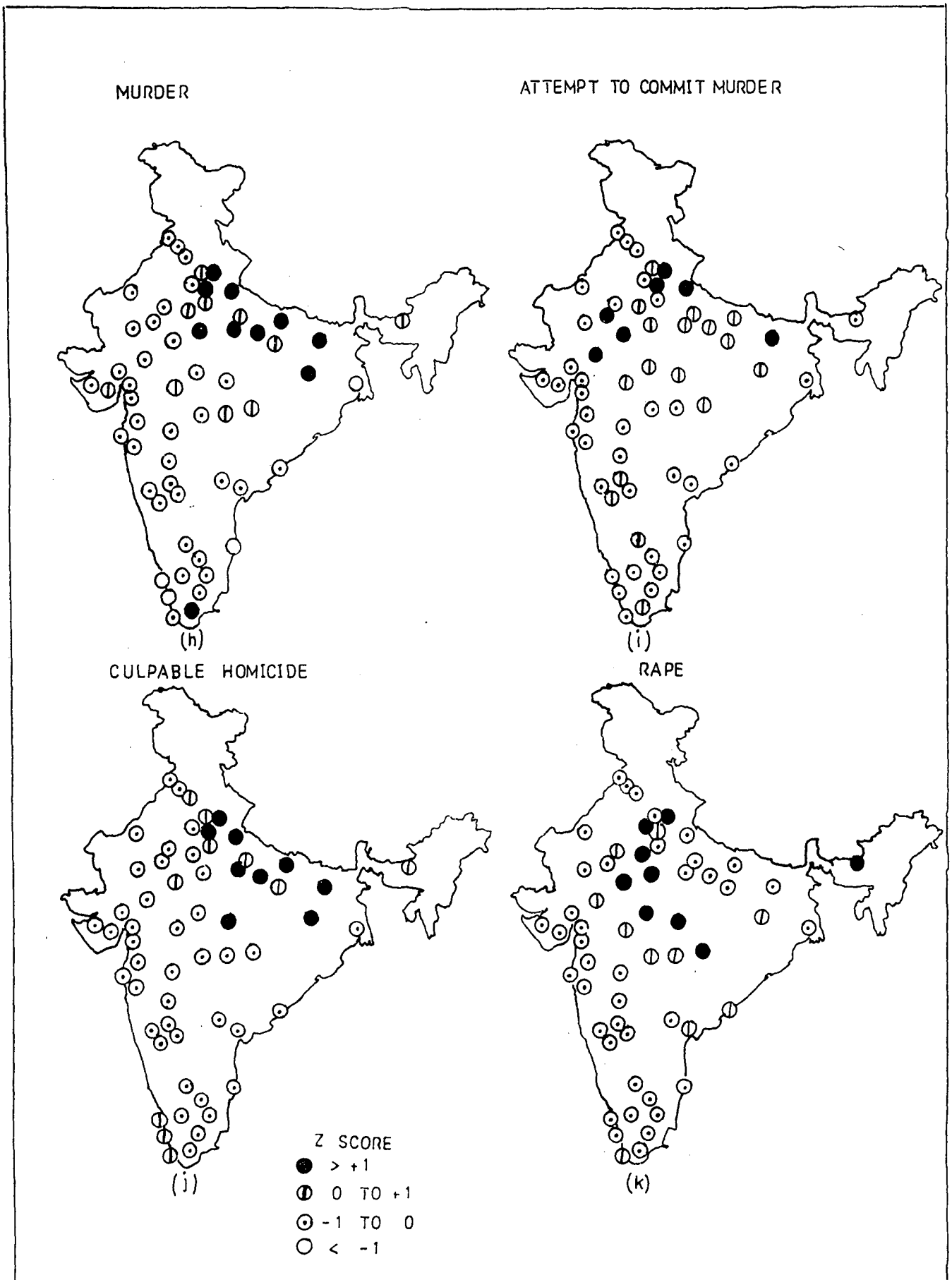

MURDER
ATTEMPT TO COMMIT MURDER
(h)
(i)
CULPABLE HOMICIDE
RAPE
(j)
(k)
Z SCORE
> +1
0 TO +1
-1 TO 0
< -1

FIG : 4.1.

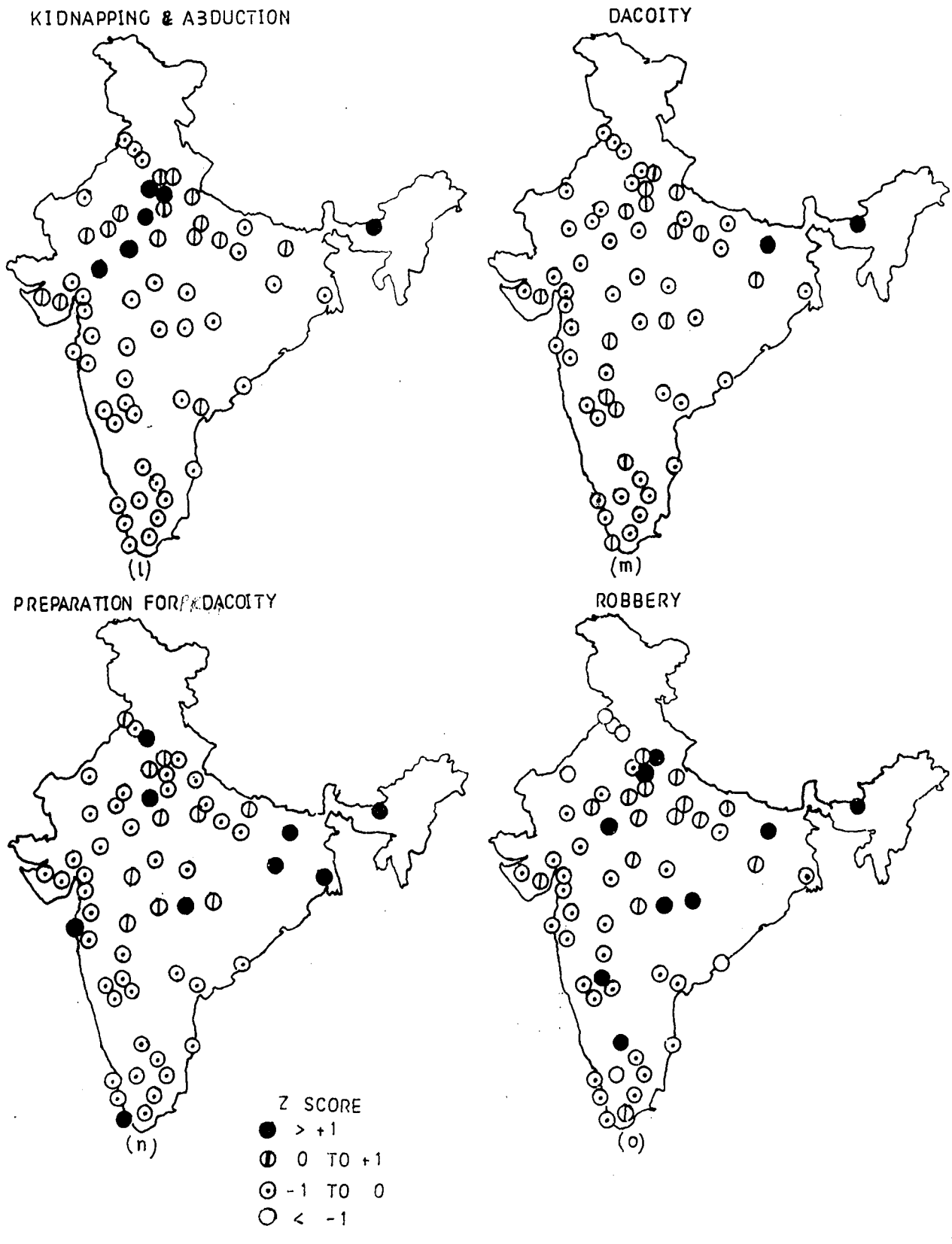

KIDNAPPING & ABDUCTION
(l)
DACOITY
(m)
PREPARATION FOR DACOITY
(n)
ROBBERY
(o)
Z SCORE
> +1
0 TO +1
-1 TO 0
< -1

FIG 4.1

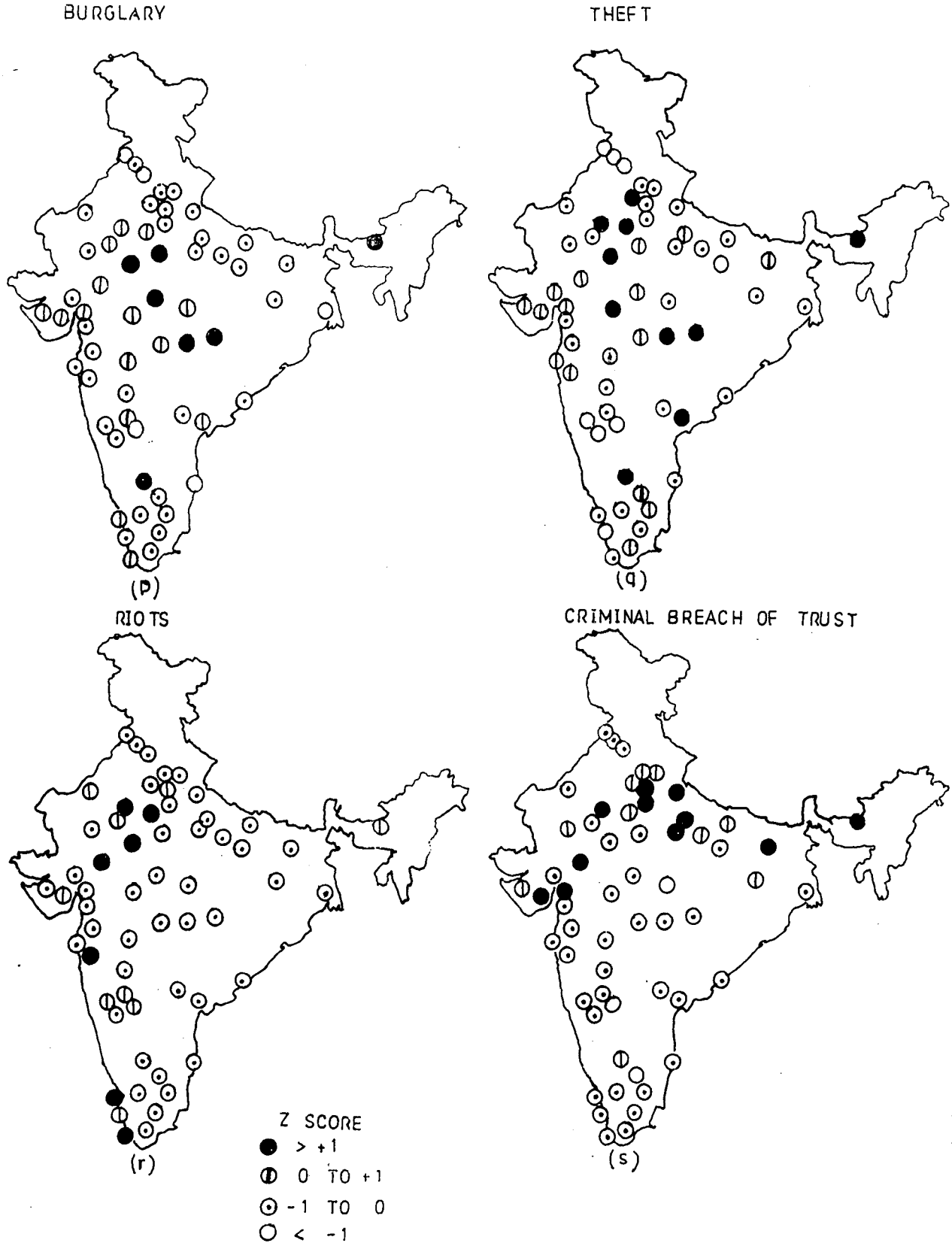

BURGLARY
(p)
THEFT
(q)
RIOTS
(r)
CRIMINAL BREACH OF TRUST
(s)
Z SCORE
> +1
0 TO +1
-1 TO 0
< -1

FIG 4.1

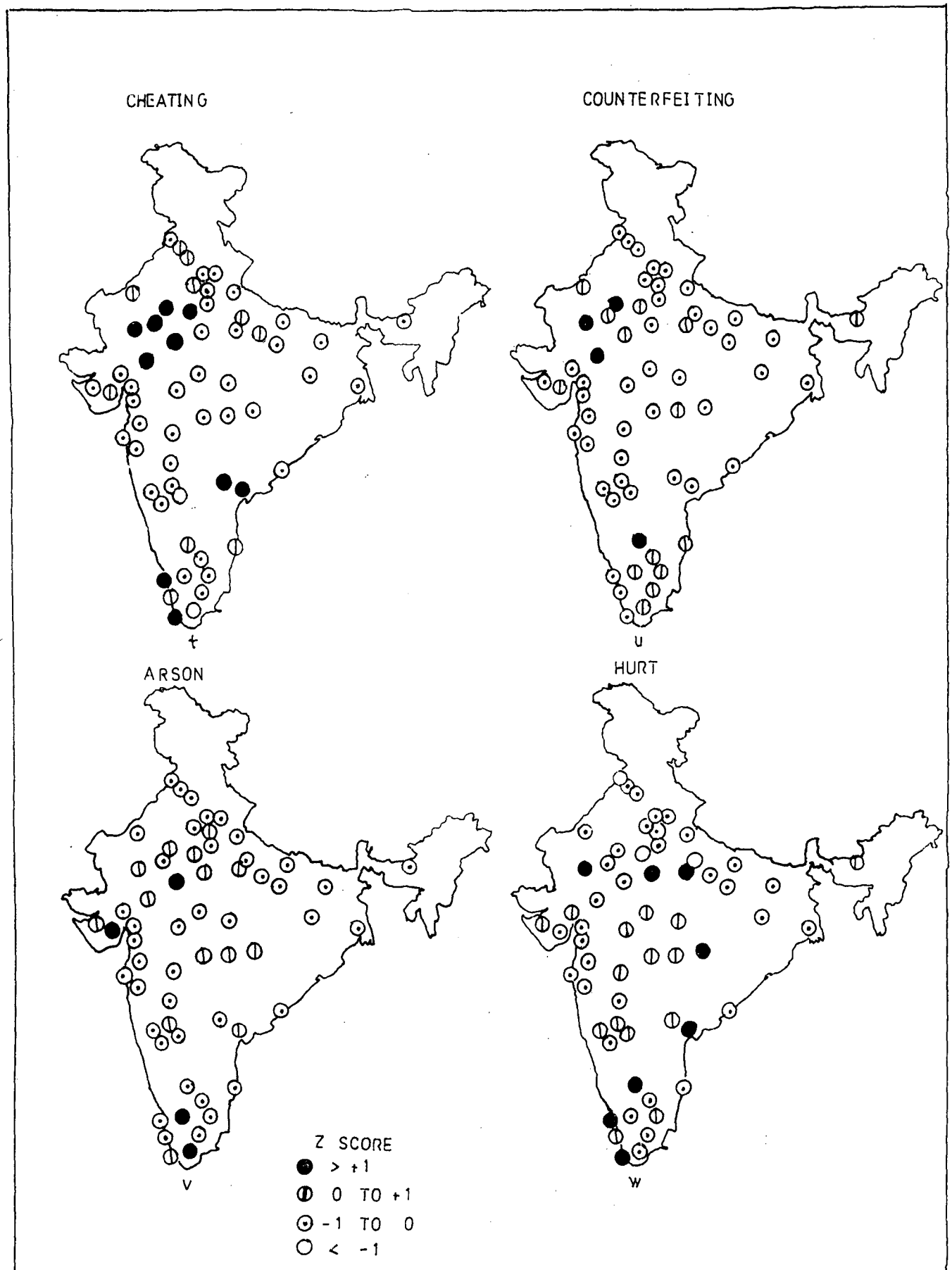

CHEATING
t
COUNTERFEITING
u
ARSON
v
HURT
w
Z SCORE
> +1
0 TO +1
-1 TO 0
< -1

FIG : 4.1

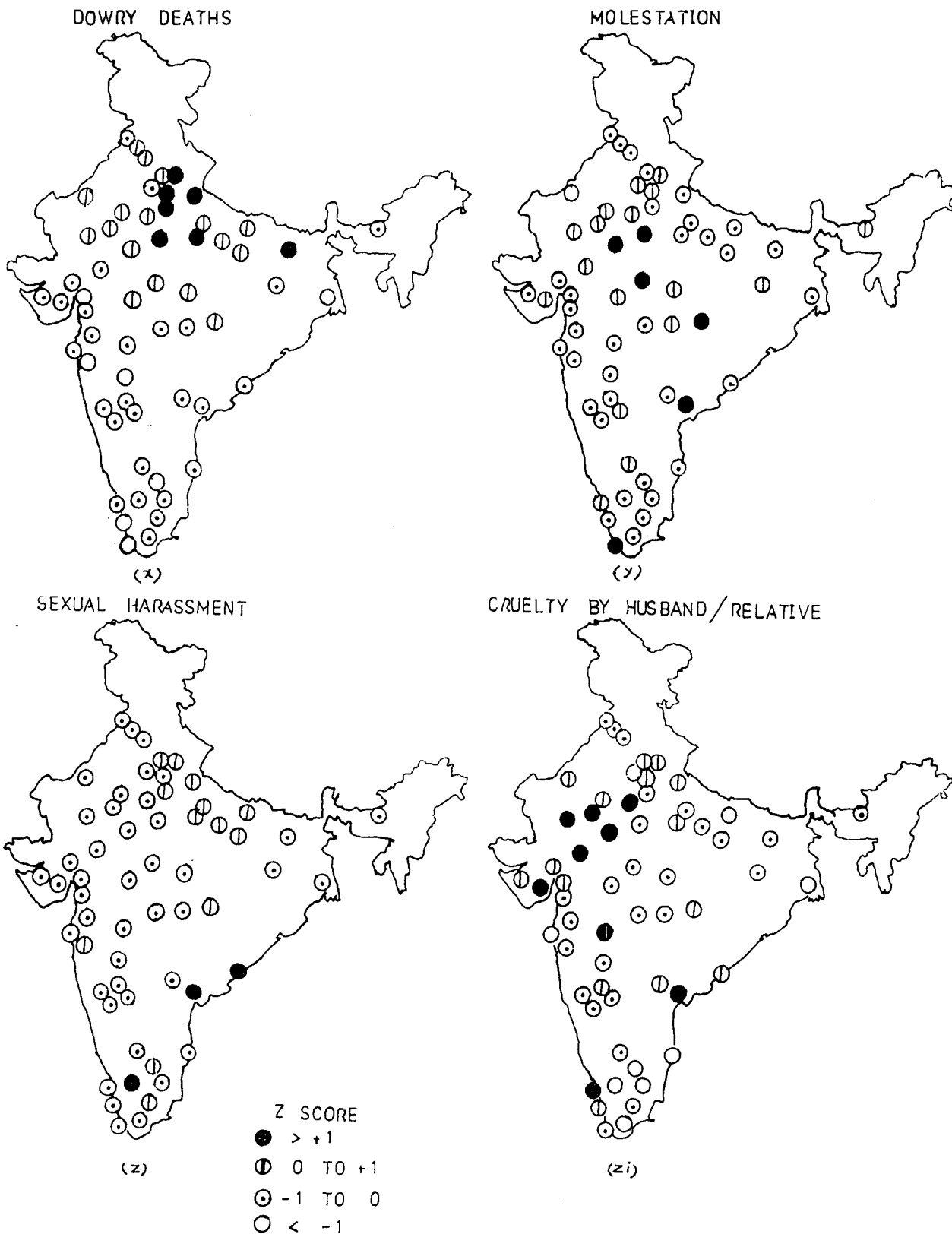

DOWRY DEATHS
(x)
MOLESTATION
(y)
SEXUAL HARASSMENT
(z)
CRUELTY BY HUSBAND / RELATIVE
(zi)
Z SCORE
> +1
0 TO +1
-1 TO 0
< -1

FIG : 4.1

eastern coast have the least rates and the cities of the western coast have lower than average rates. The disaggregate data for each crime against life shows that:

(a) Murder: (Fig 4.1(h)) The cities of Uttar Pradesh and Bihar form the core of the region dominating the region of high murder rates. These cities experience the maximum rate of murders. The cities surrounding this core also have high rates of murders. The western and the southern cities have relatively low murder rates excepting Tirunelveli, which again falls in the category of high murder rates. Kolkata, Chennai, Kochi and Kozhikode have the least rates of murder.

(b) Attempt to commit murder: (Fig 4.1(i)) also follow the same pattern of the murder rates and the cities of the east and the west having least rates. Of the southern cities, the cities of Kerala have above average rates.

(c) Culpable Homicide: (Fig 4.1(j)) too forms a similar pattern as that of murder rates, with the northern cities having the highest rates and the cities of the east and west having the least rates. Of the southern cities, the cities of Kerala have above average rates.

(d) Kidnapping and abductions: (Fig 4.1(l)) the highest rates of this crime are experienced by the cities of Rajasthan followed by the cities of Uttar Pradesh, Bihar and Assam. Vijaywada and Bhavnagar and Rajkot also have high kidnapping rates above the average value. Rest of the cities has relatively lower rates of kidnapping.

(e) Hurt: (Fig 4.1(w)) The belt of highest rates shift to the central part of India, though cities of both North and South India have very high rates of hurt. The entire central Indian cities of Gujarat, Madhya Pradesh, eastern Maharashtra, Northern Karnataka also southern states of Tamil Nadu and Kerala have high rates of hurt.

2. Crimes against Property: this category of crime, as seen in Figure no: 4.1(b) and Table no: 4.1, is high in cities of Rajasthan, Madhya Pradesh, in the east, Guwahati and among the southern cities – Bangalore. The cities of Gujarat also

have high rates of property crimes. Important crime included in this category and their spatial distribution shows that:

(a) Dacoity: (Fig 4.1(m)) rates are the highest in Guwahati and Patna – also the cities of Uttar Pradesh, Madhya Pradesh have higher than average rates. Cities of south and west are relatively free of Dacoity rates but some cities e.g. Trivandrum, Bangalore, and Bhavnagar show high rates.

(b) Preparation and assembly for dacoity: (Fig 4.1(n)) cities of the eastern region-Guwahati, Calcutta, Patna, Ranchi have very high rates. Also, cities of western Coast, Mumbai and Trivandrum also have high rates. Apart from them Ludhiana, Bharatpur, Solapur, cities of Uttar Pradesh, Madhya Pradesh and Maharashtra also have high rates. The most striking feature is that three of the four metropolitan cities have high rates of preparation for dacoity.

(c) Robbery: (Fig 4.1(o))rates are high in the entire north central belt. Cities of Punjab have the least robbery rates and in the south, Bangalore has a very rate of robberies.

(d) Burglary: (Fig 4.1(p))is most prominently high in the cities of central India. The area surrounding the central high crime region, also has moderately high burglary rates. The cities of the north, east, and south have relatively lower rates with the exception of Guwahati in the east and Bangalore in the south.

(e) Theft: (Fig 4.1(q))is unusually high in Delhi. The cities of Rajasthan, Madhya Pradesh, and Assam. The region girdling it Uttar Pradesh, Bihar, Gujarat have moderately high rates. Among the southern cities, Vijaywada and Bangalore have highest rates of theft. Also, Salem, Trichy and Tirunelveli have moderately high rates of theft.

3. Crimes against women: Once again cities of the north-central belt dominate this crime order (Fig 4.1.(c)). Within the north-central belt, cities of Rajasthan and western Uttar Pradesh have the highest rates of crimes. In the south, cities of Vishakapatnam and Vijaywada too have very high rates. Kozhikode and Trivandrum have moderately high rates. Interestingly, three of the four metropolitan cities of Mumbai, chennai and Kolkata have the least rates of crime-along with the

cities of Tamil Nadu and Punjab. The different types of crimes against women and their spatial distribution is listed below.

(a) Rape: (Fig 4.1(k))the north-central region dominates this crime pattern. Cities of Delhi, Rajasthan and Madhya Pradesh have very high and moderately high rates of rape. Also Guwahati in the north-east have very high rates of rape. The rest of the Indian towns, experienced lower rates of rape cases.

(b) Dowry Deaths: (Fig 4.1(x))also fall in the same pattern of very high rates among the north central region. Cities of western Uttar Pradesh, and Patna have very high rates of dowry deaths. The cities in the eastern part of Uttar Pradesh, Rajasthan, Punjab, Madhya Pradesh have moderately high rates, Cities of south, have less than average rates. Cities of Pune, Kolkata, Solapur, Salem and Kochi have the lowest rates of this crime.

(c) Sexual harassment(Fig 4.1(z)): the very high rates are seen in southern cities of Vishakapatnam, Vijaywada and Coimbatore. The cities of Uttar Pradesh, have moderately high rates of sexual harassment.

(d) Molestation(Fig 4.1(y)): the cities having very high rates of molestation are again the ones located in the north-central region. Cities of Rajasthan, Madhya Pradesh, dominate the scene here. Among the southern cities, Trivandrum has high rates of molestation.

(e) Cruelty by husbands and relatives (Fig 4.1(zi)): the cities of Rajasthan have very high rates. Also cities of Gujarat and Western Uttar Pradesh have moderately high rates of crime. Among the southern states, Vijaywada and Kozhikode have very high rates- Hyderabad, Vishakapatnam and Kozhikode with moderately high rates. All the metropolitan cities have very low rates of this crime.

4.Crimes against Public: Cities of Rajasthan, Pune, Trivandrum and Kozhikode have very high rates of crimes against public. Moderately high rates are experienced in some cities of Karnataka, Guwahati, Kochi, Bhavnagar, Aligarh, and Coimbatore. The rest of the cities have moderately low rates of crimes against public as seen in

Fig 4.1 (d). The different types of crimes against public and their spatial variation shows:

(a) Riots: the cities of Rajasthan have very high rates of riots along with the cities of Kerala – Kozhikode and Trivandrum. Moderately high rates of riots are seen in cities of Karnataka – Belgaum, Bijapur and Gulbarga. In the west, Bhavnagar has moderately high rates of riots and in the north; Aligarh shows high rates of riots.

(b) Arson: very high rates of arson are seen in the cities of Kota, Bhavnagar and moderately high rates are seen in cities of western Uttar Pradesh , Rajasthan, Eastern Maharashtra , Chattisgarh. Among the southern cities, very high rates of arson is experienced in Tirunelveli and Coimbatore. Trivandrum has a moderately high rate along with Vijaywada and Gulbarga.

5. Economic crimes: These crimes are experienced at a very high rate in the cities of Rajasthan, Varanasi in Uttar Pradesh, and Bhavnagar in Gujarat (Fig 4.1 (e)) Moderately high rates of crimes are seen in the cities of western Uttar Pradesh and Vadodhara (Gujarat). Among the southern cities, Kozhikode, Bangalore, Vijaywada have the highest rates; while Chennai, Hyderabad, Kochi and Trivandrum share moderate rates of crimes.

(a) Criminal breach of trust: very high rates are experienced the cities of western Uttar Pradesh, Patna, Jaipur and Udaipur, Bhavnagar and Vadodhara. Moderately high rates in Delhi, and the adjacent cities. Among the southern cities, Bangalore has a moderately high rate of this crime.

(b) Cheating: Very high rates of cheating is seen in the cities of Rajasthan, - moderately high rates are seen in cities of Punjab and Uttar Pradesh. In the southern cities very high rates are seen in Vijaywada, Hyderabad, Kozhikode and Trivandrum. Moderately high rates are seen in Kochi, Bangalore and Chennai.

(c) Counterfeiting: the cities of Jaipur, Jodhpur, and Udaipur have very high rates followed by other cities of Rajasthan, Bhavnagar, Nagpur, Kanpur, having moderately high crime rates. Among the southern cities, Bangalore

has a very high rate and moderately high rates are seen in cities of Tamil Nadu.

6. Other crimes: All those crimes under the Indian Penal Code; which do not feature separately in the crimes discussed above, are clubbed together under 'other crimes under IPC (Fig (f)). It is important to analyze their pattern as this group of crimes, heavily influence the total crime rates of a city. Here too the central region – with the cities of Rajasthan and Madhya Pradesh, have very high rates. The southern cities in general have a high rate with Kozhikode and Trivandrum having the highest rates.

7. Total Crimes: The cities of Rajasthan and Madhya Pradesh, dominate the very high rates in North India. Cities of western Uttar Pradesh, Guwahati in the north-east and cities of Gujarat too have moderately high rates of crimes (Fig 4.1 (g)). Among the southern cities, Kozhikode and Trivandrum have a high rate of crime and Vijaywada has a moderately high rate of crimes. The cities of Chennai, Kolkata, Varanasi and Solapur have low rates of total crimes.

(b) Spatial distribution of crimes (SLL) in the major urban centers of India.

Apart from the Indian Penal Code, - to cater to various specific needs, of providing justice to people belonging to people to myriad natural and cultural regions, the Special and Local laws have been enacted from time to time to meet the growing crime prevention need of the country.

It is true that the SLL crimes would have a higher degree of resolution if studied at the level of rural areas. But since India's urbanization is a very unique one where urban centers extend their roots to the region they belong to, and this fact has various divaricating in the urban centers' attributes.

In this part of the study, - the z-scores of the SLL crimes have been mapped (Fig-4.2) and the relative positions of the twenty-three mega cities are ascertained as per the given crime heads.

1. Arms Act (Fig 4.2 (a)): Cities of the north central belt have higher rates as compared to cities of western and southern or eastern region.

CRIME RATES (SLL) FOR SELECTED CITIES: AVERAGE FOR THE YEARS 1997, 1998 AND 1999.

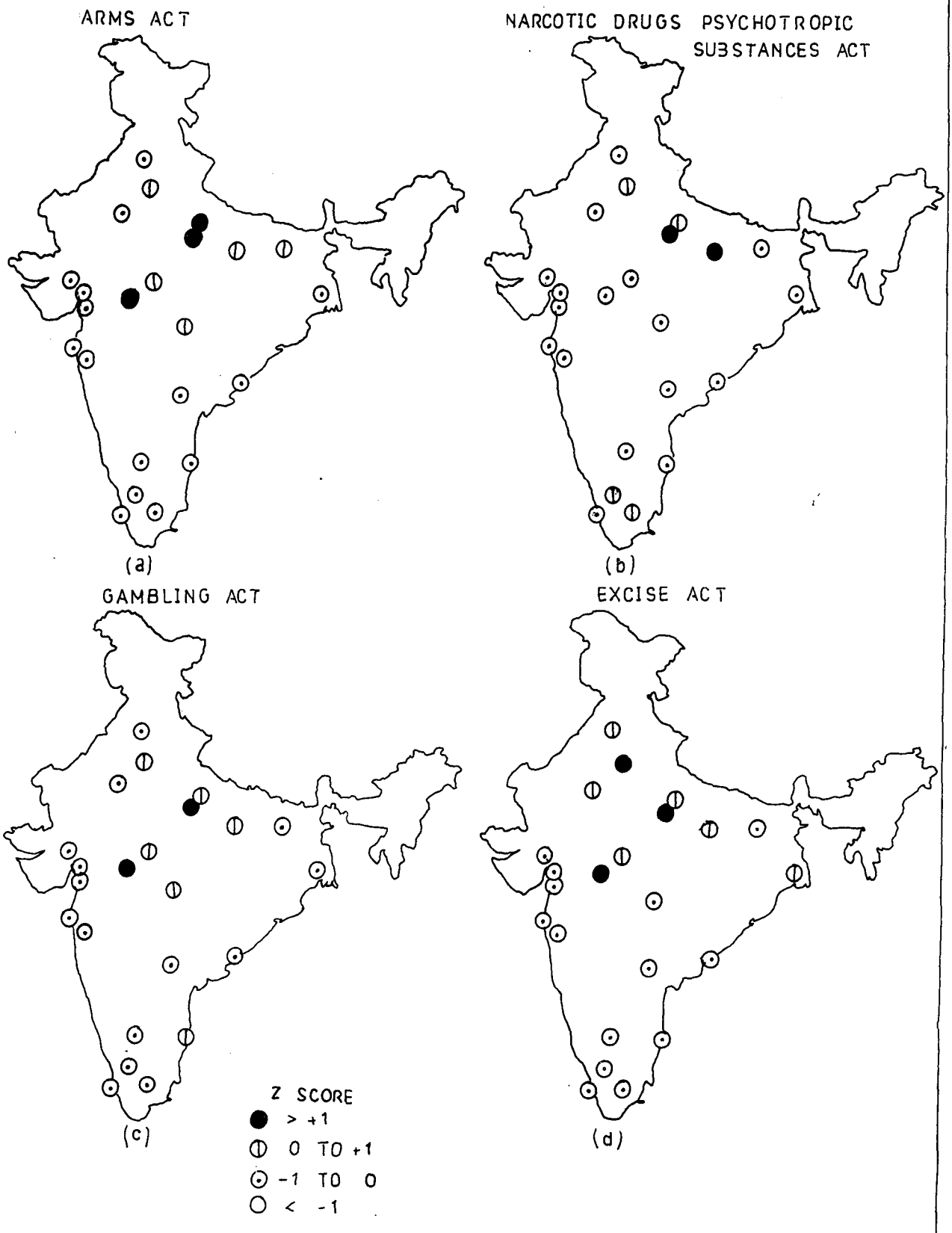


FIG: 4.2

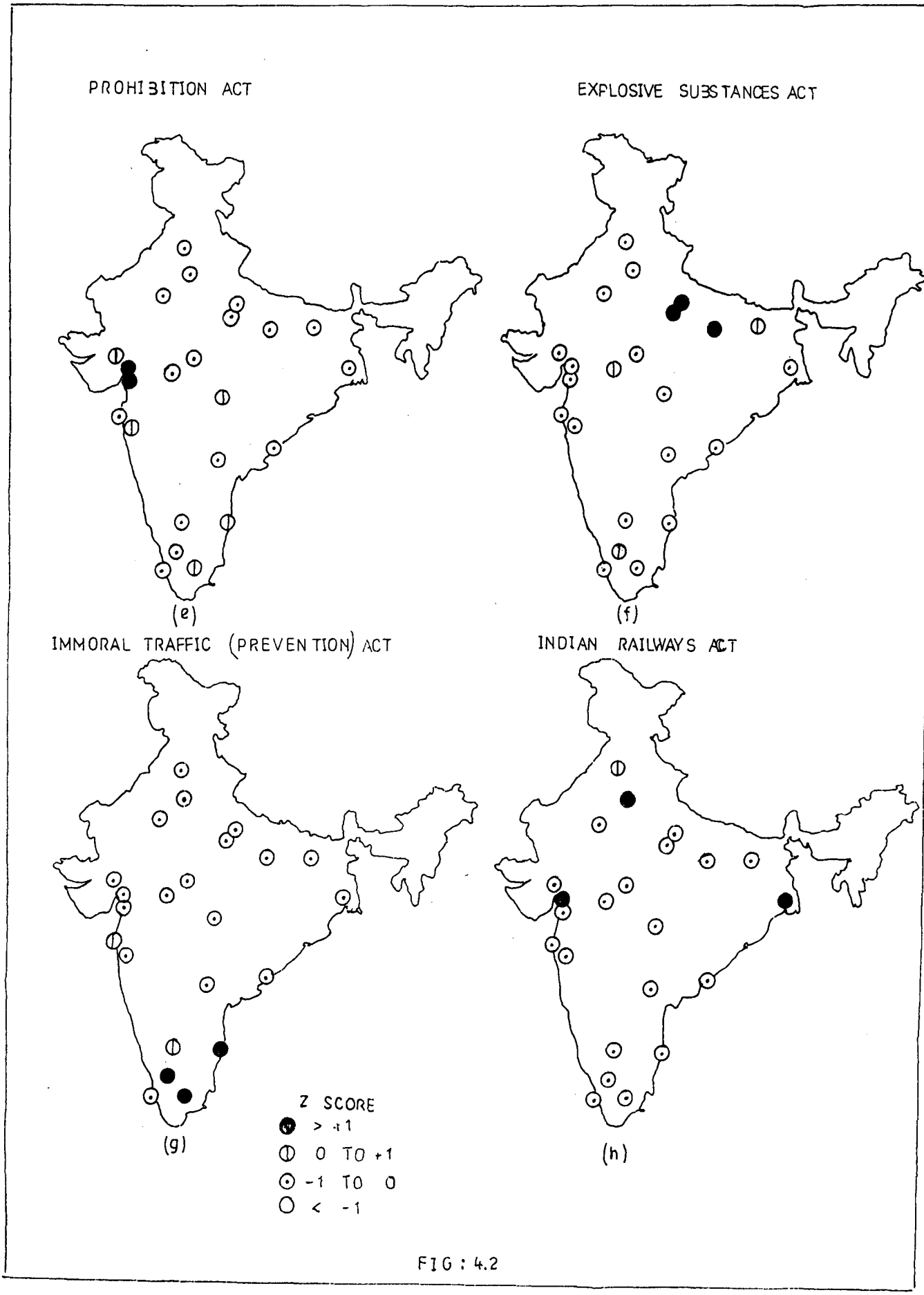

PROHIBITION ACT
EXPLOSIVE SUBSTANCES ACT
(e)
(f)
IMMORAL TRAFFIC (PREVENTION) ACT
INDIAN RAILWAYS ACT
(g)
(h)
Z SCORE
> +1
0 TO +1
-1 TO 0
< -1

FIG : 4.2

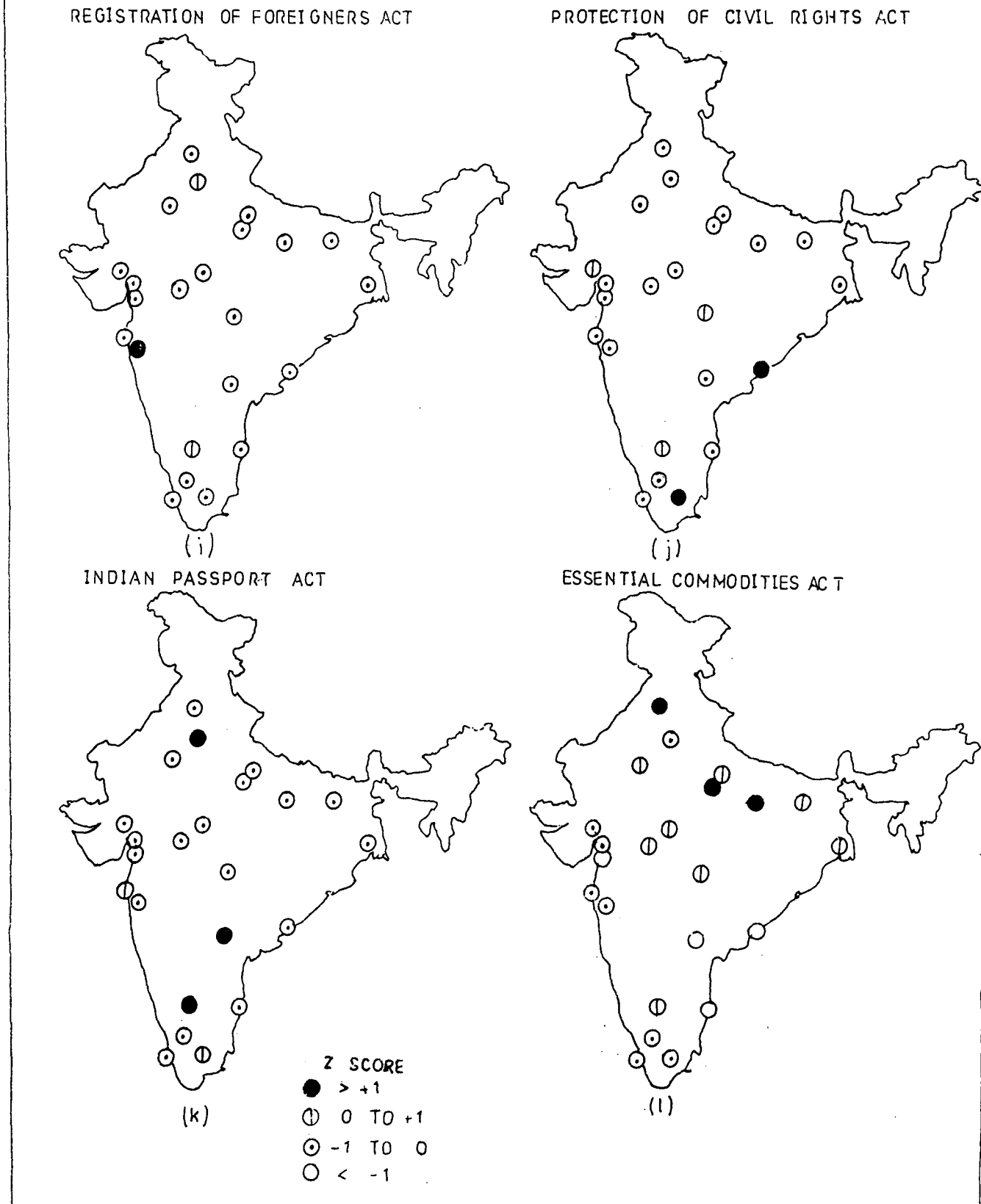

REGISTRATION OF FOREIGNERS ACT
(i)
PROTECTION OF CIVIL RIGHTS ACT
(j)
INDIAN PASSPORT ACT
(k)
ESSENTIAL COMMODITIES ACT
(l)
Z SCORE
> +1
0 TO +1
-1 TO 0
< -1

FIG: 4.2

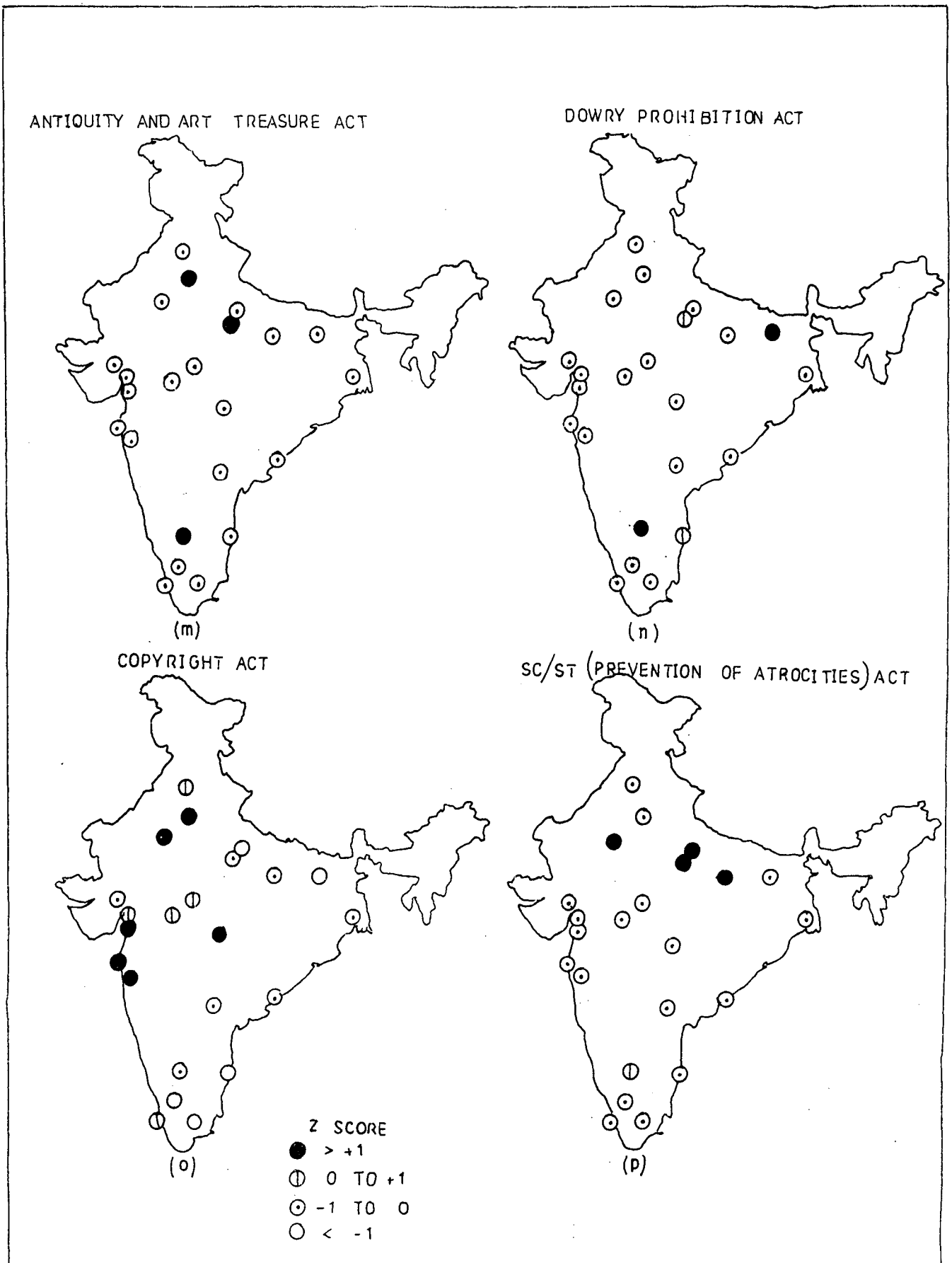

ANTIQUITY AND ART TREASURE ACT
(m)
DOWRY PROHIBITION ACT
(n)
COPYRIGHT ACT
(o)
SC/ST (PREVENTION OF ATROCITIES) ACT
(p)
Z SCORE
> +1
0 TO +1
-1 TO 0
< -1

FIG : 4.2

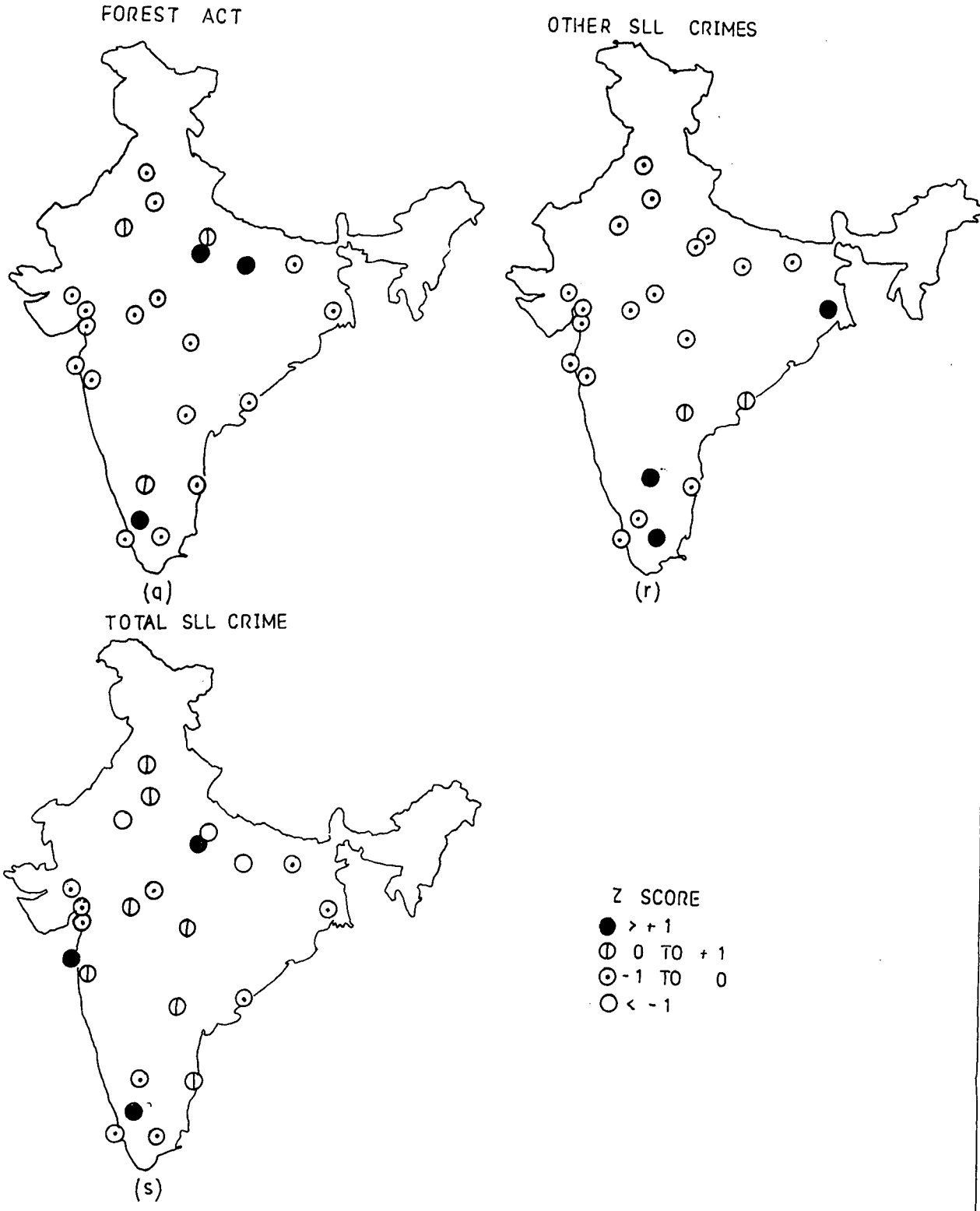

FOREST ACT
(q)
OTHER SLL CRIMES
(r)
TOTAL SLL CRIME
(s)
Z SCORE
> + 1
0 TO + 1
-1 TO 0
< -1

FIG : 4.2

2. Narcotics and Psychotropic substances Act (Fig 4.2.(b)): shows high rates in Delhi and Uttar Pradesh. Also, southern cities of Coimbatore and Madurai have high incidences of crime.
3. Gambling Act (Fig 4.2 (c)): highest rates of gambling are found in Indore and Kanpur. Delhi, Lucknow, Varanasi and Nagpur have moderately high rates. Of the southern cities, only Chennai shows a moderately high rate.
4. Excise Duty (Fig 4.2 (d)): The north-central region dominates this crime pattern too; with Delhi, Kanpur and Indore having the highest rates.
5. Prohibition Act (Fig 4.2 (e)): Mostly concentrated in the western and southern cities. The western cities that have the highest rates are Surat and Vadodhara.
6. Explosive substances Act (Fig 4.2 (f)): Highest crime rates cluster around Kanpur, Lucknow and Varanasi. Patna, Indore, and Coimbatore have moderately high rates.
7. Immoral traffic prevention Act (Fig 4.2 (g)): mainly concentrated in the southern cities of Chennai, Coimbatore, and Madurai. Bangalore and Mumbai have moderately high rates.
8. Indian Railways Act (Fig 4.2 (h)): Highest crime rates of this type are found in Delhi, Kolkata, and Vadodhara. Ludhaina has a moderately high rate.
9. Registration of Foreigners Act (Fig 4.2 (i)): shows most of such crimes occurring in Bombay. Moderately high rates are found in Delhi and Bangalore.
10. Protection of civil rights Act (Fig 4.2 (j)): Highest rates are found in Madurai, Vishakapatnam, with moderate high rates in Ahmedabad, Nagpur and Coimbatore.
11. Indian Passport Act (Fig 4.2 (k)): Delhi, Hyderabad and Bangalore have the highest rates of this crime. Moderately high rates are seen in Madurai and Mumbai.

12. Essential Commodities Act (Fig 4.2 (l)): Ludhiana, Kanpur and Varanasi share the highest crime rates. Moderately high crime rates are found in Jaipur, Lucknow, Patna, Kolkata, Indore, Bhopal, Nagpur and Bangalore.
13. Antiquity and Art Treasure Act (Fig 4.2 (m)): highest rates are found in Delhi, Kanpur and Bangalore. Rest of the cities have low rates of this crime.
14. Dowry Prohibition Act (Fig 4.2 (n)): highest rates are found in Patna and Bangalore. The cities having moderately high rates of this crime are Kanpur and Chennai.
15. Copyright Act (Fig 4.2 (o)): Highest rate of this crime is seen in Delhi, Jaipur, Surat, Mumbai and Pune. Moderately high rates in Ludhiana, Vadodhara, Bhopal and Indore. The cities of western India dominate this crime.
16. SC/ ST (Prevention of Attrocities) Act (Fig 4.2 (p)): The cities in the northern belt, Kanpur, Lucknow, Jaipur share the highest rates. Bangalore also has a moderately high rate.
17. Forest Act(Fig 4.2 (q)): Highest rates are found in Kanpur and Varanasi in the north and and Coimbatore in the south. Moderately high rates are seen in Lucknow, Jaipur and Bangalore.
18. Other SLL Crimes (fig 4.2 (r)): Highest rates of this crime are found in the cities of Kerala, Bangalore and Madurai. Moderately high rates are seen in Hyderabad and Vishakapatnam.
19. Total SLL Crimes (Fig 4.2 (s)): Highest crime rates are found in Kanpur, Mumbai and Coimbatore. Moderately high rates are seen in Ludhiana, Delhi, Indore, Nagpur, Pune, Hyderabad and Chennai.

2. Structural Co-ordinates of Crimes.

Since crime is ascribed to a wide range of factors acting independently or in interaction in the socio-cultural *milieu*, one may start with a broad hypothesis that "there is relationship between it and the socio-economic and the cultural factors". If

such a hypothesis could be established, a criminological theory even if it is a 'middle range'[3] one may not be elusive. The problem is however not so simple as extensive research over the last few decades all over the world has not been able to provide a clear insight into the manner and the extent to which the factors influence human behavior, and intensity of factors which may vary over an infinite range of situations. There are also problems of identification and quantification. Added to these two problems, is the problem of dynamics of social change. The method and manner of selection of the most appropriate indicators from a forbiddingly large range of social, economic, and cultural variables developed by demographers and social scientists present serious difficulties.

Theoretically, every indicator derived from the present state of society has an influence on corporate and individual behavior, but a correlation on the basis of a large number of indicators is an unwieldy exercise and is unrelated to the world of reality. On the other hand, the findings may not be more than simplistic if a small number of indicators are selected. Despite the inherent risk, the present study is based on the second alternative since, in macroscopic view of crime the marginal indicators may be given up with some advantage.

Little material is available to construct a plausible "model" of urban crimes in India.[4] Therefore, in this study, a statistical approach to regression analysis, where the regression function is simply interpreted as a conditional expectation: in this case, the expectation of different groups of crime rates conditional on the socio-economic variables of interest.

[3] Rao, V (1981), Dynamics of Crime, Indian Institute of Public Administration, New Delhi, pp 104

[4] Dreze J and Khera R (Jun, 2000), Crime, Gender and Society in India: Insights from homicide data, Population and development Review, pp 326.

The independent[5] variables of regression are listed in the table below, and the unit of analysis is the town, and the reference year is 1991. The relevant data was available for all the 59 towns comprising the study area.

Table 4.2. LIST OF REGRESSION VARIABLES.

Variable Name	Definition
POP-LAKHS	The population of the city in lakhs.
SR	Sex Ratio.
LIT	Percentage of the population being literate.
WPR	Percentage of the population employed as main workers.
SC	Percentage of Scheduled Castes
ST	Percentage of Scheduled Tribes
JS	Percentage of Non-workers, who are available for jobs and are seeking jobs.
FWPR	Percentage of females employed among the total workers.
MIG	Percentage of migrants.
SL_DWL	Percentage of the population living in slums.
PCI	Per capita income in Rupees.

Source: Census of India, 1991.

The rationale behind selecting the above indicators is listed below.

1. Population of the city: A number of studies in the west suggested, that bigger the city size, more are the chances of cultural conflict and social disorganization,[6] greater chances of maintaining anonymity by an immigrant.

2. Sex Ratio: of the city population has been used as an indicator of gender inequality. Studies in India on crime and sex ratio reveal the fact that with less

[5] A correlation analysis has been done for the independent variables to check whether the variables are positively correlated. (See Appendix X.)

[6] Sutherland E and Cressey, D (1955) Principles of Criminology, J.B.Lippincott Co, as cited in Shelley,I, Louise,1980, Crime and Modernisation, Southern Illinois University Press, Carbondalle and Edwards Ville, pp 9.

number of females in the population, hence less chances of formation of families, the rate of violence tends to be on the rise.[7]

3. Literacy: The percentage of literates in a city's population gives one an idea of the level of development of the urban population. In Chenais' work,[8]the progress of elementary education has been the major force behind the secular decline of criminal violence in Europe during 19th and 20th centuries. The author eloquently puts it as "violence is a failure of dialogue which begins when the power of the word ends."[9]

4. Work participation rate: Since crime is viable means of obtaining livelihood,[10] a high work participation rate would therefore indicate less crimes occurring in the city.

5. Percentage of scheduled castes in the population: The scheduled castes represent the socio economic minorities, who have been exploited socially and economically for ages and had a very low status in the society. They stand not only for those that have been denied power for ages, but also that section of society against whom all powers were used to suppress them. And any attempt by the scheduled castes to ask for more power was considered as criminal behavior. This indictor would reveal whether their presence in the city could lead to more crimes due to caste conflicts. Their presence could be interpreted in two ways, either atrocities are committed against the minorities or that these people add to the crimes committed in the city.

6. Percentage of Scheduled Tribes in the population: same as above – with a major difference being their isolation from the so-called mainstream culture and norms.

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[7] Oldenburg, P (1992) Sex ratio, son preference and violence in India, economic and Political Weekly, December, 1992, 2657-2659.

[8] Chenais, J C (1981) Historic de la Violence on en Occident de a nous jours , Laffont, Paris, as cited in Dreze J and Khera R (Jun, 2000), Crime, Gender and Society in India: Insights from homicide data, Population and Development Review, pp 325.

[9] Ibid, pp 325.

[10] Shelley,I, Louise,(1980), Crime and Modernisation, Southern Illinois University Press, Carbondalle and Edwards Ville, pp 5-11.

Therefore, more often their activities become a misfit in the overall prevalent social norms and considered criminal.

7. Job Seekers: the proportion of population who are seeking jobs and do not have it, are representative of the poverty level of the city. Poverty has it's own logic of defining crime; a hungry man commits no crime.[11]

8. Female work participation rate: A high percentage of females in the labour force means more women leaving their traditional role and could have an influence of violence committed against them, and crime in general, because of shrinking space of patriarchy.

9. Migrants: Internal immigration is a cause of social disorganization, by increasing the anonymity of the migrants, and breaking of joint family system and exposure to differential association, which increases criminal activity within the city.

10. Slum Dwellers: Formation of slums[12] and squatter settlements is a potent cause of urban crime. This is so because, relative deprivation is more conducive to criminal behavior than absolute deprivation, as visibility and accessibility of material goods prove to be more of an incentive foe committing crimes than the absence of goods or the opportunity to secure them.[13]

11. Per capita Income: This is an indicator of the relative prosperity of the city.

The dependent variables are the same as the crime groups listed in Table-4.1.

A ***Null Hypothesis*** is put forward that none of the socio-economic variables can explain for the crimes that occur in the fifty-nine cities of the study area. The regression analysis has been run separately for all the seven independent variables.

[11] Bubhukshitam kibh na karoti papam – Neeti Shlokas.
[12] As per Slum Areas (Improvement and Clearance) Act, 1956.
[13] Cilnard, M and Abbott, D (1973) John Wiley and Sons, New York, pp 141-153.

The results of the analysis are discussed below.

1.Dependent variable: Crimes against life: The independent variables explain 22.7 percentage of variations in crimes against life as is seen in table 4.2. Of all the variables used to determine the dependence of crimes against life in a city, Percentage of non workers seeking jobs have a positive relationship which means with more people available for jobs, but cannot get a job, more crimes against life take place in that city.

Female work participation rate – also shows similar relationship; with more women joining the workforce more crimes against life take place. This so possibly so because as women take part in economic activities in the cities, they move away from their traditional role which could have an effect on the family structure of the city dwellers and eventually on the rate of violence taking place in the cities.

TABLE 4.2. RESULTS OF REGRESSION ANALYSIS FOR CRIMES AGAINST LIFE

R Square
.227

Coefficients

Model		Unstandardized Coefficients	t	Sig.
		B		
1	(Constant)	325.279	2.208	.032
	Pop-lakhs	-.552	-1.727	.091
	SR	-.298	-2.079	.043
	LIT	.589	.664	.510
	WPR	-2.101	-1.218	.229
	SC	.299	.353	.726
	ST	.270	.166	.869
	JS	1.901	1.099	.277
	FWPR	2.138	1.349	.184
	MIG	-.311	-.916	.364
	SL_DWL	-.625	-1.406	.166
	PCI	1.697E-02	1.653	.105

Dependent Variable: LIFE

Work participation rate shows a negative relationship, i.e. with more people working, the rate of crimes against life declines in the city. Negative relationship is also noticed with population size and sex ratio. This means crimes against life occurs more in the smaller cities and the higher the sex ratio of the city, less is the amount of crimes against life. It is interesting to note here that in case of crimes against life in India, folklore has it that the main motives are "*zan, zar* and *zamin*"[14] (women, gold and land). This study too validates this argument, since with joblessness, people try to acquire property and wealth by means of assaulting on others' lives and with fewer women in the society (unfavourable sex ratio), the conflicts among men for women are more likely to take place, and hence more crimes against life occur. A significant negative relationship with sex ratio also proves the fact that participation of women in violent crimes like crimes against life is very low. This differential facets of violent behavior in the two sexes can be ascribed to 'their restrictive social roles', which have been institutionalized and perpetuated through continuance of old myths of the fair sex's vulnerability, physical weakness and need for protection. Ancient discriminatory laws, religious sanction and tradition have dictated the status of women in India. The barbaric practices of *sati* and female infanticide prevalent in the Hindu society till the middle of the last century project the outer limits of male dominance and the relegation of the women to the status of second-class citizens. Subjected constantly to the 'proprietary' attitudes of men, the woman's world was suffocatingly confined, and it is not surprising that her attitudes are minimally aggressive.

2. Dependent variable: Crimes against property:

The relation ship between the indicators and property crimes can be inferred from the table below.

[14] Dreze J and Khera R (Jun, 2000), Crime, Gender and Society in India: Insights from homicide data, Population and Development Review, pp 326.

TABLE 4.3. RESULTS OF REGRESSION ANALYSIS FOR CRIMES AGAINST PROPERTY.

R Square
.235

Coefficients

Model		Unstandardized Coefficients	t	Sig.
		B		
1	(Constant)	299.977	1.252	.217
	Pop-lakhs	-4.671E-02	-.090	.929
	SR	-.297	-1.271	.210
	LIT	.612	.424	.673
	WPR	-.583	-.208	.836
	SC	1.421	1.028	.309
	ST	3.587	1.355	.182
	JS	-.508	-.181	.857
	FWPR	2.756	1.069	.290
	MIG	-.160	-.290	.773
	SL_DWL	-.510	-.705	.484
	PCI	3.073E-02	1.839	.072

Dependent Variable: PROP

The indicators are able to explain 23.5 percentage of property crime staking place in the cities as seen in table 4.3. The percentage of scheduled caste and scheduled tribe population in the city affect positively the crimes against property. This could mean either the scheduled castes and scheduled tribes indulge in crimes against property or that they happen to be the victims. It can also be inferred that higher the social disparities and discrimination, higher will be the rate of crime.[15] Low rates of crimes against property are experienced when the work participation rate is high, and high when the percentage of job seekers among the non-workers is high. One could generalize from this result, without minimizing the effect of socio-psychological factors, it is not unreasonable to take a view that all offences in which

[15] Scheduled caste population is the general indicator of more oppression, marginalisation and alienation.

pecuniary gains is directly of indirectly involved, must give due consideration as economically motivated.

Also higher the sex ratio of the city, lower will be the crimes against property, as with less women in the city, more men remain single and without a family, which could lead them to deviant behavior.

3. Dependent variable: Crimes against Women:

TABLE 4.4. RESULTS OF REGRESSION ANALYSIS FOR CRIMES AGAINST WOMEN.

R Square
.221

Coefficients

Model		Unstandardized Coefficients	t	Sig.
		B		
1	(Constant)	36.552	.762	.450
	Pop-lakhs	-.221	-2.119	.039
	SR	-9.268E-04	-.020	.984
	LIT	-.284	-.985	.330
	WPR	.138	.246	.807
	SC	.260	.940	.352
	ST	.474	.895	.375
	JS	.593	1.053	.298
	FWPR	-.501	-.972	.336
	MIG	-1.403E-02	-.127	.900
	SL_DWL	3.543E-02	.245	.808
	PCI	5.275E-03	1.577	.121

Dependent Variable: WOM

Table 4.4 shows that the chosen indicators are able to explain 22.1% of crimes against women taking place in the cities. Female work participation rate has a negative relationship with the crimes against women, i.e. with more women joining the labour-force, less crimes take place against them. Perhaps economic independence makes them less vulnerable to fall prey to victimization by the society.

It has positive relationship with proportion of job seekers. This could be interpreted when more job seekers remain idle in a city; the rate of assault on the

women is on the rise. Literacy is negatively related so, with higher literacy, crimes against women decline, hence education seems to have a moderating effect on the motives of the people to vindicate women. The percentage of slum dwellers also positively affects the crimes against women to a small extent, which could mean that the slum dwellers contribute heavily to the crimes against women, or the women living in the slums are the victims of such crimes.

City size also has a negative relationship with crimes against women, meaning, the smaller towns see more number of assaults on women than their bigger counterparts.

4. Dependent variable: Crimes against Public:

TABLE 4.5. RESULTS OF REGRESSION ANALYSIS FOR CRIMES AGAINST PUBLIC.

R Square				
.137				
Coefficients				
		Unstandardized Coefficients	t	Sig.
Model		B		
1	(Constant)	55.606	.631	.531
	Pop-lakhs	-.176	-.920	.362
	SR	-2.672E-02	-.311	.757
	LIT	-.151	-.285	.777
	WPR	-.382	-.370	.713
	SC	.595	1.170	.248
	ST	.676	.694	.491
	JS	1.438	1.390	.171
	FWPR	-.260	-.275	.785
	MIG	.153	.755	.454
	SL_DWL	-.173	-.652	.517
	PCI	-6.577E-03	-1.071	.290
Dependent Variable: PUB				

Table 4.5 shows that only 13.7 percentage of the crimes against public, that occur in the fifty-nine towns, could be explained by these indicators. More crimes against public take place in those cities' where, the percentage of job seekers is high. This could be interpreted as with more people in the city left idle, such disruptive activities occur more. With more females in the work force, i.e. high female work participation rate, the rate of crimes against the public decline. Crimes

against public also have a negative relationship with the city size, which means that crimes against public are more in smaller cities. This study shows that unlike the cities of the west, incase of the Indian cities, crimes against public are more in the smaller towns than the larger ones. This could be due to better policing arrangements in the large towns, which acts as a deterrent for crimes against public.

5. Dependent variable: Economic Crimes:

TABLE 4.6. RESULTS OF REGRESSION ANALYSIS FOR ECONOMIC CRIMES.

R Square
.184

Coefficients

Model		Unstandardized Coefficients	t	Sig.
		B		
	(Constant)	76.979	1.557	.126
	Pop-lakhs	1.815E-04	.002	.999
	SR	-6.955E-02	-1.444	.155
	LIT	8.379E-02	.282	.779
	WPR	-5.854E-02	-.101	.920
	SC	.392	1.376	.175
	ST	.222	.407	.686
	JS	.891	1.535	.131
	FWPR	-.330	-.620	.538
	MIG	4.610E-03	.040	.968
	SL_DWL	-.209	-1.399	.169
	PCI	-3.583E-03	-1.039	.304

Dependent Variable: ECO

Table 4.6 shows that the indicators are able to explain only 18.4 percentage of the variations Economic crimes that occur in the large cities of India. Economic crimes have a strong positive relationship with the percentage of job seekers. This means that the higher the percentage of job seekers among the non-workers in a city, more are the chances of economic crimes being committed in the city. The proportion of scheduled caste and scheduled tribe in a city also has positive relationship with the rate of economic crimes taking place in the city. Female work participation rate has a negative effect on economic crimes. One general hunch about economic crimes is that it is usually high at area having higher rates of

literacy. But the regression analysis here shows a weak but positive relationship between literacy rates and economic crimes.

6. Dependent variable: Other Crimes:

Table 4.7 shows that 21.2 percentage of the variations in Other crimes under IPC may be explained by the above indicators.

TABLE 4.7. RESULTS OF REGRESSION ANALYSIS FOR OTHER CRIMES.

R Square				
.212				
Coefficients				
		Unstandardized Coefficients	t	Sig.
Model		B		
1	(Constant)	-128.008	-.282	.780
	Pop-lakhs	-1.158	-1.173	.247
	SR	.319	.721	.475
	LIT	7.862E-02	.029	.977
	WPR	-1.647	-.309	.759
	SC	1.893	.722	.474
	ST	2.855	.569	.572
	JS	9.985	1.870	.068
	FWPR	-2.322	-.475	.637
	MIG	.243	.232	.817
	SL_DWL	.579	.422	.675
	PCI	3.306E-02	1.043	.302
Dependent Variable: OTH				

Other crimes are very strongly related to the percentage of jobseekers, which means with more people available for jobs, and have no jobs; such people resort to criminal activities. Other crimes are negatively related with work participation rate which means that with more people having jobs in a city, the rate of occurrence of other crimes are low. So, also, city size which means that, lesser the population of a city higher are the chances of other crimes occurring there. It is strongly negatively related with female work participation rate and, with more slum dwellers being in a city, more are the chances of having other crimes there.

7. Dependent variable: Total Crimes:

Table 4.8 reveals that the dependent variables are able to explain only 16.3 percentage of variations of the total amount of crimes taking place in the fifty-nine large cities of India.

TABLE 4.8. RESULTS OF REGRESSION ANALYSIS FOR TOTAL CRIMES

R Square
.163

Coefficients

Model		Unstandardized Coefficients B	t	Sig.
1	(Constant)	670.550	.830	.411
	pop-lakhs	-2.199	-1.253	.216
	SR	-.377	-.479	.634
	LIT	.923	.190	.850
	WPR	-4.623	-.488	.628
	SC	4.821	1.034	.306
	ST	8.051	.902	.372
	JS	14.235	1.499	.140
	FWPR	1.518	.175	.862
	MIG	-9.686E-02	-.052	.959
	SL_DWL	-.874	-.358	.722
	PCI	7.655E-02	1.358	.181

Dependent Variable: TOT

The maximum explanation for the total crime may be derived from the percentage of non-workers who are job seekers. This shows that when people are in need of a means of living and cannot eke out one, then they resort to crimes.

The next most significant factor would be work participation rate. Hence one can say, that with more people engaged in economic activities, less are the chances of criminal behavior. Next explanatory variable is city size or city's population size.

Contrary to the belief that larger the city, more the chances of it's being crime prone, the major cities of India show a different picture and reveal that the crime rates are lower in the largest cities' and more in the relatively smaller ones. (As this sample includes all large cities.) This study shows, unlike the western cities, crime rates decline as one moves from a smaller city to a larger one. Sex ratio too shows a weak negative relationship with total crimes, which indicates the fact that with more women in the city, and with a properly balanced sex ratio, maladies of crimes are

few in number in a city. Proportion of slum dwellers also has positive relationship indicating the fact that relative deprivation could be a cause of crimes taking place in the cities of India.

***Alternate Hypothesis*:** The regression analysis shows that the crimes occurring in the cities of the study area are not independent of the socio-economic conditions of the city, but are a response to the conditions prevailing in the city. Therefore the Null Hypothesis has been rejected and Alternative Hypothesis established that the crimes occurring in the cities are dependent on the prevailing societal circumstances and inequalities.

3. PERSONALITY OF THE CITY AND CRIMES.

This section attempts relate the crimes occurring in the city with their inherent characteristics in terms of their historical, cultural, ecological and functional characters. As discussed in Chapter III, Table-3.1, the large cities of India have been categorized on the basis of these characteristics. This kind of an exercise would help one get an idea of the objective features of the environment, under which certain crimes can take place.

(a) Towns in time and crimes:

This section looks into the effect of the city's age in contributing to the criminogenic tendencies in the city.

(i)Ancient Towns:

The general assumption about Ancient towns in India is that a considerable portion of the population in not exposed to the formal education system, and carry on with the traditional way of living. Hence with the setting in of modernization, such people are usually rendered jobless and therefore such towns have a higher incidence of criminal activities, especially, crimes against property. The present study however reveals that of the nine ancient towns taken up in this study, only three towns – Patna, Jabalpur and Vijaywada have a high rate of property crimes.

(ii)Medieval Towns:

The towns that developed during the medieval times, do not show uniformity in the crime patterns. Some types of crimes may be high in some of the medieval towns, e.g. crimes against public are high in the medieval towns of Rajasthan, Karnataka, and Kerala. But it is difficult to generalize any crime type and its' preponderance in these towns. It is likely that such generalization might conceal the true cause of those crimes in the towns.

(iii)Colonial Towns:

It is interesting to note that, the colonial towns which had been ports, e.g. Chennai, Kolkata, Kochi, Kozhikode, and Mumbai have lower rates of crimes than the colonial towns situated inland, e.g. Ranchi, Bangalore, Indore, Bharatpur, Salem, Kanpur, and Moradabad. This is probably because, the port towns were newly created by the colonizers on clean ground, but the colonial towns located inland were very much in existence, before the colonizers rebuilt them. Therefore the chances of conflict were in built among the denizens and the immigrants.

(iv)Post- Independence town:

Since this study deals with only one of this category of towns, i.e. Bhilai Durg Nagar; it experiences a very high rate of crimes. With the exception of crimes against public and economic crimes, Bhilai Durg Nagar has the highest crime rates in almost all other categories; i.e. crimes against life, crimes against property, crimes against women, other crimes under IPC and total crimes under IPC. The reason behind Bhilai Durg Nagar being such a crime prone area being such a crime prone area is probably its' population not being indigenous – once the industrial town of Bhilai was set up the town grew with migrant population and hence there is a high degree of "anonymity" prevailing among the residents and this lack of fellow feeling could be a cause of high incidence of crimes in Durg Bhilai Nagar.

(b) Cultural Variation and crimes:

Long and strong cultural tradition is possibly the answer of India to the strong material culture of the Western civilized world. However culture too has its positive and negative aspects, which have it's ramifications in the crime patterns of the towns having deep cultural roots. Religion and Language are the major constituents of culture in India and they have played an important role in the articulation of crime dynamics. This section seeks to analyze the relationship of religious and linguistic composition of the town and its relationship with the crimes occurring there.

(i)Religious composition and crime.

Certain crimes such as communal riots are definitely a result of tensions between the different religious groups residing in town. It is assumed that the dominance of a particular group in terms of numerical preponderance has a bearing on the groups' propensity to be violent. Even though a probe into the major communal riots in India in the past five decades has revealed that, communal riots are more politically motivated than fuelled by religion;[16] besides, political interests, economic interests also play a dominant role and the towns that have history of communal riots have greater chances of resurgence than a town without a history of riots. The present study reveals that riots as such are not prevalent in towns with **two major religious groups** of either Hindu- Muslim or Hindu-Sikh majority. This could mean that the riots might not be communal in nature but could caste conflicts or students' strife.

Cities with Hindus and Muslims both in majority do not form a clear pattern in terms of any of the crime types. Cities with Hindus and Sikhs both in majority appear to be rather peaceful cities; in fact having the least rates of crimes.Cities having **three major religious groups** i.e. Ranchi, with Hindus, Muslims and Christians experience moderate to high rates of crimes against property and life. Amravati and Aurangabad with three major religious groups of Hindus, Muslims

[16] Ahuja, R (1997) Social Problems in India, Rawat Publications, Jaipur, pp 132-133.

and Buddhists: have moderately high rates of crimes against women and Amravati has a high rate of crimes against property.

It is interesting to note here, that the cities with very high incidences of crimes, i.e. Bhilai, Jabalpur, Indore, Vijaywada, Guwahati, Patna, Bharatpur, Kota and Udaipur are all cities having a **single major religious group** of Hindus. Could one infer from this analysis that crimes are more in cities where there are more than one religious group is in majority? This argument may be supported by the fact that the cities of Punjab have the least crime rates where Hindus and Sikhs form the two major religions. This fact also leaves open the question that do crimes tend to occur more in a city when the minority community feels threatened because of its lack of numerical strength and resort to violence as a token of protest?

(ii) Linguistic composition and crime.

As discussed earlier, in the third chapter, the linguistic composition of the town gives one an idea of its level of its cosmopolitanism, but in this study the major language spoken in a town was determined by its location within different linguistic regions, (in this case, states) as seen in Chapter III, Table-3.3. In this section, the analysis pertains to relating the crimes taking place in towns within the same linguistic region, and bringing out the nature of response the people of a particular cultural region make to the socio-economic changes associated with urbanization and modernization.

(a) All the cities speaking **Telegu** as a major language have high rates of crimes against women and other economic crimes.

(b) Guwahati, of the **Assamese**-speaking belt have a very high rate of crimes against life and property, and moderately high rates of crimes against public, economic crimes and total crimes under IPC. Guwahati has been under the influence of insurgent activities for decades. This is probably the basic reason behind it having such a high rate of criminal activities.

(c) The cities with majority of the people speaking **Gujarati** show uniformity in having moderately high rates of other crimes under IPC, theft, burglary, and kidnapping. Property crimes are high in the city of Gujarat.

(d) The cities with majority of the people speaking **Kannada** have moderately high rates of crimes against life. Bangalore has a high rate of property crimes. Also crimes against public are prevalent in the Kannada speaking cities.

(e) The cities with majority of the people speaking **Malayalam**; Kochi, Kozhikode and Trivandrum have a very high rate of crimes against public and economic crimes. Of the three cities, Kochi happens to experience to the least rates of crimes. Trivandrum and Kozhikode have high rates of crimes against life and women.

(f) The cities with majority of the people speaking **Marathi** appear to be rather peaceful with the exception of Nagpur, which lies close to the North-Central region of high rates of crimes. Pune, shows very high rates of crimes against public, which could be a result of communal or caste conflict or probably a students' unrest. The cities on the east – Nagpur and Amravati, have high rates of crimes against property and life.

(g) The cities with majority of the people speaking **Punjabi;** Jalandhar, Ludhiana and Amritsar, which have already been discussed under Hindu-Sikh majority cities, are rather peaceful cities.

(h) The cities with majority of the people speaking **Tamil** have low to very low rates of crimes against women and crimes against public. The general rates of low rates of crimes against life and property are disturbed by moderately high rates of property crimes in Tirunelveli, crimes against public in Coimbatore, and crimes against life in Trichy. Economic crimes are moderately high in Chennai but other cities have low rates of economic crimes.

(i) The cities with majority of the people speaking **Bengali;** Kolkata emerges to be a rather peaceful city with very low rates of crimes against life, property, women and total crimes.

(j) The cities with majority of the people speaking **Hindi** emerge to be the dominant region of all types of crimes. The high rates of crimes are noticed from the western cities of Rajasthan, Delhi, Uttar Pradesh to the east and they continue into the central region of Madhya Pradesh and Chattisgarh.

The high crime rate in all these cities reinstates the 'North-Central Subculture of Violence'- as propounded by Venugopal Rao and A.K. Dutt (1983) in their article on Spatial patterns of crimes in Indian cities based on 1971 statistics. A.K. Dutt in his study based on 1990 statistics reiterated the concept in his article 'Large cities crime pattern changes in India', 1971-1991.

The present study of 1998 statistics also proves the concept of a subculture of violence in the North-Central Hindi speaking belt of India. Before discussing the ramifications of that subculture, it is important to explain the meaning of subculture here. The prefix 'sub' refers only to a subcategory of culture, a part of the whole; it does not necessarily indicate derogation unless the members of the dominant culture or a contrary value system view a particular subculture as undesirable. For analytical purposes, the sociologist uses the term without a value judgement[17].

(c) Cities within Agro-ecological zones and crimes

There emerges a clear pattern of cities with higher than average rates of crimes in the agro-ecological regions of: 2) Western plain, Kachch and part of Kathiawar Peninsula- hot arid eco region, 4) Northern plains and Central Highlands including Aravallis, 5) Central Highlands, Gujarat plains and Kathiawar peninsula, 9) Northern plain, hot sub-humid dry eco sub region, 10) Central highlands, hot

[17] Wolfgang, E. and Ferracuti, F. (1967) The Subculture of Violence, Social Science Paperback, London, pp 95-163.

humid eco region, 11) Hot moist dry Chattisgarh eco sub region and 12) Eastern plateau humid eco sub region.(Refer to Chapter III, Table-3.5)

The cities lying within these eco sub regions have a high rate of crimes in general. It is interesting to note that almost all these are dry or sub-humid in character. These agro- ecological zones also fit into the Hindi speaking belt of India – and the cities reflect the pattern of cultural traits indigenous to the region within which the city is located. Even though most of the agro ecological regions mentioned earlier are dry to sub-humid in character, yet some of them have good potential for agricultural development and in particularly, the Northern plains, hot sub-humid (dry) eco region is considerably well developed agriculturally, but, due to high population pressure in the region, the residual sector hypothesis mentioned in Chapter III might hold true. But other studies, like the one conducted by Jean Dreze and Reetika Khera[18]; statewise study done by Venugopal Rao[19], also Philip Oldenburg's[20] study on the North Central Region of India suggest that there is a general trend of higher incidence of crime-and these high rates of crimes transcends rural-urban boundaries.

(d) Functional Specialization of cities and crimes.

The cities classified on the basis of their dominant function as discussed in Chapter III, Table-3.6, into Industrial towns, Trade and transport towns and Service towns fail to form a distinct pattern in terms of criminal activities relating to the city. Even though the economic activities of the town provides the opportunities for various types of crimes, the large cities of India, show a different pattern. No type of crime could be associated with any particular functional category of cites. One may conclude from this that the functional type of the city does not assist in fomenting any criminal activities rather criminal activities of a city are a result of earlier discussed factors of cultural roots of the city, and the agro ecological niche in which the city is located.

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[18] Dreze J and Khera R (Jun, 2000), Crime, Gender and Society in India: Insights from homicide data, Population and Development Review, pp 335-352.

[19] Rao, V (1981), Dynamics of Crime, Indian Institute of Public Administration, New Delhi, pp 114-151.

[20] Oldenburg, P (1992) Sex ratio, son preference and violence in India, economic and Political Weekly, December, 1992, 2657-2662.

4.CHANGES IN THE CRIME PATTERN OF THE CITIES. (1991 TO 1998).

This section looks into the crime pattern in the cities of India over the two points of time, i.e. 1991 and 1998. For this study, the crime rates of 1990,1991 and 1992 are averaged for fifty-seven cities of the fifty-nine cities taken up for the study, as the crime rates of Amravati and Tirunelveli were not recorded for that period. The crime rates for all the cities have been converted into z scores to analyze the relative position of cities in terms of occurrence of crimes and the z scores have been mapped as shown in figure 4.3

Similar exercise has been done for the fifty-nine cities of the present study for the years 1997,1998 and 1999; as explained earlier while discussing the cities position in terms of particular crime rates. A juxtaposition of the maps showing the z scores of crime rates during the two time periods would give one an idea whether the city's relative position in the criminal activities have changed over the intervening years. Each crime under IPC is looked into separately in order to find out whether a generalization could be made regarding the changing patterns of criminal activities in the cities.

The discussion below deals with changes of each crime separately.

(a) Murder: (Fig 4.3(a)) The relative positions of cities have remained almost unchanged in the above mentioned time period in case of murder rates. Kanpur and Gwalior have joined the cities with highest rates, but the cities of Punjab, e.g. Amritsar and Ludhiana show a decline. In the southern cities, Salem and Trichy had higher rates in 1991 but their rates have declined in 1998.

(b) Attempt to commit murder: (Fig 4.3(b)) The cities of Jabalpur, Indore, Allahabad and Salem have registered improvement in terms of their ranks but Bareilley, Ajmer and Udaipur have declined from their earlier positions.

CRIME RATES (IPC) FOR SELECTED CITIES: AVERAGE FOR THE YEARS 1990, 1991 AND 1992.

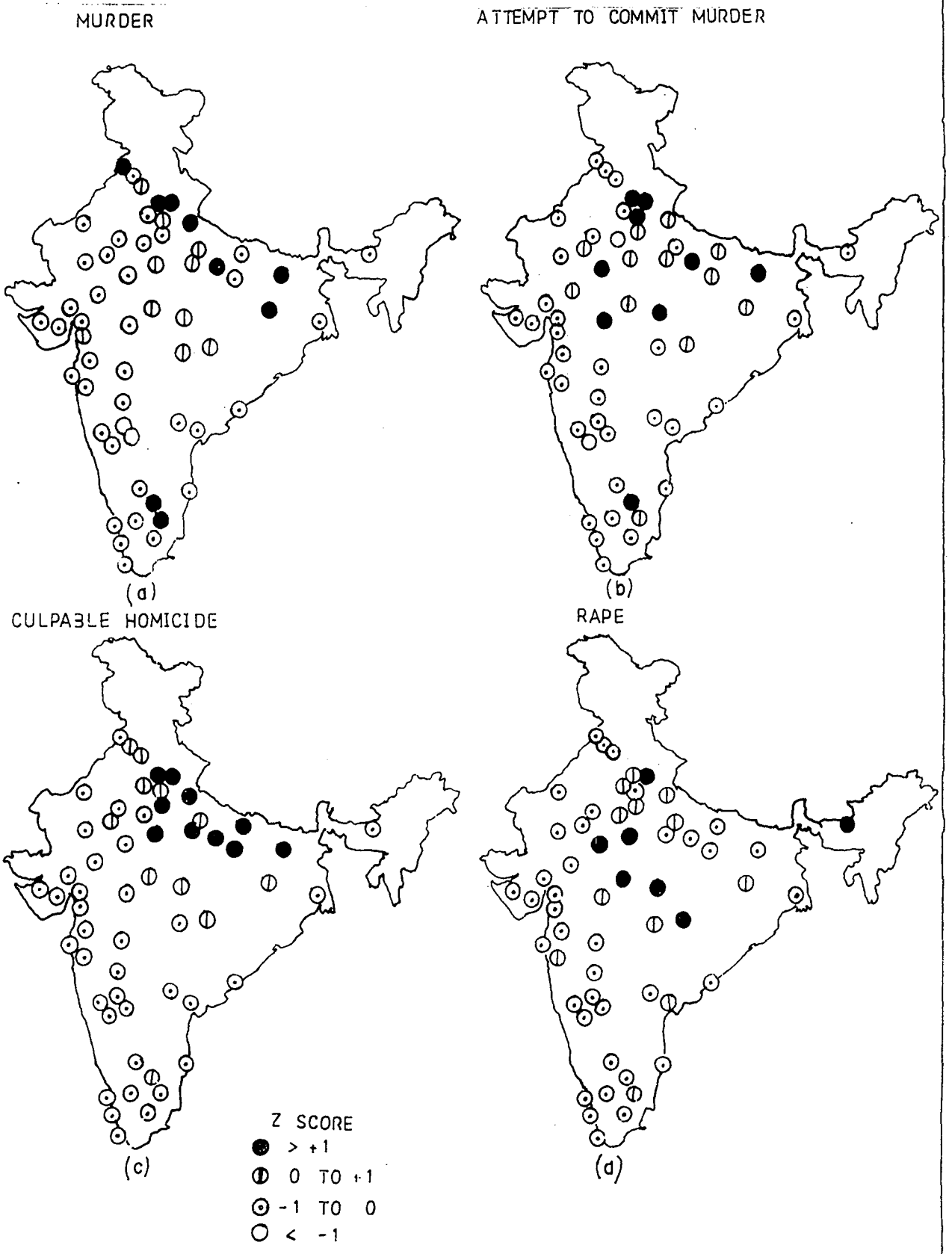

FIG : 4.3

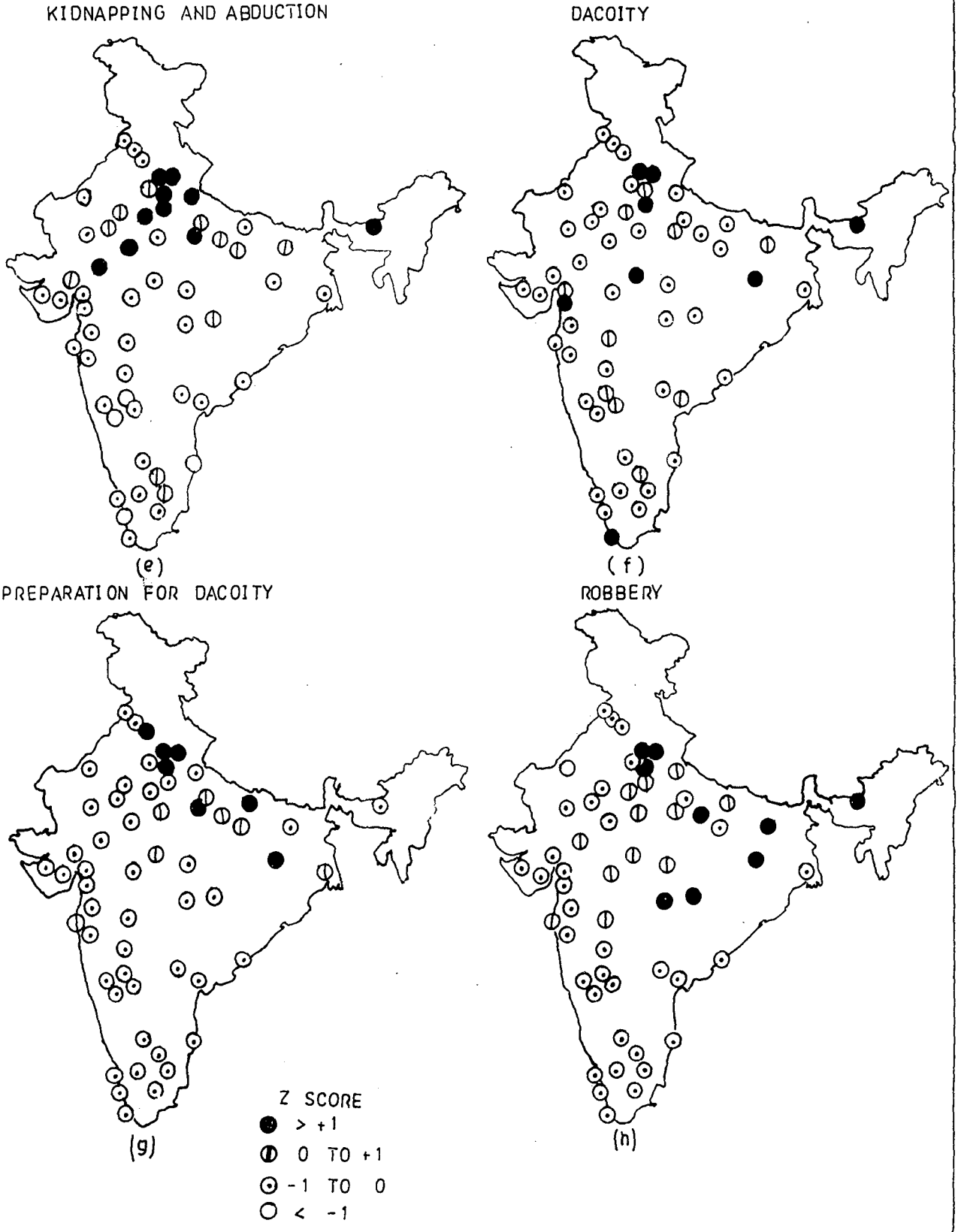
KIDNAPPING AND ABDUCTION
DACOITY
(e)
(f)
PREPARATION FOR DACOITY
ROBBERY
(g)
(h)
Z SCORE
> +1
0 TO +1
-1 TO 0
< -1

FIG 4.3

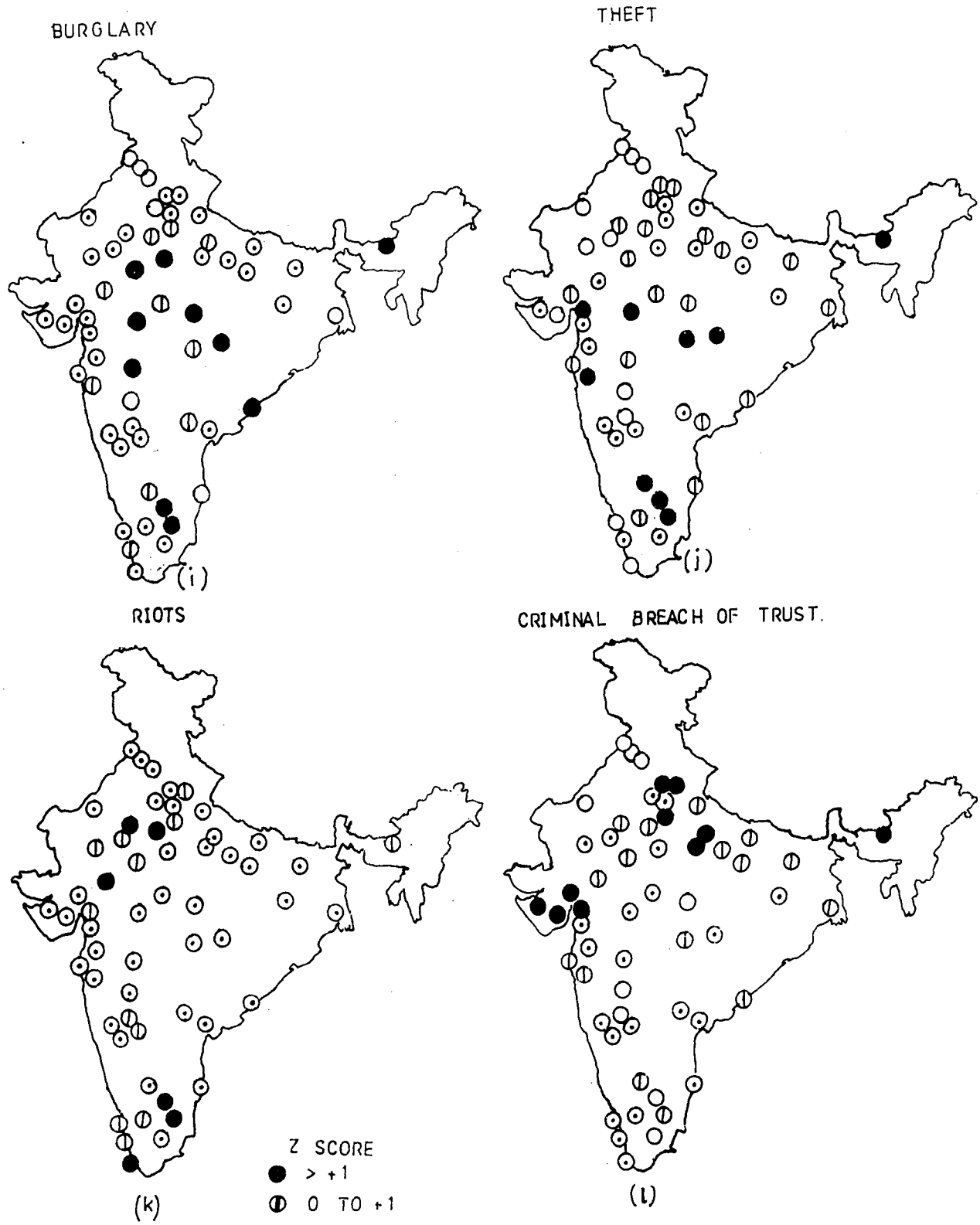
BURGLARY
(i)
THEFT
(j)
RIOTS
(k)
CRIMINAL BREACH OF TRUST.
(l)
Z SCORE
> +1
0 TO +1
-1 TO 0
< -1

FIG : 4.3

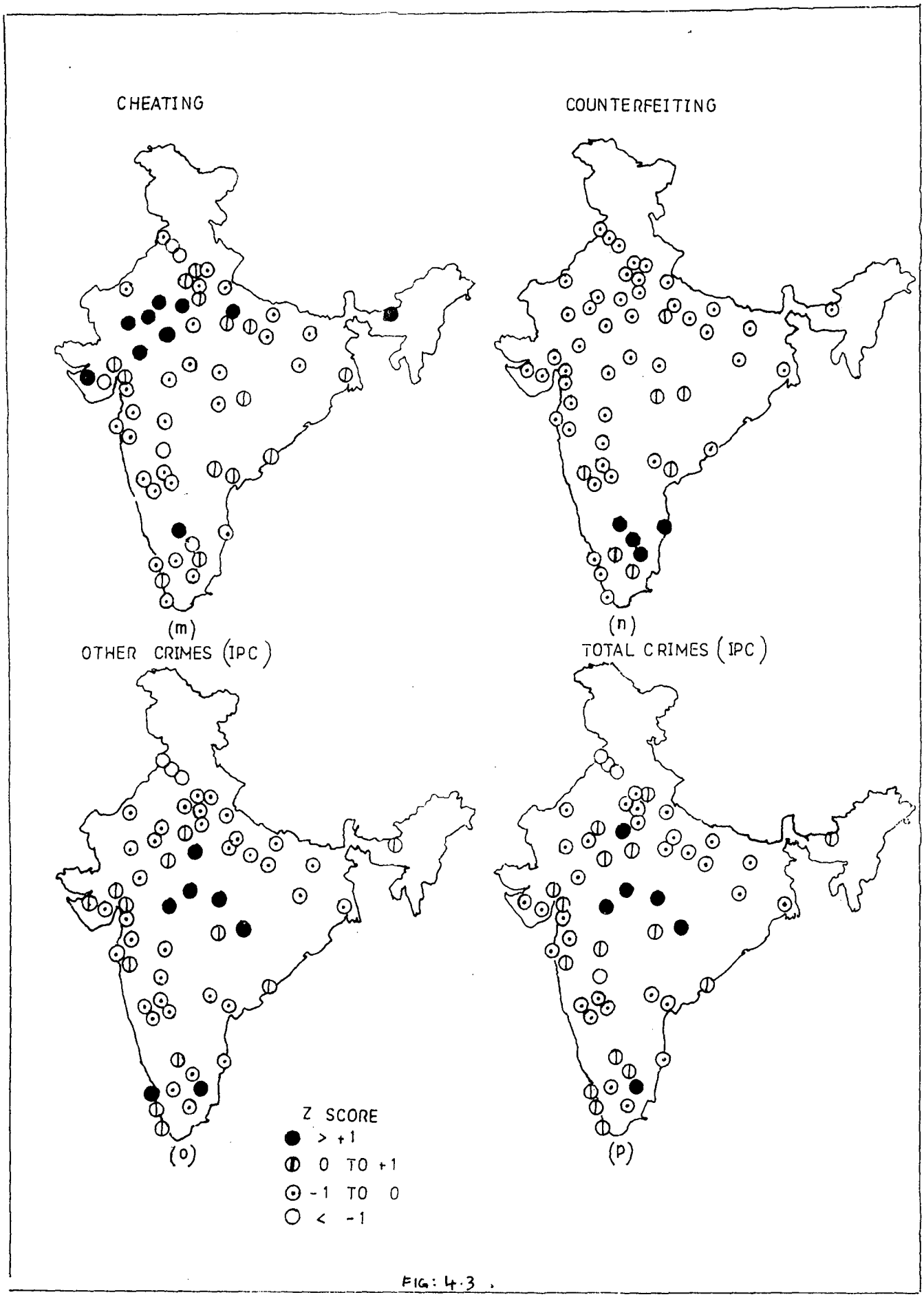
CHEATING
COUNTERFEITING
(m)
(n)
OTHER CRIMES (IPC)
TOTAL CRIMES (IPC)
(o)
(p)
Z SCORE
> +1
0 TO +1
-1 TO 0
< -1

FIG: 4.3 .

(c) Culpable homicide: (Fig 4.3(c))the cities of Kerala show a deterioration in the crime situation. Cities of Ludhiana, Ajmer and Varanasi show improvement.

(d) Rape: (Fig 4.3(d)) Delhi, Bharatpur, Ajmer show a deterioration in the situation whereas, Bhilai, Pune, Trichy show an improvement.

(e) Kidnapping and abduction: (Fig 4.3(e)) Cities of the north, e.g. Bareilley, Meerut, Moradabad and Agra have improved their positions with the exception of Delhi. In case of south the cities of Salem and Trichy too have shown improvement.

(f) Dacoity: (Fig 4.3(f)) In general cities that had high rates of dacoity in 1991, show an improvement in 1998 with the exception of Patna and Guwahati. The cities showing improvement are Meerut, Moradabad, Agra, Bhopal, Surat and Trivandrum.

(g) Preparation for Dacoity: (Fig 4.3(g)) show a new trend in 1998 with the metropolitan cities having a high rate of this crime; whereas in 1991, those towns had been peaceful in terms of that crime.

(h) Robbery: (Fig 4.3(h)) The southern cities have deteriorated in terms of their robbery rates since 1991. In 1998, Gulbarga and Bangalore had the highest rates of robberies. In the north, Ranchi and Varanasi have experienced improvement in terms of the their robbery situation.

(i) Burglary: (Fig 4.3(i)) 1998's pattern shows an improvement over 1991's pattern. Cities of Maharashtra show an improvement over the earlier situation. Also, southern cities of Salem, Vishakapatnam, and Trichy register improvement; but Bangalore's burglary rates show an increase.

(j) Theft: (Fig 4.3(j)) The situation in Delhi has worsened over the last few years in term of theft. In the cities of Gujarat theft rates have gone up, with the exception of Vadodhara. In the southern cities the relative position of the cities have improved with the exception of Vijaywada.

(k) Riots: (Fig 4.3(k)) The cities prone to riots have remained unchanged over the specified time period. Salem and Trichy show an improvement while Kochi and Kozhikode show a deterioration of the in the situation. In the

North Indian cities the relative position of the cities have remained almost unchanged.

(l) Criminal Breach of Trust: (Fig 4.3(l)) Cities of North India show deterioration over the selected time period with more cities falling under the highest rate group. Whereas the cities of South India, the situation remained more or less unchanged with Bangalore and Trichy showing improvement.

(m) Cheating: (Fig 4.3(m)) North Indian cities show an improvement over the years – with a number of cities' position being improved. But in the south Indian cities, a deterioration of the situation is seen. Hyderabad, Vijaywada, Kozhikode and Trivandrum all move into the group of highest rates of cheating.

(n) Counterfeiting: (Fig 4.3(n)) In 1991, counterfeiting was restricted to the southern cities, but in 1998, the cities of Rajasthan show that they are not far behind, and they form the group with moderately high and highest crime rates. Even thought he southern cities continue to have higher rates of crime still have improved their position.

(o) Other Crimes: (Fig 4.3(o)) Other IPC crimes show more cities of North India – the north central belt having highest rates of crimes in 1998. Also, the southern cities show deterioration in their relative position of crimes.

(p) Total Crimes: (Fig 4.3(p)). Total crimes of the cities show that there has been a mixed pattern. With the crime situation worsening in the north-central region – but cities register an improvement of their relative position. Cities in the south too have a mixed pattern. Cities of Kerala show deterioration where as improved situation is noticed in Tamil Nadu. Karnataka's cities positions remained unchanged – in Andhra Pradesh, Vijaywada registered a decline in it's position.

CHAPTER-V

SUMMARY OF CONCLUSIONS

- It is indeed a difficult proposition to make a detailed and scientific analysis of the crime data available in India, and more so, generalize the causes that lead to such deviant behavior. The present study deals with fifty-nine major urban centers of India, and tries to look into the character of the urban centers; and explain for the criminal activities occurring there.

- The process of urbanization in India has been a unique process with different urban centers evolving over different phases of India's history and still bears the vestiges of the past in their morphology, and the attitudes of their inhabitants. The locations and functions of the urban centers also have been determined by their resourcefulness – and the inhabitants of these urban centers vary in their socio-cultural attributes. Therefore the urban centers of India taken up for the present study have been classified on the basis of their history, socio-cultural attributes, agro ecological locations and functional specialization and relate the crimes taking place in the urban centers with the characteristics of the same.

- The classification brings out that India's urban centers can be classified into four groups historically. For socio-cultural attributes; language and religion have been the basis for classification. For religion, the towns have been grouped according to the number of religious groups having numerical dominance; but for linguistic classification, a simplified method has been followed by considering the major language spoken to be the same as the major language of the state. The cities have also been classified in accordance to the agro ecological region they belong to, which gives an idea of the hinterland the city caters to. Finally the cities have been grouped into their functional categories depending on the kind of occupation the city dwellers are engaged in, as certain occupations open up the opportunities for certain crimes.

- The time period taken for the study is the year 1998, which actually means that the crime data for the years 1997, 1998 and 1999 have been averaged to give a smoothened picture of the crimes rates that had occurred at that time period.

- The analysis of the crime rates of the cities under the present study involves a number of techniques. To start with, spatial analysis of the individual crime rates under both Indian Penal Code and the Special and Local Laws show that not all crimes are prevalent in the same towns or regions. There emerges a clear as to where do the maximum rates of crimes occur and whether they tend to cluster together in the towns in their vicinity or whether the such towns are dispersed spatially.

- Since each type of crime has personality of it's own and is not comparable with other crimes yet, in order to arrive at generalizations regarding their spatial occurrence, the crimes have been grouped together according to the motives that underlie such criminal activities. This exercise makes the analysis of causes behind such crimes relatively facile for the researcher.

- Crimes against life, shows a concentration along the cities within the North-Central belt-with the cities of Rajasthan, Uttar Pradesh and Bihar having the highest rates.

- Crimes against property also follow the same kind of a pattern of that of the crimes against life- therefore cities of Rajasthan, Madhya Pradesh, Uttar Pradesh and Bihar – all a part of the north-central belt have the maximum rates. Cities of Gujarat too have moderately high rates and in the south, cities of Andhra Pradesh and Kerala have high rates of crimes against women.

- Crimes against Public are very high in the cities of Rajasthan. Some cities of Uttar Pradesh, Gujarat, Kerala and Andhra Pradesh also register moderately high rates.

- Total crime rates under IPC show maximum rates of crimes in cities of Rajasthan, Madhya Pradesh, Gujarat and Guwahati in Assam.

- In general the crime rates are high in the North-central belt India, which reiterates the findings earlier studies conducted by scholars.

- An analysis of the crimes under the Special and Local Laws that occur in the 23 mega cities of India reveal that the character of the region surrounding the cities has a substantial influence on them. Since, the Special and Local Laws have been formulated to cater to the diverse regional requirements of crime control. Different types of SLL crimes show that different cities interchangeably account for high rates of crimes. This indicates that the crime rates of the cities are a reflection of the crimes that occur in the region surrounding it.

- In order to get a general overview of the causes behind the crimes that occur in the cities, the results of the regression analysis is used to find out the rates of different groups of crimes conditional on the socioeconomic variables. The causes of crimes in general can be attributed to the proportion of non-workers who are also job seekers. This proves the fact that the unemployed, poverty stricken city dwellers turn to crime for pecuniary benefits as a means of living in the beginning and then as other modes of income do not open up for them; crime becomes a way of life for such people.

- The distortion that takes place in the sex ratio of the city, due to male selective immigration is also another cause for increasing crime rates. With fewer women in the society, families cannot be formed and this fact also leads to violent acts in the cities.

- Unlike the western societies the Indian towns have a peculiarity of the smaller towns having higher rates of crimes than larger towns and this study reiterates the fact.

- The personality of a city is a conglomeration of various facets, namely, it's history, socio-cultural characteristics, ecological niche and functional specialization. The historical classification of cities shows that, some of the Ancient towns have high rates of property crimes; Medieval towns fail to show any uniformity in crime patterns. Of the colonial towns, the ones, which had developed as port towns, have lower crime rates than the ones that are located inland as the the port towns were newly created by the colonizers on clean ground, but the colonial towns located inland were very much in existence, before the colonizers rebuilt them. Therefore the chances of conflict were in built among the denizens and the immigrants. The only Post-independence town included in the study is Durg Bhilai Nagar and it experiences very high rates of crimes, probably due to high proportion of city population comprising of immigarants who do not share any fellow feeling with one another and possess their special values norms and ethics over a longer period of time. Thus making it favourable for deviant behavior.

- The cities located within the North-Central region have higher rates of crimes as compared to other regions. This fact has led many scholars to conclude that the North-Central region of India has a sub-culture of violence, which has been promoted by certain spatial circumstances; as this region has been the historical frontier which absorbed pre-existing aboriginal tribes, fleeing and defeating Dravidians, the Aryans who defeated Dravidians, and Pathans-Mughals. The absorption of these divergent groups and the invading plunderers from the north-west, not only left their savage imprint on the minds of the people of this region but the whole region was in a shambles of disorganization, when the plunderers left. Moreover, the Indo-Gangetic plain, containing the core areas of numerous national and regional kingdoms has witnessed many bloody dynastic changes and palace revolutions, often followed by army rampages.

- An analysis of the changes in the crime rates of cities from average values of 1990, 91 and 92 to average rates of 1997, 98 and 99, show an almost unchanged pattern in terms of violent crimes. Only in the case of the cities of Punjab i.e. Amritsar and Ludhiana, crime rates have declined. For property crimes, the towns of the north-central belt still dominate the crime rates in 1998 as they had in 1991. But a new trend of high rates for preparation of dacoity has been observed in the metropolitan cities. The cities of Rajasthan have experienced an increase in crime rates to a great extent in terms of economic crimes; which during the early 90s was dominated by the southern cities in terms of economic crimes. Total crime rates show a mixed pattern with the crime situation worsening in the North-central region but, the relative position of the crime rates of the cities have undergone change. Among the southern cities, cities of Kerala, show rise in crime rates whereas the cities of Tamil Nadu show decline in the crime rates.

- In the light of the growing urban crimes and the changing concepts of theorist dealing with crime indicate losing interest in concepts such as responsibility, guilt, sinful nature, criminal motivation, criminal learning and psychopathic personality and other internally oriented etiologies of crimes. In place of these, new theory emphasizing on the objective features of the environment under which crimes are likely to take place should evolve. This study is based on understanding the environment in which the crimes occur and consider the criminal activities as a rational response of the delinquents for a chance to improve their present situation. This study is a step towards understanding the crimes in relation to the situation where it occurs.

- Before concluding this study, it is but necessary to talk about ways of altering the criminal tendencies that occur within persons, and two different ideas put forward in the writings of Tolstoy and Mackarenko are being referred to.

- Leo Tolstoy takes the position of spiritual regeneration of a man in his novel *Resurrection.* The novel talks about how the conscience of a man, Nekhlyudov, belonging to an aristocratic family in Russia during the 19th Century, resurrects in to a 'new man' when he encounters with the plight of a woman who he had been associated with in his youth and realizes that her present condition and status in society is a result of the irresponsible attitude he possessed in his youth. The reformation of the spirit of Nekhlyudov is a novel example of the moral transformation occurred from within and with no external influence.

- On the other hand A.S. Makarenko's autobiography *The Road to Life (An Epic of Education)* talks of his experiences in Gorky Colony, also set in the days of revolution-torn Russia where he takes the charge of Juvenile Delinquents, and endeavors to reform them. The three-part account reveals the recalcitrant juveniles who refuse to relent to lead a life that is free of deviant activities. The story finishes with the triumph of Mackarenko's unflinching efforts that see the young juveniles back on the road to life and tell the readers the possibility of any exercise of reformation, that could hinder chances of recidivism among criminals and moreover bring them back to a life where they would abide by the behavioral norms and values set by the society.

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APPENDIX I: AVERAGE RATES OF CRIME UNDER IPC PER LAKH POPULATION (97, 98, 99)

	CITIES	Murder	Att Mur	Cul Hom	Rape	Kid & Abd	Dacoity	Prep Dac	Rob	Burg	Theft
1	HYDERABAD	2.18	1.86	0.04	0.79	2.21	0.20	0.00	1.42	25.82	60.69
2	VIJAYWADA	4.24	5.58	0.04	2.17	6.45	0.46	0.00	1.68	32.61	120.98
3	VISHAKAPATNAM	1.88	2.32	0.03	1.68	1.27	0.25	0.00	0.91	26.45	64.10
4	GUWAHATI	7.42	3.28	0.96	4.59	19.70	8.34	0.66	19.43	76.51	157.26
5	PATNA	14.97	17.93	1.26	1.07	7.28	4.48	0.77	21.07	23.38	91.91
6	RANCHI	8.53	10.25	3.30	1.84	3.81	2.01	0.42	10.46	16.19	60.10
7	AHMEDABAD	2.56	1.71	0.06	0.41	4.45	0.51	0.01	5.81	18.59	92.18
8	BHAVNAGAR	6.74	4.15	0.00	1.22	8.37	1.02	0.00	8.71	32.12	100.38
9	RAJKOT	3.93	2.81	0.04	0.58	6.17	0.25	0.04	3.93	34.41	107.41
10	SURAT	4.08	1.45	0.04	0.69	2.77	0.55	0.00	2.99	17.78	56.54
11	VADODHARA	2.77	1.49	0.05	0.83	3.65	0.71	0.00	3.65	33.07	100.81
12	BANGALORE	4.17	7.44	0.01	0.71	3.43	1.05	0.06	10.71	59.96	150.05
13	BELGAUM	3.43	2.34	0.25	0.42	2.17	0.67	0.00	5.01	29.91	36.35
14	BIJAPUR	3.82	0.64	0.21	0.21	2.12	1.49	0.00	2.34	5.10	10.62
15	GULBARGA	2.55	9.56	0.16	0.82	3.38	0.91	0.00	12.85	39.47	52.90
16	HUBLI DHARWAD	2.55	8.83	0.31	0.31	1.45	0.44	0.00	2.77	24.83	35.29
17	KOCHI	1.36	2.05	0.69	1.00	0.64	0.47	0.00	2.08	21.76	27.37
18	KOZHIKODE	1.52	1.33	0.63	1.52	1.21	0.38	0.00	2.92	44.28	45.99
19	THIRUV'PURAM	2.31	3.44	0.63	1.95	2.63	1.40	0.45	5.12	42.81	39.10
20	BHILAI(DURG)	6.56	10.43	0.46	10.50	4.79	0.26	0.20	11.35	107.59	154.70
21	BHOPAL	3.29	6.20	0.00	3.39	2.81	0.05	0.02	6.90	51.03	90.14
22	GWALIOR	8.17	11.39	0.04	3.48	5.74	0.25	0.38	9.55	83.03	116.34
23	INDORE	5.81	6.22	0.15	2.00	2.54	0.02	0.37	2.57	45.18	139.50
24	JABALPUR	4.17	8.82	1.21	4.49	1.72	0.03	0.06	4.94	39.14	61.18
25	AMRAVATI	2.74	2.74	0.19	1.78	2.04	0.70	0.32	6.81	37.86	97.36
26	AURANGABAD	3.58	2.46	0.04	1.37	1.53	1.29	0.20	4.43	38.88	65.29
27	MUMBAI	2.19	1.23	0.06	0.86	1.16	0.52	0.47	3.52	17.31	85.42
28	NAGPUR	6.28	4.46	0.10	2.19	3.49	0.97	1.05	12.09	68.01	118.72
29	NASIK	2.85	1.68	0.00	0.76	1.08	0.54	0.03	2.34	26.65	57.99
30	PUNE	2.47	1.16	0.08	1.53	1.65	0.60	0.10	2.63	26.10	77.29
31	SOLAPUR	2.31	2.07	0.08	0.93	1.01	0.36	0.00	2.59	17.42	41.01
32	AMRITSAR	2.59	0.88	0.14	0.95	1.09	0.04	0.18	0.42	5.29	9.04
33	JALANDHAR	3.62	2.97	0.35	0.96	2.11	0.10	0.15	0.45	18.40	21.37
34	LUDHIANA	3.80	2.04	0.55	1.61	3.67	0.38	0.88	0.43	10.97	26.40
35	AJMER	3.20	12.87	0.14	1.64	8.04	0.78	0.00	7.54	38.76	72.54
36	BHARATPUR	7.40	9.64	0.00	4.31	18.77	1.21	0.52	9.64	35.30	140.86
37	BIKANER	2.70	2.96	0.13	1.32	3.55	0.33	0.00	0.53	22.97	43.50
38	JAIPUR	2.31	3.21	0.14	1.86	9.27	0.29	0.00	2.91	41.37	135.37
39	JODHPUR	2.36	3.91	0.12	1.39	7.21	0.08	0.00	2.77	24.00	58.80
40	KOTA	4.52	32.33	0.60	4.87	19.66	0.55	0.00	13.06	66.24	133.03
41	UDAIPUR	3.51	11.39	0.26	1.84	16.04	0.26	0.00	11.39	48.20	113.31
42	CHENNAI	1.52	4.71	0.02	0.36	0.77	0.25	0.00	1.90	9.50	42.95
43	COIMBATORE	2.93	2.12	0.00	0.20	1.34	0.08	0.00	1.11	13.64	66.16
44	MADURAI	2.94	4.02	0.00	0.41	1.72	0.79	0.00	3.61	13.05	75.76
45	SALEM	3.66	5.41	0.00	0.42	2.55	0.27	0.00	2.76	20.38	86.21
46	THIRUNELVELI	8.05	6.74	0.19	0.37	3.74	0.47	0.00	8.23	23.68	85.72
47	TRICHY	3.81	4.70	0.00	0.30	1.98	0.05	0.00	1.58	21.46	89.88
48	AGRA	5.83	5.99	1.11	1.54	8.28	1.11	0.05	6.18	20.99	62.65
49	ALIGARH	11.16	16.71	1.38	2.64	12.69	1.59	0.00	12.59	21.31	58.49
50	ALLAHABAD	7.86	7.73	1.23	0.90	5.33	0.87	0.03	9.22	21.11	49.65
51	BAREILLY	9.35	11.67	1.72	1.46	9.05	1.37	0.00	7.63	21.40	73.00
52	GORAKHPUR	8.77	9.43	2.05	1.28	3.88	0.50	0.33	7.55	25.02	41.72
53	KANPUR	8.83	7.36	1.56	1.48	8.36	1.92	0.16	7.95	19.05	55.81
54	LUCKNOW	5.86	6.71	0.84	1.11	5.57	0.78	0.03	6.02	25.30	90.35
55	MEERUT	7.53	6.73	0.65	1.11	5.04	0.74	0.18	8.17	18.62	65.03
56	MORADABAD	12.19	13.97	2.39	3.34	8.96	1.78	0.00	11.08	24.66	57.44
57	VARANASI	6.17	6.49	0.87	0.87	2.77	0.23	0.09	5.48	12.34	29.53
58	KOLKATA	0.71	1.23	0.13	0.23	1.09	0.32	0.56	1.52	1.11	39.69
59	DELHI(CITY)	4.32	4.18	0.47	3.32	9.79	0.36	0.21	5.50	25.18	196.97

Riots	CBT	Cheat	Counterfeit	Arson	Hurt	Dow Death	Moles	Sex Har	Cruel by Hus & Rel	Others	Total
4.33	2.32	24.23	0.28	0.00	43.09	0.61	1.50	0.22	13.64	38.15	223.60
2.77	3.65	36.22	0.28	2.28	136.86	0.88	7.96	8.03	24.09	98.71	495.94
1.16	4.11	13.51	0.33	0.88	28.71	0.58	3.25	29.81	12.05	77.39	270.67
15.50	8.87	11.44	1.18	0.96	60.62	0.35	5.37	0.00	5.37	142.59	550.38
9.61	9.65	5.29	0.17	0.83	15.48	2.26	1.84	0.13	2.86	125.67	357.92
6.40	7.11	4.43	0.21	0.33	10.16	0.75	6.82	0.00	3.76	70.14	227.01
6.15	4.06	6.19	0.25	0.25	38.99	0.21	1.03	0.59	11.74	185.28	381.01
15.72	15.99	20.14	0.82	3.13	10.75	0.61	5.65	2.25	17.29	343.81	598.87
8.08	4.72	5.16	0.36	1.12	47.82	0.72	2.13	2.24	14.57	241.43	487.91
4.17	3.50	7.72	0.16	0.50	24.41	0.86	1.18	0.29	5.96	51.81	187.45
11.80	10.15	11.14	0.47	0.40	34.39	0.02	2.13	0.83	10.86	232.94	462.18
7.95	4.97	21.98	4.20	0.12	73.62	0.91	3.95	1.02	3.84	201.78	561.96
15.46	2.17	13.54	0.58	0.92	59.33	0.25	2.84	0.00	5.51	131.94	313.10
16.99	0.00	1.91	0.00	0.00	50.77	0.42	5.10	0.00	4.46	94.53	200.74
25.05	1.32	6.34	0.00	1.32	60.56	0.66	1.81	0.00	11.54	86.36	317.57
13.05	1.41	11.82	0.22	0.88	28.65	0.53	0.84	0.04	3.52	133.16	270.89
16.32	2.41	16.74	0.28	0.53	44.94	0.03	3.86	0.36	4.55	263.37	410.82
47.71	3.87	28.86	0.06	1.08	80.63	0.25	7.11	0.44	18.52	387.03	675.36
36.61	3.76	23.97	0.36	1.40	104.11	0.14	10.92	0.14	8.20	282.61	572.06
5.90	1.77	13.71	0.33	1.38	120.32	1.05	21.65	2.43	9.84	351.71	836.93
3.92	2.28	12.69	0.39	0.87	44.83	1.02	8.45	2.20	5.30	440.39	686.18
11.35	1.80	10.47	0.08	1.30	84.54	2.01	11.52	1.09	8.38	344.27	715.19
2.89	2.17	7.13	0.35	0.76	67.40	1.65	4.50	0.76	6.52	248.02	546.54
4.04	1.02	6.85	0.00	0.22	62.58	1.43	6.72	1.50	6.21	307.23	523.56
9.61	2.80	4.77	0.38	2.35	51.16	0.25	3.18	1.59	11.71	77.64	317.99
10.10	2.17	8.65	0.12	0.64	40.37	0.56	3.54	1.41	17.31	90.32	294.28
1.10	2.82	7.98	0.33	0.02	23.52	0.32	1.49	0.17	1.48	51.25	203.20
8.25	3.61	10.49	0.69	1.20	51.20	0.20	4.50	1.94	6.23	156.36	462.05
9.94	2.28	5.51	0.06	0.32	25.07	0.38	1.65	1.23	8.99	67.01	216.36
36.88	2.44	8.79	0.08	0.38	36.18	0.14	2.34	3.24	3.60	91.58	299.26
4.66	1.13	4.54	0.49	0.41	24.03	0.08	1.18	0.49	3.85	67.55	176.19
0.00	1.33	4.38	0.18	0.21	3.82	0.81	0.53	0.14	2.45	21.10	55.57
0.00	1.06	14.33	0.45	0.20	10.76	1.21	0.70	0.00	2.67	41.94	123.80
0.13	1.71	15.25	0.20	0.28	9.51	0.93	0.60	0.00	6.54	43.16	129.05
16.93	2.70	33.14	1.28	0.71	20.62	1.35	4.12	0.64	26.31	214.07	467.39
121.92	6.20	37.54	1.21	2.58	0.52	1.55	7.23	0.00	22.21	396.75	825.36
25.73	1.65	17.05	1.25	0.00	5.00	1.38	0.00	0.00	13.49	203.83	347.38
69.89	7.69	35.10	4.51	1.27	5.18	0.98	5.36	0.06	15.06	255.60	597.42
13.69	4.89	37.61	1.63	1.87	168.56	1.39	3.91	0.12	27.10	52.56	413.98
42.61	3.18	29.89	1.14	3.23	36.10	0.99	10.63	0.65	31.28	269.84	704.40
50.39	8.15	37.68	1.49	1.14	10.69	0.53	5.08	0.26	18.75	314.17	654.54
1.58	3.60	14.63	1.05	0.00	10.89	0.28	0.46	0.00	0.98	26.90	103.44
11.06	1.79	4.67	0.83	13.11	10.63	0.88	1.24	10.48	0.86	159.13	302.25
4.84	1.28	6.64	1.22	0.55	16.49	0.47	0.87	5.57	1.89	206.80	348.94
5.95	0.53	4.03	0.96	0.42	31.85	0.11	1.06	4.67	0.64	124.27	296.16
9.64	1.50	3.74	0.84	4.12	26.02	0.19	2.25	0.94	0.00	182.39	368.80
5.88	1.98	7.86	0.79	0.25	59.82	0.54	0.89	1.58	1.33	86.37	291.03
12.06	8.82	10.68	0.30	0.46	16.24	1.78	2.29	2.62	6.07	102.20	277.25
16.98	9.68	8.67	0.05	1.11	20.41	3.49	6.98	2.17	14.65	210.91	433.66
7.53	7.09	23.24	0.20	0.57	21.31	1.20	1.76	4.10	5.06	67.80	243.80
8.92	8.19	13.08	0.04	0.43	16.08	1.80	2.57	3.99	14.37	81.96	288.08
10.93	7.10	9.04	0.33	0.22	19.48	1.00	2.16	5.05	1.44	99.37	256.67
10.03	9.94	13.01	0.73	1.11	86.57	3.19	2.60	6.57	11.87	95.77	353.85
9.81	11.59	17.62	0.20	0.39	3.79	1.45	1.65	3.54	7.86	109.39	309.85
8.02	6.02	7.96	0.09	0.83	9.19	1.08	2.03	7.77	11.22	71.23	239.24
10.74	5.34	8.79	0.06	0.89	15.47	2.95	7.24	6.40	9.96	105.09	308.93
5.65	4.30	5.51	0.29	0.52	11.51	1.41	0.37	3.09	2.62	33.63	133.72
2.88	2.33	6.28	0.23	0.01	10.74	0.06	1.41	0.30	1.34	27.06	99.26
1.38	4.74	14.84	0.59	0.40	18.69	0.91	4.58	1.29	0.67	180.04	478.44

APPENDIX II: AVERAGE RATES OF CRIME UNDER SLL PER LAKH POPULATION (97, 98, 99)

	Arms Act	Nar Drugs	Gamb.	Excise	Prohib Act	Explosives	Imm Trfc	Ind Rail	For Regn	Civil Rgts	Passport
AHMEDABAD	1.1	0.9	10.1	0.0	111.1	0.2	0.1	0	0	0.2	0
BANGALORE	0.2	0.6	1.4	10.3	0.1	0.1	7.3	0.0	0.4	0.1	0.3
BHOPAL	19.7	1.8	28.0	14.0	6.0	0.6	0.1	0.0	0.1	0.0	0.0
CALCUTTA	1.6	1.1	2.3	13.6	0.5	0.3	0.3	0.2	0.0	0.0	0.0
CHENNAI	0.0	3.0	17.7	0.0	64.0	0.1	34.2	0.0	0.0	0.0	0.0
COIMBATORE	0.5	10.1	4.5	0.0	54.1	1.1	18.1	0.0	0.0	0.1	0.0
DELHI	21.4	6.2	18.7	43.1	7.1	0.3	0.8	0.6	0.2	0.1	0.2
HYDERABAD	1.6	0.4	1.6	2.2	7.1	0.1	0.5	0.0	0.0	0.1	0.2
INDORE	84.4	1.2	70.7	71.7	31.3	1.0	0.3	0.0	0.0	0.0	0.0
JAIPUR	6.0	1.8	8.5	16.4	2.3	0.1	1.0	0.0	0.0	0.0	0.0
KANPUR	79.9	41.3	60.2	36.9	22.9	4.5	0.0	0.0	0.0	0.0	0.0
KOCHI	0.4	2.5	0.8	0.0	1.9	0.3	0.3	0.0	0.1	0.0	0.0
LUCKNOW	51.9	14.1	33.1	15.3	10.1	2.1	0.1	0.0	0.0	0.0	0.0
LUDHIANA	10.1	5.1	9.2	18.9	3.4	0.1	0.1	0.1	0.0	0.1	0.0
MADURAI	0.3	13.5	9.7	0.0	117.1	0.1	15.3	0.0	0.0	0.8	0.1
MUMBAI	1.6	2.6	4.7	0.0	11.5	0.0	4.8	0.0	0.1	0.0	0.1
NAGPUR	16.1	2.3	20.5	0.0	63.5	0.1	0.2	0.0	0.0	0.1	0.0
PATNA	18.0	0.3	11.6	7.4	6.0	1.3	0.2	0.0	0.1	0.0	0.0
PUNE	0.5	0.4	2.7	0.0	124.9	0.0	0.1	0.0	3.0	0.0	0.0
SURAT	1.4	0.4	6.3	0.0	373.5	0.4	0.4	0.0	0.0	0.0	0.0
VADODHARA	0.5	0.4	7.4	0.0	206.4	0.2	0.0	0.3	0.0	0.0	0.0
VARANASI	34.5	27.3	23.1	13.8	8.1	2.5	0.1	0.0	0.0	0.0	0.0
VISHAKAPATNAM	0.1	0.1	9.8	3.4	10.0	0.6	1.2	0.0	0.0	0.8	0.0

	Ess Comm	TADA		AATA	Dow Prohbn	Chld Mar	Ind Rep Wom	Cpyrgt	Sati	SC/ST	Forest	Others	Total
AHMEDABAD	0.5	0	0	0	0	0	0	0.5	0	0.5	0.03	131.4	333.8
BANGALORE	0.9	0	0.3	3.8	0.0	0.0	0.0	0.5	0	1.6	0.8	9820.6	9851.8
BHOPAL	0.8	0	0.0	0.0	0.0	0.0	0.0	0.6	0	0.8	0.1	0.5	83.5
CALCUTTA	0.7	0	0.0	0.0	0.0	0.0	0.0	0.3	0	0.0	0.0	5981.8	6003.5
CHENNAI	0.0	0	0.0	0.9	0.0	0.0	0.0	0.0	0	0.0	0.0	856.1	1008.2
COIMBATORE	0.2	0	0.0	0.0	0.0	0.0	0.1	0.1	0	0.3	1.7	314.5	421.9
DELHI	0.4	0	0.3	0.1	0.0	0.0	0.1	1.0	0	0.1	0.0	8.8	95.1
HYDERABAD	0.0	0	0.0	0.0	0.0	0.0	0.0	0.3	0	0.3	0.0	3097.8	3116.7
INDORE	0.7	0	0.0	0.0	0.0	0.0	0.0	0.7	0	0.1	0.0	5.6	218.0
JAIPUR	0.8	0	0.0	0.0	0.0	0.0	0.0	1.3	0	3.9	0.5	16.4	61.4
KANPUR	2.0	0	0.3	1.1	0.0	0.0	0.0	0.4	0	4.7	2.0	1324.9	1509.2
KOCHI	0.1	0	0.0	0.0	0.0	0.0	0.1	0.6	0	0.7	0.0	35.0	45.1
LUCKNOW	0.8	0	0.0	0.1	0.0	0.0	0.0	0.1	0	3.9	0.6	653.7	747.7
LUDHIANA	1.3	0	0.0	0.0	0.0	0.0	0.1	0.6	0	0.0	0.0	1.8	45.7
MADURAI	0.1	0	0.0	0.1	0.0	0.0	0.0	0.1	0	0.1	0.0	4447.9	4710.1
MUMBAI	0.2	0	0.0	0.0	0.0	0.0	0.4	0.9	0	0.0	0.0	1125.4	1163.1
NAGPUR	0.8	0	0.0	0.0	0.0	0.0	0.0	1.0	0	0.2	0.0	38.0	179.7
PATNA	0.8	0	0.0	3.2	0.0	0.0	0.0	0.1	0	0.6	0.0	6.9	41.6
PUNE	0.1	0	0.0	0.0	0.0	0.0	0.0	1.1	0	0.1	0.0	117.2	315.8
SURAT	0.0	0	0.0	0.0	0.0	0.0	0.0	1.1	0	0.8	0.0	207.2	762.1
VADODHARA	0.2	0	0.0	0.0	0.0	0.0	0.2	0.6	0	0.9	0.0	100.6	440.0
VARANASI	1.4	0	0.0	0.4	0.0	0.0	0.0	0.3	0	3.5	1.0	713.5	802.6
VISHAKAPATNAM	0.0	0	0.0	0.2	0.0	0.0	0.0	0.2	0	0.2	0.0	2570.6	2622.2

APPENDIX III: AVERAGE RATES OF CRIME UNDER IPC PER LAKH POPULATION (90, 91, 92)

	Murder	Att Mur	Cul Hom	Rape	Kid & Abd	Dacoity	Prep Dac	Rob	Burg	Theft	Riots
HYDERABAD	6.32	6.28	0.22	1.16	2.59	0.87	0.00	3.64	45.87	114.24	17.18
VIJAYWADA	5.74	5.46	0.05	3.01	4.66	3.06	0.00	6.64	39.58	161.75	6.45
VISHAKAPATNAM	3.91	3.54	0.18	1.20	2.80	1.33	0.00	4.74	66.80	175.76	10.85
GUWAHATI	5.53	3.88	0.11	5.65	17.28	9.70	0.06	16.14	68.57	209.41	30.58
PATNA	13.79	15.09	1.84	1.37	6.73	3.62	0.31	20.31	30.25	152.50	23.59
RANCHI	12.51	9.62	1.50	2.67	5.67	4.51	0.89	32.54	30.37	120.92	13.40
AHMEDABAD	5.03	5.44	0.17	0.82	6.42	0.96	0.00	4.07	31.27	165.13	12.60
BHAVNAGAR	4.52	3.54	0.00	0.74	2.39	0.25	0.00	2.14	21.63	52.81	6.83
RAJKOT	5.06	4.03	0.16	1.20	3.59	0.60	0.00	3.32	29.83	98.51	8.00
SURAT	7.30	2.30	0.02	0.84	3.61	4.29	0.00	3.74	26.81	87.97	16.09
VADODHARA	5.97	6.44	0.09	0.44	4.84	2.64	0.00	3.20	41.42	202.46	36.20
BANGALORE	4.16	3.20	0.05	0.74	2.75	0.87	0.01	4.39	54.85	227.57	19.95
BELGAUM	4.04	2.10	0.00	0.00	2.02	0.76	0.00	2.94	39.29	58.39	16.83
BIJAPUR	1.38	4.31	0.17	1.55	3.45	2.24	0.00	2.07	30.20	69.90	41.25
GULBARGA	1.39	1.82	0.21	0.21	0.96	3.54	0.00	7.08	38.92	49.85	25.52
HUBLI DHARWAD	2.21	1.49	0.00	0.36	1.29	1.13	0.05	3.39	35.01	58.97	20.10
KOCHI	3.49	1.83	0.06	0.74	0.57	0.63	0.00	1.77	58.82	63.68	35.93
KOZHIKODE	2.07	1.64	0.29	1.64	1.36	0.14	0.00	1.86	42.15	46.36	45.15
THIRUV'PURAM	2.95	5.48	0.62	0.90	2.67	4.29	0.00	4.76	41.01	57.06	66.11
BHILAI(DURG)	8.94	13.74	1.10	12.90	7.59	1.52	0.17	21.58	119.38	335.73	24.53
BHOPAL	7.37	10.32	0.91	4.83	2.67	8.63	0.47	8.91	55.23	132.80	13.33
GWALIOR	8.00	12.08	1.69	4.17	3.33	0.65	0.84	11.38	69.77	124.78	15.75
INDORE	6.85	26.48	0.06	3.49	4.57	0.78	0.09	8.36	91.79	279.07	8.30
JABALPUR	7.11	15.08	1.00	5.54	3.01	0.04	0.22	11.42	74.38	169.98	10.51
AURANGABAD	3.43	3.20	0.06	1.74	3.72	2.27	0.12	9.25	79.43	174.61	21.22
MUMBAI	4.72	2.80	0.05	1.09	3.28	1.13	0.47	10.83	25.95	158.97	3.08
NAGPUR	8.12	3.69	0.10	2.97	4.60	1.11	0.04	20.58	51.64	205.00	11.67
NASIK	3.60	1.93	0.10	0.96	2.03	1.01	0.10	3.96	35.42	90.98	5.78
PUNE	5.47	2.83	0.23	2.32	4.21	0.81	0.28	8.15	59.15	202.58	11.26
SOLAPUR	4.19	2.31	0.27	1.13	1.29	0.38	0.05	2.90	17.99	40.48	4.83
AMRITSAR	12.04	5.83	0.42	0.28	2.30	0.56	0.24	7.57	10.11	19.05	0.14
JALANDHAR	3.79	3.27	0.92	0.65	1.44	0.26	0.26	1.90	16.22	23.94	0.00
LUDHIANA	8.54	6.55	1.02	0.32	2.33	0.26	1.02	2.46	14.51	17.74	0.13
AJMER	4.47	8.86	0.99	1.08	8.19	0.00	0.00	3.48	31.04	54.63	29.80
BHARATPUR	6.00	0.44	0.22	3.78	15.55	1.78	0.00	12.00	53.32	178.84	154.85
BIKANER	2.32	6.41	0.08	1.04	3.12	0.00	0.00	1.12	25.70	47.16	21.14
JAIPUR	3.31	3.93	0.18	1.42	9.16	0.14	0.05	4.94	38.97	137.61	76.31
JODHPUR	3.40	8.05	0.05	1.55	5.25	0.35	0.00	5.15	35.62	55.88	31.12
KOTA	5.15	26.80	0.50	4.16	15.14	0.31	0.00	7.26	67.18	128.46	45.47
UDAIPUR	2.59	10.26	0.11	1.08	10.59	0.00	0.00	10.15	53.90	101.33	52.28
CHENNAI	2.42	2.49	0.10	0.55	0.86	0.09	0.01	3.21	19.65	158.99	7.17
COIMBATORE	3.10	4.86	0.00	0.29	1.76	0.16	0.00	1.76	30.87	130.91	44.10
MADURAI	3.37	4.29	0.04	0.35	1.49	0.07	0.00	2.23	24.09	110.34	9.46
SALEM	26.81	18.36	0.82	1.45	9.73	2.91	0.00	6.82	94.26	267.06	97.53
TRICHY	21.69	14.46	0.00	2.15	8.18	1.38	0.00	3.62	100.80	309.90	51.56
AGRA	6.77	13.76	1.68	2.35	13.16	4.67	0.11	13.19	54.24	126.82	29.68
ALIGARH	11.03	16.58	1.60	1.66	10.13	2.50	1.11	17.90	23.24	81.44	18.17
ALLAHABAD	13.56	26.20	1.94	1.53	9.55	1.32	0.62	16.95	42.45	133.42	18.27
BAREILLY	12.19	12.02	2.99	2.60	10.55	1.52	0.06	12.36	36.46	121.16	11.12
GORAKHPUR	6.73	8.31	2.11	1.58	5.27	1.58	2.31	8.90	36.07	73.91	22.02
KANPUR	11.37	12.06	1.83	1.58	10.06	2.55	1.67	9.15	36.98	102.53	18.20
LUCKNOW	7.35	8.11	1.15	2.26	6.22	1.42	0.76	7.72	44.43	155.25	15.28
MEERUT	13.80	17.16	2.87	2.79	10.35	4.82	2.79	20.43	30.29	160.17	19.63
MORADABAD	21.75	20.74	4.19	6.76	18.95	4.04	1.16	26.17	39.30	156.80	32.70
VARANASI	5.65	10.55	2.86	0.93	5.97	1.39	0.50	5.26	29.82	82.01	18.66
KOLKATA	1.90	3.45	0.41	0.60	2.89	0.77	0.38	3.47	7.76	129.21	14.02
DELHI	4.90	5.20	1.00	2.30	9.00	0.30	0.30	3.10	17.80	148.40	3.40

CBT	Cheat	Counterfeit	Others	Total
2.76	13.05	2.03	108.72	324.92
4.00	16.75	2.82	208.57	468.53
6.76	13.10	0.97	303.20	595.14
17.51	20.71	0.34	282.65	688.12
8.19	6.90	0.00	154.13	438.61
2.56	4.45	0.11	209.08	450.97
13.61	17.58	0.91	330.99	595.01
10.69	4.28	0.74	188.37	298.93
15.51	21.12	0.54	309.74	501.20
4.43	12.73	0.22	141.14	311.51
11.40	17.18	0.91	352.74	685.92
7.90	20.78	42.57	363.11	752.92
2.44	12.12	4.12	148.08	293.13
2.59	10.18	0.17	174.49	343.98
1.18	7.40	0.21	161.35	299.65
2.73	8.02	0.31	117.54	252.61
3.66	14.53	1.09	393.93	580.74
3.79	10.29	0.71	529.56	687.00
4.00	11.24	0.76	391.21	593.06
5.48	16.36	2.61	990.15	1561.78
2.67	11.54	0.44	590.37	852.05
3.03	9.39	0.25	466.38	731.50
5.32	7.96	0.00	588.97	1032.08
1.66	9.20	0.00	541.34	850.48
4.59	9.19	0.35	201.01	514.18
7.36	12.47	0.70	167.31	400.22
7.53	11.39	3.53	283.53	615.50
4.57	9.84	0.30	140.35	300.95
6.72	12.26	2.34	385.64	704.24
1.88	4.46	2.20	109.31	193.66
1.60	8.32	0.05	16.22	84.74
1.31	3.60	0.33	38.66	96.56
1.44	2.11	0.03	33.34	91.81
3.64	21.36	1.16	165.88	334.57
6.66	30.88	0.22	330.57	795.11
1.84	12.01	0.00	156.70	278.65
10.19	29.16	2.08	243.75	561.20
5.50	22.61	0.90	184.36	359.81
7.07	27.48	0.12	293.90	628.99
7.56	23.12	0.76	216.48	490.22
4.23	12.59	9.51	109.52	331.29
3.68	6.57	7.60	199.96	435.61
2.02	7.37	8.36	155.05	328.52
1.73	4.54	9.00	217.43	758.45
10.50	18.25	13.77	858.16	1414.43
12.07	16.71	0.26	129.85	425.32
6.45	9.43	0.00	111.48	312.72
8.76	14.05	0.41	147.97	437.00
10.33	9.42	0.17	120.43	363.38
9.56	6.59	0.26	60.72	245.93
15.39	13.20	2.54	144.94	382.97
13.98	19.50	0.97	167.27	451.67
13.05	15.43	0.00	131.60	445.18
10.87	11.26	0.00	218.00	572.67
7.58	7.29	0.46	116.44	295.37
7.42	13.32	1.08	102.65	309.77
6.10	15.70	0.80	164.30	382.70

APPENDIX IV: REGRESSION VARIABLES

	Pop Lakhs	SR	LIT	WPR	SC	ST	JS	FWPR	MIG
HYDERABAD	30.58	930	71.1	26.67	20.4	0.01	1.0	12.4	36.7
VIJAYWADA	7.08	770	81.14	33.21	7.82	1.07	0.7	12.0	7.5
VISHAKAPATNAM	7.25	939	75.22	28.68	9.6	0.5	0.9	10.9	62.5
GUWAHATI	5.84	783	81.14	33.21	6.28	4.08	5.0	11.6	8.6
PATNA	9.76	825	78.69	24.18	8.4	0.3	1.3	6.9	4.0
RANCHI	5.99	858	82.49	24.67	4.38	20.21	1.1	10.0	7.1
AHMEDABAD	29.55	888	78.74	28.93	12.8	0.8	1.2	9.0	37.7
BHAVNAGAR	4.05	926	74.51	27.79	6.08	0.37	0.5	8.2	27.5
RAJKOT	6.12	925	78.67	29.43	6.24	0.35	0.5	8.1	3.0
SURAT	15.06	840	75.97	33.97	4.3	4.8	0.3	7.5	49.1
VADODHARA	10.62	898	82.02	29.77	7.2	3.2	1.0	10.6	45.5
BANGALORE	33.02	909	80.49	32.94	11.5	0.86	1.6	16.2	35.9
BELGAUM	3.96	933	80.01	29.24	6.84	2.08	0.8	10.1	38.6
BIJAPUR	1.93	922	74.54	24.82	11.74	0.66	1.0	10.0	37.2
GULBARGA	3.11	901	70.85	24.07	15.69	1.08	0.4	11.6	29.4
HUBLI DHARWAD	6.48	926	74.86	28.03	9.53	1.59	1.4	12.5	5.5
MYSORE	5.83	992	94.88	30.08	4.06	0.17	16.0	17.9	48.8
KOCHI	4.67	1029	93.11	25.41	4.38	0.07	18.1	12.8	36.5
KOZHIKODE	7.00	1016	91.29	29.87	9.16	0.01	18.4	23.7	3.6
THIRUV'PURAM	3.95	865	74.99	28.63	12.26	4.75	3.1	12.1	97.6
BHILAI(DURG)	10.63	894	71.76	28.76	11.8	2.8	5.0	13.9	40.1
BHOPAL	6.71	858	71.9	25.99	17.49	1.35	2.6	9.2	27.3
GWALIOR	11.09	900	76.71	29.72	15.04	2.39	1.7	11.9	32.0
INDORE	7.65	897	77.92	26.58	13.71	4.15	2.2	11.8	34.5
JABALPUR	4.22	916	82.13	27.45	14.48	3.42	1.4	11.7	30.1
AMRAVATI	5.73	877	76.5	27.78	19.03	1.11	1.2	13.8	25.8
AURANGABAD	99.26	818	82.5	34.6	6.52	1.05	1.8	13.6	44.7
MUMBAI	16.25	918	81.9	28	19.4	11.3	2.0	14.6	18.7
NAGPUR	6.57	891	81.57	30.64	12.37	7.06	1.0	13.5	38.0
NASIK	15.67	928	80.74	30.83	14.8	1.07	1.6	17.0	43.7
PUNE	6.21	946	68.28	31.12	14.62	1.71	2.5	25.6	24.0
SOLAPUR	7.09	883	75.26	30.11	5.62	0.39	0.5	6.7	26.8
AMRITSAR	5.10	870	76.93	30.18	27.61	0.01	0.2	7.5	38.0
JALANDHAR	10.43	795	71.56	32.93	11.85	0.01	0.4	4.7	45.5
LUDHIANA	4.03	908	80.15	27.31	22.25	1.42	0.8	12.0	24.6
AJMER	1.50	851	68.04	25.4	21.02	0.78	0.8	6.6	36.6
BHARATPUR	4.16	860	68.43	26.66	11.46	0.42	1.9	7.6	18.9
BIKANER	14.58	868	70.42	28.18	11.6	3.3	1.0	8.3	30.3
JAIPUR	6.66	845	68.25	27.96	11.89	2.59	0.8	7.0	17.4
JODHPUR	5.37	865	73.49	38.8	16.21	6.62	0.5	9.4	36.5
KOTA	3.09	876	78.37	29.7	9.76	4.77	1.4	11.6	26.0
UDAIPUR	38.41	934	81.6	30.5	13.8	0.2	5.7	13.3	39.0
CHENNAI	8.16	924	81.32	39.03	10.5	0.15	2.6	13.4	37.4
COIMBATORE	9.41	954	83.03	31.23	5.6	0.39	5.2	15.3	29.1
MADURAI	3.67	955	76.84	34.5	9.72	0.09	1.3	15.6	27.5
SALEM	1.36	984	81.31	32.68	8.46	0.75	5.4	25.9	73.9
THIRUNELVELI	3.87	965	83.28	29.9	7.5	0.26	4.1	12.2	60.1
TRICHY	8.92	858	60.43	27.04	25.82	0.01	0.1	4.9	13.3

AGRA	4.81	867	59.61	25.5	16.51	0.5	0.4	6.5	9.6
ALIGARH	8.06	820	73.46	34.76	28.03	0.12	1.6	7.1	16.1
ALLAHABAD	5.91	881	55.07	26.46	6.8	0.02	1.3	5.0	18.5
BAREILLY	5.06	850	70.15	23.83	12.5	0.04	4.2	6.6	17.9
GORAKHPUR	18.79	824	70.7	25.59	10.9	0.04	1.3	4.4	21.3
KANPUR	16.19	867	71.08	26.67	10.01	0.06	0.9	8.5	28.7
LUCKNOW	7.54	881	60.98	26.3	15.58	0.01	0.7	5.4	16.0
MEERUT	4.29	873	56.42	27.26	6.48	0.04	0.5	4.3	6.8
MORADABAD	9.32	867	63.58	27	7.86	0.01	0.8	8.2	8.0
VARANASI	18.79	799	77.61	32.8	6.4	0.2	6.3	8.1	59.5
KOLKATA	72.07	834	76.73	31.97	18.07	0.01	1.1	10.6	45.7
DELHI(CITY)									

SL_DWL	PCI
26.04	4.14
35.72	268.91
25.54	438.92
17.00	150.47
17.00	5.76
39.50	51.96
14.45	404.68
11.32	244.60
13.47	853.68
3.39	355.01
4.57	875.14
3.26	281.33
17.00	279.05
14.71	122.13
4.70	72.35
1.15	226.27
7.13	143.70
6.84	64.61
2.89	119.74
15.29	4082.36
37.23	183.91
31.66	99.00
29.09	164.43
36.73	143.39
28.16	226.12
17.59	513.49
25.99	1500.00
29.33	321.13
9.73	731.95
39.58	551.62
24.54	428.88
17.00	545.71
17.00	308.66
17.00	228.09
30.28	106.61
22.84	96.52
25.56	57.45
17.00	120.10
1.95	80.99
7.92	185.46
15.26	11.99
5.81	131.88
3.16	190.86
16.86	214.04
7.72	352.82
3.64	198.15
12.25	214.62
1.14	149.56

18.05	130.77
16.20	170.34
17.00	163.09
17.00	241.56
9.18	177.20
4.69	155.88
7.77	109.13
8.17	112.33
39.71	121.06
48.52	1122.05
24.98	1500.00

APPENDIX V: RELIGIOUS COMPOSITION OF TOWNS,

	HINDUS	MUSLIMS	CHRISTIANS	SIKHS	BUDD	JAINS	OTHERS
AHMEDABAD	82.65	12.49	0.98	0.26	0.05	3.47	0.06
BANGALORE	78.25	14.44	6.18	0.12	0.02	0.92	0.03
BHOPAL	67.36	27.78	1.45	0.76	1.31	1.33	0.01
CALCUTTA	84.13	14.85	0.48	0.25	0.10	0.17	0.02
CHENNAI	84.79	7.65	6.75	0.04	0.02	0.72	0.01
COIMBATORE	86.01	7.50	6.14	0.03	0.00	0.18	0.01
DELHI	82.73	9.69	1.05	5.25	0.15	1.10	0.01
HYDERABAD	64.63	32.29	2.55	0.27	0.01	0.19	0.03
INDORE	80.04	13.04	0.64	1.36	0.41	3.45	0.04
JAIPUR	76.88	19.03	0.35	0.75	0.01	2.82	0.01
KANPUR	76.37	20.41	0.97	1.90	0.06	0.23	0.01
KOCHI	47.49	18.48	33.79	0.11	0.00	0.09	0.01
LUCKNOW	73.63	24.24	0.76	1.14	0.10	0.12	0.01
LUDHIANA	62.14	0.88	0.57	35.69	0.06	0.65	0.00
MADURAI	87.56	6.99	5.39	0.01	0.00	0.04	0.01
MUMBAI	67.98	16.83	4.45	0.77	5.61	3.56	0.61
NAGPUR	71.30	9.80	1.20	0.64	16.05	0.72	0.11
PATNA	84.76	14.53	0.35	0.29	0.00	0.07	0.00
PUNE	78.29	8.76	3.20	0.65	6.83	1.93	0.23
SURAT	83.59	13.56	0.27	0.10	0.32	1.92	0.23
VADODHARA	86.85	10.28	1.30	0.54	0.03	0.93	0.07
VARANASI	70.57	28.75	0.24	0.27	0.03	0.13	0.02
VISHAKAPATNAM	93.46	3.60	2.66	0.15	0.01	0.05	0.07
VIJAYWADA	83.99	10.52	5.04	0.04	0.00	0.40	0.00
GUWAHATI	86.20	11.15	0.75	0.54	0.14	0.72	0.05
RANCHI	68.16	16.91	8.19	0.77	0.03	0.19	5.73
BHAVNAGAR	84.58	11.76	0.24	0.04	0.01	3.35	0.01
RAJKOT	90.01	7.55	0.28	0.07	0.02	2.05	0.01
BELGAUM	77.12	16.75	1.76	0.10	0.02	4.17	0.04
BIJAPUR	63.30	34.88	0.29	0.04	0.01	1.40	0.08
GULBARGA	61.71	36.43	0.77	0.06	0.42	0.41	0.04
HUBLI DHARWAD	69.52	25.21	3.59	0.11	0.02	1.39	0.06
MYSORE	75.87	19.89	3.24	0.04	0.03	0.86	0.02
KOZHIKODE	57.58	39.07	3.22	0.00	0.00	0.07	0.00
TRIVANDRUM	72.37	11.58	15.96	0.01	0.01	0.00	0.00
BHILAI	86.51	5.97	2.51	2.37	1.27	1.14	0.08
GWALIOR	88.65	8.43	0.32	0.86	0.15	1.44	0.02
JABALPUR	92.14	1.29	2.48	1.39	0.22	2.15	0.07
AMRAVATI	68.05	19.32	0.37	0.13	10.81	0.92	0.03
AURANGABAD	52.81	28.69	1.57	0.42	14.88	1.48	0.08
NASIK	85.71	7.95	1.44	0.59	2.72	1.18	0.14
SOLAPUR	76.53	18.99	0.86	0.03	2.62	0.92	0.04
AMRITSAR	53.47	0.26	0.93	45.25	0.00	0.07	0.01
JALANDHAR	72.65	0.26	0.89	25.38	0.46	0.30	0.02
AJMER	85.57	8.91	1.40	1.02	0.04	3.05	0.01
BHARATPUR	92.02	3.49	0.19	3.11	0.01	1.11	0.01
BIKANER	78.61	16.10	0.20	1.17	0.00	3.80	0.00
JODHPUR	77.94	18.38	0.48	0.64	0.01	2.52	0.01

KOTA	79.89	16.00	0.62	1.35	0.06	2.06	0.01
UDAIPUR	75.16	15.47	0.57	0.78	0.01	8.00	0.01
SALEM	90.84	7.06	1.93	0.02	0.01	0.11	0.01
THIRUNELVELI	71.18	19.81	8.92	0.01	0.00	0.01	0.01
TRICHY	74.69	13.65	11.59	0.01	0.00	0.05	0.02
AGRA	73.14	21.57	0.62	0.94	2.50	1.22	0.00
ALIGARH	60.13	36.86	0.42	1.05	0.66	0.84	0.03
ALLAHABAD	77.22	21.51	0.80	0.36	0.01	0.07	0.01
BAREILLY	60.78	36.99	0.94	1.19	0.03	0.05	0.00
GORAKHPUR	78.87	19.83	0.81	0.37	0.07	0.04	0.01
MEERUT	62.97	33.19	1.39	1.25	0.14	1.06	0.00
MORADABAD	43.60	54.91	0.69	0.58	0.01	0.20	0.00
VARANASI	70.57	28.75	0.24	0.27	0.03	0.13	0.02
KOLKATA	84.13	14.85	0.48	0.25	0.10	0.17	0.02
DELHI(CITY)	82.73	9.56	1.05	5.25	0.15	1.10	0.01

, 1991

NOTSTATED	TOTAL
0.03	100.00
0.03	100.00
0.00	100.00
0.00	100.00
0.01	100.00
0.12	100.00
0.01	100.00
0.03	100.00
1.03	100.00
0.15	100.00
0.06	100.00
0.04	100.00
0.00	100.00
0.02	100.00
0.00	100.00
0.19	100.00
0.17	100.00
0.00	100.00
0.11	100.00
0.01	100.00
0.01	100.00
0.00	100.00
0.00	100.00
0.00	100.00
0.44	100.00
0.01	100.00
0.01	100.00
0.02	100.00
0.03	100.00
0.01	100.00
0.17	100.00
0.11	100.00
0.04	100.00
0.05	100.00
0.06	100.00
0.15	100.00
0.13	100.00
0.24	100.00
0.37	100.00
0.08	100.00
0.28	100.00
0.01	100.00
0.01	100.00
0.04	100.00
0.00	100.00
0.07	100.00
0.12	100.00
0.03	100.00

0.01	100.00
0.00	100.00
0.03	100.00
0.06	100.00
0.00	100.00
0.00	100.00
0.02	100.00
0.01	100.00
0.02	100.00
0.02	100.00
0.00	100.00
0.00	100.00
0.00	100.00
0.00	100.00
0.01	100.00

APPENDIX VI: INDUSTRIAL CATEGORIES OF WORKERS, 1991

	III	IV	V	VI	VII	VIII	IX	TOTAL
HYDERABAD	0.29	0.08	19.15	7.63	28.84	12.33	31.68	100.00
VIJAYWADA	0.69	0.70	18.85	5.57	27.93	21.01	25.25	100.00
VISHAKAPATNAM	2.62	0.63	20.96	8.28	15.59	15.84	36.08	100.00
GUWAHATI	2.54	0.46	12.09	5.55	26.68	14.43	38.24	100.00
PATNA	1.06	0.07	10.49	2.80	23.46	6.16	55.96	100.00
RANCHI	0.60	0.13	8.18	2.31	16.81	5.44	66.54	100.00
AHMEDABAD	0.75	0.37	36.85	4.76	25.39	9.27	22.60	100.00
BHAVNAGAR	1.65	0.19	36.51	4.42	24.28	12.37	20.58	100.00
RAJKOT	1.41	0.20	34.70	5.93	25.44	10.30	22.02	100.00
SURAT	0.54	0.17	58.82	3.40	18.99	4.60	13.47	100.00
VADODHARA	1.19	1.17	33.41	5.88	20.64	9.21	28.49	100.00
BANGALORE	0.68	0.31	34.51	9.25	22.80	8.58	23.86	100.00
BELGAUM	1.16	0.18	33.01	6.28	25.10	8.78	25.49	100.00
BIJAPUR	1.85	0.76	17.00	7.16	29.59	12.53	29.15	100.00
GULBARGA	2.21	0.23	16.37	9.38	26.60	12.09	33.12	100.00
HUBLI DHARWAD	1.28	0.18	28.00	7.91	27.28	12.77	22.59	100.00
MYSORE	2.24	0.08	27.69	8.19	24.65	10.18	26.96	100.00
KOCHI	4.21	0.49	22.81	10.22	22.74	14.70	24.84	100.00
KOZHIKODE	7.54	0.64	22.18	8.32	25.76	13.97	21.59	100.00
THIRUV'PURAM	8.09	0.43	14.69	6.17	20.95	11.19	38.50	100.00
BHILAI(DURG)	1.56	0.32	38.62	8.01	17.13	8.85	25.52	100.00
BHOPAL	1.78	0.38	20.06	11.34	20.89	9.15	36.40	100.00
GWALIOR	1.32	0.39	24.04	7.96	19.30	6.84	40.16	100.00
INDORE	0.49	0.05	28.55	5.76	26.92	9.59	28.65	100.00
JABALPUR	2.11	0.36	30.26	6.10	19.68	9.45	32.05	100.00
AMRAVATI	2.23	0.11	16.75	8.43	24.43	12.97	35.08	100.00
AURANGABAD	2.26	0.06	28.00	9.70	18.74	8.44	32.57	100.00
MUMBAI	0.57	0.22	37.31	4.75	24.22	11.23	21.69	100.00
NAGPUR	1.40	0.84	24.24	9.73	23.33	12.74	27.72	100.00
NASIK	2.07	0.09	33.35	7.63	17.63	8.31	30.92	100.00
PUNE	0.75	0.18	33.04	11.31	18.70	8.06	27.95	100.00
SOLAPUR	0.86	0.27	47.65	5.14	18.69	6.91	20.25	100.00
AMRITSAR	0.71	0.00	31.13	3.54	32.95	8.10	23.56	100.00
JALANDHAR	0.67	0.01	31.89	3.82	27.67	8.03	27.91	100.00
LUDHIANA	2.11	0.00	47.64	6.73	21.83	6.64	15.06	100.00
AJMER	1.90	0.25	26.23	6.57	22.25	11.74	31.15	100.00
BHARATPUR	2.44	0.14	23.63	6.82	22.58	9.24	35.15	100.00
BIKANER	1.74	0.72	18.42	13.78	19.81	9.72	35.82	100.00
JAIPUR	1.03	0.60	26.64	6.52	24.46	8.30	32.45	100.00
JODHPUR	1.33	3.52	20.68	8.75	20.40	9.54	35.78	100.00
KOTA	2.09	0.91	25.22	9.02	20.81	10.47	31.48	100.00
UDAIPUR	1.64	2.36	21.40	5.25	24.91	10.76	33.38	100.00
CHENNAI	0.85	0.11	24.23	6.39	25.79	10.75	31.96	100.00
COIMBATORE	0.65	0.10	42.04	6.51	21.39	7.89	21.44	100.00
MADURAI	0.50	0.10	31.25	5.70	30.91	9.78	21.65	100.00
SALEM	0.33	0.46	43.71	4.55	25.03	7.82	18.10	100.00
THIRUNELVELI	0.39	0.27	37.68	3.42	27.04	7.89	23.31	100.00
TRICHY	0.39	0.44	31.01	5.34	29.84	10.55	22.43	100.00
AGRA	0.70	0.02	35.38	2.77	24.42	6.65	30.06	100.00
ALIGARH	1.74	0.02	37.65	3.48	24.10	6.15	26.87	100.00
ALLAHABAD	0.95	0.11	15.98	2.53	27.46	7.97	45.01	100.00
BAREILLY	1.51	0.02	18.50	5.16	23.13	10.40	41.27	100.00
GORAKHPUR	2.26	0.04	19.75	3.75	27.34	12.57	34.28	100.00
KANPUR	0.70	0.02	29.48	2.06	28.32	7.84	31.57	100.00
LUCKNOW	2.28	0.09	17.02	5.26	24.28	8.27	42.79	100.00
MEERUT	1.74	0.01	30.26	3.88	23.51	7.27	33.35	100.00
MORADABAD	0.99	0.01	41.26	1.48	23.68	6.36	26.21	100.00
VARANASI	1.28	0.03	40.77	0.61	27.81	6.29	21.35	100.00
KOLKATA	0.80	0.16	36.36	3.54	25.27	10.20	23.61	100.00
DELHI(CITY)	0.54	0.11	24.99	7.68	25.20	8.25	33.23	100.00

FUNCTIONAL CATEGORIES OF WORKERS, 1991

	A	B	C
HYDERABAD	27.15	41.17	31.68
VIJAYWADA	25.82	48.93	25.25
VISHAKAPATNAM	32.49	31.43	36.08
GUWAHATI	20.65	41.11	38.24
PATNA	14.42	29.62	55.96
RANCHI	11.21	22.25	66.54
AHMEDABAD	42.73	34.67	22.60
BHAVNAGAR	42.78	36.64	20.58
RAJKOT	42.23	35.74	22.02
SURAT	62.94	23.59	13.47
VADODHARA	41.66	29.85	28.49
BANGALORE	44.75	31.38	23.86
BELGAUM	40.63	33.88	25.49
BIJAPUR	28.78	42.12	30.15
GULBARGA	28.19	38.69	33.12
HUBLI DHARWAD	37.37	40.04	22.59
MYSORE	38.21	34.83	26.96
KOCHI	37.73	37.43	24.84
KOZHIKODE	38.68	39.73	21.59
THIRUV'PURAM	29.37	32.13	38.50
BHILAI(DURG)	48.50	25.98	25.52
BHOPAL	33.56	30.04	36.40
GWALIOR	33.71	26.13	40.16
INDORE	34.84	36.51	28.65
JABALPUR	38.83	29.12	32.05
AMRAVATI	27.52	37.40	35.08
AURANGABAD	40.01	27.18	32.57
MUMBAI	42.86	35.46	21.69
NAGPUR	36.20	36.08	27.72
NASIK	43.14	25.93	30.92
PUNE	45.29	26.76	27.95
SOLAPUR	53.92	25.60	20.25
AMRITSAR	35.39	41.04	23.56
JALANDHAR	36.39	35.70	27.91
LUDHIANA	56.48	28.47	15.06
AJMER	34.95	33.99	31.15
BHARATPUR	33.03	31.82	35.15
BIKANER	34.66	29.53	35.82
JAIPUR	34.79	32.76	32.45
JODHPUR	34.28	29.94	35.78
KOTA	37.24	31.29	31.48
UDAIPUR	30.64	35.67	33.38
CHENNAI	31.58	36.54	31.96
COIMBATORE	49.28	29.28	21.44
MADURAI	37.55	40.69	21.65
SALEM	49.06	32.84	18.10
THIRUNELVELI	41.75	34.93	23.31
TRICHY	37.18	40.39	22.43
AGRA	38.87	31.07	30.06
ALIGARH	42.89	30.24	26.87
ALLAHABAD	19.57	35.43	45.01
BAREILLY	25.20	33.53	41.27
GORAKHPUR	25.81	39.91	34.28
KANPUR	32.27	36.16	31.57
LUCKNOW	24.66	32.56	42.79
MEERUT	35.88	30.77	33.35
MORADABAD	43.74	30.04	26.21
VARANASI	42.69	34.10	22.70
KOLKATA	40.85	35.47	23.61
DELHI(CITY)	33.33	33.44	33.23

APPENDIX VII: Z-SCORE IPC 1990, 1991, 1992

	Murder	Att Mur	Cul Hom	Rape	Kid & Abd	Dacoity	Prep Dac	Rob	Burg	Theft
HYDERABAD	-0.11	-0.27	-0.54	-0.40	-0.70	-0.44	-0.54	-0.66	0.11	-0.20
VIJAYWADA	-0.22	-0.40	-0.73	0.49	-0.23	0.67	-0.54	-0.22	-0.16	0.47
VISHAKAPATNAM	-0.57	-0.69	-0.58	-0.38	-0.65	-0.20	-0.54	-0.50	1.02	0.67
GUWAHATI	-0.26	-0.64	-0.66	1.76	2.65	4.02	-0.44	1.17	1.10	1.15
PATNA	1.35	1.06	1.20	-0.30	0.24	0.95	0.00	1.78	-0.57	0.34
RANCHI	1.10	0.23	0.83	0.33	0.00	1.40	1.03	3.57	-0.56	-0.10
AHMEDABAD	-0.36	-0.40	-0.60	-0.56	0.17	-0.39	-0.54	-0.60	-0.52	0.52
BHAVNAGAR	-0.45	-0.69	-0.78	-0.60	-0.75	-0.75	-0.54	-0.88	-0.94	-1.06
RAJKOT	-0.35	-0.61	-0.60	-0.38	-0.47	-0.57	-0.54	-0.71	-0.58	-0.42
SURAT	0.09	-0.88	-0.75	-0.55	-0.47	1.29	-0.54	-0.64	-0.72	-0.57
VADODHARA	-0.17	-0.25	-0.68	-0.74	-0.19	0.46	-0.54	-0.72	-0.08	1.05
BANGALORE	-0.53	-0.74	-0.72	-0.60	-0.67	-0.44	-0.52	-0.55	0.50	1.40
BELGAUM	-0.55	-0.91	-0.78	-0.96	-0.83	-0.49	-0.54	-0.76	-0.17	-0.98
BIJAPUR	-1.07	-0.57	-0.59	-0.21	-0.51	0.26	-0.54	-0.89	-0.57	-0.82
GULBARGA	-1.06	-0.95	-0.55	-0.85	-1.07	0.91	-0.54	-0.16	-0.19	-1.10
HUBLI DHARWAD	-0.90	-1.00	-0.78	-0.78	-1.00	-0.30	-0.45	-0.70	-0.36	-0.97
KOCHI	-0.66	-0.95	-0.72	-0.60	-1.16	-0.56	-0.54	-0.93	0.67	-0.91
KOZHIKODE	-0.93	-0.98	-0.47	-0.17	-0.98	-0.80	-0.54	-0.92	-0.05	-1.15
THIRUV'PURAM	-0.76	-0.40	-0.12	-0.52	-0.68	1.29	-0.54	-0.49	-0.10	-1.00
BHILAI(DURG)	0.40	0.86	0.40	5.24	0.44	-0.11	-0.24	1.97	3.30	2.92
BHOPAL	0.10	0.34	0.20	1.36	-0.68	3.47	0.29	0.11	0.52	0.07
GWALIOR	0.22	0.60	1.03	1.05	-0.53	-0.55	0.95	0.47	1.15	-0.05
INDORE	0.00	2.78	-0.71	0.72	-0.25	-0.48	-0.38	0.03	2.10	2.13
JABALPUR	0.05	1.06	0.30	1.70	-0.61	-0.85	-0.16	0.48	1.35	0.59
AURANGABAD	-0.67	-0.74	-0.72	-0.12	-0.44	0.27	-0.34	0.16	1.57	0.66
MUMBAI	-0.42	-0.80	-0.72	-0.43	-0.55	-0.30	0.29	0.39	-0.75	0.44
NAGPUR	0.25	-0.67	-0.67	0.47	-0.24	-0.32	-0.47	1.82	0.36	1.08
NASIK	-0.63	-0.93	-0.67	-0.49	-0.83	-0.36	-0.36	-0.61	-0.34	-0.52
PUNE	-0.27	-0.80	-0.53	0.16	-0.33	-0.47	-0.05	0.00	0.69	1.05
SOLAPUR	-0.52	-0.87	-0.49	-0.41	-1.00	-0.69	-0.45	-0.77	-1.10	-1.23
AMRITSAR	1.01	-0.34	-0.33	-0.82	-0.77	-0.59	-0.13	-0.08	-1.44	-1.54
JALANDHAR	-0.60	-0.73	0.20	-0.64	-0.96	-0.74	-0.08	-0.91	-1.17	-1.47
LUDHIANA	0.33	-0.23	0.32	-0.80	-0.76	-0.75	1.26	-0.83	-1.25	-1.55
AJMER	-0.47	0.12	0.29	-0.44	0.58	-0.87	-0.54	-0.68	-0.53	-1.03
BHARATPUR	-0.17	-1.16	-0.54	0.86	2.25	0.02	-0.54	0.56	0.43	0.71
BIKANER	-0.88	-0.25	-0.69	-0.46	-0.58	-0.87	-0.54	-1.03	-0.76	-1.14
JAIPUR	-0.69	-0.63	-0.58	-0.28	0.80	-0.81	-0.46	-0.47	-0.19	0.13
JODHPUR	-0.67	0.00	-0.72	-0.21	-0.09	-0.70	-0.54	-0.44	-0.33	-1.02
KOTA	-0.33	2.83	-0.25	1.04	2.16	-0.72	-0.54	-0.13	1.04	0.01
UDAIPUR	-0.83	0.33	-0.66	-0.44	1.12	-0.87	-0.54	0.29	0.46	-0.38
CHENNAI	-0.86	-0.85	-0.67	-0.69	-1.10	-0.83	-0.53	-0.72	-1.03	0.44
COIMBATORE	-0.73	-0.49	-0.78	-0.82	-0.89	-0.79	-0.54	-0.93	-0.54	0.04
MADURAI	-0.68	-0.58	-0.74	-0.79	-0.95	-0.84	-0.54	-0.86	-0.83	-0.25
SALEM	3.88	1.56	0.10	-0.26	0.93	0.59	-0.54	-0.19	2.21	1.96
TRICHY	2.88	0.97	-0.78	0.08	0.57	-0.18	-0.54	-0.66	2.49	2.56
AGRA	-0.02	0.86	1.02	0.17	1.71	1.48	-0.34	0.74	0.47	-0.02
ALIGARH	0.81	1.29	0.93	-0.16	1.02	0.38	1.42	1.43	-0.87	-0.66
ALLAHABAD	1.30	2.74	1.30	-0.22	0.88	-0.21	0.55	1.29	-0.04	0.08
BAREILLY	1.04	0.60	2.43	0.29	1.11	-0.11	-0.44	0.62	-0.30	-0.10
GORAKHPUR	-0.03	0.03	1.48	-0.20	-0.09	-0.08	3.53	0.11	-0.31	-0.76
KANPUR	0.88	0.60	1.18	-0.20	1.00	0.41	2.40	0.15	-0.27	-0.36
LUCKNOW	0.09	0.00	0.46	0.13	0.13	-0.16	0.80	-0.06	0.05	0.38
MEERUT	1.35	1.37	2.30	0.38	1.07	1.56	4.38	1.80	-0.56	0.45
MORADABAD	2.89	1.91	3.71	2.29	3.03	1.16	1.51	2.64	-0.17	0.40
VARANASI	-0.24	0.37	2.29	-0.51	0.07	-0.17	0.34	-0.42	-0.58	-0.65
KOLKATA	-0.96	-0.70	-0.34	-0.67	-0.63	-0.49	0.13	-0.68	-1.54	0.02
DELHI	-0.38	-0.44	0.29	0.15	0.76	-0.72	-0.01	-0.74	-1.11	0.29

Riots	CBT	Cheat	Counterfei	Others	Total
-0.30	-0.88	0.01	-0.05	-0.75	-0.63
-0.72	-0.59	0.59	0.08	-0.21	-0.12
-0.55	0.08	0.02	-0.23	0.29	0.34
0.22	2.66	1.21	-0.33	0.18	0.68
-0.05	0.42	-0.95	-0.38	-0.50	-0.22
-0.45	-0.93	-1.33	-0.37	-0.21	-0.18
-0.48	1.72	0.72	-0.23	0.44	0.34
-0.70	1.02	-1.35	-0.26	-0.32	-0.73
-0.66	2.18	1.27	-0.29	0.33	0.00
-0.34	-0.48	-0.04	-0.35	-0.57	-0.68
0.43	1.19	0.66	-0.23	0.56	0.67
-0.20	0.35	1.22	6.61	0.61	0.91
-0.32	-0.96	-0.13	0.29	-0.54	-0.75
0.63	-0.92	-0.43	-0.36	-0.39	-0.56
0.02	-1.26	-0.87	-0.35	-0.46	-0.72
-0.19	-0.89	-0.77	-0.33	-0.70	-0.89
0.42	-0.67	0.25	-0.21	0.77	0.29
0.78	-0.64	-0.42	-0.27	1.50	0.67
1.59	-0.59	-0.27	-0.26	0.76	0.33
-0.02	-0.23	0.53	0.05	3.95	3.83
-0.45	-0.91	-0.22	-0.31	1.82	1.27
-0.36	-0.82	-0.56	-0.34	1.16	0.83
-0.65	-0.27	-0.78	-0.38	1.81	1.92
-0.56	-1.15	-0.59	-0.38	1.56	1.26
-0.15	-0.44	-0.59	-0.33	-0.25	0.05
-0.85	0.22	-0.08	-0.27	-0.43	-0.36
-0.52	0.26	-0.24	0.20	0.19	0.41
-0.74	-0.45	-0.49	-0.33	-0.58	-0.72
-0.53	0.07	-0.11	0.00	0.73	0.73
-0.78	-1.09	-1.33	-0.02	-0.74	-1.11
-0.96	-1.16	-0.72	-0.38	-1.24	-1.50
-0.97	-1.23	-1.46	-0.33	-1.12	-1.46
-0.96	-1.20	-1.69	-0.38	-1.15	-1.47
0.19	-0.67	1.31	-0.19	-0.44	-0.60
5.03	0.05	2.80	-0.35	0.44	1.06
-0.15	-1.10	-0.15	-0.38	-0.49	-0.80
1.99	0.90	2.53	-0.04	-0.03	0.22
0.24	-0.22	1.51	-0.24	-0.34	-0.51
0.79	0.15	2.27	-0.36	0.24	0.46
1.06	0.27	1.59	-0.26	-0.17	-0.04
-0.69	-0.53	-0.06	1.18	-0.74	-0.61
0.74	-0.66	-1.00	0.86	-0.26	-0.23
-0.60	-1.06	-0.87	0.99	-0.50	-0.62
2.81	-1.13	-1.31	1.10	-0.17	0.93
1.03	0.97	0.83	1.88	3.25	3.29
0.18	1.35	0.59	-0.34	-0.63	-0.27
-0.26	0.00	-0.55	-0.38	-0.73	-0.68
-0.26	0.56	0.17	-0.32	-0.54	-0.23
-0.54	0.93	-0.55	-0.36	-0.68	-0.49
-0.12	0.75	-0.99	-0.34	-1.00	-0.92
-0.26	2.15	0.04	0.03	-0.55	-0.42
-0.38	1.81	1.02	-0.22	-0.43	-0.18
-0.21	1.59	0.39	-0.38	-0.62	-0.20
0.30	1.06	-0.26	-0.38	-0.16	0.26
-0.25	0.27	-0.88	-0.31	-0.70	-0.74
-0.43	0.24	0.06	-0.21	-0.78	-0.69
-0.84	-0.08	0.43	-0.25	-0.45	-0.43

APPENDIX VIII: Z-SCORE SLL 1997, 1998, 1999

	Arms Act	Nar Drugs	Gamb.	Excise	Prohib Act	Explosives	Imm Trfc	Ind Rail	For Regn	Civil Rgts	Passport
AHMEDABAD	-0.6	-0.5	-0.31	-0.7	0.6	-0.5	-0.4	-0.39	-0.29	0.40	-0.53
BANGALORE	-0.6	-0.5	-0.80	-0.1	-0.6	-0.6	0.4	-0.39	0.30	0.11	3.28
BHOPAL	0.2	-0.4	0.68	0.1	-0.5	-0.1	-0.4	-0.39	-0.13	-0.46	-0.53
CALCUTTA	-0.6	-0.5	-0.75	0.1	-0.6	-0.4	-0.4	1.05	-0.29	-0.46	-0.53
CHENNAI	-0.6	-0.3	0.11	-0.7	0.1	-0.6	3.7	-0.39	-0.29	-0.46	-0.15
COIMBATORE	-0.6	0.4	-0.63	-0.7	0.0	0.4	1.7	-0.39	-0.29	-0.18	-0.53
DELHI	0.2	0.0	0.16	1.8	-0.5	-0.4	-0.4	3.70	0.03	-0.18	1.76
HYDERABAD	-0.6	-0.6	-0.79	-0.5	-0.5	-0.6	-0.4	-0.39	-0.29	-0.03	1.76
INDORE	2.8	-0.5	3.05	3.4	-0.3	0.3	-0.4	-0.39	-0.24	-0.46	-0.53
JAIPUR	-0.4	-0.4	-0.40	0.3	-0.6	-0.5	-0.3	-0.39	-0.24	-0.46	-0.15
KANPUR	2.6	3.5	2.47	1.4	-0.4	3.6	-0.5	-0.39	-0.29	-0.46	-0.15
KOCHI	-0.6	-0.3	-0.83	-0.7	-0.6	-0.4	-0.4	-0.39	-0.08	-0.32	-0.53
LUCKNOW	1.5	0.8	0.96	0.2	-0.5	1.3	-0.4	-0.39	-0.29	-0.46	-0.53
LUDHIANA	-0.2	-0.1	-0.36	0.4	-0.6	-0.5	-0.4	0.57	-0.29	-0.18	-0.53
MADURAI	-0.6	0.8	-0.34	-0.7	0.7	-0.6	1.4	-0.39	-0.24	3.15	0.99
MUMBAI	-0.5	-0.3	-0.61	-0.7	-0.5	-0.7	0.1	-0.39	-0.13	-0.46	0.23
NAGPUR	0.0	-0.4	0.26	-0.7	0.1	-0.6	-0.4	-0.39	-0.29	0.11	-0.15
PATNA	0.1	-0.6	-0.23	-0.2	-0.5	0.6	-0.4	-0.39	-0.08	-0.46	-0.53
PUNE	-0.6	-0.6	-0.73	-0.7	0.8	-0.6	-0.4	-0.39	4.54	-0.32	-0.53
SURAT	-0.6	-0.6	-0.52	-0.7	3.6	-0.3	-0.4	-0.39	-0.29	-0.46	-0.53
VADODHARA	-0.6	-0.6	-0.47	-0.7	1.7	-0.5	-0.4	2.02	-0.24	-0.46	-0.53
VARANASI	0.8	2.1	0.41	0.1	-0.5	1.7	-0.4	-0.39	-0.29	-0.46	-0.53
VISHAKAPATNAI	-0.6	-0.6	-0.33	-0.5	-0.5	-0.1	-0.3	-0.39	-0.24	3.00	-0.53

	Ess Comm	TADA	AATA	Dow Prohbn	Chld Mar	Ind Rep Wom	Cpyrgt	Sati	SC/ST	Forest	Others	Total
AHMEDABAD	-0.2		-0.38	-0.42			-0.17		-0.35	-0.47	-0.51	-0.23
BANGALORE	0.6		2.53	3.31			-0.17		0.38	0.89	3.48	-0.15
BHOPAL	0.5		-0.38	-0.42			0.09		-0.12	-0.29	-0.57	-0.30
CALCUTTA	0.3		-0.38	-0.42			-0.52		-0.69	-0.53	1.90	-0.09
CHENNAI	-1.1		-0.38	0.43			-1.30		-0.67	-0.53	-0.21	0.66
COIMBATORE	-0.7		-0.38	-0.39			-1.04		-0.49	2.42	-0.44	6.68
DELHI	-0.4		2.53	-0.33			1.22		-0.62	-0.53	-0.56	0.17
HYDERABAD	-1.1		-0.38	-0.39			-0.69		-0.46	-0.53	0.71	0.09
INDORE	0.3		-0.38	-0.39			0.44		-0.62	-0.53	-0.56	0.17
JAIPUR	0.5		-0.38	-0.42			2.08		1.95	0.42	-0.56	-2.75
KANPUR	2.7		2.53	0.66			-0.43		2.50	3.01	-0.02	26.15
KOCHI	-0.8		-0.38	-0.39			0.09		-0.21	-0.53	-0.55	-0.57
LUCKNOW	0.5		-0.38	-0.36			-1.21		2.00	0.59	-0.30	-4.74
LUDHIANA	1.4		-0.38	-0.42			0.26		-0.69	-0.47	-0.56	0.39
MADURAI	-0.9		-0.38	-0.33			-1.21		-0.65	-0.53	1.27	-0.09
MUMBAI	-0.6		-0.38	-0.42			1.04		-0.69	-0.53	-0.10	1.61
NAGPUR	0.5		-0.38	-0.42			1.22		-0.56	-0.47	-0.55	0.16
PATNA	0.5		-0.38	2.75			-1.21		-0.26	-0.53	-0.56	-0.48
PUNE	-0.9		-0.38	-0.42			1.39		-0.65	-0.53	-0.52	0.23
SURAT	-1.1		-0.38	-0.42			1.39		-0.17	-0.53	-0.48	-0.75
VADODHARA	-0.6		-0.38	-0.42			0.26		-0.08	-0.53	-0.52	-0.86
VARANASI	1.7		-0.38	-0.06			-0.60		1.72	1.18	-0.27	-1.99
VISHAKAPATNAI	-1.1		-0.38	-0.26			-0.95		-0.56	-0.47	0.49	-0.17

APPENDIX IX: Z - SCORES IPC 1997 1998 1999

	Cities	Murder	Att Mur	Cul Hom	Rape	Kid & Abd	Dacoity	Prep Dac	Rob	Burg
1	HYDERABAD	-0.87	-0.77	-0.65	-0.53	-0.60	-0.51	-0.62	-0.99	-0.25
2	VIJAYWADA	-0.17	-0.08	-0.66	0.31	0.31	-0.30	-0.62	-0.93	0.10
3	VISHAKAPATNAM	-0.98	-0.69	-0.67	0.01	-0.81	-0.47	-0.62	-1.10	-0.22
4	GUWAHATI	0.92	-0.51	0.72	1.78	3.17	6.17	2.05	2.95	2.33
5	PATNA	3.50	2.22	1.16	-0.36	0.49	3.00	2.52	3.31	-0.37
6	RANCHI	1.30	0.79	4.20	0.11	-0.26	0.97	1.09	0.99	-0.74
7	AHMEDABAD	-0.74	-0.80	-0.63	-0.76	-0.12	-0.26	-0.59	-0.03	-0.62
8	BHAVNAGAR	0.69	-0.35	-0.71	-0.27	0.73	0.16	-0.62	0.61	0.07
9	RAJKOT	-0.27	-0.60	-0.66	-0.66	0.25	-0.47	-0.47	-0.44	0.19
10	SURAT	-0.22	-0.85	-0.65	-0.59	-0.48	-0.23	-0.62	-0.65	-0.66
11	VADODHARA	-0.67	-0.84	-0.64	-0.51	-0.29	-0.09	-0.62	-0.50	0.12
12	BANGALORE	-0.19	0.26	-0.69	-0.58	-0.34	0.18	-0.36	1.04	1.49
13	BELGAUM	-0.45	-0.69	-0.34	-0.76	-0.61	-0.13	-0.62	-0.20	-0.04
14	BIJAPUR	-0.31	-1.00	-0.39	-0.88	-0.62	0.54	-0.62	-0.79	-1.30
15	GULBARGA	-0.74	0.66	-0.46	-0.51	-0.35	0.07	-0.62	1.51	0.45
16	HUBLI DHARWAD	-0.75	0.52	-0.25	-0.82	-0.77	-0.32	-0.62	-0.70	-0.30
17	KOCHI	-1.15	-0.74	0.32	-0.40	-0.94	-0.29	-0.62	-0.85	-0.46
18	KOZHIKODE	-1.10	-0.87	0.23	-0.09	-0.82	-0.36	-0.62	-0.66	0.69
19	THIRUV'PURAM	-0.83	-0.48	0.23	0.17	-0.51	0.48	1.23	-0.18	0.62
20	BHILAI(DURG)	0.63	0.82	-0.03	5.38	-0.05	-0.46	0.18	1.18	3.91
21	BHOPAL	-0.49	0.03	-0.71	1.05	-0.47	-0.64	-0.52	0.21	1.03
22	GWALIOR	1.18	1.00	-0.65	1.10	0.16	-0.47	0.92	0.79	2.66
23	INDORE	0.37	0.04	-0.48	0.21	-0.53	-0.66	0.89	-0.74	0.74
24	JABALPUR	-0.19	0.52	1.09	1.72	-0.71	-0.65	-0.36	-0.22	0.43
25	AMRAVATI	-0.68	-0.61	-0.43	0.07	-0.64	-0.10	0.68	0.19	0.36
26	AURANGABAD	-0.39	-0.66	-0.65	-0.18	-0.75	0.38	0.20	-0.33	0.42
27	MUMBAI	-0.87	-0.89	-0.62	-0.49	-0.83	-0.25	1.28	-0.53	-0.68
28	NAGPUR	0.53	-0.29	-0.56	0.32	-0.33	0.12	3.69	1.35	1.90
29	NASIK	-0.64	-0.81	-0.71	-0.55	-0.85	-0.24	-0.49	-0.79	-0.21
30	PUNE	-0.77	-0.91	-0.59	-0.08	-0.72	-0.18	-0.21	-0.73	-0.24
31	SOLAPUR	-0.83	-0.74	-0.59	-0.45	-0.86	-0.38	-0.62	-0.73	-0.68
32	AMRITSAR	-0.73	-0.96	-0.50	-0.44	-0.84	-0.65	0.09	-1.21	-1.29
33	JALANDHAR	-0.38	-0.57	-0.19	-0.43	-0.62	-0.59	-0.01	-1.20	-0.63
34	LUDHIANA	-0.32	-0.74	0.11	-0.03	-0.29	-0.37	2.98	-1.21	-1.01
35	AJMER	-0.52	1.27	-0.50	-0.02	0.66	-0.03	-0.62	0.35	0.41
36	BHARATPUR	0.92	0.67	-0.71	1.61	2.97	0.31	1.49	0.81	0.23
37	BIKANER	-0.69	-0.57	-0.51	-0.21	-0.31	-0.41	-0.62	-1.19	-0.39
38	JAIPUR	-0.83	-0.52	-0.50	0.12	0.92	-0.43	-0.62	-0.66	0.54
39	JODHPUR	-0.81	-0.39	-0.53	-0.17	0.48	-0.61	-0.62	-0.70	-0.34
40	KOTA	-0.07	4.89	0.18	1.95	3.16	-0.23	-0.62	1.56	1.81
41	UDAIPUR	-0.42	1.00	-0.32	0.11	2.38	-0.46	-0.62	1.19	0.89
42	CHENNAI	-1.10	-0.24	-0.68	-0.80	-0.91	-0.47	-0.62	-0.89	-1.08
43	COIMBATORE	-0.62	-0.73	-0.71	-0.89	-0.79	-0.61	-0.62	-1.06	-0.87
44	MADURAI	-0.61	-0.37	-0.71	-0.76	-0.71	-0.03	-0.62	-0.51	-0.90
45	SALEM	-0.36	-0.11	-0.71	-0.75	-0.53	-0.46	-0.62	-0.70	-0.53
46	THIRUNELVELI	1.14	0.13	-0.43	-0.78	-0.27	-0.29	-0.62	0.50	-0.36
47	TRICHY	-0.32	-0.25	-0.71	-0.83	-0.65	-0.64	-0.62	-0.96	-0.47
48	AGRA	0.38	-0.01	0.93	-0.08	0.71	0.23	-0.40	0.05	-0.50
49	ALIGARH	2.20	1.99	1.33	0.60	1.66	0.63	-0.62	1.45	-0.48
50	ALLAHABAD	1.07	0.32	1.12	-0.47	0.07	0.03	-0.49	0.72	-0.49
51	BAREILLY	1.58	1.05	1.84	-0.12	0.87	0.45	-0.62	0.37	-0.47
52	GORAKHPUR	1.38	0.63	2.34	-0.24	-0.24	-0.27	0.74	0.35	-0.29
53	KANPUR	1.41	0.25	1.60	-0.11	0.72	0.90	0.02	0.44	-0.59
54	LUCKNOW	0.39	0.13	0.54	-0.34	0.12	-0.04	-0.49	0.02	-0.28
55	MEERUT	0.96	0.13	0.25	-0.34	0.01	-0.07	0.13	0.49	-0.62
56	MORADABAD	2.55	1.48	2.84	1.02	0.86	0.78	-0.62	1.12	-0.31
57	VARANASI	0.49	0.09	0.58	-0.49	-0.48	-0.49	-0.27	-0.10	-0.94
58	KOLKATA	-1.37	-0.89	-0.51	-0.87	-0.84	-0.42	1.65	-0.97	-1.51
59	DELHI(CITY)	-0.14	-0.34	-0.01	1.01	1.03	-0.38	0.23	-0.10	-0.28

Theft	Riots	CBT	Cheat	Counterfeit	Arson	Hurt	Dow Death	Moles	Sex Har	Cruel by Hus & Rel	Others	Total
-0.40	-0.52	-0.61	1.06	-0.39	-0.60	0.14	-0.40	-0.64	-0.48	0.63	-1.10	-0.83
1.10	-0.60	-0.20	2.27	-0.39	0.67	2.87	-0.05	1.12	1.32	2.05	-0.54	0.63
-0.32	-0.68	-0.06	-0.03	-0.33	-0.11	-0.28	-0.44	-0.16	6.34	0.42	-0.74	-0.58
2.00	0.05	1.39	-0.24	0.70	-0.07	0.65	-0.74	0.42	-0.53	-0.49	-0.13	0.93
0.37	-0.25	1.63	-0.86	-0.53	-0.14	-0.67	1.77	-0.55	-0.50	-0.83	-0.29	-0.11
-0.42	-0.42	0.85	-0.95	-0.48	-0.41	-0.82	-0.21	0.81	-0.53	-0.71	-0.81	-0.81
0.38	-0.43	-0.08	-0.77	-0.44	-0.46	0.02	-0.93	-0.77	-0.40	0.37	0.26	0.02
0.58	0.06	3.57	0.64	0.26	1.14	-0.80	-0.40	0.49	-0.02	1.13	1.73	1.19
0.76	-0.33	0.12	-0.88	-0.30	0.02	0.28	-0.26	-0.47	-0.02	0.76	0.78	0.59
-0.51	-0.53	-0.25	-0.62	-0.54	-0.32	-0.41	-0.07	-0.73	-0.47	-0.41	-0.98	-1.02
0.60	-0.14	1.78	-0.27	-0.16	-0.37	-0.11	-1.17	-0.47	-0.34	0.25	0.70	0.45
1.82	-0.34	0.20	0.83	4.38	-0.53	1.03	0.00	0.03	-0.30	-0.70	0.42	0.99
-1.01	0.05	-0.66	-0.03	-0.02	-0.09	0.61	-0.87	-0.27	-0.53	-0.47	-0.23	-0.35
-1.65	0.12	-1.32	-1.21	-0.74	-0.60	0.36	-0.64	0.34	-0.53	-0.62	-0.58	-0.95
-0.60	0.54	-0.92	-0.76	-0.74	0.13	0.65	-0.34	-0.55	-0.53	0.35	-0.66	-0.32
-1.04	-0.08	-0.89	-0.20	-0.47	-0.11	-0.28	-0.51	-0.82	-0.52	-0.74	-0.22	-0.58
-1.23	0.09	-0.58	0.30	-0.40	-0.31	0.19	-1.17	0.00	-0.45	-0.60	0.99	0.18
-0.77	1.69	-0.14	1.53	-0.66	0.00	1.23	-0.87	0.89	-0.43	1.29	2.13	1.60
-0.94	1.12	-0.17	1.03	-0.29	0.18	1.92	-1.02	1.93	-0.50	-0.11	1.16	1.04
1.94	-0.44	-0.78	-0.01	-0.34	0.17	2.39	0.18	4.86	0.03	0.12	1.81	2.47
0.33	-0.54	-0.62	-0.11	-0.26	-0.11	0.19	0.13	1.26	-0.02	-0.50	2.63	1.66
0.98	-0.16	-0.77	-0.34	-0.63	0.12	1.35	1.44	2.09	-0.28	-0.08	1.74	1.81
1.56	-0.59	-0.65	-0.68	-0.31	-0.18	0.85	0.97	0.18	-0.36	-0.34	0.84	0.91
-0.39	-0.54	-1.01	-0.71	-0.74	-0.47	0.71	0.68	0.79	-0.19	-0.38	1.39	0.78
0.51	-0.25	-0.46	-0.92	-0.27	0.71	0.37	-0.87	-0.18	-0.17	0.37	-0.74	-0.32
-0.29	-0.23	-0.66	-0.52	-0.59	-0.24	0.06	-0.46	-0.08	-0.21	1.13	-0.62	-0.45
0.21	-0.69	-0.46	-0.59	-0.33	-0.59	-0.43	-0.79	-0.64	-0.49	-1.02	-0.98	-0.94
1.04	-0.32	-0.22	-0.34	0.11	0.07	0.38	-0.94	0.18	-0.08	-0.38	-0.01	0.45
-0.47	-0.24	-0.62	-0.84	-0.66	-0.42	-0.39	-0.70	-0.60	-0.25	0.00	-0.84	-0.87
0.01	1.14	-0.57	-0.51	-0.64	-0.39	-0.06	-1.02	-0.41	0.21	-0.73	-0.61	-0.42
-0.89	-0.50	-0.97	-0.94	-0.14	-0.37	-0.42	-1.10	-0.73	-0.42	-0.70	-0.83	-1.08
-1.69	-0.74	-0.91	-0.96	-0.52	-0.48	-1.00	-0.14	-0.90	-0.50	-0.89	-1.26	-1.73
-1.38	-0.74	-1.00	0.05	-0.18	-0.49	-0.80	0.38	-0.86	-0.53	-0.86	-1.07	-1.37
-1.26	-0.74	-0.80	0.15	-0.49	-0.44	-0.84	0.02	-0.88	-0.53	-0.33	-1.06	-1.34
-0.11	0.12	-0.49	1.96	0.82	-0.20	-0.52	0.57	0.08	-0.39	2.35	0.53	0.48
1.59	5.48	0.58	2.41	0.73	0.83	-1.10	0.83	0.93	-0.53	1.80	2.22	2.41
-0.83	0.57	-0.82	0.33	0.79	-0.60	-0.97	0.61	-1.05	-0.53	0.61	0.43	-0.16
1.46	2.82	1.03	2.16	4.75	0.11	-0.97	0.08	0.41	-0.52	0.82	0.91	1.18
-0.45	-0.04	0.17	2.41	1.25	0.44	3.79	0.62	0.02	-0.50	2.46	-0.97	0.19
1.40	1.43	-0.35	1.63	0.65	1.19	-0.06	0.10	1.85	-0.38	3.03	1.05	1.76
0.91	1.83	1.17	2.42	1.08	0.03	-0.80	-0.51	0.34	-0.47	1.33	1.46	1.49
-0.84	-0.66	-0.22	0.08	0.54	-0.60	-0.80	-0.83	-0.92	-0.53	-1.09	-1.21	-1.48
-0.27	-0.18	-0.77	-0.93	0.28	6.67	-0.81	-0.04	-0.71	1.88	-1.10	0.02	-0.41
-0.03	-0.50	-0.93	-0.73	0.75	-0.29	-0.64	-0.59	-0.81	0.75	-0.96	0.46	-0.16
0.23	-0.44	-1.16	-0.99	0.43	-0.36	-0.19	-1.06	-0.76	0.54	-1.13	-0.30	-0.44
0.22	-0.25	-0.86	-1.02	0.29	1.68	-0.36	-0.96	-0.43	-0.32	-1.22	0.24	-0.05
0.32	-0.44	-0.72	-0.60	0.23	-0.46	0.63	-0.49	-0.80	-0.17	-1.04	-0.66	-0.47
-0.35	-0.13	1.38	-0.32	-0.37	-0.34	-0.64	1.13	-0.42	0.07	-0.40	-0.51	-0.54
-0.46	0.12	1.64	-0.52	-0.67	0.02	-0.52	3.38	0.86	-0.03	0.77	0.50	0.30
-0.68	-0.36	0.85	0.96	-0.49	-0.28	-0.50	0.37	-0.57	0.41	-0.53	-0.83	-0.72
-0.10	-0.29	1.18	-0.07	-0.68	-0.36	-0.65	1.16	-0.35	0.39	0.73	-0.70	-0.48
-0.88	-0.18	0.85	-0.48	-0.33	-0.48	-0.55	0.11	-0.46	0.63	-1.03	-0.53	-0.65
-0.52	-0.23	1.72	-0.08	0.15	0.02	1.41	2.99	-0.34	0.98	0.39	-0.57	-0.13
0.34	-0.24	2.22	0.39	-0.49	-0.38	-1.01	0.70	-0.60	0.28	-0.15	-0.44	-0.37
-0.30	-0.33	0.52	-0.59	-0.62	-0.14	-0.85	0.21	-0.49	1.26	0.30	-0.80	-0.75
-0.48	-0.19	0.31	-0.51	-0.67	-0.10	-0.67	2.67	0.93	0.94	0.13	-0.48	-0.37
-1.18	-0.45	-0.01	-0.84	-0.38	-0.31	-0.78	0.65	-0.95	0.18	-0.86	-1.14	-1.31
-0.93	-0.60	-0.61	-0.76	-0.46	-0.59	-0.80	-1.12	-0.66	-0.46	-1.04	-1.21	-1.50
2.99	-0.67	0.13	0.10	-0.01	-0.38	-0.57	-0.01	0.20	-0.24	-1.13	0.21	0.54

APPENDIX X: CORRELATION MATRIX

	Pop L	SR	LIT	WPR	SC	ST	JS	FWPR	MIG	SL_DWL	PCI
Pop L	1	-0.217	0.131	0.26*	0.014	-0.091	-0.053	0.057	0.174	0.157	0.303*
SR		1	.417**	-0.068	-0.163	-0.108	0.533**	.619**	0.182	-0.129	-0.15
LIT			1	0.317	-0.287	0.198	0.579**	0.571**	0.280*	0.046	0.098
WPR				1	-0.077	-0.032	0.023	0.315*	0.289*	-0.075	0.181
SC					1	-0.087	-0.305	-0.11	-0.052	0.121	-0.053
ST						1	-0.129	0.071	-0.052	0.256	0.067
JS							1	0.484**	0.104	-0.081	-0.39
FWPR								1	0.259*	0.133	0.072
MIG									1	0.068	0.568**
SL_DWL										1	0.118
PCI											1