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Title: How effective is Police Presence in deterring Crime?
The Case of Pakistan

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Abstract

Crime in Pakistan has risen over the years .This paper aims to see whether Police Presence across the different districts and provinces in Pakistan has any effect on reducing crime throughout the country. Data on total crime has been further divided into property crime and violent crime for a deeper form of analysis. Police Presence is the sum of the number of Police Chowkies and Police Stations across the country. The analysis is done by taking a panel data from 2003 to 2018 across all four provinces of Pakistan. The data is obtained from multiple resource sites including but not limited to Pakistan Bureau of Statistics, State Bank of Pakistan, South Asia Terrorism Portal, Pakistan Economic Survey, Pakistan Planning Commission and Pakistan Social and Living Standards Measurements (PSLM). Analysis is done through the least square fixed effects, random effects and cluster analysis estimator on STATA. It is expected that police presence will indeed be important in maintaining lower crime rates within the country and across the provinces. The findings of this study suggest that other factors such as unemployment rate, applications and petitions in high courts, household satisfaction of police, terrorism incidents, literacy rate, population density, poverty level, and development expenditure are also important catalysts in reducing the crime rate and leading to a better and safer Pakistan.

Keywords: Panel Data, Fixed effects, Random effects, Cluster Analysis, Pakistan, Total Crime, Violent Crime, Property Crime, Police Chowkies and Police Stations.

1. Introduction

1.1 Background

Crime has no single root cause. The outcome of crime is dictated by various economic, social, cultural and demographic factors. In order to prevent crime one has to comprehend the true definition of crime. The factors that cause a person to commit crime varies from country to country since it is effected by different social and cultural demographics. Marshall and Clarke, (1952) writes, “A crime is any act or omission prohibited by public law for the protection of the public and punishable by state in a judicial proceeding in its own name”. Similarly, Tappan (1960) precisely defined “A crime is an instrumental act or omission in violation of criminal law, committed without justification and sanctioned by the state as felony or misdemeanor.”

Study related to crime in economics started in 1960s when (Fleisher, 1966) deduced that low income and unemployment are the prime causes of stark increase in the crime rate. Becker (1968) exposes the rational behavior of criminals in which one has to make a decision between legal and illegal acts based on cost benefit analysis. He finally concludes that one commits a crime when the expected utility of an illegal activity increases as compared to the utility of a legal activity. Ehrlich (1973) extends the work of Becker by discussing how time spent on legal and illegal acts also has a key role to play in the crime rate. His empirical findings supports the findings on Fleisher (1966), an increase in income of median level family leads to increased crimes like murder, rape, battery and crimes related to property, he also discovered that unemployment was positively related to crime.

The assistance of the police is paramount in controlling crime so that it does not rot the very foundations of society. Establishing an organized police system is usually considered a corollary of the Industrial Revolution in Europe when large cities witnessed massive migration— people from rural areas coming to work in factories. This pushed authorities to set up a more efficient and sensitive police system for effective crime prevention and peacekeeping. Pakistan has inherited British India's police system. British established this network of police under the Act of 1861. The ultimate goal of this system was to protect and expand colonial rule in India while maintaining strict scrutiny of the public. In Dr. Muhammad Shoaib Suddle's words, "Police was designed to be a public-scary institution, not a public-friendly department,"-something that is still on show by police in Pakistan. The aim was admirably accomplished by following the Irish Constabulary model, which through the District Officer's office, an agent of the colonial government, put police under executive power. It is important to mention that the 1861 Police Act was promulgated after the 1857 mutiny, and therefore the primary purpose of the Act was to ' control ' the natives and prevent police force members from joining mutineers in the future.

Pakistan today has a police force, which has an ambiguous effect on crime. Due to political and social turmoil, the police has not been able to operate at the efficiency at which it was envisioned to operate. Table-1, 2, 3 and 4 show the trends in crime in the provinces of Balochistan, Khyber Pakhtunkhwa, Punjab and Sindh respectively. According to statistics, the total number of crimes reported for Balochistan, KP, Punjab and Sindh in 2003 was 5667, 99112, 248512 and 47390 respectively. It increased to 9100, 158257, 406925 and 78101 in 2010. Then, it further increased to 179473, 411034, and 83333 in the case of KP, Punjab and Sindh by the end of 2018.

1.2 Problem Statement

It is evident that no part of the world today is without crime. Developed as well as Developing countries are the victims of this since dawn of the human race. In light of this, this problem has become quite severe in less developed countries (LDCs) predominantly Pakistan. A huge increase has emerged in the number of crimes reported according to crime statistics. This major increase in crime is a combination of rising unemployment, soaring prices of important staple foods and raw materials, the increasing inequality between the rich elite and the poor, rural to urban migration and the lack of education currently prevalent in the country. Crime is not associated with a particular group. Many well off and educated elites are observed to be involved in criminal acts. Table-1, 2, 3 and 4 show an over view of population and different categories of crime rate in the provinces of Pakistan. Figures 1, 2 and 3 show the growth rates for each type of crime across the provinces. It is evident from the tables below that every province has observed a general rise in crime over the years with a few short-lived declines as well. Except for KP, each province has seen an escalation in crime in 2018. Sindh (18.58%) and Baluchistan (15.67%) have seen higher crime growth rates in 2018 as compared to other provinces. KP has seen a reduction in crime in 2018 but by a very small percentage. KP experienced the single biggest decline of 40.78% in property crime in 2012 but again bounced back with an increase of 19.86% and 20.10% in 2013 and 2014 respectively. Sindh saw the single biggest increase of 23.21% in property crime and 19.10% in violent crime in 2008. Each province has seen a reduction in crime in 2007 and at specific moments from 2012-2017

Table 1-. Population and Crime Growth in Balochistan

Years	Total Population in Millions	Property Crime Rate per 100,000 general population	Violent Crime Rate per 100,000 general population	Total Crime Rate per 100,000 general population	Property Crime Growth Rate (%)	Violent Crime Growth Rate (%)	Total Crime Growth Rate (%)
2003	7.75	5.0	13.7	73.1			
2004	8.01	5.4	14.7	77.5	12.00	16.02	9.55
2005	8.29	5.7	14.2	76.7	7.65	0.26	2.23
2006	8.57	6.5	14.9	87.1	17.74	11.04	15.33
2007	8.85	5.8	15.0	84.8	-5.88	6.10	1.00
2008	9.15	6.7	16.9	90.4	23.20	19.10	9.85
2009	9.46	6.5	16.6	90.9	0.00	0.74	3.58
2010	9.78	6.6	17.2	93.0	5.35	9.63	5.84
2011	10.11	7.0	17.0	92.7	9.36	0.61	2.79
2012	10.46	6.0	17.6	78.5	-11.13	7.99	-2.10
2013	10.81	5.7	14.9	79.9	-4.65	-1.61	-4.93
2014	11.17	4.8	13.9	79.2	-6.30	-13.64	-1.65
2015	11.55	4.6	10.4	77.1	-11.62	-22.79	-1.57
2016	11.94	4.2	9.2	72.4	-3.44	-10.72	-0.11
2017	12.34	3.9	8.8	76.9	-10.55	-4.09	-3.24
2018	12.76	4.2	8.8	68.7	11.88	8.15	15.67

Note: Green indicates an increase and Red indicates a decrease.

Table 2-. Population and Crime Growth in Khyber Pakhtunkhwa

Years	Total Population in Millions	Property Crime Rate per 100,000 general population	Violent Crime Rate per 100,000 general population	Total Crime Rate per 100,000 general population	Property Crime Growth Rate (%)	Violent Crime Growth Rate (%)	Total Crime Growth Rate (%)
2003	20.47	6.7	29.7	484.3			
2004	21.06	7.1	31.2	513.8	8.33	8.35	9.17
2005	21.67	7.2	30.4	509.5	4.64	0.03	2.03
2006	22.30	8.1	31.5	588.6	16.18	6.73	18.88
2007	22.94	7.2	31.5	576.5	-8.23	2.99	0.77
2008	23.61	8.5	35.0	607.0	20.74	14.35	8.34
2009	24.29	8.3	34.7	617.2	0.32	1.76	4.64
2010	24.99	8.5	35.7	633.2	6.21	5.96	5.55
2011	25.72	9.2	35.6	632.2	10.31	2.65	2.74
2012	26.46	5.3	26.6	558.4	-40.78	-23.15	-9.11
2013	27.23	6.1	27.9	524.2	19.86	7.89	-3.41
2014	28.02	7.2	28.3	491.4	20.10	4.61	-3.55
2015	28.83	7.6	23.9	527.6	9.71	-13.07	10.49
2016	29.66	7.1	22.9	580.9	-4.09	-1.48	13.29
2017	30.52	6.1	21.2	592.5	-12.40	-4.79	4.94
2018	31.41	6.1	20.2	571.5	2.97	-2.13	-0.75

Note: Green indicates an increase and Red indicates a decrease.

Table 3-. Population and Crime Growth in Punjab

Years	Total Population in Millions	Property Crime Rate per 100,000 general population	Violent Crime Rate per 100,000 general population	Total Crime Rate per 100,000 general population	Property Crime Growth Rate (%)	Violent Crime Growth Rate (%)	Total Crime Growth Rate (%)
2003	81.83	44.1	28.2	303.7			
2004	83.58	47.4	32.7	327.6	9.70	18.45	10.16
2005	85.36	52.0	32.0	331.4	12.01	-0.03	3.34
2006	87.19	60.0	35.3	385.2	17.91	12.53	18.73
2007	89.05	52.5	36.8	375.5	-10.57	6.70	-0.45
2008	90.95	60.8	44.0	406.8	18.17	22.01	10.66
2009	92.90	59.8	43.5	413.5	0.54	1.06	3.82
2010	94.88	61.1	47.3	428.9	4.38	10.94	5.93
2011	96.91	66.3	46.6	434.9	10.70	0.65	3.57
2012	98.98	60.9	42.1	398.7	-6.12	-7.78	-6.37
2013	101.10	55.3	39.6	386.2	-7.34	-3.86	-1.06
2014	103.26	51.4	39.9	377.3	-5.03	2.93	-0.20
2015	105.46	44.9	33.1	363.2	-10.71	-15.30	-1.68
2016	107.72	44.1	29.8	378.9	0.21	-8.12	6.55
2017	110.02	44.9	28.4	368.9	4.07	-2.41	-0.56
2018	112.37	46.6	31.3	365.8	5.99	12.53	1.28

Note: Green indicates an increase and Red indicates a decrease.

Table 4-. Population and Crime Growth in Sindh

Years	Total Population in Millions	Property Crime Rate per 100,000 general population	Violent Crime Rate per 100,000 general population	Total Crime Rate per 100,000 general population	Property Crime Growth Rate (%)	Violent Crime Growth Rate (%)	Total Crime Growth Rate (%)
2003	34.30	11.5	22.1	138.2			
2004	35.12	12.5	25.1	149.2	12.01	16.03	10.56
2005	35.97	13.2	24.5	149.0	7.67	0.26	2.28
2006	36.84	15.2	26.6	171.8	17.73	11.04	18.10
2007	37.73	13.9	27.5	169.4	-5.87	6.10	1.01
2008	38.64	16.8	32.0	183.5	23.21	19.10	10.92
2009	39.57	16.4	31.5	185.8	-0.01	0.75	3.71
2010	40.53	16.8	33.7	192.7	5.35	9.63	6.20
2011	41.51	18.0	33.1	193.6	9.35	0.61	2.87
2012	42.51	15.6	34.9	185.1	-11.13	7.99	-2.06
2013	43.53	14.5	33.6	172.3	-4.65	-1.61	-4.70
2014	44.59	13.3	28.3	165.5	-6.30	-13.64	-1.62
2015	45.66	11.5	21.3	159.1	-11.62	-22.79	-1.55
2016	46.76	10.8	18.6	155.1	-3.44	-10.72	-0.11
2017	47.89	9.4	17.4	146.7	-10.55	-4.09	-3.13
2018	49.05	10.3	18.4	169.9	11.88	8.15	18.58

Note: Green indicates an increase and Red indicates a decrease.

The Graphs below show the different growth rates for each type of crime across different provinces.

Fig. 1. Total Crime Growth Rates (%)

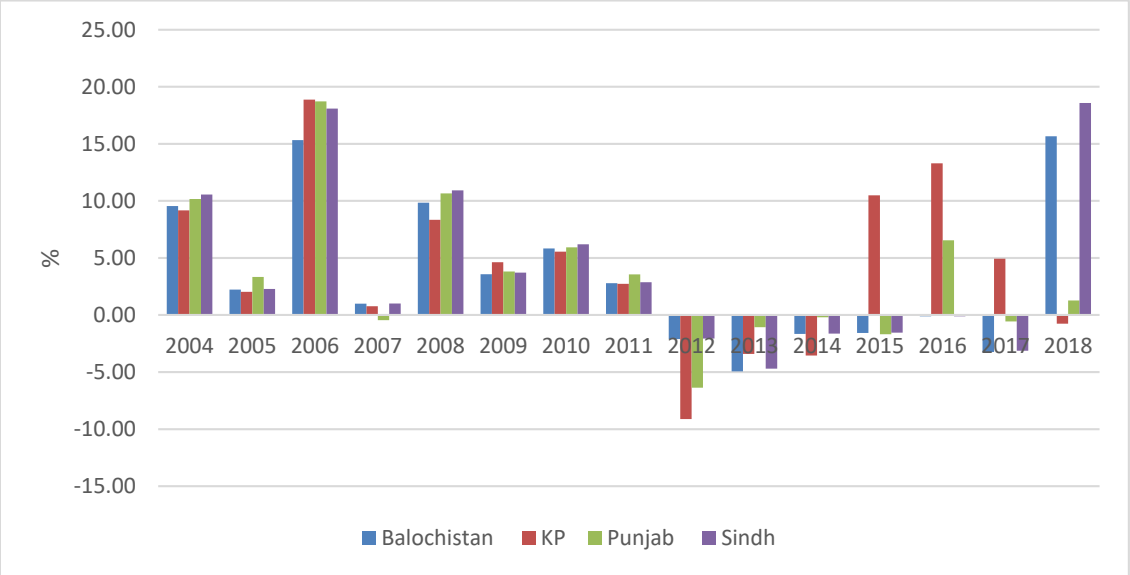


Fig. 2. Property Crime Growth Rates (%)

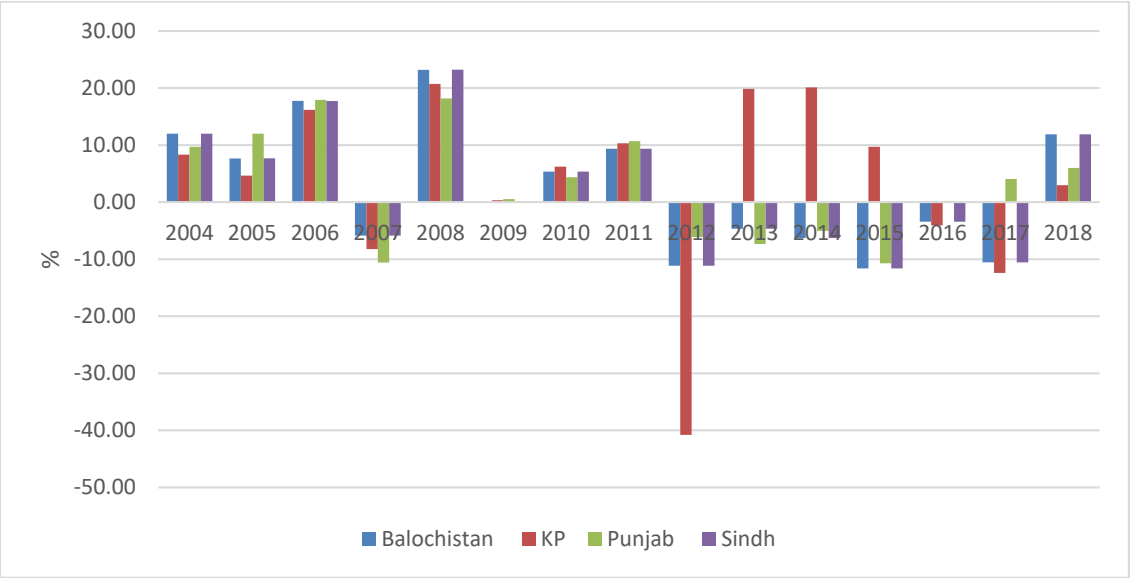
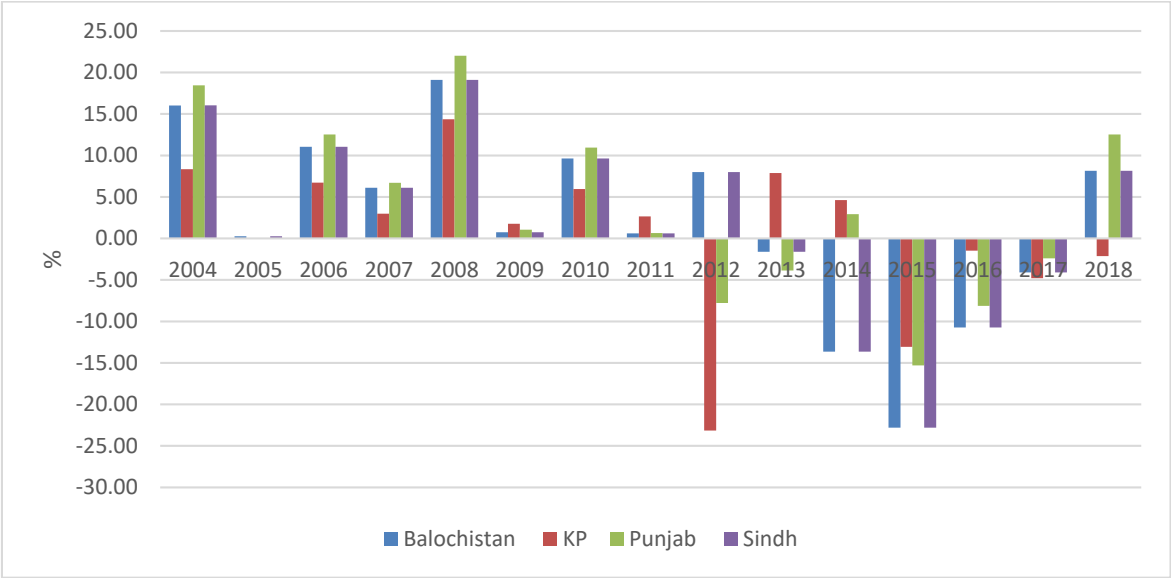


Fig.3. Violent Crime Growth Rates (%)



Sociologists have used the term “Dark figure of crime” which defines the amount of crimes that simply go unreported. As a result, there is a gap between the official number of crimes and the real number of crimes in society. These figures only account for reported crimes; however, there are approximately 30-50 % crimes that go unreported in Pakistan (Gillani, Mahmood, Rehman & Rashid, 2008). The upwards trend in crime rates in the country makes people fear for their own lives and the lives of their loved ones. The general crime rate in the country as of today is higher as compared to past statistics. Official compiled statistics show that the overall crime rate, both at the Centre and across the provinces, has increased despite all claims and policies made by the present federal or provincial governors.

Faced with several problems, Pakistan has always lacked good governance, which has now snowballed into a structural crisis, posing obstacles that seem capable of paralyzing the whole system. The ever-increasing population, corruption, legal system skewed in favor of the rich, limited opportunities for education and health care, social decline, military threats, political instability, and economic turmoil are unavoidable bondage to the masses.

Apply to this the threat of terrorism and extremism and the picture gets complete. Taliban and like-minded organizations posed a real threat, and terrorist attacks have been a routine. The recent military operation in North Waziristan such as (Zarb-e-Azab) was successful in destroying the bases of terrorists; but terrorist attack on the Peshawar Army Public School remind us of Tet Offensive. Although Pakistan's military forces cannot be completely exonerated, the fact remains that events such as APS Peshawar were largely the failure of civilian institutions such as the police in Pakistan. Military is not responsible for protecting towns, it is the job of upholding institutions of civil law–mainly police.

In addition to failing to protect from terrorists to the country's citizens, for whom they are not educated, Pakistani police are not very successful in maintaining law and order in general. Instead of promoting a sense of security and well-being among the population, police, in general, have succeeded in fostering a sense of fear among the public and there is deep resentment between police and the general masses. Reasons for this mistrust include, but are not limited to, bribery, arrogance, torture and extra-judicial killings, arbitrary detentions, and in-custody deaths.

Many reforms have been introduced in the past to improve policing for the promotion of human security and that of economic and social development in the country. However, these reforms were either not implemented or failed to bring about desired results. Previous researches on this topic have covered the effectiveness of police systems in Pakistan using police structures, political influence on local police and so on.

Pakistan has been an issue of significance among researchers, policy makers and social thinkers. Based on the analysis given, the foremost objective of this study is to analyse the impact of the Number of Police Chowkies and Police Stations consequently combined Police Presence on the crime rate. While also controlling for Unemployment rates, Literacy rates, Applications and Petitions in High Courts, Household Satisfaction of Police, Terrorism Incidents, Development Expenditures, Poverty level and Population density per sq. km.

1.3 Research Questions and Objectives

The research questions of this study are as follows:

1. How increase in Police Presence affects the rate of Crime in the Country?
2. Is Police more effective in reducing Property Crime or Violent Crime and why?
3. How does terrorism incidents effect crime in Pakistan?

The objectives of this study are as follows:

1. To test whether Police Presence is making Pakistan a safer place or not. That is to test the hypothesis that if we increase the Number of Police Chowkies and Police Stations and consequently the police presence, it will reduce the rate of Crime in the country.
2. To identify the determinants of crime in Pakistan.
3. To compare the determinants of crime in Pakistan.

1.4 Scope, Delimitations and Limitations of the Study

The study is conducted to explore crime related factors from 2003 to 2018 at the provincial level in Pakistan. The scope of this study is expected to be limited to Pakistan only. However, Police forces of various countries operate around the world in their respective nations and hence the generalizability of this study can be extended to many other countries. The extent to which this study explores the concept of 'crime' is limited to the data. It does not take into account those crimes that have never been reported. This research can be further extended to military forces and intergovernmental organizations as well as NGOs whose goals are to maintain peace, law and order.

Delimitations of the study are as follows:

1. This study focuses on the number of police chowkies and police stations only and not police personnel deployed on duty.
2. This study assumes that as there are no migration restrictions into and out of the provinces of Pakistan, hence criminals can move from one province to another for better opportunities.

Limitations of the study are as follows:

1. Various other factors, which influence Crime like Government policies, have been ignored due to unavailability of the data.
2. The census for population was done in 1998 and then in 2017 and hence the years in between had missing values. Hence the missing values in between have been taken out by finding the continuously compounded growth rate of the population and then applying it onto the number of years.
3. Poverty Level surveys are only conducted every alternate year by a team consisting of the Planning Commission, OPHI and UNDP and hence the missing values in between have been interpolated by taking average of the previous and future years.

2. Review of Literature

This section reviews the existing literature on crime and police in various countries to identify the research gap.

2.1 Research conducted in Pakistan

Siddiqi (2014) has conducted a research on the problems of policing in Pakistan. This study gives an insight about the experiences of different stakeholders regarding the police. The results indicate that policing in Pakistan is greatly influenced by illegitimate political interference. Hence, investigations done once a crime is committed and effective handling of law and order conditions is often influenced by a great deal of political interference.

Nabila Asghar (2016) explored the impact of social, economic and political variables with the event of 9/11 on crimes in Pakistan for the period that ranges between 1984-2013. Three models have been incorporated to investigate political, economic and social factors separately. Political factors such as law and order, corruption index, and 9/11 event are observed to increase crimes. Poverty increases crime whereas external debt and foreign remittances decrease crime. Social factors such as human capital, adequate human rights and the density of population increases crimes.

Awais Anwar (2015) investigated the demographic and social factors of total crime, property crime and violent crime in Punjab. The methodology consisted of incorporating 25 districts of Punjab as a sample for empirical analysis. Time span is of 2005-2012. The findings were discussed after applying the fixed and random effects model. Results showed that deterrence variable positively and significantly effects crime in Pakistan. Population density caused more crime and education had an ambiguous effect.

GIL (2009) discussed the correlation between crime and various economic indicators, which are unemployment, poverty and inflation in Pakistan. The study was done for the period 1975-2007. Causality results show that crime is Granger caused by poverty, unemployment and inflation in Pakistan.

2.2 Research conducted Abroad

Affleck, Gardner, Aytur, Carlson, Grimm, & Deeb (2019) examined the effectiveness of the police facilities constructed for stability enhancement in Afghan communities. This study assessed the relationships of residents' perception of security and other social well-being factors of sustainability that come from having the police facilities within Afghan neighborhoods. Indeed better household satisfaction of police resulted in greater operational efficiency of the police.

2.3 Contribution of this study

Previous studies on the crime and policing in Pakistan have not explored the effectiveness of police in controlling crime. Previous research is mostly based on a particular province or on national level data; however this research considers all four provinces by using a panel data set from 2003 to 2018. This helps us identify a huge research gap which allows us to test whether a district that had police chowkies and police stations, compared to a district that had lesser police presence, was correlated with lesser incidence of crime rates by using a panel data regression and controlling for district and year fixed effects (F.E) as well random (R.E). We can further analyze the impact of clustering and see how results vary across the four provinces.

Moreover, it was also noticed there is a lack of enough research in this sector in Pakistan, which might be due to the political climate of the country, or the lack of data available.
This paper will put forth a comparative outlook and evaluate the impact of police presence in all four provinces in Pakistan.

3. Research Methods

This section presents the sources of data and the description of the variables used for estimating the model. A panel data from 2003 to 2018 is employed to carry out analysis.

3.1 Data Source

The methodology employed revolves around a multiple variable panel data set. The data has 64 observations over the time 2003-2018. We will be looking at the data on a district/provincial level. Data on crime and number of police chowkies and police stations at the district/provincial level is extracted from PSLM. Data for the control variables e.g. unemployment, literacy rates is taken from PSLM. The Development Expenditure per province is taken from Ministry of Finance Government of Pakistan. Pakistan Economic Survey is used as a source to obtain population census of 1998 and 2017. Pakistan Planning Commission along with UNDP and

OPHI acted as source to obtain data on multidimensional incidence percentage of poverty. Data on Applications and Petitions in High Court is taken from PSLM. Data on the number of terrorism incidents is extracted from South Asia Terrorism Portal (SATP).

3.2 Model Specification

The objective of this study is to examine the impact of social and demographic variables on total crime, property crime and violent crime particularly police presence. Following three empirical models are specified for empirical analysis:

Total Crime Rate Model

$$TCR_{it} = B0 + B1PP_{it} + B2UR_{it} + B3LR_{it} + B4AHC_{it} + B5PHC_{it} + B6HSP_{it} + B7TI_{it} + B8LDE_{it} + B9PD_{it} + B10PL_{it} + E_t \ldots\ldots\ldots (1)$$

Property Crime Rate Model

$$PCR_{it} = Y0 + Y1PP_{it} + Y2UR_{it} + Y3LR_{it} + Y4AHC_{it} + Y5PHC_{it} + Y6HSP_{it} + Y7TI_{it} + Y8LDE_{it} + Y9PD_{it} + Y10PL_{it} + U_t \ldots\ldots\ldots (2)$$

Violent Crime Rate Model

$$VCR_{it} = X0 + X1PP_{it} + X2UR_{it} + X3LR_{it} + X4AHC_{it} + X5PHC_{it} + X6HSP_{it} + X7TI_{it} + X8LDE_{it} + X9PD_{it} + X10PL_{it} + W_t \ldots\ldots\ldots (3)$$

Table 5-. Variable Description

Variables	Description
TCR	Total recorded crime rate per 100,000 population (index of murder, attempted murder, kidnapping/abduction, dacoity, robbery, burglary, cattle theft, other theft and others.)
VCR	Violent crime rate per 100,000 population (index of murder, attempted murder, kidnapping/abduction, and robbery)
PCR	Property crime rate per 100,000 population (index of dacoity, burglary, cattle theft and other theft)
PP	Police Presence (index of police chowkies and police stations)
UR	Unemployment rate
LR	Literacy rate
AHC	Applications in High Court
PHC	Petitions in High Court
HSP	House Hold Satisfaction of Police
TI	Terrorism Incidents
LDE	Log Development Expenditure
PD	Population Density (measured as the ratio of province area to its population)
PL	Poverty Level (Headcount Multidimensional Poverty Incidence (MPI) %)

Empirical literature on crime has divided determinants of crime into three main groups. First group comprises deterrence variables, second group consist of demographic variables and third group involves socio-economic variables.

Applications and Petitions in High Courts is expected to act as a deterrence variable. (Awais Anwar, 2015). A high number of applications and petitions would generally cause less responsiveness towards crime because of the fear of eventually being convicted for one's crime.

The independent variable is the number of police chowkies and police stations province/district wise. The hypothesis is that when the number of chowkies and stations increase in a province, it would act as a deterrence and as a result, it leads to lesser incidence of crime i.e. the number of crimes committed should decrease. Crime is measured by the crime rate, which is the number of crimes committed per 100,000 general population.

GIL, (2009) suggested that high unemployment rates lead to increased crime as people need to survive and provide for their family.

Several demographic variables such as age structure, population growth rate, and urbanization, race and population density are widely used in different studies of crime. In this study, we use population density per sq km. Nabila Asghar, 2016 found positive association between crime and population density because higher population density cause more people to be involved in criminal activities.

Development Expenditure (Increase in Human Capital) and Poverty Levels as suggested by GIL, (2009) across provinces have an impact on crime therefore their effect will also be incorporated.

Terrorism Incidents have to be controlled for since they do not come under the category of crime however, literature makes it evident that such events do lead to a large increase in crime. The terrorist attacks have diverted the attention of government from crimes and as a result, there is a significant increase in crimes observed in Pakistan (Nabila Asghar, 2016).

Household Satisfaction of Police acts as a measure of effectiveness of the Police Force and hence is an important control/independent variable. This variable tells us about the percentage of households that are satisfied with the services of the police. Affleck, Gardner, Aytur, Carlson, Grimm, & Deeb (2019) used Afghans' polling datasets on police presence and public safety perceptions, indicating that perceptions and satisfaction of the public acts as an important variable in deducing the effectiveness of the Police in controlling crime.

3.3 Econometric Model

We estimate the correlation between the crime rate over Pakistan and police presence divided province wise by using a panel data regression incorporating the fixed effects, random effects and cluster analysis model. The fixed effect models has constant slope but intercept term varies across cross-sections. Fixed effect model in its simplified form can be written as:

$$Zit = ai + BYit + Uit \text{…….(4)}$$

In matrix notation this can be written as:

$$Z = Da + YB' + u \text{…….(5)}$$

Further, fixed effect models assumed that unobserved country specific effects are correlated with observed explanatory variables while in random effect models unobserved country specific effects are strictly uncorrelated with observed explanatory variables. The model is

$$Zit = ai + B1Y1it + B2Y2it + \text{……..} + BkYkit + Eit \text{……(6)}$$
$$Zit = ai + B1Y1it + B2Y2it + \text{……..} + BkYkit + \&I + Uit \text{……(7)}$$

Where $Eit = \&i + Uit$ $\&i$ is now part of the error term.

Intercept value can be expressed as:

$$ait = a + \&i \qquad i = 1,2,3, \ldots\ldots\ldots, N$$

Such models are appropriate if observation is a representative of a sample rather than the whole population. The cluster model on the other hand simply divides the provinces into separate clusters for better empirical investigation.

We test whether a province that had higher police presence (police stations + chowkies), compared to a province that had lesser police presence, was correlated with lower crime rate.

We estimate: **TotalCrimeRate,d,t = B0 + S1PolicePresence,d,t + Xi,d,t + Uit + Ei,d,t**

Where TotalCrimeRate i,d,t is the outcome variable that denotes total crime rate, i situated in district d in time period t, where t equals year 2003 till 2018. Total Crime is an amalgamation of Property Crime and Violent Crime.

PolicePresencei,d,t is the number of chowkies and stations province wise. S1 measures the magnitude and relationship between the number of chowkies and stations in a province and the rate of crime.We control for crime specific characteristics which are represented by the control variable Xi;d;t.

3.4 Hypotheses

The hypothesis is when the number of chowkies and stations increase in a province it leads to lesser crime i.e. the number of crimes committed should decrease.

H_0: $S_1 = 0$

H_1: $S_1 < 0$

3.5 Estimation Methods

The econometric model, given above, is estimated using the fixed effects, random effects and cluster estimator.

4. Results and Discussion

This section presents the empirical findings of the research and discusses the results obtained.

4.1 Descriptive Statistics

The descriptive statistics of the variables used in the model, from 2003 to 2018 and across Pakistan, are presented in Table 1. The time frame has been divided into 4 sections which is from 2003-2007, 2007-2011, 2011-2015 and 2015-2019. For further analysis and information, you can refer to the graphs at the end of this section. The statistics indicate that the overall average total recorded crime rate is 297.51 per 100,000 general population. This rate has seen turbulence over the years where it peaked in 2011-2015 at an average rate of 321.82 and then settling at a rate 292.2 in 2015-2019. The overall average property crime rate is 19.95 per 100,000 general population where it peaked in 2007-2011 to a rate of 22.26 but then declined to a rate of 16.64 showing improvement. The overall violent property crime rate is 26.78 which steadily declined to a rate of 20.23. It is observed that both violent crime rate and property

crime rate have declined yet the total recorded crime rate has increased. This is because of other small thefts and crimes that have been carried out which are high in number and hence show an increased total crime rate. Police Chowkies have increased from 249 in 2003-2007 to 337 in 2015-2019. The highest number of police chowkies belonged to KP while the lowest belonged to Balochistan in 2013. Police Stations have also increased from 349 to 416.The list of police chowkies and police stations of the districts for each province is present in the appendix. Applications and Petitions in high court have also increased rapidly acting as a deterrence to crime. Applications have increased from 12463 to 18104 applications. Petitions have also increased drastically from 22799 to 38426 petitions. Household satisfaction of police has increased significantly from 7.75% in 2003- 2007 to a rate of 49.92%. This indicates the percentage of households that are satisfied by the services of the police. This means that police effectiveness has increased a lot during the years thus leading to a lower crime rate. Terrorism incidents peaked to a staggering value of 665 incidents on average in 2011-2015 slowly subsiding to 191 incident on average by 2018. Unemployment rate has declined from 6.93% to 5.67% having an average value of 5.91% over the years. The highest unemployment percentage is of KP, which is 12.9% in 2003. This is due to the stark differences in employment opportunities amongst the provinces. Balochistan and KP have higher unemployment rates as compared to Sindh and Punjab. Literacy rate has also increased from 48.94% to 53.65%. The highest literacy rate recorded is 62%, which is that of Punjab in 2012. An improvement in socio-economic indictors leads to a lower crime rate as evident from the literature review done for this study. . The mean value for Poverty (MPI) % is 56% while the highest is 83.4% for Balochistan and the lowest is 31.5% for Punjab.

Table 6-. Descriptive Statistics

Variable	Obs	Overall Mean	2003-2007	2007-2011	2011-2015	2015-2019
Murder	64	2728 (1767.603) [325-6536]	2422	3020	3374	2097
Attempted Murder	64	3251 (2271.467) [333-7730]	3177	3710	3653	2465
Kidnapping/Abduction	64	3894 (4990.074) [124-15699]	2358	3796	4867	4555
Dacoity	64	775 (861.7339) [28-2835]	591	1061	1039	409
Robbery	64	3926 (5088.505) [100-16797]	2945	4852	4504	3404
Burglary	64	3670 (5145.094) [117-15311]	3227	3670	4257	3528
Cattle Theft	64	2079 (3319.516) [39-12069]	2492	2256	2080	1489
Other Theft	64	8261 (12656.97) [159-37613]	6136	8693	9478	8736

Others	64	118114 (107109.3) [4217-328610]	91179	118892	124854	137531
Property Crime	64	14785 (21544.09) [389-64222	12446	15680	16855	14161
Violent Crime	64	13799 (13556.22) [1061-45164]	10901	15377	16398	12520
Total Recorded Crime	64	146698 (139170.6) [5667-421437]	114525	149949	158106	164212
Property Crime Rate	64	19.95 (20.00431) [4-66]	19.23	22.26	21.66	16.64
Violent Crime Rate	64	26.78 (9.840746) [9-47]	25.43	31.18	29.99	20.23
Total Crime Rate	64	297.51 (191.412) [69-633]	272.92	321.82	303.13	292.2
Police Chowkies	60	303 (91.12169) [78-474]	249	297	317	337
Police Stations	60	385 (216.7203) [86-705]	349	370	397	416
Police Presence	60	689 (251.1476) [189-1084]	599	667	714	753
Applications in High Court	41	15161 (17913.78) [1152-66260]	-	12463	13740	18104
Petitions in High Court	41	33281 (36167.73) [2467-126897]	-	22799	34032	38426
Household Satisfaction of Police	64	27.6 (20.77169) [4.63-65.79]	7.75	10.77	43.85	49.92
Terrorism Incidents	64	332 (436.419) [16-2347]	130	341	665	191
Unemployment Rate	64	5.91 (2.333418) [2.6-12.9]	6.93	5.26	5.8	5.67
Literacy Rate	64	52.35 (7.169835) [37-62]	48.94	52.78	54.03	53.65
Development Expenditure	60	166588.6 (191794.4) [11-662900]	9087.3	31657.75	256825	335051.6

Population Density	64	283.54 (165.68) [22.33-547.22]	243.52	268.42	295.92	326.30
Poverty Level	64	55.11 (14.82321) [31.5-83.4]	63.41	57.84	50.28	48.94

Note: Standard deviations are in parentheses and Minimums and Maximums are in square brackets

Fig. 4. Total Crime

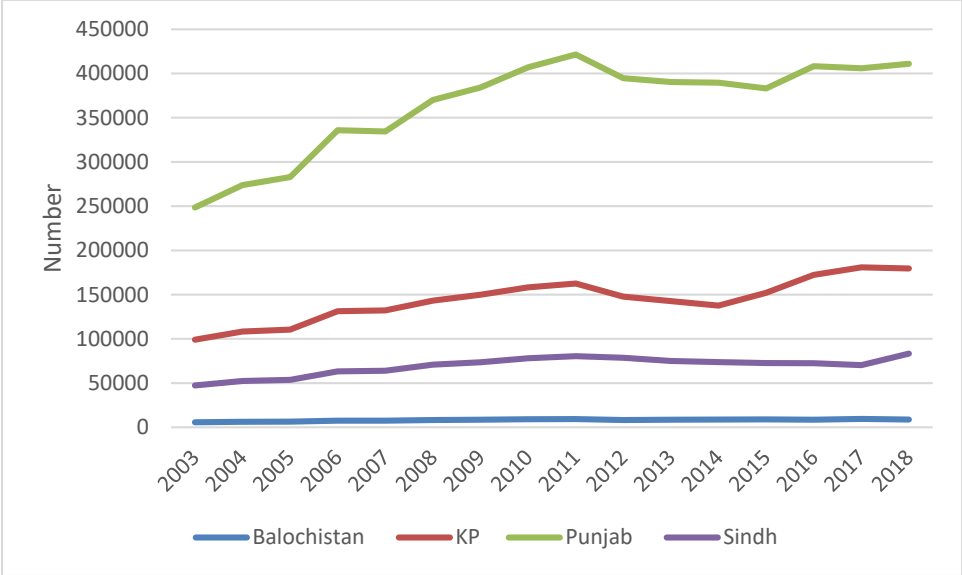


Fig. 5 Property Crime

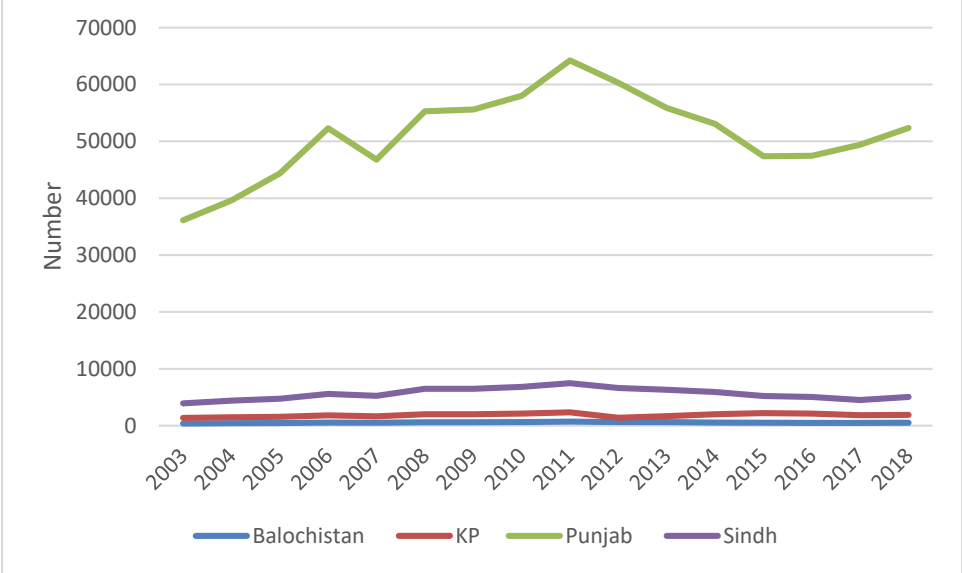


Fig. 6. Violent Crime

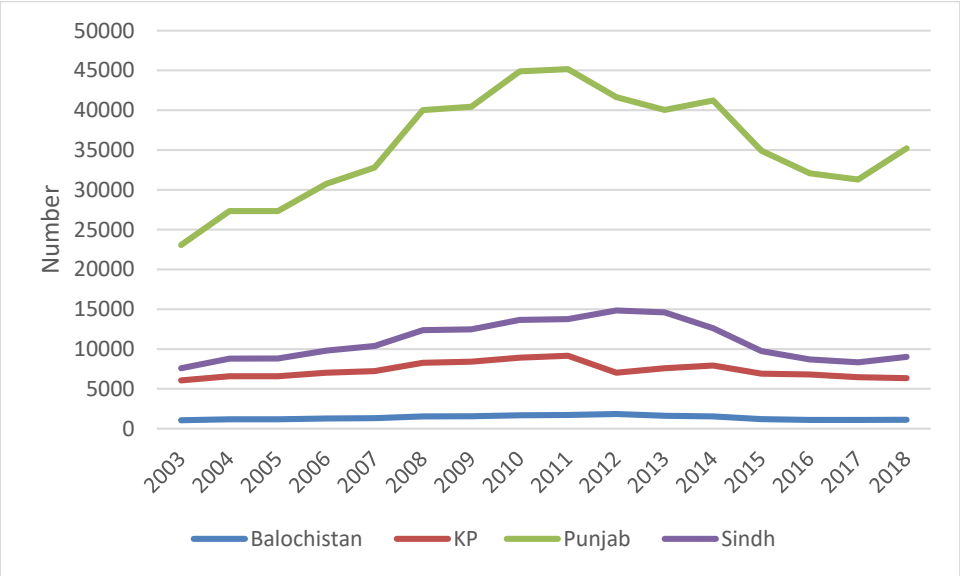


Fig. 7. Police Presence

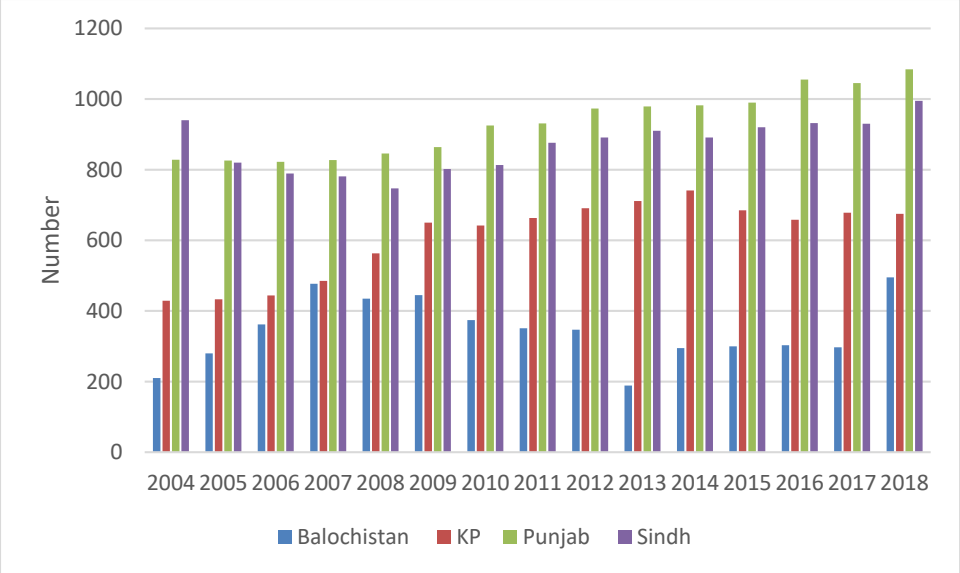


Fig. 8. Household Satisfaction of Police

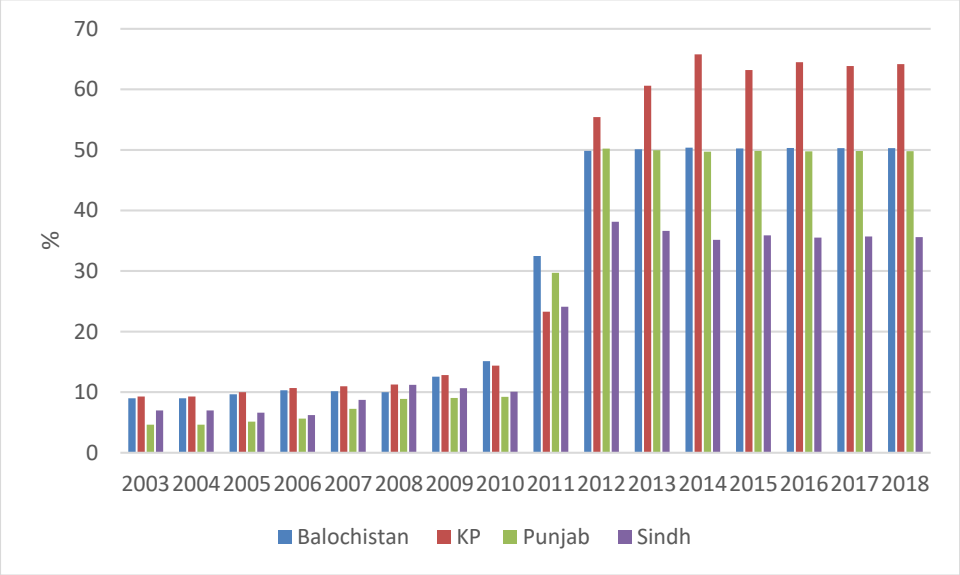


Fig. 9. Terrorism Incidents

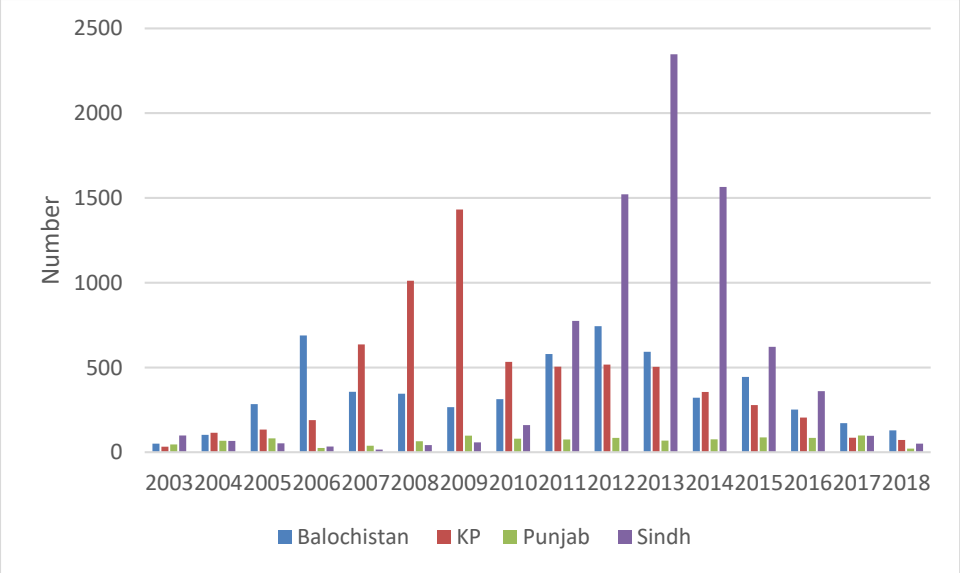


Fig. 10. Total Crime Division

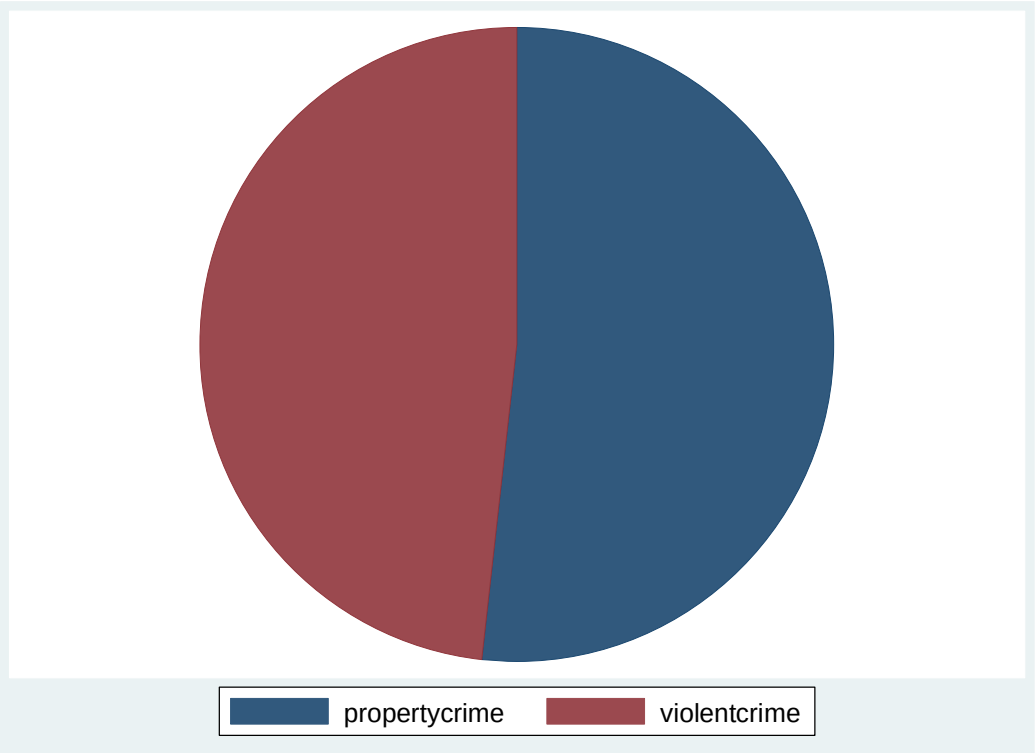


Fig. 11. Different Crimes Division

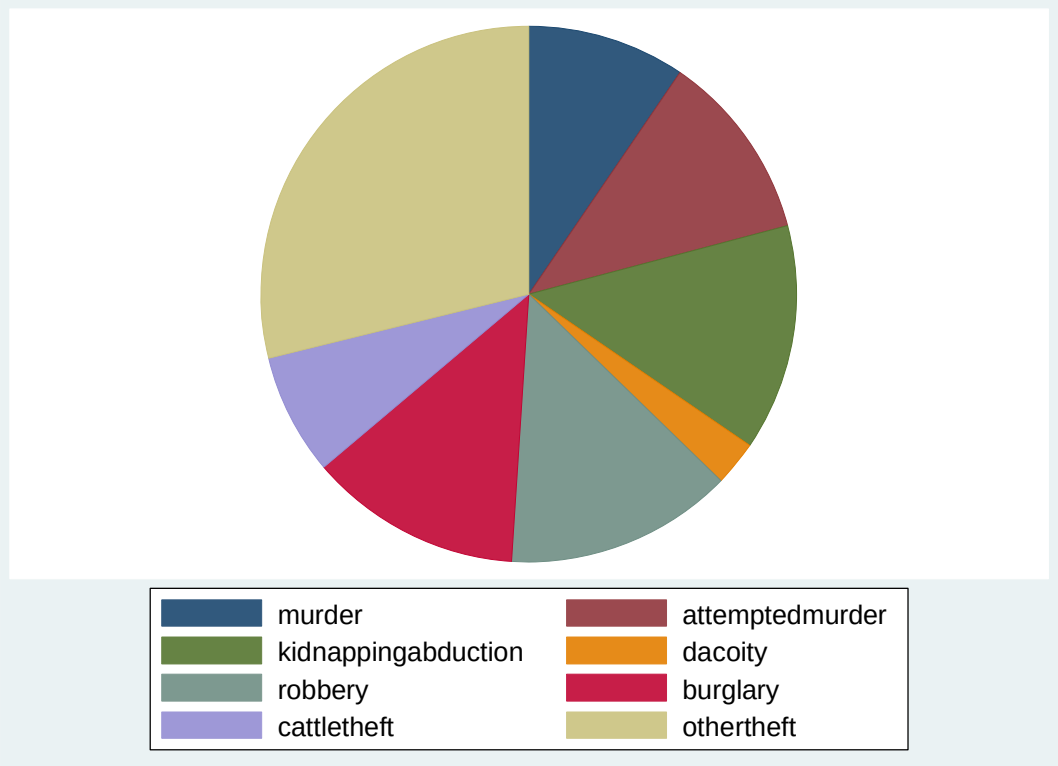


Fig. 12. Violent Crime Divison

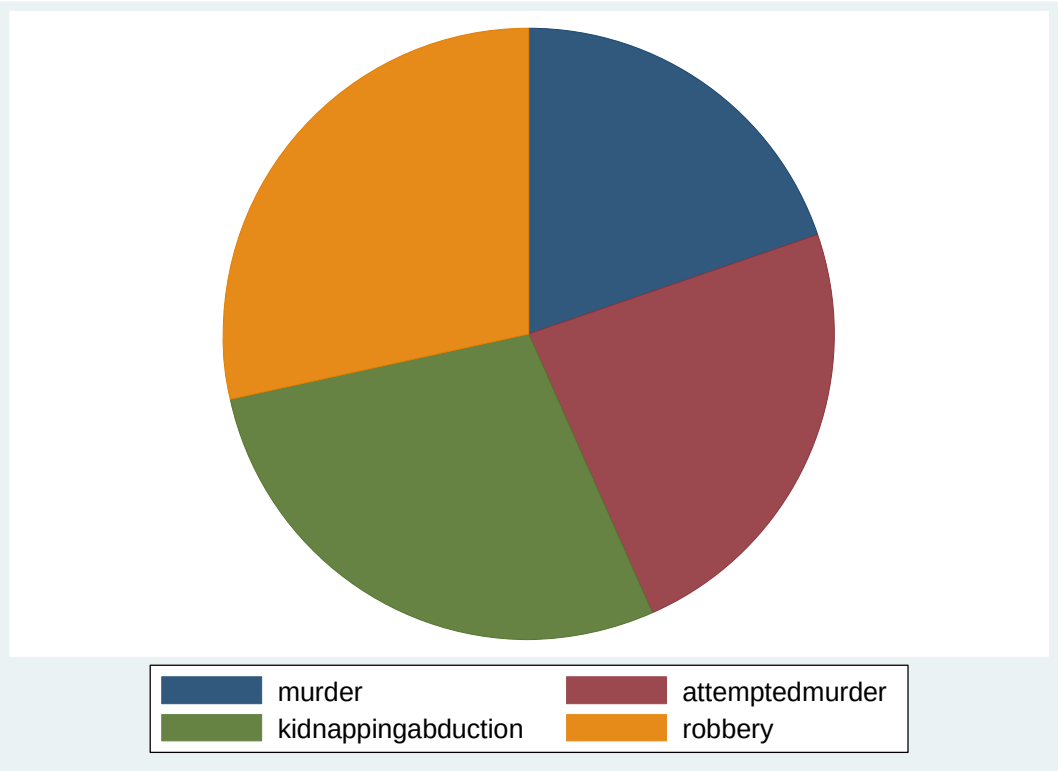
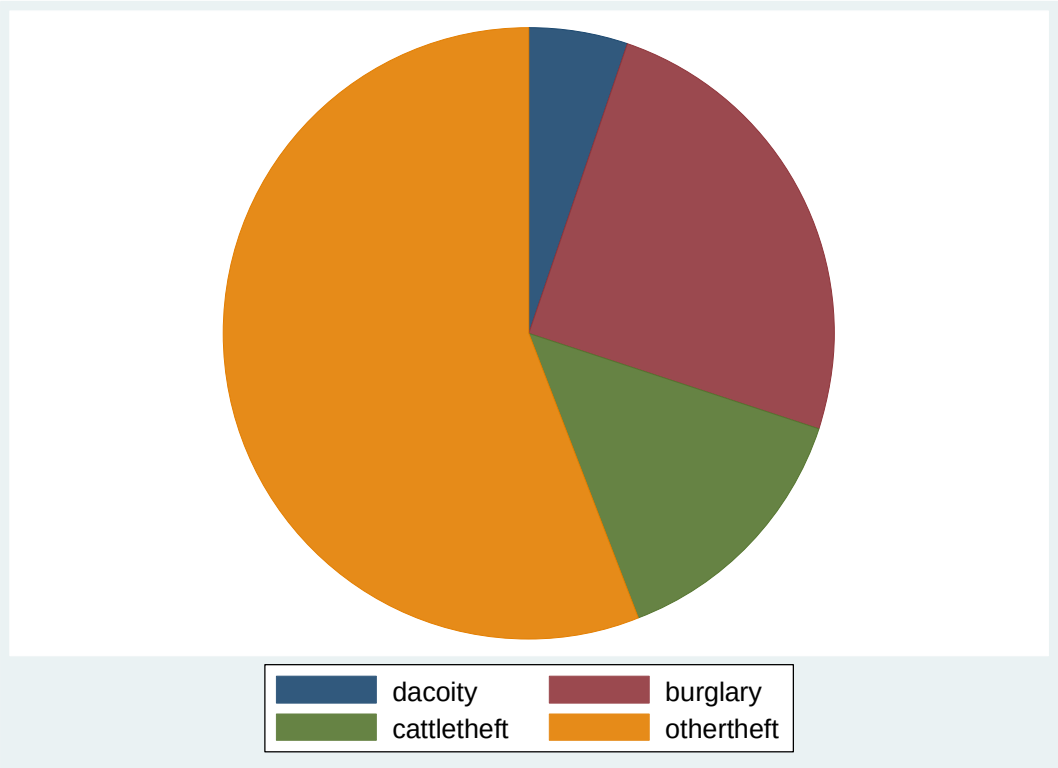


Fig. 13. Property Crime Division



4.2 Regression Results

This section clarifies the results of empirical investigation and explains the relationship between socio-economic indicators and crime rate in Pakistan.

The panel data regression models are estimated using fixed effect, random effect and cluster models. Estimated results are presented in the Table-11, 12 and 13. The results reported in the tables are similar except for some minor difference in sign and significance. Consequent upon this, the results on total crime, property crime and violent crime are not described individually.

Police presence negatively and significantly explains Total Crime Rate (TCR), Property Crime Rate (PCR) and Violent Crime Rate (VCR) in the analysis. Random effects model accurately describes this with the most accuracy across all models and across all the different category of crimes. A negative coefficient of -0.155 in the TCR table shows how much the total crime rate decreases if police presence is increased by one station or chowkie.

Unemployment Rate positively and significantly effects TCR, VCR and PCR. However, the magnitude with which it effects VCR and PCR is quite less as compared to TCR due to the difference in coefficients.

Applications and petitions in high court act as a deterrence variable and effects TCR, PCR and VCR significantly. Except for TCR where it has a negative influence, it has a positive influence with a very small magnitude in the case of violent and property crimes. One reason for this is the slow justice system Pakistan possesses which does not enable fast and swift verdicts and hence crime rate is not deterred by a significant margin.

Household satisfaction of police negatively and significantly effects crime across all crime categories and across all models. This was expected since this acts as a direct measure for the effectiveness with which police operates. The higher the effectiveness, the lower the crime rate.

Terrorism Incidents as expected, positively and significantly effects crimes across all models. Terrorist attacks have diverted the attention of government from crimes and as a result, there is a significant increase in crimes observed in Pakistan (Nabila Asghar, 2016).
Population density is positive and highly significant across all models. This is because high crime rate is found in cities where pollution density is also indeed high due to rural to urban migration. Jalil and Iqbal, (2010) found a similar result in the case of Pakistan.

Empirical results indicate that increase in poverty may increase crime rate. This does not hold true in the case of property crime. Poverty leads to high levels of mental stress, which in turn causes individuals to adopt a life of crime. It also decreases the opportunity cost of committing crime and hence poor people find it more feasible to commit crimes.

Table 7-. TCR: Dependent Variable

Variables	Fixed Effects		Random Effects		Cluster Analysis	
	Coefficient	T-Ratio	Coefficient	T-Ratio	Coefficient	T-Ratio
PP	-.1043	-1.52	-.155343**	-2.15	-.155343	-1.16
UR	27.53443**	2.14	65.71517*	9.22	65.71517*	6.50
LR	2.173023	0.62	-2.119698	-0.66	-2.119698	-0.83
AHC	-.0011917	-1.45	-.0017501*	-3.28	-.0017501*	-8.98
PHC	.0004139	1.28	.0006065**	1.99	.0006065***	1.67
HSP	-1.902029*	-2.76	-1.281059*	-2.92	-1.281059	-1.51
TI	.0122651	1.47	.0142175***	1.61	.0142175	0.82
LDE	16.26935	0.90	18.05655	1.02	18.05655	0.57
PD	.7636206**	2.35	1.480983*	7.41	1.480983*	6.99
PL	3.416881	0.74	10.5524*	3.21	10.5524**	2.16
Observations	39		39		39	
R-Squared	0.8074		0.9908		0.9908	

Note: *, ** and *** indicate the significance at 1%, 5%and 10% level respectively

Table 8-. VCR: Dependent Variable

Variables	Fixed Effects		Random Effects		Cluster Analysis	
	Coefficient	T-Ratio	Coefficient	T-Ratio	Coefficient	T-Ratio
PP	-.0088905	-0.90	-.0328705*	-2.43	-.0328705***	-1.66
UR	-1.015786	-0.55	3.584034*	2.69	3.584034*	4.45
LR	1.635471*	3.26	1.744864*	2.91	1.744864*	6.89
AHC	-9.07e-06	-0.08	.0000143	0.14	.0000143	0.15
PHC	.0000446	0.96	.0001482*	2.61	.0001482*	2.98
HSP	-.0811643	-0.82	-.2880077*	-3.51	-.2880077*	-2.48
TI	.0044443*	3.70	.0051746*	3.14	.0051746***	1.73
LDE	.0715687	0.03	-.6914507	-0.21	-.6914507	-0.19
PD	-.1689703*	-3.62	-.0158795	-0.43	-.0158795	-0.39
PL	-.0256311	-0.04	-.0541538	-0.09	-.0541538	-0.10
Observations	39		39		39	
R-Squared	0.3447		0.9012		0.9012	

Note: *, ** and *** indicate the significance at 1%, 5%and 10% level respectively.

Table 9-. PCR: Dependent Variable

Variables	Fixed Effects		Random Effects		Cluster Analysis	
	Coefficient	T-Ratio	Coefficient	T-Ratio	Coefficient	T-Ratio
PP	-.0085844	-0.86	-.0646706*	-2.47	-.0646706	-1.53
UR	-.7746709	-0.41	-.7996377	-0.31	-.7996377	-0.37
LR	.4179263	0.83	1.693784	1.46	1.693784***	1.62
AHC	-.0001115	-0.93	.0003839**	1.99	.0003839***	1.66
PHC	.000016	0.34	.0003079*	2.80	.0003079*	5.29
HSP	.1914893***	1.92	-.5020965*	-3.16	-.5020965***	-1.87
TI	-.0001073	-0.09	.0001516	0.05	.0001516	0.03
LDE	6.622845*	2.52	7.33829	1.14	7.33829	0.82
PD	-.0809585***	-1.72	.0622127	0.86	.0622127	0.55
PL	1.947539*	2.89	.4464419	0.38	.4464419	0.39
R-Squared	0.5035		0.9017		0.9017	

Note: *, ** and *** indicate the significance at 1%, 5%and 10% level respectively.

4.3 Projections

In this section, we present the future projections of this study. Even though our results depict that police presence does indeed help in controlling crime there are still other factors that need to be addressed. If better equipment and training are provided to the police personnel then the impact police chowkies and police stations have on crime would be greatly enhanced. Another factor is the turbulent political climate that is an obstacle to better policing. If these factors are dealt with, we might see an even effective police force.

5. Conclusions and Policy Implications

A rise in incidence of crime over the past decade indicates that there are enough opportunities for individuals to involve in unlawful acts. Crime does not simply harm the individual who is involved in terms of imprisonment or penalty but it also causes disruptions to community living. This leads to loss of property and life due to property and violent crimes.

This study aims to evaluate the impact of police presence on crime in the country from 2003 to 2018. This study implemented a panel data set, which assumes that as there are no migration restrictions into and out of the provinces of Pakistan, hence criminals can move from one province to another for better opportunities.

The results of panel data study show that indeed police presence does help in controlling crime. Higher number of stations and chowkies that are well dispersed throughout the provinces of Pakistan can in fact cause lower incidence of crime. Additional funding and enhanced training should be allocated to the police for better results. An additional chowkie or station can lead to a decrease of 0.15 for TCR, 0.03 for VCR and 0.06 for PCR.

Unemployment rate and poverty level both have a positive and significant impact on crime. This shows that unemployment is one of the major factors that contribute towards a high crime rates in Pakistan. Macroeconomic policies that target poverty and unemployment should be given priority in the war against crime. Pakistan's government should take effective measures in alleviating poverty. Specific actions include more funds diverted to Benazir Income Support Program. BISP has been doing a very good job so far in increasing the empowerment of women and alleviating households from poverty. If additional government policy instruments intensify this, then we can expect a further decline in poverty and as a result, crime would decline. Additional funds can also be diverted to Pakistan Poverty Alleviation Fund (PPAF) that has done an excellent job in giving opportunities to economically and physically disabled individuals and hence been a factor for the decline in poverty in the country.

Literacy and Development expenditure both have a negative and significant impact on crime. This indicates that government should focus on increasing educational opportunities for the masses. More focus should be allocated to increasing the density of students at the primary level. Indeed, it is that level where children are most vulnerable to adopting a life of crime if difficult circumstances to living emerged. A rise in development expenditure leads to higher human capital, which in turn causes individuals to neglect illegal activities. In this study development, expenditure has no effect on crime. Pakistan is still considered a country where relatively high rates of corruption prevail. Hence development expenditure does not have its desired effect and no optimal result is generated.

Applications and Petitions in High Court helps deter individuals from current and future crimes. It is significant and negatively effects TCR and PCR. It does not seem to have any relevance when it comes to violent crimes. This is according to initial expectations.

Terrorism positively and significantly effects crime. Pakistan has observed lower rates of terrorism after Zarb-e-Azb so it is expected that crime should also decrease. Indeed Terrorism is a catalyst for crime and in some cases acts as an accomplice to crime. Its effect prevails on TCR and VCR but does not seem to have any effect on PCR. An increase in terrorism increase the crime rate by 0.014. Pakistan's battle with terrorism will also cause lower crime to manifest.

Population density positively and significantly effects TCR but is not significant in the case of VCR and PCR. Population density is expected to increase over the coming years so its effect on crime is ambiguous as of now in the case of Pakistan. Population density is reduced if cities are planned properly. A well-dispersed population would not burden the resources of one particular area. We can observe how Karachi is overburdened from rural to urban migration and as a result, unplanned development has taken its roots.

Finally, Household satisfaction of police has a negative and significant effect on crime. If better campaigns are run which enable better communication between police and civilians then that might lead to lower incidence of crime. The police in Pakistan are considered ineffective and corrupt but through empirical evidence, this perception is slowly in decline.

If we account for factors such as unemployment rate, literacy rate, development expenditure, and poverty level then the improvement in crime would be greatly enhanced. Indeed other explanatory variables, which are used as 'control-for' factors, act as catalysts in improving security across the country.

The economics associated with crime has its roots in many other fields such as sociology, psychology and geography. Our prime focus should be on the quantitative research on socio-economic effects of crime. This will allow us to determine additional factors that cause emergence of crime. Indeed society and Pakistan is better off with less crime.

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Appendices:

Appendix A: List of Police Stations and Police Chowkies by Province and District

Punjab	Khyber Pakhtunkhwa	Sindh	Balochistan
Rawalpindi Division Rawalpindi Jhelum Attock Chakwal	*Peshawar Division* Peshawar Charsada Naushera	*Sukkur Division* Sukkur Khairpur Nawabshah Naushero Feroze Ghotki	*Quetta Division* Quetta Pishin
Bahawalpur Division Bahawalpur Bahawalnagar Rahim Yar Khan	*Mardan Division* Mardan Swabi	*Larkana Division* Larkana Shikarpur Jacobabad	*Zhob Division* Zhob Loralai Barkhan Musakhel
D.G.Khan Division D.G.Khan Rajanpur Muzaffargarh Layyah	Kohat Division Kohat Karak Hungu	*Hyderabad Division* Hyderabad Badin Dadu Thatta	*Sibi Division* Sibi Ziarat Dera Bugti Kohlu
Multan Division Multan Vehari Khanewal Sahiwal Pakpattan Lodhran	*D.I.Khan Division* D.I.Khan Tank	*Mirpur Khas Division* Mirpurkhas Tharparkar Sanghar Umerkot	*Nasirabad Division* Jaffarabad Nasirabad Jai Magsi Bolan Kachhi
Lahore Division Lahore Kasur Okara Sheikhupura	*Bannu Division* Bannu Luckky Murwat	*Karachi Division* Karachi East Karachi Wet Karachi South Karachi Central Karachi Malir	*Kalat Division* Kalat Lasbela Khuzdar Chagai Kharan Mastan Awaran
Gujranwala Division Gujranwala Sialkot Gujrat Narowal Mandi Baha-ud-Din Hafizabad	*Hazara Division* Abbotabad Manshera Khoistan Haripur Batagram		*Makran Division* Gwadar Turbat (Kech) Panjgur
Faisalabad Division Faisalabad Toba Tek Singh Jhang Chinlot	*Malakand Division* Swat Dir Chitral Buneer Shangla		*Federal Capital Area,* Islamabad
Sargodha Division Sargodha Minanwali Khushab Bhakkar			

Appendix B: Analytical Graphs

Fig. 14. Unemployment Rate

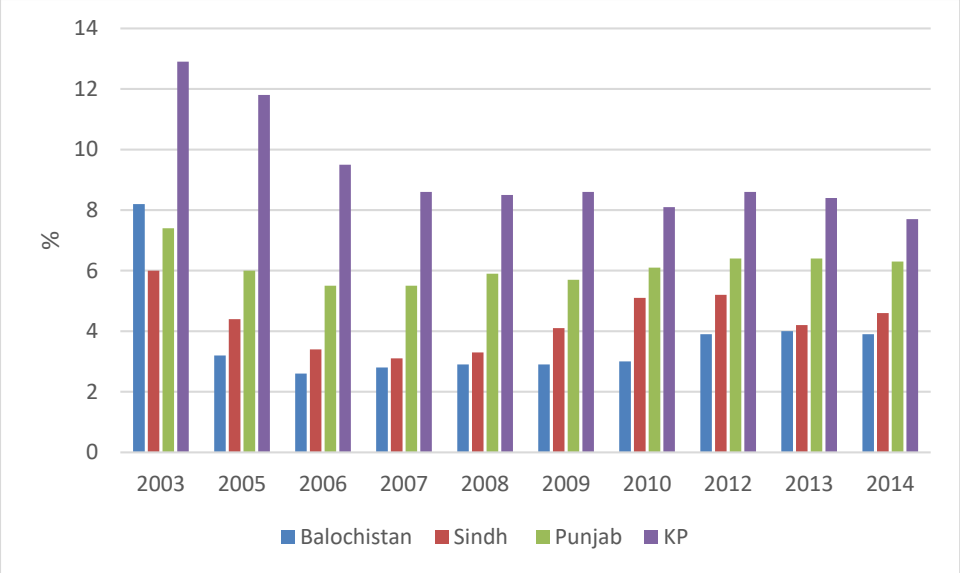


Fig. 15. Relative Change in Unemployment Rate

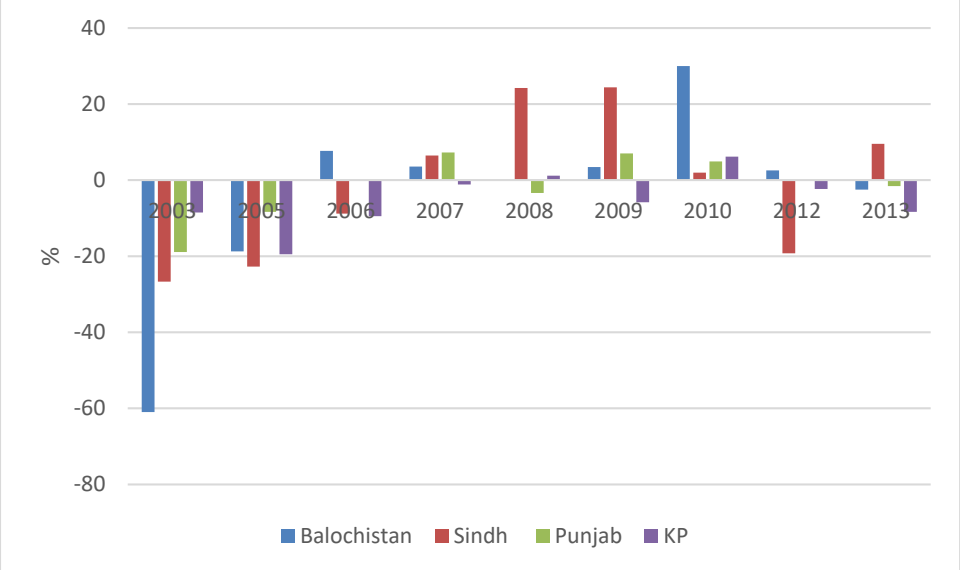


Fig. 16. Literacy Rate

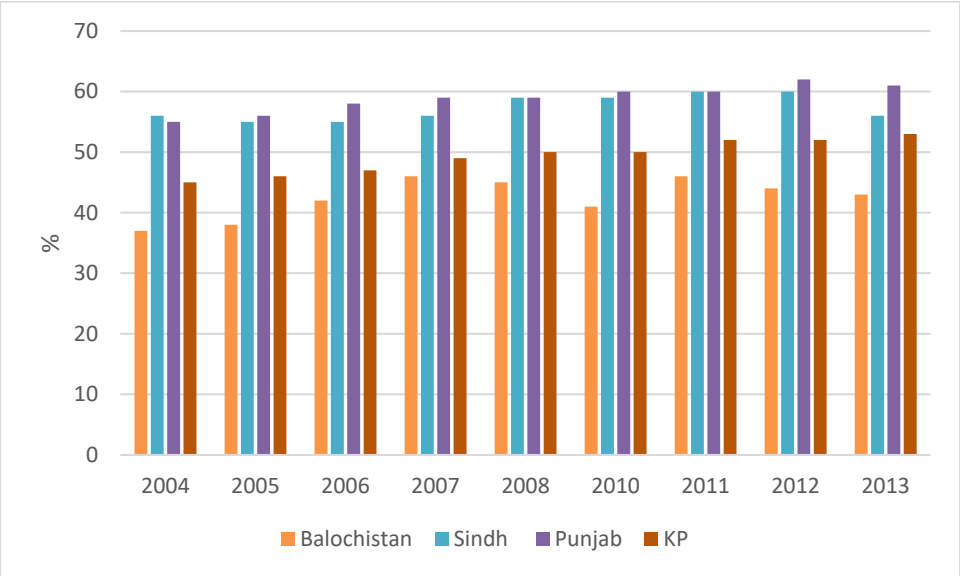


Fig. 17. Development Expenditure

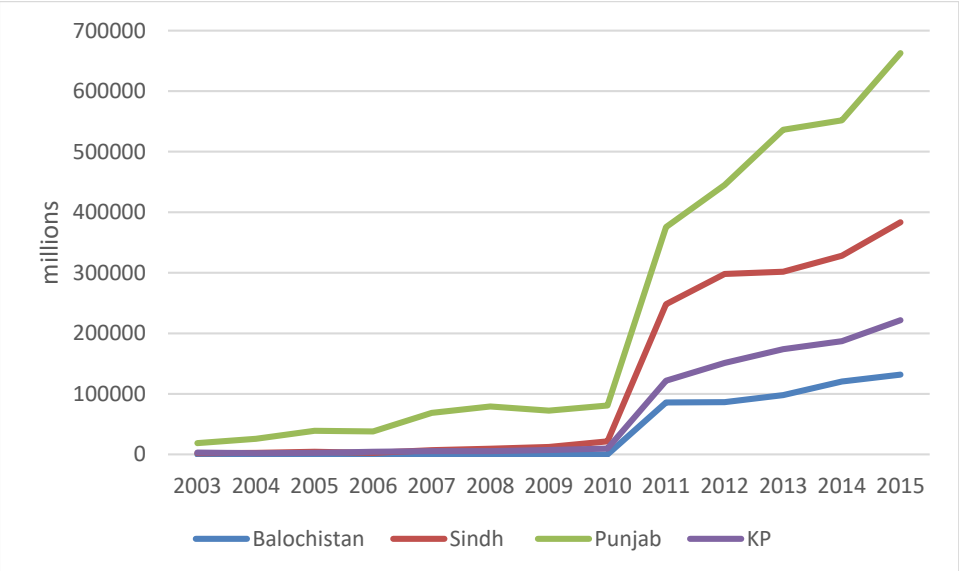


Fig. 18. Relative change in Development Expenditure

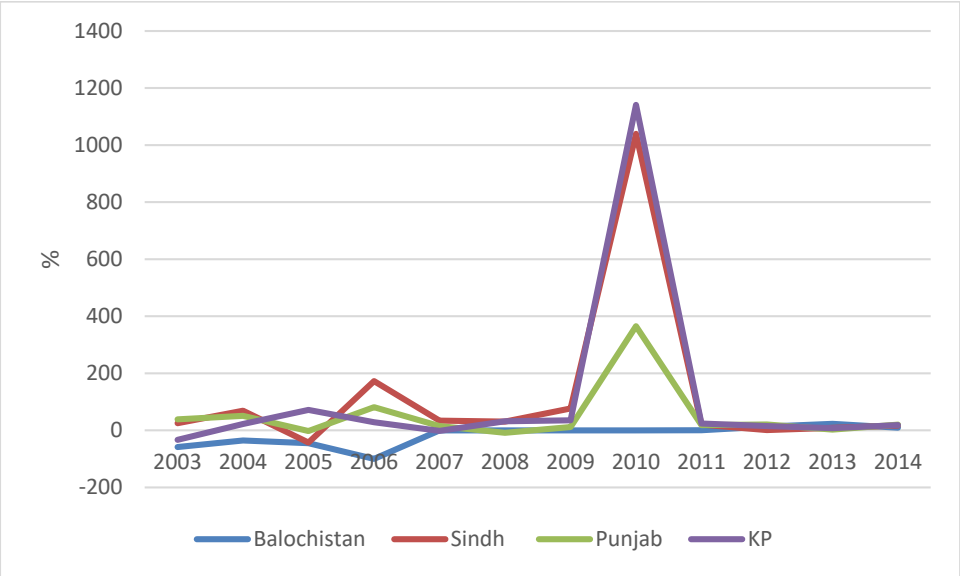


Fig. 19. Population Density Per Square Km

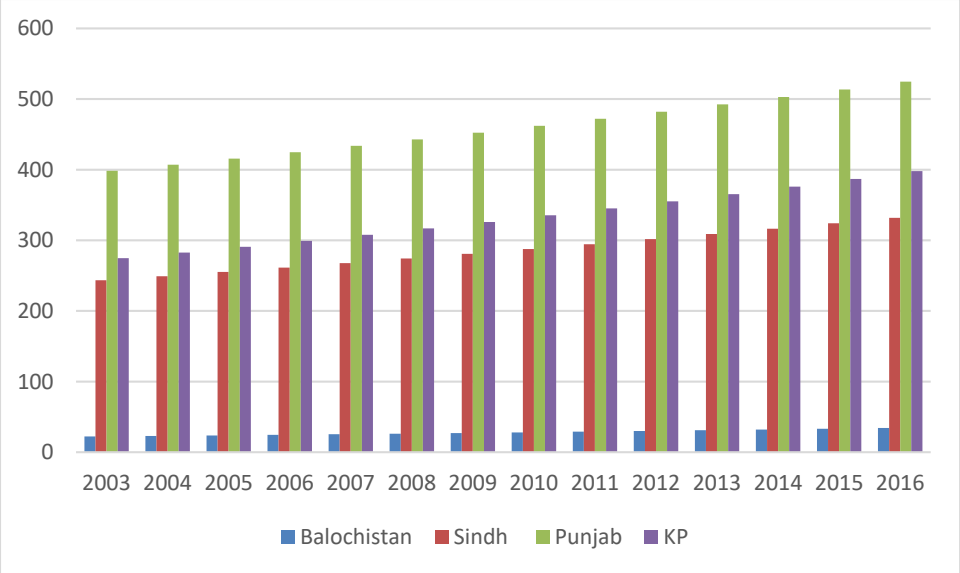


Fig. 20. Square Km Area for Provinces

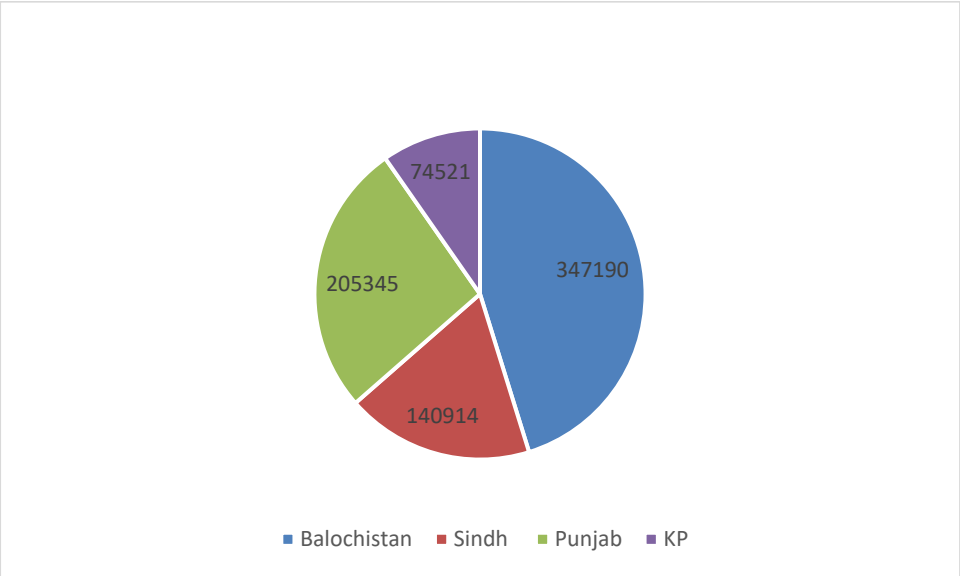


Fig. 21. Poverty Level: Headcount Multidimensional Poverty Incidence (MPI) %

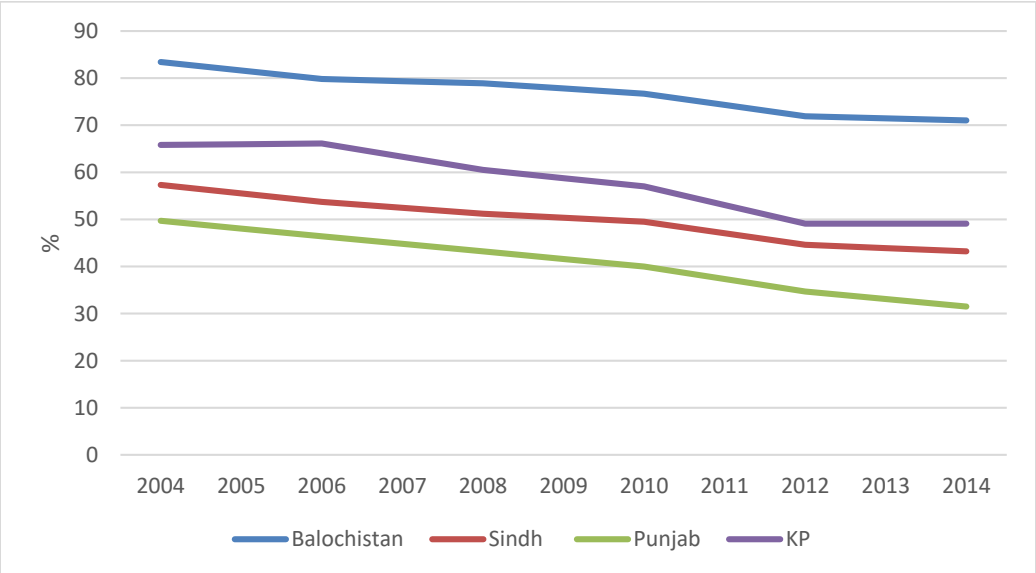
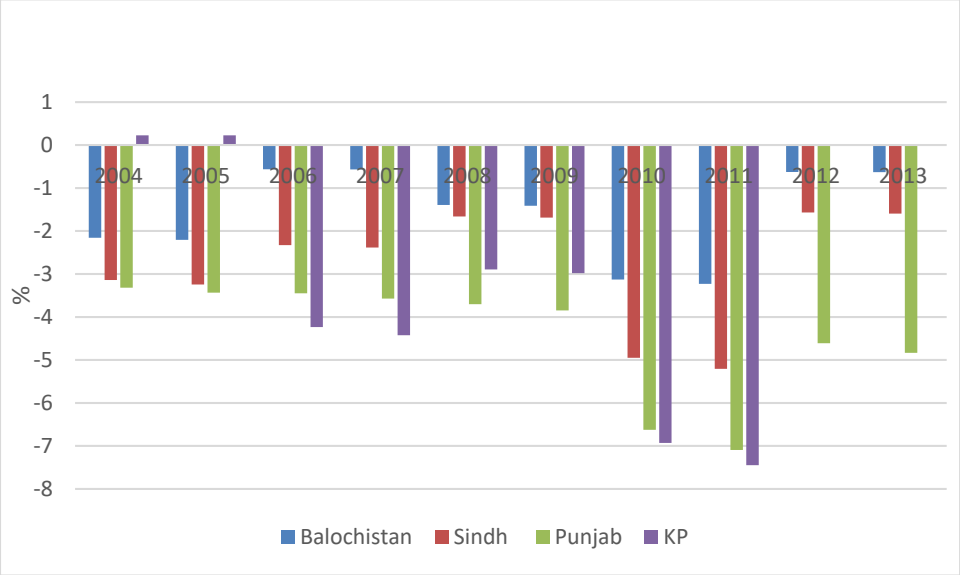


Fig. 22. Relative Change in MPI



Appendix C: Trends in Crime

Table 1-. Trends in Crime in Province Balochistan

Years	***1***	***2***	***3***	***4***	***5***	***6***	***7***	***8***	***9***	***10***	***11***	***12***
2003	430	408	124	42	100	127	61	159	4217	389	1061	5667
2004	447	447	142	54	140	133	72	173	4606	432	1176	6213
2005	443	453	135	55	144	118	107	195	4704	475	1176	6355
2006	462	484	153	67	173	125	120	245	5631	558	1272	7461
2007	486	488	158	75	196	118	85	232	5674	509	1328	7511
2008	555	532	223	105	235	146	80	283	6118	614	1544	8276
2009	575	527	240	103	226	147	85	280	6417	616	1568	8600
2010	608	546	273	109	259	162	76	298	6771	645	1685	9100
2011	638	546	291	115	243	177	84	332	6950	709	1719	9377
2012	711	583	386	98	160	117	77	332	5745	624	1840	8209
2013	639	482	304	85	189	156	68	312	6402	621	1614	8637
2014	615	465	268	67	202	143	69	258	6761	537	1550	8848
2015	412	356	246	66	186	162	53	248	7182	529	1200	8911
2016	382	340	215	30	160	154	67	249	7051	500	1097	8648
2017	325	333	248	38	185	135	39	272	7917	484	1091	9492
2018	352	348	269	28	151	158	58	290	7109	534	1120	8763

Table 2-. Trends in Crime in Province Khyber Pakhtunkhwa

Years	***1***	***2***	***3***	***4***	***5***	***6***	***7***	***8***	***9***	***10***	***11***	***12***
2003	2470	2952	529	46	121	658	123	546	91666	1373	6072	99112
2004	2569	3237	603	58	171	688	145	596	100137	1488	6579	108204
2005	2546	3284	576	60	176	609	217	671	102268	1557	6581	110406
2006	2656	3505	653	72	211	649	244	843	122413	1809	7024	131245
2007	2790	3533	671	82	240	609	172	798	123359	1660	7234	132253
2008	3187	3851	947	113	287	754	162	975	133010	2004	8272	143287
2009	3301	3820	1021	111	276	760	173	966	139500	2010	8418	149928
2010	3491	3952	1161	118	316	839	153	1025	147202	2135	8919	158257
2011	3663	3956	1239	125	297	918	171	1142	151083	2356	9156	162595
2012	2958	2892	1052	60	134	500	118	717	139344	1395	7036	147775
2013	3163	3146	1137	66	145	653	127	826	133466	1672	7591	142729
2014	3184	3281	1277	77	199	778	100	1053	127715	2008	7941	137664
2015	2496	3008	1165	50	234	878	97	1178	142994	2203	6903	152100
2016	2481	2900	1214	58	206	840	122	1093	163403	2113	6801	172317
2017	2361	2641	1197	45	276	798	126	882	172504	1851	6475	180830
2018	2320	2628	1118	39	271	823	155	889	171230	1906	6337	179473

Table 3-. Trends in Crime in Province Punjab

Years	***1***	***2***	***3***	***4***	***5***	***6***	***7***	***8***	***9***	***10***	***11***	***12***
2003	4407	5768	6433	1037	6467	10980	6106	17985	189330	36107	23075	248512
2004	4583	6324	7336	1331	9087	11484	7176	19620	206827	39610	27331	273767
2005	4542	6417	7011	1363	9354	10154	10762	22086	211227	44366	27323	282916
2006	4738	6849	7941	1648	11218	10831	12069	27764	252835	52312	30746	335892
2007	4978	6904	8165	1856	12758	10154	8502	26273	254789	46785	32805	334378
2008	5686	7524	11522	2578	15292	12574	8042	32090	274724	55284	40024	370032
2009	5890	7464	12419	2537	14674	12683	8564	31800	288128	55584	40447	384159
2010	6228	7721	14126	2691	16797	14000	7583	33743	304035	58016	44873	406925
2011	6536	7730	15078	2835	15820	15311	8463	37613	312052	64222	45164	421437
2012	6128	7641	15699	2715	12181	14740	8115	34719	292665	60289	41649	394603
2013	5969	6935	14527	2479	12609	13912	6968	32506	294503	55865	40040	390408
2014	5953	7204	14247	1984	13808	14206	6685	30178	295353	53053	41212	389618
2015	4422	5234	13378	1318	11871	12762	5837	27452	300781	47369	34905	383055
2016	3995	4647	13349	825	10078	11586	5384	29674	328610	47469	32069	408148
2017	3914	4440	13558	602	9385	11023	4721	33053	325149	49399	31297	405845
2018	4017	5093	14981	793	11128	11425	5569	34572	323456	52359	35219	411034

Table 4-. Trends in Crime in Province Sindh

Years	***1***	***2***	***3***	***4***	***5***	***6***	***7***	***8***	***9***	***10***	***11***	***12***
2003	2039	2435	1364	697	1746	1283	452	1499	35875	3932	7584	47390
2004	2120	2670	1556	895	2454	1342	531	1636	39190	4404	8799	52393
2005	2101	2709	1487	916	2526	1187	797	1841	40024	4741	8822	53587
2006	2192	2891	1684	1108	3029	1266	894	2314	47908	5582	9796	63286
2007	2303	2915	1731	1247	3445	1187	630	2190	48278	5254	10394	63926
2008	2630	3176	2443	1733	4129	1470	596	2675	52055	6473	12379	70908
2009	2725	3151	2634	1705	3962	1482	634	2651	54595	6473	12471	73540
2010	2881	3260	2996	1809	4535	1636	562	2813	57609	6819	13672	78101
2011	3023	3263	3198	1906	4271	1789	627	3136	59128	7457	13756	80341
2012	3726	3732	3077	1341	4320	1680	630	2976	57206	6627	14855	78688
2013	3854	3568	3149	1354	4045	1651	477	2837	54055	6319	14616	74990
2014	3225	3017	2947	1320	3433	1387	504	2710	55230	5921	12622	73773
2015	1907	2280	2963	858	2595	1323	437	2615	57652	5233	9745	72630
2016	1445	1955	2891	707	2409	1472	419	2455	58794	5053	8700	72547
2017	1409	1644	2927	572	2364	1344	383	2221	57409	4520	8344	70273
2018	1308	1590	3167	509	2959	1560	352	2636	69252	5057	9024	83333

Note:

Col 1: Murder	Col 7: Cattle Theft
Col 2: Attempted Murder	Col 8: Other Theft
Col 3: Kidnapping/Abduction	Col 9: Others
Col 4: Dacoity	Col 10: Property Crime
Col 5: Robbery	Col 11: Violent Crime
Col 6: Burglary	Col 12: Total Recorded Crime