Deprivation, Violence, and Conflict: An Analysis of Naxalite Activity in the Districts of India

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Deprivation, Violence, and Conflict: An Analysis of "Naxalite" Activity in the Districts of India

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Abstract

This paper poses two questions: is it a fact that there is more violence in Naxalite (i.e. Maoist) affected districts compared to districts which are free of Naxalite activity? can the fact that Naxalite activity exists in some districts of India, but not in others, be explained by differences between districts in their economic and social conditions? Using a number of sources, this study identifies districts in India in which there was significant Naxalite activity. Correlating these findings with district level economic, social, and crime indicators, the econometric results show that, after controlling for other variables, Naxalite activity in a district had, if anything, a dampening effect on its level of violent crime and crimes against women. Furthermore, even after controlling for other variables, the probability of a district being Naxalite affected rose with an increase in its poverty rate and fell with a rise in its literacy rate. So, one prong in an anti-Naxalite strategy would be to address the twin issues of poverty and illiteracy in India. As the simulations reported in the paper show, this might go a considerable way in ridding districts of Naxalite presence.

Keywords: India, districts, deprivation, violent crime, Naxalite movement

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1. Introduction

The largely successful military campaign that Nepal's Maoists have waged against the Nepalese monarchy and its political establishment has drawn attention to the activities of Maoist groups in India (known, collectively, as "Naxalites", after Naxalbari, the district in west Bengal where the first Maoist-inspired insurgency began in 1967). The Indian Home Ministry estimates that 91 percent of violence in India, and 89 percent of deaths arising from violence, are the result of Naxalite action (Government of India, 2005). Moreover, the growth of Naxalite activity in India has been phenomenonal: from 55 districts afflicted by various degrees of Naxalite activity in eight States in November 2003 to 157 districts across 13 States (Gill, 2005). In response to the threat posed by Naxalites, the Indian Government has decided to set up a high-powered committee - headed by the Union Home Minister and having as its members the Chief Ministers of the worst-affected states - Andhra Pradesh, Maharashtra, Madhya Pradesh, Chattisgarh, Jharkhand, Bihar, Uttaranchal, Orissa and Uttar Pradesh – to address the problem.

Referring to the workings of this Committee, the Indian Prime Minisiter, Manmohan Singh, pointed out that Naxalite insurgency should not be viewed as a purely law and order problem: underlying this insurgency, and lending it support, was the social and economic deprivation experienced by a significant part of India's population. For example, as Bhatia (2005) observes, a large part of Naxalite activities are, in fact, are "non violent" and that this feature of the Naxalite movement has received little attention. Moreover, many of these open and non violent activities – *inter alia* meetings, boycotts, marches, road blocks – are in pursuit of basic economic and social rights: for example, land rights; minimum wages; right to use common property resources; the right of the "lower castes" to respect and dignity. In

consequence, combating Naxalite violence, arguably, requires not just strong police and military action but also effective measures to alleviate political, social and economic deprivation and injustice.[1]

Against this background, this paper identifies districts in India in which there is significant Naxalite activity (hereafter, simply "Naxalite activity") and asks two questions:

(i) Is it a fact that there is more violence in Naxalite affected districts compared to districts which are free of Naxalite activity? [2]

(ii) Can the fact that Naxalite activity exists in some districts of India, but not in others, be explained by differences between districts in their economic and social conditions?

2. Naxalite Activity in Indian Districts

We identified, on the basis of Government of India (2005) and various websites - prominent among which was the South Asian Intelligence Review (http://www.satp.org/satporgtp/sair/) - 88 districts in 10 states in which there was Naxalite activity.[3] This estimate lies between a low of 76 districts in 9 states (Government of India, 2005) and a high of 157 districts in 13 states (Gill, 2005). These Naxalite affected districts identified by us are listed in Table 1.

[1] The best predictors of civil wars were low average incomes, low growth, and a high dependence of primary good exports ("The Global Menace of Local Strife", The *Economist*, 22 May 2003).
[2] The district is the smallest geographical unit for which a consisent set of data is available. There are 593 districts in India with a District Commisioner (or District Collector) acting as the administative head of each district. The median and mean populations of these districts were, respectively, 1.47 and 1.73 million persons: the most and the least populous districts were Medinipur in West Bengal (population: 9,638,473) and Yanam in Pondicherry (population: 31,362). By focusing on districts, the study is able to concentrate atention on pockets of deprivation instead of viewing deprivation as a phenomenom affecting a state or a region in its entirety (Misra, 2001; Kurian, 2001).
[3] Information on Karnatka was obtained from Ramana (2005) and for Tamil Nadu from Viswanathan (2002).

District-level data on population was available from the 2001 Census of India and Debroy and Bhandari (2004) provided us with further data on a number of welfare indicators in the districts:

1. The *poverty rate*: the proportion of households in a district who are below the poverty line.[4]
2. The *literacy rate*: the percentage of persons (who were seven years of age or above) in a district who were literate.[5]
3. The *imminisation rate*: the proportion of 0-6 year olds in a district who were immunised against disease.[6]
4. The *infant mortality rate*: the number of deaths within a year per 1,000 live births.[7]
5. The *pupil-teacher ratio*: the number of pupils per teacher in primary schools.
6. The *pregnancy attention rate*: the proportion of women receiving skilled attention during pregnancy.
7. The *sex ratio*: among 0-6 year olds, the number of females per 1,000 males.[8]
8. The *safe drinking wate rate*: the proportion of habitations in a district with safe drinking water.
9. The *pucca road* rate: The proportion of villages in a district connected by *pucca* (motorable) road.

Table 2 shows, for each of these indicators, the distribution of the 100 worst performing districts by the state to which they belonged. When "backwardness" was measured by a district's poverty rate, 85 districts were contained in just seven states

[4] The district level poverty rates are based on Bhandari and Dubey (2003).
[5] Obtained from the 2001 Census. The literacy rate was made "gender sensitive" by adjusting for differences in male and female literacy rates.
[6] Complete immunisation involves vaccination of children, within the first year of life, against six diseases: diphtheria; pertussis; tetanus; tuberculosis; poliomyelitis; and measles.
[7] The infant mortality rates are from the Registrar General of India.

(Assam; Bihar; Chattisgarh; Jharkhand; Madhya Pradesh; Orissa; and West Benga) and 45 districts were in just three states (Bihar; Jharkhand; and Orissa). In terms of (il)literacy, five states (Bihar, Jharkhand; Rajasthan; Orissa and Uttar Pradesh) contributed 75 districts. In terms of immunisation rates, seven states (Arunachal Pradesh; Assam; Bihar; Jharkhand; Madhya Pradesh; Rajasthan; and Uttar Pradesh) contributed 85 districts. In terms of infant mortality rates, four states (Madhya Pradesh; Orissa; Rajasthan; and Uttar Pradesh) contributed 96 districts. In terms of the sex ratio of 0-6 year olds, five states (Gujarat; Haryana; Punjab; Rajasthan; and Uttar Pradesh) contributed 74 districts. Of the 100 districts with the lowest percentage of women receiving skilled assistance during pregnancy, 27 were in Uttar Pradesh and 25 were in Bihar. Lastly, of the 100 districts with the highest percentage of villages not connected to *pucca* roads, 30 were in Orissa and 22 were in Madhya Pradesh.

Crime Statistics

The National Crime Record Bureau has, since 1953, provided crime statistics in India (relating to the number of reported crimes which fell under the purview of the Indian Penal Code) by state and district. We had available to us district level crime statistics for 1998. From these data, we defined three broad categories of crime:

1. *Violent crime*, comprising: murders, attempted murders, rapes, kidnappings, *dacoities*, robberies, burglaries, thefts, riots, sexual harassments, dowry deaths, and cruelty by husband and relatives.
2. *Anti-women crime*, comprising: rapes, kidnapping and abduction of women and girls, sexual harassments, dowry deaths, and cruelty by husband and relatives.

[8] 2001 Census for India.

3. *Public Order crime*, comprising riots and arson.

From the numbers of offences under each of the above categories we constructed the *violent crime rate* as the number of violent crimes in a district, per 10,000 of its adult population, and the *anti-women crime rate* as the number of crimes against women in a district, per 10,000 of its adult *female* population. Tables 3 and 4 show the 100 districts in India with the highest *rates* of, respectively, violent crime and crimes against women. Table 5 shows the 100 districts in India with the largest *number* of crimes against public order. Table 6 groups, by state, the 100 districts with the largest *numbers* of violent crime, anti-women crime, and public order crime, and the 100 districts with the highest *rates* of violent crime and of anti-women crime.

Table 6 shows that, on the basis of crime rates, 23 and 22 districts of the 100 worst districts in terms of violent crime were, respectively, in Madhya Pradesh and Rajasthan while, of the 100 worst districts in terms of crimes aganst women, 34 and 25 districts were, respectively, in Madhya Pradesh and Rajasthan. In terms of the number of crimes, 17 of the worst districts in terms of violent crime and crimes against women were in Maharashtra with Andhra Pradesh and Rajasthan providing the next highest concentrations of violent crime districts. In terms of crimes against public order, 26 of the 100 districts with the larget number of such crimes were in Rajasthan, with Bihar, Kerala, and Tamil Nadu contributing, respectively, 13, 12, and 11 districts.

A comparison of Naxalite affected and Naxalite free districts

Table 7 compares, with respect each of the deprivation indicators and crime indicators listed above, districts in which there was, and was not, Naxalite activity. This Table shows that the average poverty rate in Naxalite affected districts was considerably higher than that in districts which did not have Naxalite activity (32

versus 24 percent) and the literacy rate in Naxalite affected districts was considerably lower than that in districts which did not have Naxalite activity (60 versus 67 percent). Furthermore, the average numbers of violent crimes, crimes against women, and public order crimes were all higher in Naxalite affected districts than in Naxalite free districts.

3. Estimation Results for the Crime Equations

The preceding section raises the question of whether the level of violent crime in a district can be explained by its charactersistics where these include whether there is Naxalite activity in the district.[9] In order to examine this hypothesis we estimated, using district-level data, three econometric equations whose dependent variables were, respectively, the number in every district of: (i) violent crimes; (ii) crimes against women; (iii) crimes against public order. The equations were estimated as a system of Seemingly Unrelated Regression Equaions (SURE) in order to allow for correlation between the error terms of the three equations.

The estimation results from the three "crime equations" are shown in Table 8. Omitted from the equations specification were variables whose associated coefficients had z scores which were less than 1: as is well known, the omission of such variables enhances the explanatory power of the equation. The equations for violent crime, crimes against women, and crimes against public order explain, respectively, 58, 50, and 29 percent of the inter-district variation in the numbers of such crimes.

The first point to make about the estimation results is that, after controlling for other factors, districts with Naxalite presence (see Table 1) had *ceteris paribus* lower numbers of violent crime and crimes against women compared to districts in whch

[9] Of course, there is the possibility that, rather than violent crime being engendered by Naxalite activity, Naxalities operate in districts where is already a high level of violence.

there was no Naxalite activiy. However, it should be stressed, that the coefficients associated with the Naxalite variable were not significantly different from zero.

The second point is that districts with a larger proportion of their population living in rural areas had lower levels of violent crime and of crimes against women compared to more urbanised districts: a percentage increase in the proportion of a districts's rural population would lead the number of violent crimes to fall by 33 and crimes against wmen to fall by 1.

The third point is that the level of poverty in a district (i.e. the proportion of households in the district who were poor) had no bearing on the number of violent crimes, or on the number of crimes aganst women, in the district. However, the level of poverty did have a significant effect on the number of crimes against public order (riots and arson): the *smaller* the the proportion of households in the district who were poor, the *larger* the numer of crimes against public order.[10]

The fourth point is that higher levels of literacy were associated with higher numbers of all three types of crime: a percentage point increase in the literacy rate was associated with an additional: 16 violent crimes; 10 crimes against women; and 4 crimes against public order. However, a rise in the ratio of female to male literacy rates served to reduce the number of all three types of crime, with the largest impact being on violent crime and the smallest on crimes against women.

The fifth point is that an absence of safe drinking water was associated with higher numbers of all three types of crime though here the effect was significantly different from zero only for crimes against public order: a percentage increase in the habitations receiving safe drinking water would lead to the number of crimes against public order falling by two.

Lastly, the number of crimes in a district was positively related to the number of adult males in a district. If adult males are viewed as the main perpetrators of crime, then an increase of 10,000 in their number was associated with an additional: 11 violent crimes; 2 crimes against women; and 2 crimes against public order.[11]

4. Estimation Results for the Naxalite Activity Equation

Using the district level data, described above, we estimated a logit model in which the dependent variable (*naxal*) took the value 1 in a district if it had Naxalite activity (see Table 1) and the value 0 if it did not. Table 9 shows the results of estimating such a model, firstly on data for all the districts in India and, then, on data restricted to the 10 Indian states - Andhra Pradesh, Bihar, Chhattisgarh, Jharkhand, Karnataka, Madhya Pradesh, Maharashtra, Orissa, Tamil Nadu, West Bengal **-** which contained districts affected by Naxalite activity. The columns of Tables 9 show the the estimated "odds ratios": a coefficient estimate greater than 1 implies that the probability of a district having Naxalite activity (Pr(*naxal=1*)) rises with an increase in the value of that variable while an estimate less than 1 implies that the probability falls.[12]

Table 9 shows that whether the equation was estimated over all the Indian states, or whether the estimation was confined to the Naxalite affected states, the probability of there being Naxalite activity in a district increased with a rise in its poverty rate and

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[10] A percentage fall in the poverty rate would lead to the number of crimes against public order to increase by 2.

[11] The square of the adult male population was included to make the population effect non-linear.

[12] The logit equation is $\frac{\Pr(naxal_j = 1)}{1-\Pr(naxal_j = 1)} = \exp\{\sum_{k=1}^{K} X_{jk}\beta_j\} = \exp\{z_j\}$ for for M coefficients, β_j and for observations on K variables. The columns of Table 9 report report $\frac{\partial}{X_{jk}}\left(\frac{\Pr(naxal_j = 1)}{1-\Pr(naxal_j = 1)}\right) =$ $\beta_k \exp(\sum X_{jk}\beta_k)$, which is the the change in the odds ratio, given a change in the value of the k^{th} variable, where $\Pr(naxal_j = 1) = e^z/(1+e^z)$

decreased with a rise in its literacy rate. Table 9 shows that, in addition to poverty and literacy rates, three further factors affected the likelihood of Naxalite activity in districts:

(i) More populous districts, as measured by the number of adult males in a district, were more likely to have Naxalite activity than less sparsely populated states.

(ii) The greater the female participation in the workforce of a district, the more likely it was to have Naxalite activity

(iii) Districts with a smaller coverage of safe drinking water were more likely to have Naxalite activity compared to districts where it was more usual for habitations to have safe drinking water.

In this connection it is important to note that both Maoist parties in India[13] are explicitly concerned with issues relating to women at work (just wages and freedom from harassment) and women in the home (domestic violence and the role of marriage in women's oppression). In consequence, there has been a significant increase in the number of women coming into the movement in Andhra Pradesh (Kannabiran et. al., 2004). Bhatia (2005) observes that an important aspect of the Naxalite movement in central India has been to fight for the dignity of India's lower cates: directly as a result of Naxalite action, the incidence of rape of lower caste women has fallen, lower caste children are able to attend school, and arbitary beatings of lower caste persons are no longer tolerated.

The explanatory power of the logit equations are shown in terms of the 'Pseudo-R^2'. The 'Pseudo-R^2' is a popular measure of the model's performance in binary

[13] Naxalite activity in India is spearheaded by two groups: the Communist Party Marxist Lennist-People's War Group and the Maoist Communist Centre of India (Government of India, 2005). For details of other groups and their histories see the South Asian Terrorist Portal (SATP) website http://www.satp.org.

models and compares the maximised log-likelihood value of the full model (log L) to that obtained when all the coefficients, expect the intercept term, are set to zero (log L_0) and is defined as: 1-(log L/log L_0). The measure has an intuitive appeal in that it is bounded by 0 (all the slope coefficients are zero) and 1 (perfect fit). By the standards of discrete choice models, the R^2 values reported in Table 9 - respectively, 0.24 and 0.17 - are high.

3. Assessing the Model's Predictive Power

One way of assessing the predictive ability of a model with a binary dependent variable is by constructing a 2x2 table of the 'hits' and 'misses' emanating from a prediction rule such that a district is regarded as being Naxalite affected (*naxal=1*) or Naxalite free (*naxal=0*) if, for a cut-off probability p^*, the *estimated* probability, Pr(naxal=1) > p^*. Given a cut-off point, p^*, the 'sensitivity' and the 'specificity' of an equation are, respectively, the proportions of positive and negative cases that are correctly classified.

Table 10 shows that, with p^*=0.5, 86 percent of the districts were correctly classified when the equation was estimated over all the districts and Table 11 shows that 79 percent of the districts were correctly classified when the equation was estimated over all the districts in the Naxalite affected states. The model correctly identified districts with Naxalite activity in 24% of the cases (21 out of 88 districts, Table 10: Pr(+|D)) when it was estimated over all the districts in India and in 35 percent of the cases (30 out of 88 districts, Table 11: Pr(+|D)) when it was estimated over all the districts in the 10 Naxalite affected states.

From a different perspective, the likelihood of a district, which was identified by the model as being Naxalite affected, actually being Naxalite affected was 64

percent when the model was estimated over all the districts in India (21 out of 33 districts, Table 10: Pr(D|+)) and 65 percent when it was estimated over all the districts in the 10 affected states (30 out of 46 districts, Table 11: Pr(D|+)). However, the likelihood of a district, identified by the model as not being Naxalite affected, actually not being Naxalite affected was greater than 86 percent when the model was estimated over all the districts in India (459 out of 526 districts, Table 10: Pr(~D|-)) and 79 percent when it was estimated over all the districts in the 10 affected states (244 out of 302 districts, Table 11: Pr(~D|-)).

One can, further, plot the graph of sensitivity versus (1-specificity) as the cut-off point p^* is varied. The curve starts at (0,0) corresponding to $p^*=1$: no positive case is correctly classified (sensitivity=0) and every case is classified negative (specificity =1 or 1-specificity=0); it ends at (1,1) corresponding to p*=0: every positive case is correctly classified (sensitivity=1) and no case is classified as negative (specificity =0 or 1-specificity=1). A model with no predictive power would be the 45^0 line connecting the two extreme points (0,0) and (1,1). The more bowed the curve, the greater the predictive power. Hence the area under the curve – known as the 'receiver operating characteristic' (ROC) curve - is a measure of the model's predictive power: a model with no predictive power has an area of 0.5, while perfect predictive power implies an area of 1 (StataCorp, 2001). Figures 1 and 2 show the ROC curves for, respectively, all districts in India and all districts in Naxalite affected states: both curves are considerably bowed, with 86 percent of the area under Figure 1 and 78 percent under Figure 2, suggesting that the model has considerable predictive power.

4. Simulations from the Model

In order to assess the influence of poverty and illiteracy on Naxalite activity we used the results, shown in Table 9, from the model estimated over the districts in the Naxalite affected states (Andhra Pradesh, Bihar, Chhattisgarh, Jharkhand, Karnataka, Madhya Pradesh, Maharashtra, Orissa, Tamil Nadu, West Bengal) to carry out the following simulations:

Simulation 1: If the poverty rate in a district was greater than the all-India average (26 percent), it was reduced to the national figure.

Simulation 2: In addition to the changes brought about in Simulation 1, the literacy rate in a district was raised to the all India average (65 percent) if it was lower than the national value.

Table 1 shows that 25 percent of the districts in the Naxalite affected states had Naxalite activity (88 out of 348). Under Simulation 1, the model predicted that the proportion of Naxalite affected districts would fall to 21 percent, i.e. 73 districts out of 348. The 15 districts which would not have had Naxalite activity under this simulation are shown in Table 12. Under Simulation 2, when the poverty rate was reduced *and* the literacy rate was raised, the proportion of districts affected by Naxalite activity was predicted to fall to 17 percent, i.e. only 59 out of 348 districts would have Naxalite activity. The additional 14 districts which would not have had Naxalite activity under simulation 2 are shown in Table 13.

5. Conclusions

This paper posed two questions: (i) is it a fact that there is more violence in Naxalite affected districts compared to districts which are free of Naxalite activity? (ii) can the fact that Naxalite activity exists in some districts of India, but not in

others, be explained by differences between districts in their economic and social conditions?

The rapid spread of Naxalite activity in India, and the Maoist movement in Nepal, has made it urgent to provide answers to these questions. The raw data showed that there was more violent crime, crimes against women, and crimes against public order in Naxalite affected, compared to Naxalite free, districts. However, our econometric resuts showed that, after controlling for other variables, Naxalite activity in a district had, if anything, a dampening effect on its level of violent crime and crimes against women.

The raw data also showed that Naxalite affected districts had higher poverty rates and low literacy rates than districts which were Naxalite free. This time however, our econometric resuts showed that, even after controlling for other variables, the probability of a district being Naxalite affected rose with an increase in its poverty rate and fell with a rise in its literacy rate. So, one prong in an anti-Naxalite strategy would be to address the twin issues of poverty and illiteracy in India. As our simulations have shown this might go a considerable way in ridding districts of Naxalite presence.

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Table 1
Districts in India with Naxalite Presence

State	District
Andhra Pradesh	Adilabad
Andhra Pradesh	Anantapur
Andhra Pradesh	East Godavari
Andhra Pradesh	Guntur
Andhra Pradesh	Karimnagar
Andhra Pradesh	Khammam
Andhra Pradesh	Kurnool
Andhra Pradesh	Mahbubnagar
Andhra Pradesh	Medak
Andhra Pradesh	Nalgonda
Andhra Pradesh	Nizamabad
Andhra Pradesh	Srikakulam
Andhra Pradesh	Visakhapatnam
Andhra Pradesh	Vizianagaram
Andhra Pradesh	Warangal
Bihar	Aurangabad
Bihar	Banka
Bihar	Darbhanga
Bihar	Gaya
Bihar	Jamui
Bihar	Jehanabad
Bihar	Kaimur (Bhabua)
Bihar	Khagaria
Bihar	Muzaffarpur
Bihar	Patna
Bihar	Rohtas
Bihar	Sitamarhi
Chhattisgarh	Bastar
Chhattisgarh	Dantewada
Chhattisgarh	Jashpur
Chhattisgarh	Kanker
Chhattisgarh	Kawardha
Chhattisgarh	Rajnandgaon
Chhattisgarh	Surguja
Jharkhand	Bokaro
Jharkhand	Chatra
Jharkhand	Dhanbad
Jharkhand	Garhwa
Jharkhand	Giridih
Jharkhand	Gumla
Jharkhand	Hazaribag
Jharkhand	Kodarma
Jharkhand	Lohardaga
Jharkhand	Palamu
Jharkhand	Pashchimi Singhbhum
Jharkhand	Purbi Singhbhum
Jharkhand	Ranchi
Karnataka	Bellary
Karnataka	Bidar
Karnataka	Chikmagalur
Karnataka	Gulbarga
Karnataka	Kolar
Karnataka	Raichur
Karnataka	Shimoga
Karnataka	Tumkur
Karnataka	Udupi
Madhya Pradesh	Balaghat

Madhya Pradesh	Dindori
Madhya Pradesh	Mandla
Maharashtra	Aurangabad
Maharashtra	Bhandara
Maharashtra	Chandrapur
Maharashtra	Gadchiroli
Maharashtra	Gondiya
Maharashtra	Nanded
Maharashtra	Yavatmal
Orissa	Gajapati
Orissa	Ganjam
Orissa	Kandhamal
Orissa	Kendujhar
Orissa	Koraput
Orissa	Malkangiri
Orissa	Mayurbhanj
Orissa	Nabarangapur
Orissa	Rayagada
Orissa	Sundargarh
Tamil Nadu	Dharmapuri
Tamil Nadu	Viluppuram
Uttar Pradesh	Chandauli
Uttar Pradesh	Mirzapur
Uttar Pradesh	Sonbhadra
West Bengal	Bankura
West Bengal	Barddhaman
West Bengal	Hugli
West Bengal	Medinipur
West Bengal	Puruliya
West Bengal	South Twentyfour Parganas

Table 2
100 Most Backward Districts by State

	Poverty Rate	Literacy Rate (adjusted)	Immunisation Rate	Infant Mortality Rate	Sex Ratio (0-6 yeas)	Skilled Assistance Pregnancy	Safe Drinking Water	*Pucca* Roads
A & N Isl (2)	-	-	-	-	-	-	1	1
An Prad (23)	-	1	-	-	-	-	4	-
Ar Prad (13)	-	5	7	-	-	5	2	5
Assam (23)	6	-	5	-	-	4	7	-
Bihar (37)	16	28	34	-	1	25	4	-
Chandigarh (1)	-	-	-	-	1	-	-	-
Chattisgarh (16)	8	2	-	4	-	-	2	8
D & NH (1)	-	-	-	-	-	-	1	-
Dam & Diu (2)	-	-	-	-	-	-	-	-
Delhi (9)	-	-	-	-	8	-	-	-
Goa (2)	-	-	-	-	-	-	-	-
Gujarat (24)	-	2	2	-	12	1	1	-
Haryana (19)	-	-	-	-	19	-	-	-
H Prad (11)	1	-	-	-	4	-	-	4
J &K (14)	-	7	-	-	2	-	-	-
J'kand (18)	11	11	11	-	-	11	10	6
Karnataka (27)	3	2	1	-	-	-	5	-
Kerala (14)	-	-	-	-	-	-	14	-
L'deep (1)	-	-	-	-	-	-	1	-
M Prad (45)	12	4	10	39	4	8	6	22
Maharashtra (35)	9	-	1	-	5	1	11	5
Manipur (9)	-	-	1	-	-	3		2
Meghalaya (7)	-	-	4	-	-	2	1	-
Mizoram (8)	-	-	-	-	-	-	8	-
Nagaland (8)	-	1	4	-	-	3	-	2
Orissa (30)	18	8	1	9	-	8	-	30
P'cherry (1)	-	-	-	-	-	-	-	-
Punjab (17)	-	-	-	-	17	-	-	-
Raj'stan (32)	-	7	10	12	8	2	7	4
Sikkim (1)	-	-	-	-	-	-	-	-
T Nadu (30)	2	-	-	-	2	-	2	-
Tripura (4)	-	-	-	-	-		2	-
U Prad (70)	8	21	8	36	16	27	-	2
Uttaranchal (13)	-	-	-	-	1	-	8	6
W Beng (18)	6	1	1	-	-	-	4	2

Table 3
The 100 Districts in India with the Highest Rates of Violent Crime*

Rank	State	District	Crime Rate
1.	Delhi	New Delhi	182
2.	Himachal Pradesh	Bilaspur	59
3.	Rajasthan	Chittaurgarh	43
4.	Delhi	Central	40
5.	Mizoram	Aizawl	40
6.	Maharashtra	Mumbai (Suburban)	35
7.	Maharashtra	Bhandara	34
8.	Rajasthan	Kota	33
9.	Madhya Pradesh	Gwalior	30
10.	Karnataka	Bangalore	30
11.	Madhya Pradesh	Bhopal	29
12.	Mizoram	Lawngtlai	28
13.	Karnataka	Kodagu	28
14.	Andhra Pradesh	Hyderabad	27
15.	Rajasthan	Baran	26
16.	Madhya Pradesh	Guna	26
17.	Tamil Nadu	Perambalur	26
18.	Madhya Pradesh	Indore	25
19.	Kerala	Idukki	25
20.	Madhya Pradesh	Sagar	24
21.	Maharashtra	Amravati	24
22.	Delhi	North West	24
23.	Delhi	North East	24
24.	Maharashtra	Wardha	24
25.	Rajasthan	Jhalawar	24
26.	Mizoram	Kolasib	23
27.	Maharashtra	Parbhani	23
28.	Maharashtra	Nagpur	23
29.	Rajasthan	Bundi	23
30.	Rajasthan	Jaipur	23
31.	Madhya Pradesh	Hoshangabad	22
32.	Delhi	South West	22
33.	Rajasthan	Rajsamand	22
34.	Rajasthan	Jhunjhunun	22
35.	Rajasthan	Jodhpur	21
36.	Arunachal Pradesh	Papum Pare	21
37.	Karnataka	Bangalore Rural	21
38.	Rajasthan	Ganganagar	20
39.	Maharashtra	Akola	20
40.	Orissa	Khordha	20
41.	Rajasthan	Karauli	20
42.	Rajasthan	Ajmer	19
43.	Madhya Pradesh	Mandla	19
44.	Madhya Pradesh	Dewas	19
45.	Rajasthan	Dausa	19
46.	Karnataka	Hassan	19
47.	Gujarat	Ahmadabad	19
48.	Andhra Pradesh	Krishna	19
49.	Tamil Nadu	Madurai	19
50.	Rajasthan	Banswara	18
51.	Rajasthan	Dhaulpur	18
52.	Madhya Pradesh	Neemuch	18
53.	Haryana	Faridabad	18
54.	Mizoram	Lunglei	18
55.	Madhya Pradesh	Mandsaur	18
56.	Rajasthan	Tonk	18

57.	Gujarat	Mahesana	18
58.	Kerala	Kollam	18
59.	Haryana	Karnal	18
60.	Madhya Pradesh	Shahdol	18
61.	Goa	North Goa	18
62.	Kerala	Pathanamthitta	18
63.	Gujarat	Banas Kantha	18
64.	Dadra & Nagar Haveli	Dadra & Nagar Haveli	17
65.	Madhya Pradesh	Dhar	17
66.	Madhya Pradesh	Ujjain	17
67.	Madhya Pradesh	Sheopur	17
68.	Madhya Pradesh	Bhind	17
69.	Rajasthan	Sawai Madhopur	17
70.	Gujarat	Rajkot	17
71.	West Bengal	Kolkata	17
72.	Rajasthan	Sikar	17
73.	Kerala	Palakkad	17
74.	Arunachal Pradesh	Dibang Valley	17
75.	Madhya Pradesh	Vidisha	17
76.	Tamil Nadu	Vellore	17
77.	Rajasthan	Bharatpur	17
78.	Madhya Pradesh	Morena	17
79.	Orissa	Cuttack	17
80.	Tamil Nadu	Sivaganga	17
81.	Goa	South Goa	17
82.	Madhya Pradesh	Shivpuri	17
83.	Rajasthan	Bhilwara	16
84.	Assam	Cachar	16
85.	Madhya Pradesh	Shajapur	16
86.	Rajasthan	Udaipur	16
87.	Pondicherry	Pondicherry	16
88.	Tamil Nadu	Nagapattinam	16
89.	Rajasthan	Jaisalmer	16
90.	Madhya Pradesh	Rajgarh	16
91.	Chandigarh	Chandigarh	16
92.	Rajasthan	Hanumangarh	16
93.	Assam	Hailakandi	16
94.	Madhya Pradesh	Satna	16
95.	Kerala	Thiruvananthapuram	16
96.	Karnataka	Chikmagalur	16
97.	Tamil Nadu	Tiruchirappalli	16
98.	Madhya Pradesh	Jabalpur	16
99.	Tamil Nadu	Theni	16
100.	Madhya Pradesh	Ratlam	16

*Number of murders, attempted murders, rapes, kidnappings, *dacoities*, robberies, burglaries, thefts, riots, sexual harassments, dowry deaths, and cruelty by husband and relatives, in the district in 1998, per 10,000 of the distict's adult population.

Table 4
The 100 Districts in India with the Highest Rate of Crimes Against Women*

Rank	State	District	Crime Rate
1.	Himachal Pradesh	Bilaspur	17
2.	Rajasthan	Kota	14
3.	Madhya Pradesh	Mandla	12
4.	Rajasthan	Baran	12
5.	Delhi	New Delhi	12
6.	Rajasthan	Jhalawar	12
7.	Rajasthan	Bundi	11
8.	Maharashtra	Bhandara	11
9.	Rajasthan	Ganganagar	11
10.	Rajasthan	Chittaurgarh	10
11.	Rajasthan	Banswara	10
12.	Maharashtra	Parbhani	10
13.	Madhya Pradesh	Sagar	9
14.	Madhya Pradesh	Raisen	8
15.	Madhya Pradesh	Vidisha	8
16.	Madhya Pradesh	Guna	8
17.	Jammu & Kashmir	Srinagar	8
18.	Maharashtra	Wardha	8
19.	Madhya Pradesh	Sehore	8
20.	Madhya Pradesh	Shahdol	8
21.	Rajasthan	Bhilwara	8
22.	Rajasthan	Rajsamand	7
23.	Madhya Pradesh	Shivpuri	7
24.	Madhya Pradesh	Narsimhapur	7
25.	Rajasthan	Hanumangarh	7
26.	Mizoram	Kolasib	7
27.	Maharashtra	Buldana	6
28.	Haryana	Faridabad	6
29.	Madhya Pradesh	Rajgarh	6
30.	Maharashtra	Washim	6
31.	Maharashtra	Amravati	6
32.	Arunachal Pradesh	East Siang	6
33.	Madhya Pradesh	Jabalpur	6
34.	Madhya Pradesh	Gwalior	6
35.	Jharkhand	Deoghar	6
36.	Gujarat	Mahesana	6
37.	Madhya Pradesh	Bhopal	6
38.	Chhattisgarh	Surguja	6
39.	Uttar Pradesh	Kanpur Nagar	6
40.	Maharashtra	Akola	6
41.	Andhra Pradesh	Hyderabad	6
42.	Rajasthan	Ajmer	6
43.	Maharashtra	Aurangabad	6
44.	Uttar Pradesh	Bareilly	6
45.	Maharashtra	Chandrapur	6
46.	Assam	Cachar	6
47.	Rajasthan	Tonk	6
48.	Madhya Pradesh	Dhar	6
49.	Rajasthan	Bikaner	6
50.	Chhattisgarh	Janjgir-Champa	6
51.	Uttar Pradesh	Lucknow	5
52.	Himachal Pradesh	Sirmaur	5
53.	Madhya Pradesh	Chhindwara	5
54.	Uttar Pradesh	Aligarh	5
55.	Madhya Pradesh	Damoh	5
56.	Madhya Pradesh	Hoshangabad	5
57.	Andhra Pradesh	Krishna	5

58.	Mizoram	Aizawl	5
59.	Haryana	Kurukshetra	5
60.	Tamil Nadu	Perambalur	5
61.	Rajasthan	Dhaulpur	5
62.	Jammu & Kashmir	Baramula	5
63.	Madhya Pradesh	Chhatarpur	5
64.	Delhi	North East	5
65.	Madhya Pradesh	Datia	5
66.	Delhi	Central	5
67.	Orissa	Kandhamal	5
68.	Orissa	Puri	5
69.	Madhya Pradesh	East Nimar	5
70.	Uttar Pradesh	Meerut	5
71.	Rajasthan	Bharatpur	5
72.	Madhya Pradesh	Katni	5
73.	Kerala	Wayanad	5
74.	Madhya Pradesh	Dewas	5
75.	Rajasthan	Pali	5
76.	Chhattisgarh	Raipur	5
77.	Madhya Pradesh	Satna	5
78.	Madhya Pradesh	Shajapur	5
79.	Andhra Pradesh	Karimnagar	5
80.	Madhya Pradesh	Balaghat	5
81.	Madhya Pradesh	Ratlam	5
82.	Kerala	Kollam	5
83.	Himachal Pradesh	Solan	5
84.	Gujarat	Narmada	5
85.	Andhra Pradesh	West Godavari	5
86.	Rajasthan	Udaipur	5
87.	Haryana	Karnal	5
88.	Uttar Pradesh	Agra	5
89.	Maharashtra	Jalna	5
90.	Rajasthan	Jodhpur	4
91.	Madhya Pradesh	Mandsaur	4
92.	Assam	Dhemaji	4
93.	Chhattisgarh	Durg	4
94.	Maharashtra	Gadchiroli	4
95.	Rajasthan	Jaipur	4
96.	Rajasthan	Sirohi	4
97.	Kerala	Idukki	4
98.	Madhya Pradesh	Betul	4
99.	Tamil Nadu	Thanjavur	4
100.	Gujarat	Rajkot	4

*Number of rapes, kidnappings and abductions of women and young girls, molestations, sexual harassments, dowry deaths, and cruelty by husband and relatives, in the district in 1998, per 10,000 of the distict's female adult population

Table 5
The 100 Districts in India with the Largest Number of Crimes Against Public Order*

Rank	State	District	Number of Crimes
1.	Rajasthan	Jaipur	3497
2.	Rajasthan	Sikar	1496
3.	Maharashtra	Pune	1354
4.	Rajasthan	Alwar	1247
5.	Andhra Pradesh	Guntur	1214
6.	Rajasthan	Udaipur	1198
7.	Rajasthan	Dausa	1150
8.	West Bengal	Medinipur	1109
9.	Rajasthan	Banswara	1092
10.	Rajasthan	Karauli	1081
11.	Tamil Nadu	Coimbatore	1068
12.	Rajasthan	Bharatpur	1033
13.	Rajasthan	Chittaurgarh	1020
14.	Karnataka	Kolar	986
15.	Rajasthan	Sawai Madhopur	848
16.	Rajasthan	Tonk	806
17.	Kerala	Kozhikode	792
18.	Rajasthan	Jhunjhunun	777
19.	West Bengal	South Twentyfour Parganas	761
20.	West Bengal	Hugli	749
21.	Karnataka	Gulbarga	733
22.	Rajasthan	Bhilwara	690
23.	Rajasthan	Kota	689
24.	Tamil Nadu	Vellore	682
25.	Kerala	Palakkad	679
26.	Kerala	Kannur	677
27.	West Bengal	North Twentyfour Parganas	677
28.	Kerala	Thiruvananthapuram	674
29.	Rajasthan	Dhaulpur	639
30.	Assam	Cachar	608
31.	Tamil Nadu	Viluppuram	589
32.	Kerala	Ernakulam	556
33.	Tamil Nadu	Cuddalore	536
34.	Kerala	Thrissur	529
35.	Rajasthan	Jhalawar	528
36.	Maharashtra	Thane	524
37.	Kerala	Kollam	505
38.	Rajasthan	Baran	504
39.	Assam	Nagaon	503
40.	Tamil Nadu	Dharmapuri	491
41.	Bihar	Purnia	490
42.	Rajasthan	Ajmer	488
43.	Bihar	Muzaffarpur	483
44.	Kerala	Malappuram	475
45.	Assam	Dhubri	443
46.	Gujarat	Ahmadabad	443
47.	Tamil Nadu	Virudhunagar	428
48.	Karnataka	Hassan	426
49.	Uttar Pradesh	Aligarh	423
50.	Karnataka	Bangalore	418
51.	Uttar Pradesh	Agra	418
52.	Andhra Pradesh	Karimnagar	417
53.	Rajasthan	Rajsamand	410
54.	Karnataka	Bangalore Rural	405
55.	Rajasthan	Nagaur	404
56.	Uttar Pradesh	Kanpur Nagar	403
57.	West Bengal	Barddhaman	396
58.	Rajasthan	Bundi	393

59.	Andhra Pradesh	Warangal	389
60.	Karnataka	Belgaum	385
61.	Karnataka	Bijapur	385
62.	Uttar Pradesh	Allahabad	383
63.	Bihar	Samastipur	381
64.	Assam	Karimganj	378
65.	Tamil Nadu	Tirunelveli	377
66.	Bihar	Rohtas	373
67.	Karnataka	Tumkur	372
68.	Bihar	Katihar	371
69.	Karnataka	Chitradurga	370
70.	Bihar	Madhubani	366
71.	Bihar	Gaya	364
72.	Rajasthan	Dungarpur	358
73.	Bihar	Banka	352
74.	Tamil Nadu	Toothukudi	339
75.	Rajasthan	Pali	334
76.	Assam	Barpeta	333
77.	Bihar	Sitamarhi	332
78.	Kerala	Kasaragod	329
79.	Rajasthan	Ganganagar	329
80.	Rajasthan	Churu	326
81.	Bihar	Aurangabad	325
82.	West Bengal	Birbhum	322
83.	Tamil Nadu	Tiruvanamalai	320
84.	Bihar	Munger	320
85.	West Bengal	Kolkata	320
86.	Kerala	Kottayam	318
87.	West Bengal	Nadia	311
88.	Kerala	Alappuzha	310
89.	Tamil Nadu	Thiruvallur	309
90.	Maharashtra	Nashik	305
91.	Uttar Pradesh	Lucknow	300
92.	Maharashtra	Nagpur	299
93.	Tamil Nadu	Madurai	299
94.	Kerala	Idukki	291
95.	Andhra Pradesh	Prakasam	288
96.	Bihar	Saran	285
97.	Andhra Pradesh	Hyderabad	281
98.	Rajasthan	Hanumangarh	279
99.	Andhra Pradesh	Medak	275
100.	Bihar	Vaishali	275

* Number of riots and cases of arson in the district in 1998

Table 6: 100 Districts in India wth the Highest Crimee Levels and Rates, by State

	Number of Crimes			Crimes per 10,000 pop	
	Violent Crimes	Crimes Against Women	Public Order Crimes	Violent Crimes	Crimes Against Women
A & N Isl (2)	-	-	-	-	-
An Prad (23)	14	12	6	2	5
Ar Prad (13)	-	-	-	2	2
Assam (23)	-	-	5	2	5
Bihar (37)	3	-	13	-	-
Chandigarh (1)	-	-	-	1	-
Chattisgarh (16)	2	3	-	-	7
D & NH (1)	-	-	-	1	-
Dam & Diu (2)	-	-	-	-	-
Delhi (9)	4	2	-	5	3
Goa (2)	-	-	-	2	-
Gujarat (24)	7	6	1	4	6
Haryana (19)	1	1	-	2	4
H Prad (11)	-	-	-	1	3
J &K (14)	-	1	-	-	3
J'kand (18)	1	-	-	-	1
Karnataka (27)	8	2	9	5	-
Kerala (14)	8	6	12	5	4
L'deep (1)	-	-	-	-	-
M Prad (45)	7	14	-	23	34
Maharashtra (35)	17	17	4	7	14
Manipur (9)	-	-	-	-	-
Meghalaya (7)	-	-	-	-	-
Mizoram (8)	1	-	-	4	2
Nagaland (8)	-	-	-	1	-
Orissa (30)	2	1	-	2	3
P'cherry (1)	-	-	-	1	-
Punjab (17)	-	-	-	-	-
Raj'stan (32)	12	17	26	22	25
Sikkim (1)	-	-	-	-	-
T Nadu (30)	8	1	11	7	3
Tripura (4)	-	-	-	-	-
U Prad (70)	9	11	5	-	6
Uttaranchal (13)	-	-	-	-	-
W Beng (18)	6	7	8	1	-

Table 7
Naxalite Affected versus Naxalite Free Districts in Indis:
Indicators of Deprivation and Rates of Crime

	Naxalite Affected Districts	Naxalite Free Districts
Poverty Rate (%)	**32**	**24**
Literacy Rate	**60.1**	**66.6**
Infant Mortality Rate	**72.3**	**73.4**
Immunisation Rate	**51.8**	**52.8**
Pregnancy Assitance	**43.0**	**50.5**
Safe Drinking Water	**68.1**	**73.5**
***Pucca* Roads**	**44.4**	**35.4**
Number of Violent Crimes	**1,655**	**1,592**
Number of Crimes Against Women	**217**	**198**
Number of Crimes Against Public Order	**222**	**169**

Poverty Rate: % of population below the poverty line
Literacy Rate: Percentage of Adult Population which is literate
Infant Mortality Rate: Number of live births, per 1,000 births, that die before the age of one.
Immunisation Rate: Percentage of children, 0-6 years of age, fully immunised.
Pregnancy Assistance: Percentage of women reciving skilled assistance during pregnancy
Safe Drnking Water: Percentage of habitations covered by safe drinking water
Pucca Roads: Percentage of villages not connected by *pucca* road
Number of Violent Crimes: Number of murders, attempted murders, rapes, kidnappings, *dacoities*, robberies, burglaries, thefts, riots, sexual harassments, dowry deaths, and cruelty by husband and relatives, in the district in 1998.
Number of Crimes Against Women: Number of rapes, kidnappings and abductions of women and young girls, molestations, sexual harassments, dowry deaths, and cruelty by husband and relatives, in the district in 1998.
Number of "Crimes against Public Order": Number of Riots and Cases of Arson**.**

Table 8
Regression Estimates of the Crime Equations[+]

	Dependent Variable is the Number in District of: Violent Crimes	Crimes Against Women	Crimes Against Public Order
Naxalite Activity	**-191.67**	**-25.87**	**-**
	(1.30)	**(1.55)**	
Proportion of the district's population which is rural	**-33.29****	**-1.19****	
	(8.86)	**(2.79)**	**-**
Poverty rate in district	**-**	**-**	**-2.41****
			(3.80)
Literacy rate in district	**16.17****	**10.24****	**4.21****
	(2.20)	**(3.36)**	**(3.31)**
Squared Literacy rate in district	**-**	**-0.06****	**-**
		(2.48)	
Ratio of female to male literates in district	**-17.00****	**-2.35****	**-7.42****
	(2.33)	**(2.85)**	**(5.65)**
Proportion of habitations in district with safe drinking water	**-3.67**	**-0.47***	**-1.96****
	(1.57)	**(1.78)**	**(4.82)**
Adult male population of district (0000)	**10.94****	**2.44****	**2.05****
	(5.38)	**(10.57)**	**(12.99)**
Squared adult male population of district (0000)	**0.029****	**-0.001***	**-**
	(4.48)	**(1.65)**	
Intercept	**3516.53****	**-82.38**	**470.28****
	(5.23)	**(0.73)**	**(5.80)**
Mean of Dependent variable	***1,622***	***201***	***177***
Number of observations	***547***	***547***	***547***
R^2 (adj)	***0.59***	***0.50***	***0.29***
Chi-squared	***798.78***	***555.78***	***221.38***

Notes to Table 8:
[+] Seemingly Unrelated Regression Equations (SURE) estimates
Numbers in parentheses are z-scores
** significant at 5% level; * significant at 10% level
The chi-squared statistics reports the result of testing the null hypotheses that all the slope coefficients are zero.

Table 9
Logit Estimates of Naxalite Activity

	All States	States Affected by Naxalite Activity[+]
	Odds-Ratios (z-scores)	**Odds-Ratios (z-scores)**
Proportion of the district's population which is rural	**1.01 (1.12)**	**1.02 (1.53)**
Poverty rate in district	**1.05**** **(5.18)**	**1.02**** **(2.40)**
Literacy rate in district	**0.96**** **(3.36)**	**0.96**** **(2.90)**
Female work participation in district	**1.09**** **(5.39)**	**1.08**** **(4.83)**
Safe Drinking Water Coverage in district	**0.98**** **(3.02)**	**0.98**** **(2.91)**
Number of male adults in district (0000)	**1.02**** **(4.04)**	**1.01**** **(3.77)**
Squared adult male population of district (0000)	**1.00 (1.44)**	**-**
Number of observations	**559**	**348**
pseudo-R^2	**0.24**	**0.17**
Likelihood Ratio Test of slope coefficients = 0	**$\chi^2(7)=116$**	**$\chi^2(7)=65$**

Notes to Table 9:
Numbers in parentheses are z-scores
** significant at 5% level; * significant at 10% level
[+]Andhra Pradesh, Bihar, Chhattisgarh, Jharkhand, Karnataka, Madhya Pradesh, Maharashtra, Orissa, Tamil Nadu, and West Bengal.

Table 10
Predictions from the logit model of Table 9:
(estimated over all districts in India)

	True (D)	False (~D)	Total
Classified			
+	21	12	33
-	67	459	526
Total	88	471	559

Sensitivity Pr(+|D)	23.86%
Specificity Pr(-|~D)	97.45%
Positive predictive value Pr(D|+)	63.64%
Negative predictive value Pr(~D|-)	87.26%

Classified + if predicted Pr(D) >= .5
True: naxal=1; False: naxal=0
Correctly classified: 85.87%

Table 11
Predictions from the logit model of Table 9:
(estimated over all districts in Naxalite Affected States in India)

	True(D)	False (~D)	Total
Classified			
+	30	16	46
-	58	244	302
Total	88	260	348

Sensitivity Pr(+|D)	34.09%
Specificity Pr(-|~D)	93.85%
Positive predictive value Pr(D|+)	65.22%
Negative predictive value Pr(~D|-)	80.79%

Classified + if predicted Pr(D) >= .5
True: naxal=1; False: naxal=0
Correctly classified: 78.75%

Figure 1
Sensitivity versus 1-Specificity when the cutoff point is varied: all disticts in India

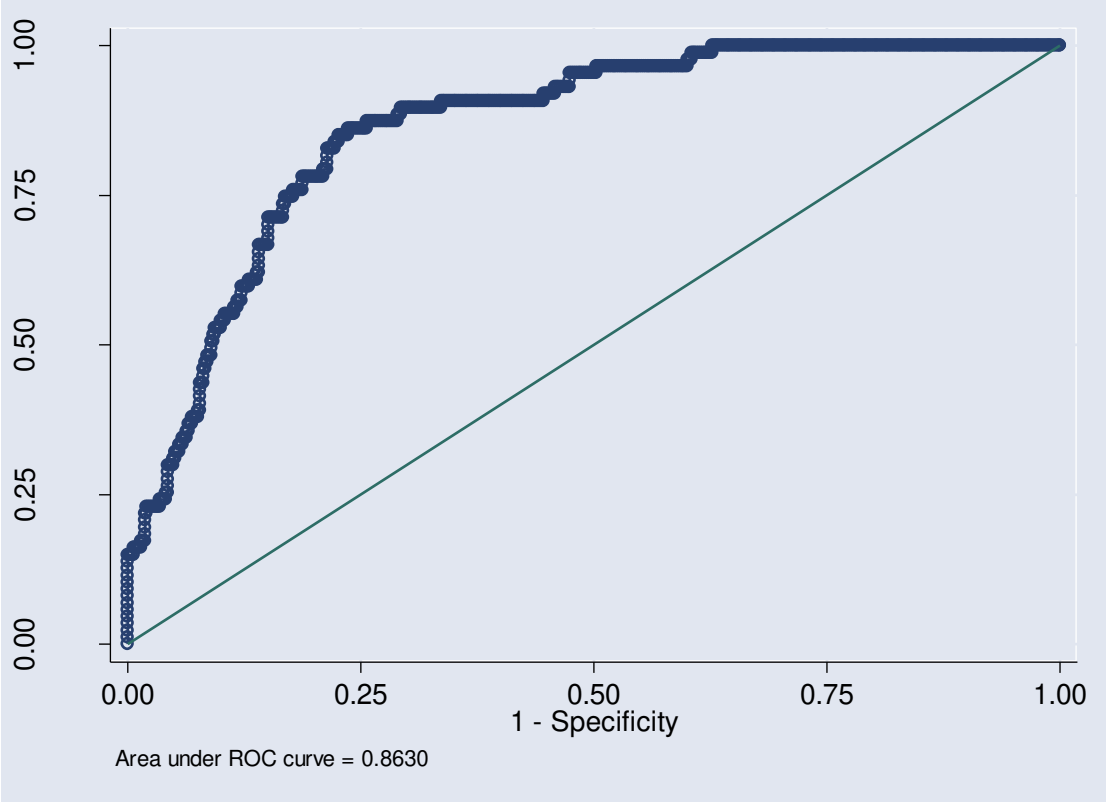

Figure 2
Sensitivity versus 1-Specificity when the cutoff point is varied:
All disticts in Naxalite Affected States of India

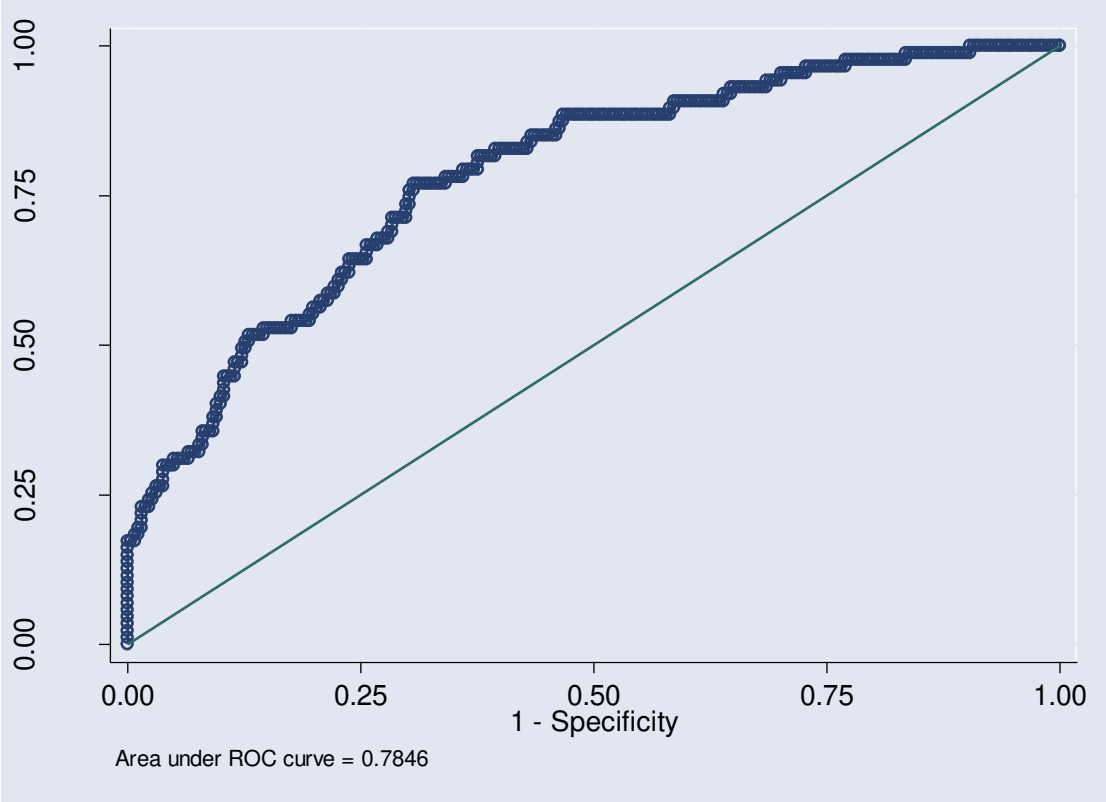

Table 12
Districts Which Would Not Have Had Naxalite Activity Under Simulation 1*

State	District
Bihar	Rohtas
Bihar	Sitamarhi
Bihar	Khagaria
Bihar	Kaimur (Bhabua)
Bihar	Aurangabad
Jharkhand	Bokaro
Jharkhand	Purbi Singhbhum
Orissa	Sundargarh
Orissa	Malkangiri
Orissa	Koraput
Orissa	Nabarangapur
Orissa	Kendujhar
Karnataka	Shimoga
Uttar Pradesh	Chandauli

Simulation 1: If the poverty rate in a district was greater than the all-India average (26 percent), it was reduced to the national figure**.**

Table 13
Additional* Districts+ Which Would Not Have Had Naxalite Activity Under Simulation 2

State	District
Bihar	Banka
Bihar	Darbhanga
Bihar	Jehanabad
Bihar	Patna
Bihar	Rohtas
Chhattisgarh	Bastar
Jharkhand	Giridih
Jharkhand	Kodarma
Karnataka	Chikmagalur
Orissa	Kandhamal
Orissa	Rayagada
Uttar Pradesh	Mirzapur
Uttar Pradesh	Sonbhadra
West Bengal	Hugli

+ Additional to those shown in Table 12

*Simulation 2: If the poverty rate in a district was greater than the all-India average (26 percent), and the literacy rate was lower than the all-India average (65 percent), the poverty rate was reduced, and the literacy rate was raised, to their respective national values.