

A Statistical Study of Police Force and Crimes in the State of Maharashtra and a Comparison with Bihar and Tamilnadu

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Abstract:

This paper applies statistical tools to study and understand the trend of various crimes occurring in Maharashtra over a period of time. It compares Maharashtra with two other states Bihar and Tamilnadu which are considered as among the worst and best states respectively in crime management and reduction. Further it analyses various aspects of the police force such as density of police, women strength in police, vacancies in police force etc to understand key reasons as to why crime continues in Maharashtra unabated and is on the rise.

Keywords: Crimes, density of police force, women strength in police, terrorist affected districts, vacancies and surplus posts.

Introduction:

India is a multi-cultural, ethnically diverse and vast country. Maintaining law and order in the world's largest democratic country and also the second most populated country is an arduous and round the clock task. Police personnel are provided by the government for the security of people and for enforcement of laws of the country. Maharashtra, the third largest state in the Republic of India, has one of the largest police forces in the country. As per the current records displayed by the Maharashtra police on their website, mahapolice.gov.in, the force comprises of 250 Indian Police Service officers borne on the state cadre, 277 Superintendents of Police, 652 Deputy Superintendents of Police, 3530 Inspectors, 4530 Assistant Police Inspectors, 7601 Sub Inspectors and 1,84,745 men (members of constabulary). It also informs us that in the highly industrialized state of Maharashtra, comprising of large urban conglomerates, the Commissionerates system has been adopted for policing its large cities. The State has 10 Commissionerates and 36 district police units.

The motto of Maharashtra Police is

‘सदृक्षणायस्त्रलनिग्रहणाय’ which translates that they are committed to ‘Protecting the righteous and controlling & annihilating the evil’. Maharashtra Police is headed by Director General of Police and the state police head quarter is located in Mumbai. Section 57 and 58 of the Model Police Act, 2006 describes the roles, functions and responsibilities of Indian police personnel. The police is expected to be the most accessible, interactive and dynamic organization of any society.

In today's media driven world, there is no shortage of news depicting police in a negative light. Daily new cases regarding rape, crimes against women, child labor, murder and so on is seen in every page of the newspapers. Not often do we hear about the good initiatives taken by the police force. Public knowledge of crime and justice is largely derived from the media (Dowler, 2003). This leads to certain questions in the authors' mind - Are the Maharashtra police improving in their performance of controlling crime and enforcing law? If not, then what could be the reasons we could attribute to their failure in keeping the state a safer place? In this paper we seek answers to these questions, keeping in mind the current scenario. We also make a comparison of Maharashtra state police

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with police forces from two other states in order to comprehend their standing in the country.

Methodology:

Data for this study is secondary data sourced from Bureau of Police Research & Development, Ministry of Home Affairs and National Crime Records Bureau, Ministry of Home Affairs. In order to get an in-depth understanding, data for ten years i.e. from 2008 to 2017 has been studied. Wherever data for ten years was unavailable we have based our study on data collected from 2013-16 as crime reports beyond 2016 is not yet made public. To understand if the police force of Maharashtra state is able to maintain a good law and order situation in the state as well as create social harmony and cohesion in the society, we need certain reference points for comparison. This has been done by comparing various areas of crime and order situations in the state with one of the best performing state police and one among the lowest ranked state police. This will aid us by giving a lower and upper limit for performance of Maharashtra state police. From various newspapers' ratings on state police, we have chosen Tamilnadu state police as the one amongst the best and Bihar state police as one of the lowest ranked one. This comparison will help us to comprehend where exactly Maharashtra state police stands and to identify what extra areas our state police have to improve on to be among the best ones.

Main Analysis:

We start by analyzing the pattern of various crimes over the time period 2013-16 for the state of Maharashtra.

Figure 1 indicates that there is decrease in dowry death and child trafficking which are also much lesser but a significant and alarming increase in kidnapping and abduction over the years. Similarly rape and 'crime against SC (scheduled caste)' seems not to be reducing. If we consider the overall number of crimes over three years, 2014 reported 3,84,815 crimes in

total. In 2015, number of crimes reported were 4,23,179 which increased to 4,30,866 in the year 2016. This indicates a rising trend warning Maharashtra police that they need to pay more attention and take preventive measures.

A comparative study of proportion of various crimes is given in Figure 2. for the year 2016

In Maharashtra, the major crime is kidnapping and abduction (40%) followed by rape (18%), sexual harassment (17%), murder (10%) and crime against SC (7%) in decreasing order. The police force need to concentrate on these areas to ensure a safe society.

A comparative study of the various crimes in Maharashtra with the other two states is depicted in the bar charts given in Figure 3. This will give us an understanding of where our state stands in these matters.

Emphasis on reasons of state police force not able to perform well in handling and reducing crimes in Maharashtra state:

We now focus on the various aspects of the police force of Maharashtra in order to understand the reasons as to why crime is on the rise.

1. Density of police :-

Studying the crime incidence in an area need not be a good pointer to the crime situation of that area. Similarly, the absolute strength of police personnel will also not be a true indicator of the scale of crime and its battling machinery. The number of policemen per 10,000 of population can be considered to be an important indicator in planning for their deployment.

Density of police = No. of police assigned per 10,000 population

$$= \frac{\text{Total number of Police}}{\text{Population of State}} \times 10,000$$

From Figure 4, we can observe the following points :

- Density of police in Maharashtra is far better than Bihar state.
- The years of 2014-2016 show Maharashtra to have lesser police density as compared to that of Tamilnadu and hence we understand the reasons of its under performance as compared to Tamilnadu in controlling crime.
- However in the year 2017, density of police in Maharashtra has increased and has gone beyond the density of Tamilnadu, This is a good indication that the government is giving more importance to this aspect and strengthening the police force.

2. Percentage of women strength in police force :

Our country needs to focus on the situation of women in policing. Diversity in policing in a democracy with respect to gender is extremely important for the health of the nation. In spite of a rising graph of crime against women in the country, women constitute just 7.28 percent of the police force in India (Economic Times, Feb 25th, 2018). Maharashtra was the first state to introduce 30% reservation for women in the police force around 47 years ago (Times of India, March 9th, 2017). However in actual, women police just comprise around 11% indicating very poor representation of women.

From Figure 5 we make the following observations

- Women constitute less than 18% of the police force for any of the states.
- Maharashtra state has much better women strength in police force as compared to Bihar state, but in the past two years Bihar has shown a great improvement.
- In the past nine years i.e. from 2011, Maharashtra is having less representation of women in the police force as compared to Tamilnadu except in the years 2010 and 2012.

It is imperative that efforts shall be made to address

such gender discrimination. Gender equality within the police forces must be enforced. This will be the harbinger for broader police reforms in a democratic country like ours. Confidence, trust and respect of the public can be gained. A police unit must be reflective of the community it serves. Female police officers bring to the table skills, experiences and outlooks that are vastly dissimilar from those of their male counter parts.

More representation and a strong presence of women across various levels and ranks in the police hierarchy will guarantee more accessibility and thus a greater contact point for women victims to bring forward their issues. More women in the force will not only create a balance in equality of opportunity to work, but will also give women more access to justice.

3. Percentage of additional population per policeman :

According to United Nations standards, there should be about 230 police for every 100,000 people. But in India there are only 125 police officers for every 100,000 population. This is one of the lowest police to population ratios in the world. The graph in Figure 6 gives us the percentage of additional population that each policeman has to manage due to the shortage of police.

Some of the observations from Figure 6 are as follows :

- The police workforce in Maharashtra was overburdened with a massive workload of nearly an extra 40% in the year 2012. This has drastically reduced and from 2013 onwards it is consistently around 10%.
- In comparison with the other two states, Maharashtra is in a better post. Bihar fares the worst with an extra workload of 30%-60% thrust on their police force. Hence such an abysmal performance in crime control.

- Through the years 2011-16 the police force of Tamilnadu have been shouldering an extra 20% beyond the actual workload sanctioned to them. It can be observed that their workload is higher than that of Maharashtra by at least 10%. However in 2017, the conditions seem to have improved as they have been assigned an extra workload of not more than 10%.

4. Number of police districts affected by terrorists / extremists :

The Red Corridor is the region in the eastern, central and the southern parts of India that experience considerable Naxalite-Maoist insurgency. These are also areas that suffer from the greatest illiteracy, poverty and over population in modern India, and span parts of Andhra Pradesh, Bihar, Chhattisgarh, Jharkhand, Madhya Pradesh, Maharashtra, Odisha, Telangana, West Bengal and eastern Uttar Pradesh states. As of December 2017, 105 districts across these 10 states are affected by left-wing extremism. The three main districts affected in Maharashtra are Gadchiroli, Chandrapur and Gondia whereas in Bihar there are about 15 districts that are affected.

Data of this type of attacks is not available for Tamilnadu as it does not come in the list of states that are affected by left-wing extremism. Bihar is more affected by this kind of attacks than Maharashtra (Figure 7). We have earlier observed that the police force in the state of Bihar is overburdened with additional workload. This along with more districts being affected by extremists attack causes a bad law and order situation in this state.

5. Number of vacancies for various posts during year 2017 :

As many as 4.43 lakh posts of police personnel are lying vacant in police forces in the country (Economic Times, Feb 7th, 2018) as on January 1st 2017 against the sanctioned strength of 19,89,295 posts.

This means about 22% posts are vacant and the reasons are varied. There are more police in big cities than in smaller ones, thus the vacancies are much more in smaller towns and villages. Another cause of shortage of police is many police officers are used in guarding a very small number of very important people. Administrative and traffic duties take up a lot more police personnel thus, depleting the numbers left for crime prevention, detection and overall maintenance of law and order.

To represent data of the number of vacancies for the various posts during the year 2017 we have used the visual aid Heat Maps. The colour blue represents vacancy, red indicates presence of surplus staff and white implies zero vacancy. It can be observed that different shades of blue and red exist in the diagram. If the colour progresses to a deeper shade, it indicates the seriousness of the relevant factor namely vacancy or surplus.

The various posts in a police force have been classified into three sections for our study namely- Higher ranked, Mid ranked and Lower Ranked posts.

In the year 2017, it can be observed from the heat map (Figure 8.1) that Maharashtra state has neither vacancy nor surplus staff in the above mentioned posts indicating a positive scenario. However Tamilnadu and Bihar have certain posts vacant and surplus staff in certain posts as depicted in Figure 8.1.

Vacancies are present in both the midranked posts of Maharashtra but not to a large extent. Inspectors in Bihar are very much in shortage whereas Tamilnadu seems to have a surplus. On looking into the numbers, Maharashtra has a vacancy of 227 inspectors whereas for Bihar the count is a high 732. There are 191 surplus inspectors in Tamilnadu. (Figure 8.2)

Both Maharashtra and Bihar have vacancies across all lower ranked posts whereas Tamilnadu has a

surplus of Constables. (Figure 8.3) This could be the primary reason for better law and order situation in Tamilnadu as compared to the other two states.

The strong presence of police force at the lower level is very important because the maximum interaction with citizens occurs here.

To check dependency between Types of crime and Density of police:

To test H_0 : Types of crime and Density of police are independent.

versus H_1 : Types of crime and Density of police are dependent.

Latest available data from year 2016 is used for analysis using Minitab software. (Table 1)

Chi-Square Test

	Chi-Square	DF	P-Value
Pearson	7044.422	14	0.000
Likelihood Ratio	7591.968	14	0.000

Since p-value is almost zero so with very high evidence we reject H_0 and may conclude that the various types of crime depends on police density. This result validates what we have observed in Fig.3 & Fig.4 that if the police density is higher, the incidence of crime seems to be lesser.

To check dependency between Types of crime against women and Percentage of women representation in police force :

To test H_0 : Types of crime against women and Percentage of women representation in police force are independent.

Versus H_1 : Types of crime against women and Percentage of women representation in police force are dependent.

Latest data used for analysis using Minitab software is of year 2016. (Table 2)

Chi-Square Test for Association

	Chi-Square	DF	P-Value
Pearson	401.516	6	0.000
Likelihood Ratio	473.789	6	0.000

We reject H_0 and conclude that the occurrence of various types of crimes against women is dependent on the strength of women representation in the police force. This result along with Fig.3 & Fig.5 gives us the understanding that strengthening the presence of women in police force could reduce crimes against women.

Conclusions :

1. In the state of Maharashtra it is observed that over the years, crime is on the rise. Kidnapping and abduction has increased disturbingly. Rape, sexual harassment of women and crime against SC is quite prevalent. Crimes such as dowry death and child trafficking are quite low which is a positive sign but are not completely eliminated. However, Maharashtra police need to pay more attention towards these crimes as overall there is an increasing trend.

2. In comparison to Bihar and Tamilnadu, Maharashtra ranks highest in Crimes against women. Maharashtra has the maximum rape and sexual harassment offences indicating more critical measures need to be taken to arrest this. Kidnapping and abduction also is much more in Maharashtra as compared to the other two states. The only silver lining is that dowry deaths and child trafficking has drastically reduced in Maharashtra. Another line of thought that needs to be investigated is - Are the number of offences mentioned above in Maharashtra high because more people have the confidence in police to report ? Is it so that the reporting of crimes in Bihar is very low as victims have fear of police & also because the caste system and patriarchy is more dominant in Bihar ?

3. The density of police force in Maharashtra is far better than Bihar and is improving which indicate that

the government of Maharashtra is concerned about the safety and security of its citizens.

4. Maharashtra has a much better women strength in police force as compared to Bihar state, but in the past two years Bihar is improving. More women in the force will not only create a balance in equality of opportunity to work, but will also give women more access to justice.

5. Overall in the past years, Maharashtra state police force have been always overburdened with workload beyond the sanctioned limit. This is slowly decreasing from a 40% in 2013 to about 10% in 2017. The only solace is that the magnitude of additional responsibility is lesser than that of Bihar and Tamilnadu. A serious concern is Bihar with extra workload at a maximum of 60% in 2015 and around 50% in 2017.

6. Bihar state is more affected by attacks of terrorists / extremists than Maharashtra. Already Bihar is having a very high extra workload on their police force among three states and in addition, these kinds of attack would weaken the efficiency of police force. This would cause an increase in crime rate. Here it must be observed that Maharashtra is having lesser attacks of this nature.

7. Many posts of Maharashtra state police force across various ranks remain vacant and hence, this could attribute to the police not being effective in controlling crimes. At the same time Tamilnadu has surplus in various police force positions and this could be one of reasons for its good performance in controlling crimes.

8. A combined understanding of all the points mentioned above indicates that increasing women representation in police, improving density of police, filling up vacant police posts immediately as well as sensitizing police to be more supportive towards victims and aid them in reporting crimes could help betterment of the law and order situation in Maharashtra.

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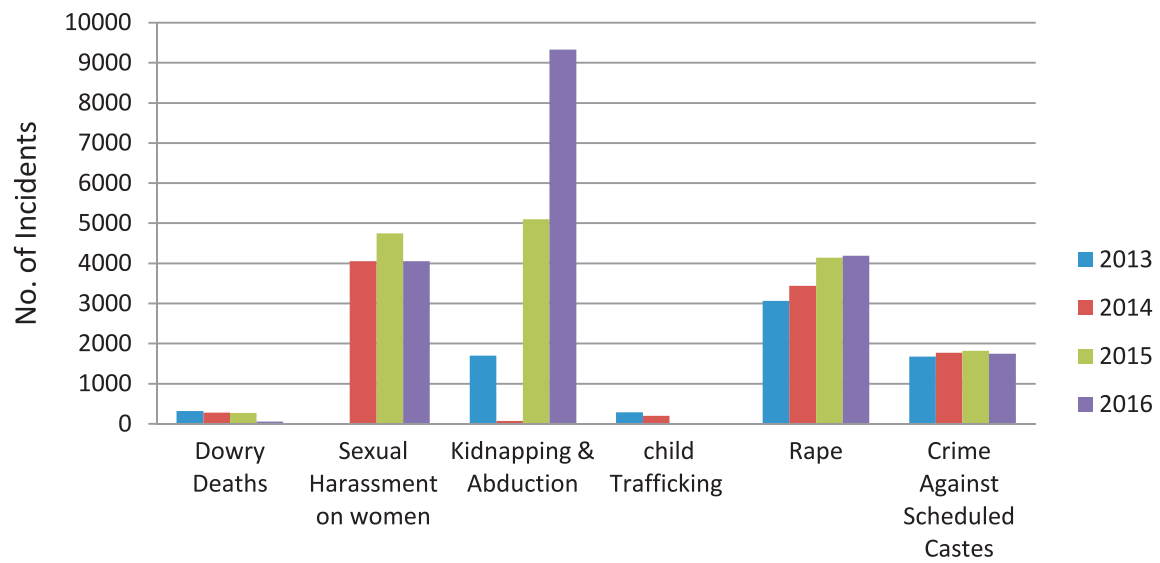
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Crime

Figure 1 : Various crimes in Maharashtra state during 2013-16

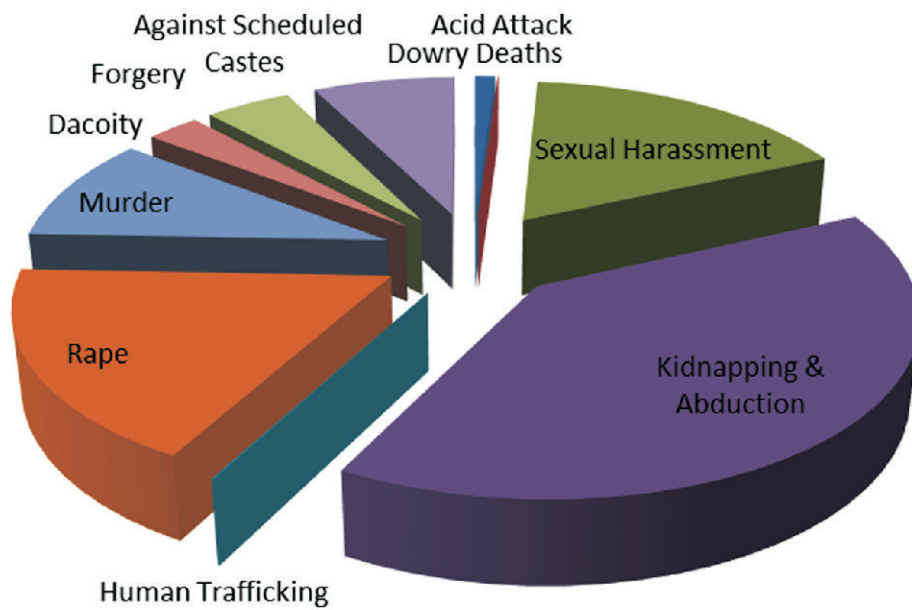
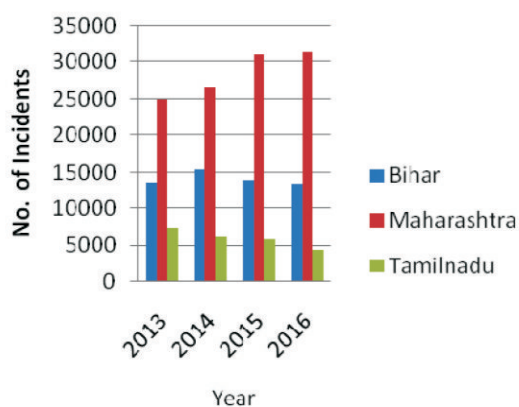
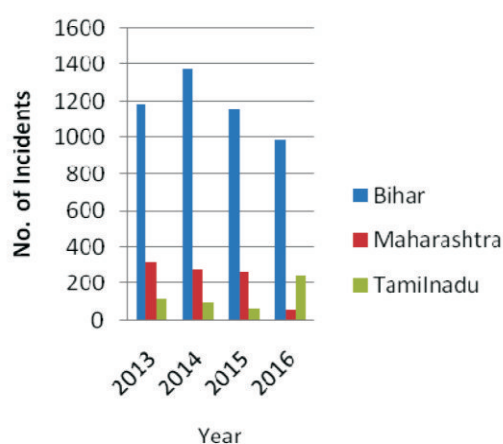


Figure 2 : Crimes in Maharashtra in year 2016

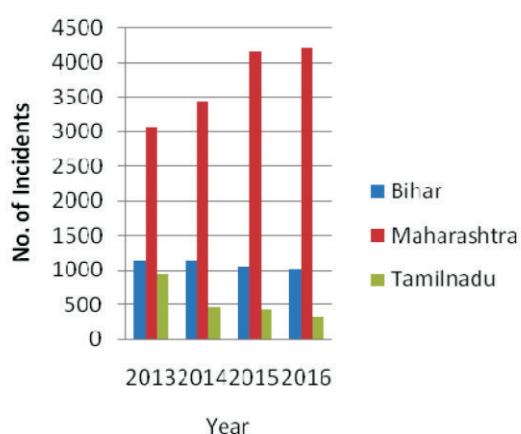
Total no. of crimes against women during 2013-2016



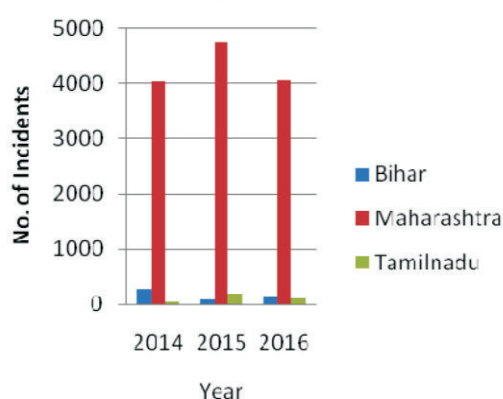
Dowry deaths during 2013-2016



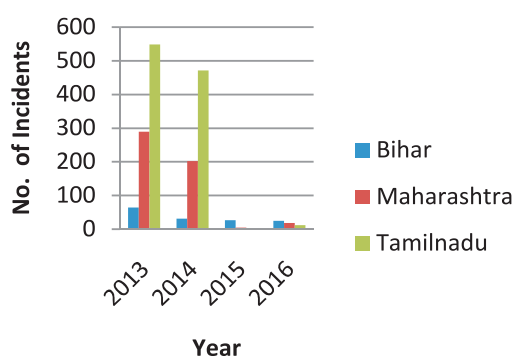
Rape during 2013-2016



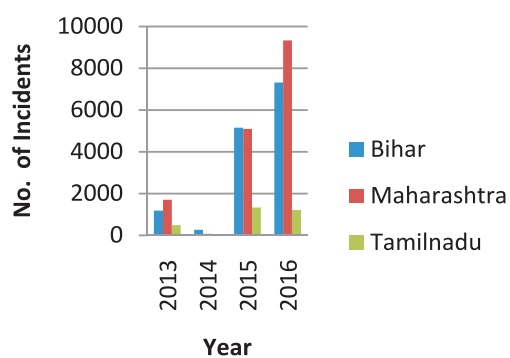
Sexual harassment on women during 2014-2016

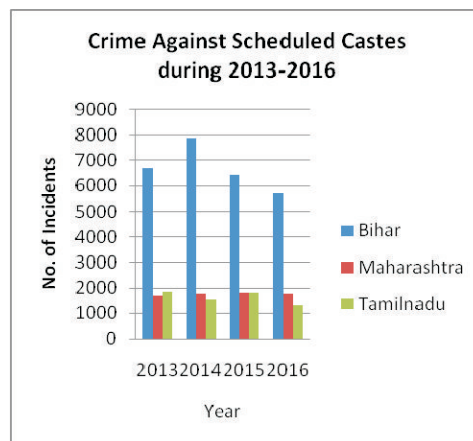
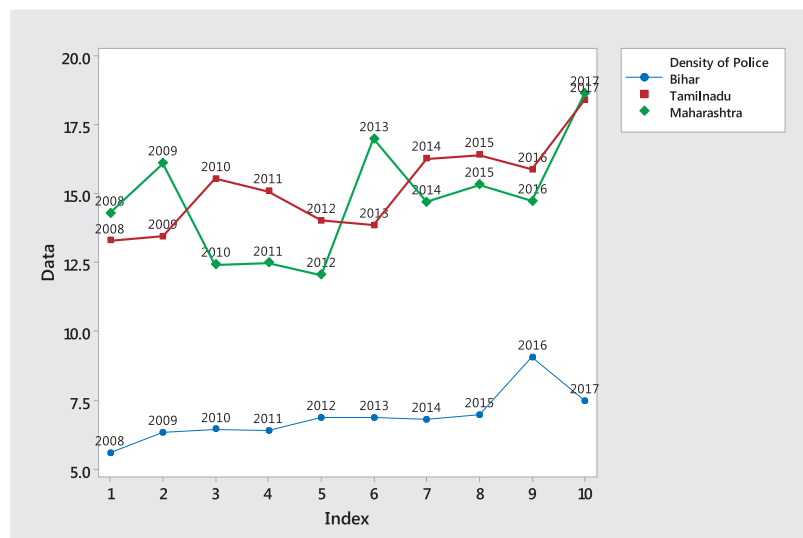
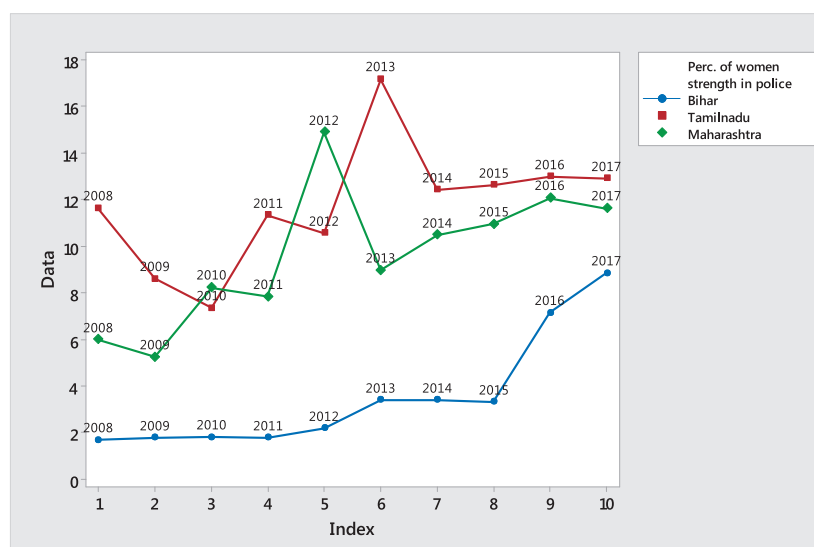


Child trafficking during 2013-2016



Kidnapping & abduction during 2013-2016



**Figure 3****Figure 4 : Density of police force for Bihar, Maharashtra and Tamilnadu (2008-17)****Figure 5 : Percentage of women strength in police force in Bihar, Maharashtra, Tamilnadu(2008-17)**

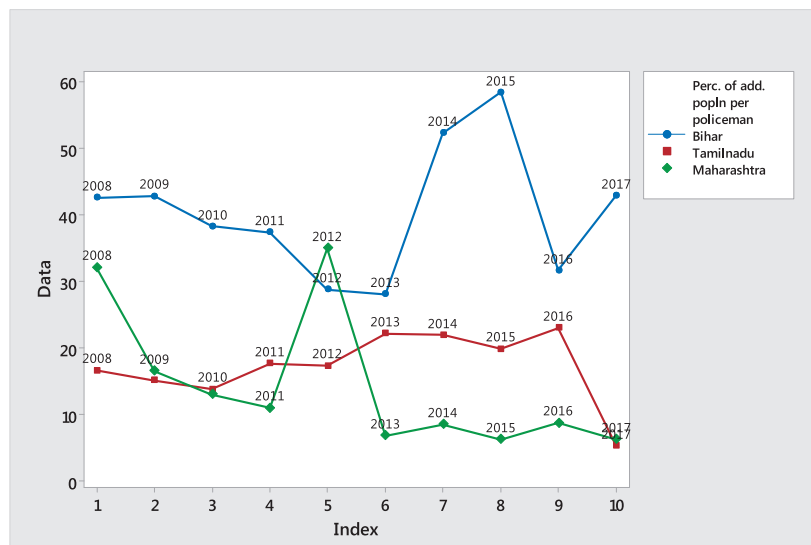


Figure 6 : Percentage of additional population in Bihar, Maharashtra & Tamilnadu (2008-17)

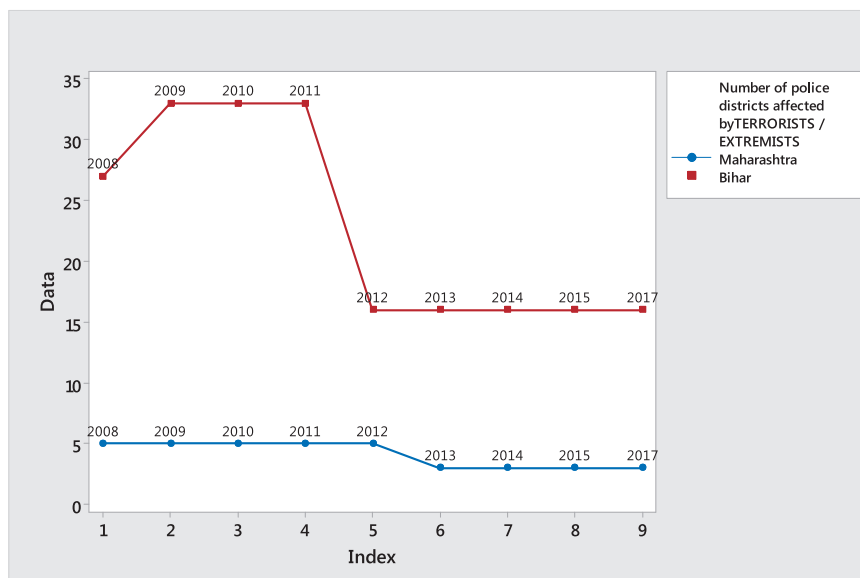


Figure 7 : Number of police districts of Bihar and Maharashtra affected by Terrorists (2008-17)

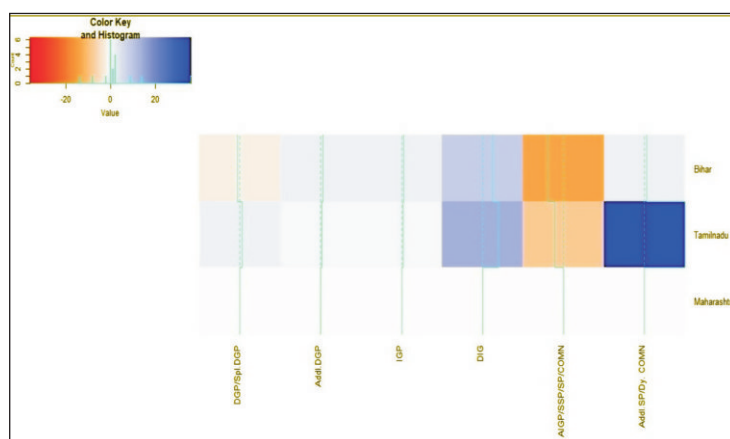


Figure 8.1 : No. of vacancy / surplus for various higher ranked posts in the year 2017

(DGP: Director General of Police, Spl. DGP: Special Director General of Police, Addl. DGP: Additional Director General of Police, IGP: Inspector General of Police, DIG: Deputy Inspector General, AIGP: Additional Inspector General of Police, SSP: Senior Superintendent of Police, SP: Superintendent of Police, COMN: Commissioner of Police, Addl. SP: Additional Superintendent of Police, Dy. COMN: Deputy Commissioner of Police)

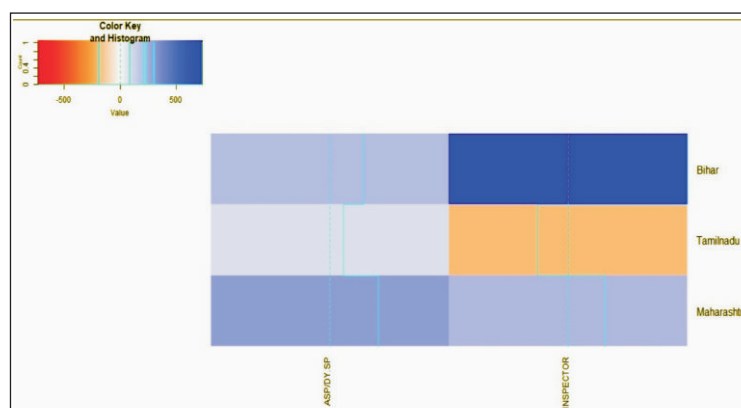


Figure 8.2 : No. of vacancy / surplus for various mid ranked posts in the year 2017

(ASP: Assistant Superintendent of Police, Dy. SP: Deputy Superintendent of Police)

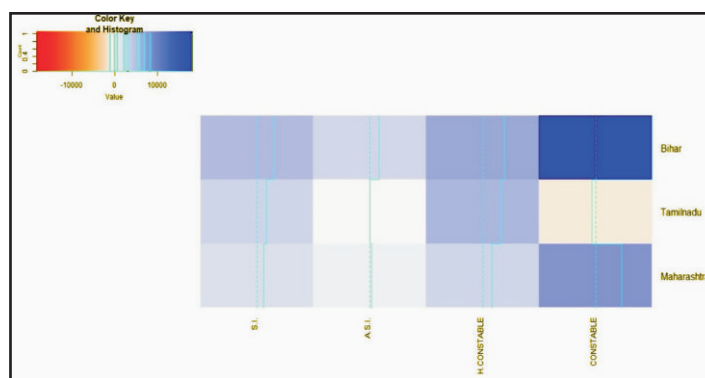


Figure 8.3 : No. of vacancy / surplus for various lower ranked posts in the year 2017

(S.I. : Sub Inspector, A.S.I. : Assistant Sub Inspector, H. Constable: Head Constable)

Types of crime	Density of police			Total
	9.068 Police	14.73 Police	15.877 Police	
Murder	1500	1152	1386	4038
Dowry deaths	570	30	216	816
Sexual harassment on women	72	2034	102	2208
Kidnapping & abduction	4248	4686	1062	9996
Child trafficking	12	12	12	36
Rape	582	2106	276	2964
Other crimes against women	6546	11592	3276	21408
Crime against scheduled cast	3306	876	1116	5304
Total	16836	22488	7446	46770

Table 1 : Number of various types of crime per 6 crore population at different density of police.

Types of crime against women	Women representation in police force (Percentage)			Total
	7.15%	12.07%	12.99%	
Dowry deaths	95	5	36	136
Sexual harassment on women	12	339	17	368
Rape	97	351	46	494
Other crimes against women	1091	1932	546	3569

Table 2 : No. of types of crimes per 1 crore population at different % of women in police force.