# Socio-Economic Determinants of Property Crime Across the Districts of Punjab: Highlighting the Role of Law **Enforcement Agencies of Pakistan**

# Muhammad Shahid<sup>1</sup>, Khalil Ahmad<sup>2</sup>, Muhammad Amir Inayat<sup>3</sup>, Muhammad Kashif Bhatti<sup>4</sup>

#### Abstract

This study intends to find socioeconomic determinants of property crimes in all districts of Punjab, Pakistan for the year 2018. The selected socio-economic explanatory variables are police strength, police proclaimed offenders, poverty, literacy rate, population density, and migrants and the dependent variable is reported property crimes. The ordinary Least Square (OLS) method is used for empirical analysis as the data set and all variables fulfill the assumptions of simple OLS. The results show that police-proclaimed offenders, poverty, population density, and migrants have a positive and significant impact on property crimes in Punjab. Police strength and literacy rate are inversely related to crimes against property. The results indicate that the most dense and populated areas provide more chances for criminals to commit crimes. So, to reduce crimes in Punjab province, the government should educate police officials with modern world technology to improve their performance in controlling property crimes across all districts of Punjab, Pakistan.

Keywords: Police Strength, Police Proclaimed Offenders, Poverty, Literacy Rate, Population Density, Property Crimes

### 1. Introduction

People take part in criminal activities for social, economic, or psychological motivations considering the universal truth that "People respond to incentives". The present study has emphasized crimes which include deliberate and intentional offences causing loss of property. The property crimes involve burglary, dacoity, robbery, cattle theft, motor vehicle theft and snatching. Commercial activities are discouraged with a higher rate of property crime that ultimately leads to harm the economic growth process. In order to restore peace and stability, the social scientists are more interested to determine factors causing property crime. The study of Becker (1968) designated criminals and law enforcement agencies as coherent entities in the crime and economics discipline. The economists are making contribution to this discipline by finding possible determinants that have an impact on the crime rate magnitude for different societies. The economics of crime has not attained much attention in Pakistan, although there has been growing concern of high crime rate in the country. Most of the studies have used country level data in determining socio-economic factors of crime rate (Omotor, 2010; Khan et al., 2015; Shah & Kanwal, 2021). Nevertheless, the crime rate appears to be more sensitive to countries' geographical boundaries. The studies are also available that use states, provinces and districts level data to address this particular problem (e.g., Jabbar & Mohsin, 2013). Therefore, there is need to observe different socio-economic factors of property crime at district level in Punjab due to the huge variations in these factors across the regions. The present study has focused on Punjab because of higher crime rate against property. Property crime is more reactive to law-and-order situation of a society in response of demographic, social and economic factors (Becsi, 1998). The increasing property crime rate in Punjab has caused mental unrest, frustration and insecurity among people that requires dealing this situation on emergency basis. This study is an attempt to determine the factors resulting to hinge the property crime in different districts of Punjab. In the current study, a restraining variable termed as police strength is included to capture the deterrent effect on crimes against property. In order to capture the impact of past criminal experience and technical criminal knowhow on property crime, an important factor the number of police proclaimed offenders is also included in the model. The other control variables have been employed such as population density, poverty, literacy rate and migrants. Simple OLS is applied to determine the impact of these variables on property crime in thirty-five districts of Punjab. The findings of the study may propose policy recommendations to prevent crimes against property in Punjab.

Punjab is the biggest province of Pakistan with the largest number of registered criminal cases. All reported crimes in Punjab have been increased rapidly from 408283 in 2016 to 544288 in 2020 (Punjab Bureau of statistics, 2021). In the first nine months of 2022, around 562328 criminal cases have been registered across the Punjab (Punjab Police, 2022). Among these registered cases, almost 234225 criminal cases are reported against property. The statistics shows that a major proportion of 41.6% of total criminal cases are reported against property in Punjab. The property crimes consist of robbery, dacoity, burglary, motor vehicle theft, cattle theft and crime of snatching. Nature of these types of crime reveals that it requires proper planning and particular energy level for committing such types of crime and it seems more suitable to estimate an economic model of crime by using different characteristics of socio-economic determinants.

Previous research has addressed the causes of the increasing crime rate in Pakistan (Khan et al, 2015) and ascertained the impact of socioeconomic and other deterrent variables on the property crime rate in the Punjab (Jabbar & Mohsin, 2013). However, previous research could not deal adequately with the gaps related to the currency of data, knowledge, evidence, theoretical, methodological and most importantly empirical implementation of research. Therefore, the present study will concentrate on property crime as it is quite intuitive and logical to suppose that property crimes involve those types of crime which are more responsive to socio-economic conditions of people. The economics of crime unfortunately has not attained much attention in Pakistan. In this part of the world over-simplified explanations are being used by Law enforcement officials to formulate strategies for crime control

The paper is divided into four sections. The first section provides an overview of the Crimes in Pakistan and Punjab. The second section highlights the variable descriptions, model, and statistical technique. The third section presents results and discussion over

<sup>&</sup>lt;sup>1</sup> Department of Economics Govt. Islamia Graduate College Civil Lines, Lahore, Pakistan

<sup>&</sup>lt;sup>2</sup> Department of Economics Govt. Islamia Graduate College Civil Lines, Lahore, Pakistan

<sup>&</sup>lt;sup>3</sup> Ph.D Scholar, School of Accountancy and Finance University of Lahore, Pakistan

<sup>&</sup>lt;sup>4</sup> Lecturer, Minhaj University Lahore, Pakistan

socio-economic determinants of property crimes in thirty-five districts of Punjab. The fourth section provides conclusion that sums up the research findings to offer ways and means to improve strategy formulation to prevent crimes.

#### 2. Literature Review

Prior studies on crime have connected a number of variables. Social sciences have examined crime's causes extensively, with economic factors becoming more important in recent years. In 50 US states, Cerulli et al. (2018) examine how the prevalence of unlawful activity changes in response to six major socioeconomic characteristics outlined in earlier studies. The study has made a distinction between two pertinent categories of crime and discovered distinct behaviors in trends and factor returns for their responsiveness to the factors taken into consideration, i.e., employment level, income inequality, educational attainment, wage income, public expenditure on police, and the presence of a population with foreign-born residents. Since the 1990s, trends have started shifting in the opposite direction after a consistent and unsettling increase in crime rates in the US between the 1960s and 1980s (Kearney et al., 2014). Ajimotokin et al. (2015) investigate how unemployment affects crime rates. The findings indicate a strong relationship between crime and unemployment.

In the EU 28 nations and Turkey between 2001 and 2010, Kizilgol and Selim (2017) estimate empirically the relationship among the number of crimes and unemployment rate, degree of urbanization, inflation rate, literacy rate, GDP per capita, growth rate, the number of police officers. By evaluating the factors that influence the frequency of crimes, this research adds to the body of knowledge in the field of economics of crime. Bhorat et al. (2017) has made an effort to comprehend how police precinct-level socioeconomic variables affect crime in South Africa. According to the findings, income and inequality at the precinct level are reliable indicators of property crime's financial benefits. Lilenstein (2017) examines the socioeconomic factors that influence crime in South Africa and discovers that the likelihood of being apprehended is primarily influenced by three variables: (1) the utility of criminal activity, or the reward for committing a successful crime; (2) the utility associated with apprehension; and (3) the disutility of apprehension. Though it makes up the lowest portion of all crimes, robberies are the most unpredictable of the three, with rates reaching as high as violent and property crime rates at the extremes of the distribution. The classic justification for the connection between poverty and crime is based on the assumption that those with little money would want to steal from others with more money and resources (Draca and Machin, 2015). However, it is erroneous to equate poverty with crime in general terms. There are certain rural low-income communities with a high crime rate, but this cannot be said to be the norm. As individuals turn to crime to lessen the impact of the shock on their life, it has also been noted that "burglaries and grain theft are predicted to grow with poverty."

In Pakistan from 1975 to 2008, Gillani et al. (2011) investigates the connection between unemployment and criminal activity. According to the projections, property crimes and unemployment have a long-term association. The timetable for jobless people's internships and jobs might be a useful technique for lowering property crime (Alam and Akber, 2021). According to estimates, unemployment in Pakistan is a factor in dacoity, burglaries, theft, and cattle theft. In the study, Arshad and Ali (2016) look at how Pakistan's unemployment rates varied from 1974 to 2013. According to empirical research by Jabbar and Mohsin (2013), Punjab's property crime rate is increased by prior criminal history while police presence has a deterrent impact. The study discovers a substantial positive association between population density and property crime rate as well as a large negative relationship between education and property crime rate. The report also emphasizes how ineffective institutions, in particular law enforcement, contribute to crime control. The other finding demonstrates that the major causes of crimes in Pakistan are likewise inflation, unemployment, and economic disparity (Abbas et al., 2014).

Khan et al. (2015) considered socio-economic factors to assess their potential influence on crimes in the case of Pakistan for the time span of 1972-2011. A positive role of education in the crime reduction in Pakistan was found in the study. People become more skilled with education and vocational training and develop potential to earn for their economic needs through legal economic means. Impact of poverty on crime rate was found to be significant and positive as poor strata individuals were more likely to do illegal activities to earn their livelihood.

Anwar et al. (2017) analyzed the impact of socio-economic factors on crime rate in Pakistan by using time series dataset for the time duration of 1973 to 2014. The long-term relationship of education, unemployment, per capita income, and income inequality with crime rate was estimated. Results showed unemployment as significant cause of crime rate in Pakistan and suggested the policy makers to take steps for improvement of employment level of the population. Income inequality was also a positive contributory factor and author suggested to reduce income inequality for prevention of crimes.

Ali and Bibi (2020) conducted empirical investigation to assess the role of defense expenditure, taxes, loans, and grants on crime rate during the time period of 1980-2019 in Pakistan. The study analyzed the linkages of variables in long-run as well as short-run through econometrics technique. Outcomes of the study showed that high tax burden, increase in defense expenditure, high loans and grants had harmful relationship with crime rate. Lowering the economic misery was advocated to cope up with rapidly increasing crime rate in Pakistan. Shafiq and Ali (2022) used annual panel data from 2000 to 2013 to look at the economic factors influencing crime rates in 7 chosen nations. The findings indicated a long-term, inverse link between crime and unemployment rates.

The aforementioned section has covered the theoretical and empirical contributions of earlier work to the economics of crime. There are several factors that have been found to explain why certain people engage in criminal activity. A small number of research have been conducted in Pakistan based on the previously established crime determinants, and these studies mostly rely on time series data on the total number of recorded crimes. There have been few attempts to identify the socioeconomic factors that influence property crime in Punjab. The goal of the current study is to fill a research gap while also validating previous literature's conclusions.

#### 3. Overview of crime in Pakistan

The rapid increase in a number of crimes is not only country specific problem but has become global issue. In the case of Pakistan, crime statistics of Pakistan also confirmed the presence of crime issue with higher intensity. According to world population review (2022), Pakistan is ranked at 79th position with 42.51 value of crime index. India, China, Bangladesh and USA are ranked 71th, 108th, 17th and 56th with crime index value as 44.43, 30.14, 63.9 and 47.81 respectively. Factors behind the high number of crimes can be economic and non-economic as well. Mainly crimes are assumed as result of economic factors which may include poverty, income inequality, urbanization and unemployment. Not only the poor and illiterate people are considered to commit the crimes but rich people also have been doing same even they are educated and wealthy. They have their key concern to accumulate more and more wealth as they become selfish and never think about the welfare of the common people of the country. In the legal system, many loopholes are exploited by such wealthy people to get away from crimes in the case of Pakistan.

People with lack of resources to meet their livelihood and economic requirements are also committing crimes in Pakistan. Statistics on crimes in Pakistan show that Pakistan is not a strong place in social, economic, legal, cultural, environmental, technological and moral areas. In the present, more organized crimes are being committed by criminals as they have support from the elite people of the society in Pakistan.

Table 1: Annual Crime Report on Number of Crimes in Pakistan (2010-2020)

Years	All Reported Crimes	Motor vehicle theft	Cattle theft	Burglary	Murder	Attempted murder	kidnapping	Dacoity	Robbery	Other theft	Miscellaneous
2010	642762	35259	8846	16784	13190	15533	18181	4586	18098	40397	471888
2011	673750	40103	9345	18073	13860	15496	19523	5015	20521	42223	489591
2012	645647	34663	9046	17638	13846	15338	20194	4257	17081	40102	473482
2013	634404	-	7743	17053	13937	14648	19472	4053	17363	37751	502384
2014	627116	-	7459	17153	13276	14499	18700	3516	18107	35288	499118
2015	633600	-	6502	15878	9486	11336	17922	2329	15164	32400	522583
2016	677554	23813	6068	14572	8516	10279	18057	1636	13088	34320	547205
2017	683925	22778	5342	13833	8235	9499	18363	1280	12458	37304	554833
2018	703481	29163	6233	14646	8241	10067	20060	1414	14914	39418	559325
2019	786339	37105	7793	16124	8153	10438	20256	1382	18239	55836	611013
2020	876430	46372	8649	16474	8490	11797	19658	1320	19904	57988	685778

Source: Pakistan Bureau of Statistics (2022)

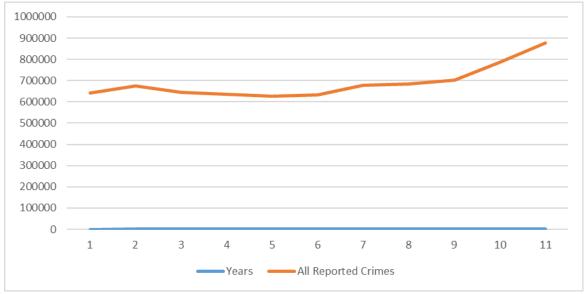


Figure 1: Annual Crimes in Pakistan (2010-2020)

Source: Pakistan Bureau of Statistics (2022)

Steps have been taken by the Government of Pakistan to handle the problem of crimes in Pakistan. In the past surveys has been conducted province wise for many cities and rural areas specifically where number of crimes was high. Various measures were followed in such high intensity crime areas to cope up the issue but unfortunately significant outcomes were not found due to many other hurdles which include corruption, terrorism and lack of policy implementation. Encouragement of crimes was also due to injustice and influence from elites on judiciary in the country. To show the annual crime trends and numbers, table 1 has been added which is published by the Pakistan Bureau of Statistics (2022). Most common crimes included in the report were murder, robbery, motor vehicle theft, other theft, cattle theft, burglary, dacoity and kidnapping. Among all other crimes, number of motor vehicle theft was very high with 35259 during 2010 and 46372 during 2020 which was minimum with 22778 during 2017.

Number of total reported crimes is shown in figure (1) which has been increasing rapidly since 2015 and on its peak of 876430 during the year 2020 while during 2010 all reported crimes in Pakistan were 642762. According to Pakistan insurance company only in Karachi alone, during 1996, 3700 cars were stolen. About 50 percent of total vehicle stolen were committed at gunpoint as per police estimates. Most common brands among the stolen cars were noted Pajero Jeeps, Land Cruisers, Mercedes and Japanese cars. Having highest population number, Karachi always remained on top for number of stolen vehicles. There are about 70 exit points in Karachi which further help the thieves to move away towards other places farther from the city. Cattle theft in Pakistan was recorded 8846 during 2010 and 8649 during 2020 while minimum number was 5342 during 2017. Cattle theft was mainly faced by small scale farmers (Abbas et al. 2014). Repeat victimization rate was also high for the case of cattle theft. Thieves prefer to steal adult animals having high economic/sale value. Cases of kidnapping/Abduction in Pakistan were 18181 during 2010 and 19658 during 2020. For the time span if 2010-2020 minimum numbers for kidnapping cases was 17922 during 2015 and maximum number were 20256 during 2019. Problem of kidnapping the children is common practice in Pakistan and no significant steps are taken by the government as this is shown by numbers during the last decade. Lack of state attention towards the issue of kidnapping has further encouraged the criminals to kidnap the kids as they feel easy to do kidnaping and demanding money from the people in return to have their kids back. Legal process has punishment for the kidnappers to imprison them for the time duration up to seven years along with monetary fine. Kidnapping of children in Pakistan is taking place usually for the sack of money returns and they are also harmed physically. Through fraud, fear and force children became victimized specifically for the low age level under the fourteen years. According to the United Nation estimates on crimes, 8.8 kidnappings per 1 lakh people was recorded in the case of Pakistan.

Dacoity number during 2010 was 4586 which declined to 1320 during 2020. Maximum value of Dacoity during the last decade was 5015 in 2011 and minimum was 1280 in 2017. Dacoity is form of robbery when number of criminals is five or greater to commit the robbery conjointly and they attempt to do robbery with harmful weapons. In the legal act, punishment is minimum imprisonment of seven years. Three essentials to name the crime as dacoity include that act of crime is committed for robbery, criminals are not less than five and they do the crime not separately but conjointly. A significant decline in number of dacoity crime has been seen during the last decade. On the other hand robbery cases during 2010 were 19098 during the year 2010 and 19904 during the year 2020. The minimum number of robbery cases in Pakistan in the last decade was 12458 in 2017 and the maximum number was 20521 in 2011. Robbery is action of taking property from any person or from any place unlawfully by threatening or by force. Robbery cases mainly include shop robbery, house robbery, street robbery and bank robbery. Burglary is another crime which is present in Pakistan which is defined as the entry of a person to any building, house or any other commercial building to commit some crime/theft. The burglary number was 16784 in 2010 and 16474 in 2020 with a minimum number of 13833 in 2017 and a maximum of 18073 in 2011. Rate of burglary was 9.4 per 1 lakh people during 2012 and declined to 6.9 per 1 lakh people during 2018. Burglary mostly takes place when people are away from home or at home but asleep/busy.

### 3.1. Overview of Crime in Punjab

Province-wise share in crime and population is shown in table (2) where Punjab is on top in population and crimes with 52.94 percent and 61.08 percent respectively. Critical value is in the case of KPK where share in population is 14.69 percent while share in crime is 23.38 percent which is about 80 percent higher than population share. Baluchistan has a minimum share in crime (1.34 percent) as per its population share. Crime percentage in Islamabad is 1.19 percent and its population share is 0.96 percent. The province Sindh has 23.04 percent share in total population but 11.57 percent share in total crime.

**Table 2: Province wise Statistics of Crime and Population** 

Share	in	total	Punjab 52.94	KPK 14.69	Sindh 23.04	Baluchistan 5.94	Islamabad 0.96	Others 2.4	
population Share in to	ı		61.08	23.38	11.57	1.34	1.19	1.4	

Note: Calculations on the bases of average crime incidence during 2012-2016. Population estimates taken from Population census 2017

According to registered crime dataset of Punjab police (labor force survey 1991-2015) crime share of big cities is more than double (2.6) in Lahore and 1.7 times in Faisalabad as compared with other districts of the province. Population density in rural areas was less than 300 persons, in urban areas 600-900 persons per sq. km, Lahore and Faisalabad value was 1300 and 5900 respectively during 2015. In the case of Lahore number of crimes per 1 lakh persons was more than 200, about 140 as per 1 lakh in Faisalabad. Among rural areas 80 crimes per 1 lakh people was recorded. Average crime number among the urban areas was much higher as compared with rural areas. Cities in Punjab with high population density have comparatively high rate of crimes. Crimes statistics published by Punjab Police showed that during first nine months of the year 2022, all reported crime cases were 562328, against persons were 54218, against property were 234225, local and special laws 132610 and miscellaneous were 141275. Among all reported cases, 308126 cases were challenged, 179450 cases were under investigation, and 35737 were cancelled. Registered murder cases in Punjab during January to September 2022, were 3532 out of which 2127 were challenged, 1193 under investigation, 52 untraced and 160 were cancelled. Number of total attempted murder registered were 5921 out of which 3536 were challenged, 2069 under investigation, 135 untraced and 181 were cancelled. Number of prosecutions included 62946 convicted and 59777 acquitted. Total registered kidnapping/abduction cases were 17180 in Punjab province, out of which 2774 cases were challenged, 4821 under investigation, 131 untraced and 9454 cases were cancelled. Kidnapping/ransom cases were 49, out of which 26 were challenged, 12 under investigation and 11 cases cancelled. Rape cases were registered total 2890 out of which 1580 challenged, 711 under investigation, 2 untraced and 597 cancelled. Number of gang rape was total 235, out of which 148 were challenged, 46 under investigation, untraced were zero and 41 cases were cancelled. Crimes against property included

dacoity, robbery and theft. Statistics of Punjab police showed 774 total registered cases of dacoity out of which 348 were challenged, 45 untraced, 343 under investigation, and 38 cancelled. Cases of robbery were total 37139 registered, 15373 challenged, 17943 under investigation, 3044 untraced and 777 cancelled. Burglary cases were total 14977 registered, 4388 challenged, 7695 under investigation, 2547 untraced and 347 cancelled. Among all other major crimes in Punjab, motor vehicle theft is on top in number and also rapidly growing issue. During first nine month of the year 2022, total 57634 motor vehicle theft cases were registered, 16327 challenged, 33809 under investigation, 5075 untraced and 2333 cases were cancelled. Motor vehicle snatching registered cases was 7814, out of which 3209 were challenged, 3941 under investigation, 493 untraced and 171 cases were cancelled. In the rural areas of Punjab, cattle theft is among most common crimes. Registered cases were 9206, out of which challenged cases were 3643, under investigation were 4077, untraced 1130, and 365 cases were cancelled. Crimes of local and special laws were total 132610 registered out of which 123316 were challenged, 8106 were under investigation, 38 were untraced and 1150 cases were cancelled. Other than aforementioned crimes, miscellaneous cases were total registered 141275, out which 92152 were challenged, 33431 cases were under investigation, 4650 untraced and 11042 cases were cancelled. Honor killing is also present in Punjab which killing of any relative to for considering him/her responsible for the dishonor of the family. Total number of honor killing cases in Punjab during 2011 was 364 which has declined to 197 during the year 2021.

# 4. Model, Variable descriptions, and methodology

### 4.1. Crimes against property

Principally, there are classes in which crimes are placed: crimes towards man or woman (like murder, rape, kidnapping etc) and the crimes towards assets (robbery, financial institution fraud, faux forex transaction etc.). In Pakistan, the felony framework of countering the crime includes legal guidelines courting lower back to the British times. Thus, the 2 units of crimes are, respectively, handled thru the Code of Criminal Procedure, known as the Cr PC (1898), and the Code of Civil Procedure, known as the CPC (1908). Dacoity includes theft, i.e. depriving the different man or woman of his valuables, however includes greater elements: (a) the use or danger of use of violence, and (b) devoted with the aid of using multiple man or woman. Thus, the Tazeeraat-e-Pakistan or the Pakistan Penal Code (PPC) beneath Section 391 defines dacoity as an act of theft devoted with the aid of using 5 people or greater. Section 395 of the PPC is going directly to prescribe the penalty of the offence which can be easy imprisonment for Life or Rigorous Imprisonment (RI) of among 4 to 10 years.

Robbery is the crime of taking or trying to take something of price with the aid of using pressure, danger of pressure or with the aid of using setting the sufferer in fear. According to not unusual place regulation, theft is described as taking the assets of every other, with the cause to completely deprive the man or woman of that assets, with the aid of using manner of pressure or fear; this is to say, it's miles a larceny or robbery done with the aid of using an assault. Precise definitions of the offence might also additionally range among jurisdictions. Robbery is differentiated from different varieties of robbery with the aid of using its inherently violent nature; while many lesser varieties of robbery are punished as misdemeanors, theft is constantly a criminal in jurisdictions that distinguish among the two.

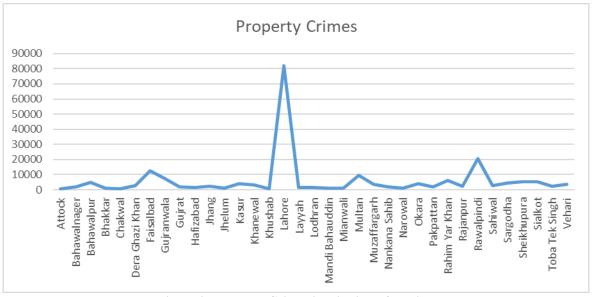


Figure 2: Property Crimes in Districts of Punjab

Source: Punjab Development Statistics (2018)

Motor automobile robbery, as described with the aid of using the Uniform Crime Reporting (UCR) Program, is the robbery or tried robbery of a motor automobile consisting of automobiles, trucks, buses, motorcycles, motor scooters, and snowmobiles. The definition additionally consists of the transient ownership of a motor automobile with the aid of using the ones people now no longer having lawful get admission to and joyriding. Farm equipment, bulldozers, airplanes, production equipment, or motorboats are now no longer protected on this definition (Gumus, 2013).

Burglary is an illegal access right into a building or different region for the functions of committing an offence. Usually that offence is robbery; however maximum jurisdictions consist of others in the ambit of housebreaking. To interact within side the act of housebreaking is to burgle or to burglarize. Burglary is an illegal or forcible access or tried access of a house for the motive of committing a crook offence, normally robbery. Victims of housebreaking now no longer simplest lose objects of price, a number of which can be non-public or irreplaceable; however, the emotional surprise of getting your house invaded can be deeply upsetting. (Gollnick, 2013)

In not unusual place usage, robbery is the unlawful taking of every other people asset or offerings without that people permission or consent with the cause to deprive the rightful proprietor of it. The phrase is additionally used as casual shorthand time period for a few crimes towards assets, along with housebreaking, embezzlement, larceny, looting, theft, shoplifting, library robbery, and fraud. In a few jurisdictions, robbery is taken into consideration to be synonymous with larceny; in others, robbery has changed larceny. Someone who incorporates out an act of or makes a profession of robbery is called a thief. The act of robbery is additionally regarded with the aid of using different phrases along with stealing, thieving, and filching (Palermo and Kocsis, 2005).

## 4.2. Police Strength

The Punjab Police is a law-and-order force responsible for law implementation in the Punjab province. Inspector General (IG) Punjab Police commands the workforce of police. "It controls all criminal cases by taking action under the Police Act of 1861 and 2002 against criminals in the province of Punjab, Pakistan". The force was introduced in its modern form during British Rule and continues to suffer from colonial influence to the current date. Instead of a public-friendly organization, it is perceived as a public-frightening by citizens which stays to promote a sense of fear rather than security and wellbeing among the population. In order to prevent crimes, there have been launched many forces according to need with the passage of time in the huge department of Punjab Police. These forces are as: "(i) Anti-Riot Force (ii) Counter-Terrorism Department (CTD) (iii) Criminal Investigation Agency (CIA) (iv) Dolphin Force (v) Elite Force (vi) Constabulary (vii) Police Response Unit (PRU) (vii) Special Protection Unit (SPU) (viii) Safe City Authorities (PSCA) (ix) Highway Police (x) Motorway Police (xi) Traffic Police (xii) Jail Police".

Police Formations consist of (i) Central Police Office (CPO), Punjab (ii) Police Regions (iii) Investigation Branch (iv) Special Branch (v) Telecommunication Branch (vi) Operation Branch. There are seven hundred and eighteen total police stations in thirty-six districts of Province Punjab from which specially four women police stations have been established (Punjab Police, 2021). The community assistance centers known as Police Khidmat Markaz (PKM) have been set up by Punjab Police in thirty-six districts of Punjab. To improve overall efficiency for these centers the Punjab Information Technology (PITB) programs procedures and advances integrated centralized IT systems with the collaboration of Punjab Police Technology Partner. With this centralized IT system, the creation of Khidmat Marakiz resulted in efficient complaint process, transparency, online application, courier and monitoring system.

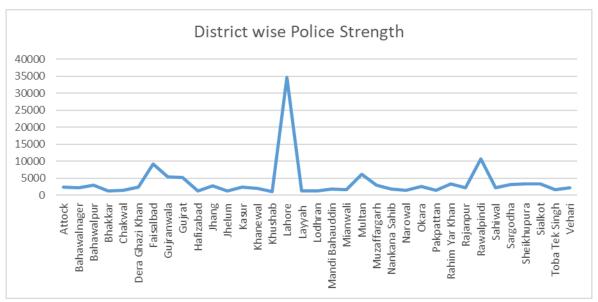


Figure 4: Police Strength of Districts of Punjab

Source: Annual Administration Report, AIG Police (Establishment), Punjab (2018)

The above figure shows the police strength in thirty-five districts of Punjab. Lahore being the largest and capital district of Punjab has the most police strength holding the offices of IG Police and Capital City Police Officer (CCPO). Then came the cities Rawalpindi, Faisalabad, Gujranwala and Multan having a larger number of police force as compare to other districts of Punjab. Crime rate is high in over-populated districts that need more police force.

### 4.3. Police Proclaimed Offenders

"Police proclaimed offenders are the persons that have committed crime but crime prevention authorities are still unable to arrest these persons". A number of police reports reflect it as an important cause of higher rates of crimes against property such as Punjab Police (2020). They are potential threat for the society and considered dangerous to take over further committing crimes. During the year 2020-21, the arrested Proclaimed Offenders (POs) were 6361"A" Category and still on the run were 10275. The

arrested POs comprehend 4048 were involved in property crimes. It is a routine matter of issuing directions every month by IG Police to detect and arrest of dangerous POs in the poor performing districts of the Punjab. The Punjab Police maintain a Red Book covering data about the most wanted POs of all districts. The Intelligence Wing and other Law Enforcement Agencies (LEAs) consult Regional Officers to update the Red Book by collecting information about involvement of POs in cases of hardcore terrorism and their death/arrest. The Intelligence Wing also initiate the cases against POs residing abroad for Red Warrants/Extradition. The Punjab Highway Patrol (PHP) support district police in upholding law & order situation and fighting against criminals to arrest a large number of POs and absconders. The excellent work accomplished by PHP get much-admired several times by Regional Police Officers (RPOs) and District Police Officers (DPOs). The figure below shows the efforts of PHP to arrest accused.

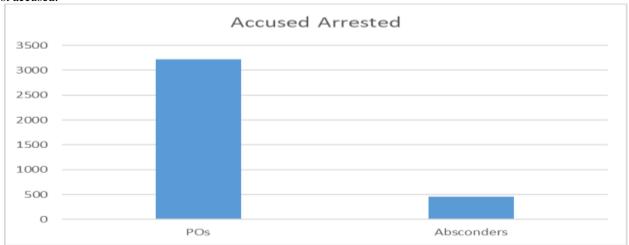


Figure 5: Accused arrested by Punjab Highway Patrol (2020)

Source: Annual Crime Report, Punjab Police (2020)

A large number of serious crimes such as robberies and dacoities decrease in the domain of PHP controlling highways. The effectiveness of this force has proved to reduce the offences which may have not be reported and help in dipping the silencing level within police force. "Tenant Registration System (TRS) has enabled police department to keep society sate from criminal record holders, FIR Nominees and proclaimed offenders by identifying those who try to rent out house/ hostel". Punjab Police Toolkit (Android App) and Hotel Eye have empowered the department of police to keep society safe from proclaimed offenders, FIR Nominees and criminal record holders who staying in different hotels and places. To uphold the record for Criminal Record Office (CRO) Branch, tracing the POs and analyzing Call Data Record (CDR), a Digital Lab has been established adjacent to DPO Office in every district.

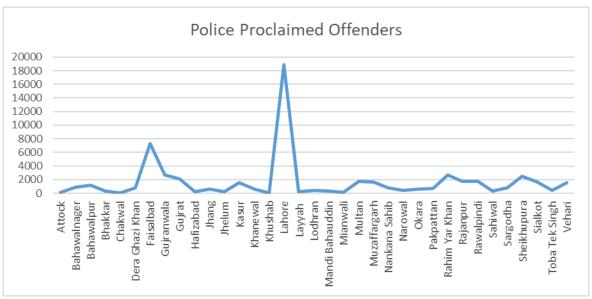


Figure 6: Police Proclaimed Offenders across districts of Punjab

Source: Annual Crime Report, AIG Police (Crime), Punjab (2018).

The above figure shows the police-proclaimed offenders in thirty-five districts of Punjab. Lahore being the largest and capital district of Punjab has the most POs. Following Faisalabad, Gujranwala, and Rahim Yar Khan having larger number of proclaimed offenders as compare to other districts of Punjab. The northern region of Punjab has fewer numbers of POs. The high crime rate is associated with large number of proclaimed offenders and absconders.

# 4.4. Migration

Pakistan has been facing an enormous challenge of inter and intra-province migration along with other problems in last decades. The migration from less developed or rural areas to urban areas causes the issue of Urbanization. Every citizen has the right to get the best education system, professional career opportunities, socio-economic security, and better living standards. These facilities have high cost and exist in a few big cities of Pakistan due to which a large number of migrants rush towards those cities. It causes pressure on food supply system, increase in pollution, scarce resources and increasing crimes in those cities. There are a large number of factors which are considered reasons of massive migration from rural areas in case of Pakistan such as low return on crops, foreign sanctions on agriculture exports, lack of job opportunities, low wage rate, poor infrastructure and floods. First time a module has been added in PSLM survey 2019-20 on the recommendations of Governing Council to capture the situation of Migration. "A person is called migrated, if he/she is born in one district and at the time of interview living in another district". Total migration incidence in Pakistan is 6 percent on the basis of surveyed data. Punjab has the highest rate of migration i.e.; 7 percent then stands Sindh with 6% and KP and Balochistan with 4% rate of migration.

Table 3: Province to province migration in Pakistan

Province of Last Migration	Province of Birth			
	Punjab	Sindh	KP	Balochistan
Punjab	83	5	12	1
Sindh	17	59	21	2
KP	6	3	91	1
Balochistan	7	9	26	59

Source: Pakistan Social and Living Standards Measurement Survey (2019-20)

The above table indicates inter and intra-provincial migration; revealing that Punjab has an 83% intra-province migration rate. Punjab to KP migration rate is 12% and this rate is 5% for Sindh while there is only 1% migration to Balochistan. The interprovince migration rate is the same for both Sindh and Balochistan which is 59 percent while KP has the highest migration rate of 91 percent. It seems the people of KP find more opportunities within the province or may be due to their belief that opportunities are associated with migration. "If a person migrated from one district to another district of same province, then this migration is considered as Intra migration. While, migration from one district of a province towards district of some other province is called Inter migration".

Punjab has 6 percent intra migration rate i.e., migration within districts mostly from rural to urban regions while 1% are migrated to other provinces. Federal Capital Islamabad has highest rate of migration i.e., 36%, from which 17 percent are migrated from Punjab to Islamabad and 19 percent are migrated to Islamabad from other provinces. The surveyed data for all provinces depicts that the Intra provincial migration is greater than the Inter provincial migration. With respect to rate of migration in all provinces, Islamabad, Karachi East, Peshawar and Quetta are the top most districts of Punjab, Sindh, KP and Balochistan respectively.

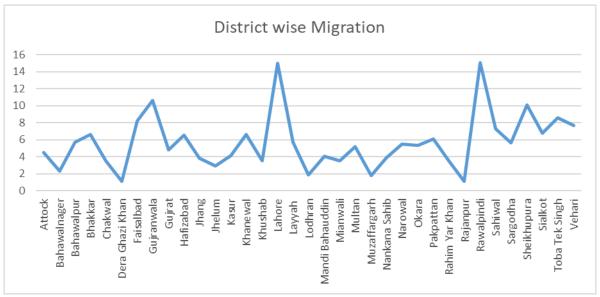


Figure 7: Migration across districts of Punjab

Source: Pakistan Social and Living Measurement Survey (2018)

The above figure shows migration rate of all districts of Punjab. Lahore and Rawalpindi are the top most cities receiving migrants from other districts and provinces. The other prominent districts are Gujranwala and Sheikhupura have marginally high migration rate. High migration rate causing the problem of urbanization due to which crime rate may rise in those districts.

# 4.5. Poverty

"The incidence (H) of poverty depicts the total percentage of people who are multi-dimensionally poor, or in other words belong to the headcount of poverty". The incidence of poverty (H) has been used to estimate results reported into two sections. National

and provincial headcount poverty is represented in the first section. The second section covers the results for the Punjab Province that describes the population proportion living at the incidence of poverty.

With respect to the official poverty line the table below provides estimates of headcount poverty. According to this threshold for the time period 2006-2007 the poor who are identified represent twenty-four percent of the urban population. Nevertheless, estimations for the time period 2015-15 show a significant reduction of 9.4 percent in urban headcount poverty and 15 percent for rural headcount poverty. The difference of headcount poverty is almost 14 percent for the periods 2006-07 to 2014-15 in Pakistan.

Table 4: Incidence of poverty for the years 2006-07 and 2014-15 (Pakistan)

	2006-07	2014-15
Region	Incidence (H) of poverty (%)	Incidence (H) of poverty (%)
Urban	24.0	9.4
Rural	70.3	54.6
Pakistan	52.5	38.4

Source: Planning Commission, Government of Pakistan

The table below reports the headcount poverty of rural and urban areas of Punjab for the period 2006-07 and 2014-15. The decrease in overall poverty is 7.6 percent for the said period in Punjab. The reduction in urban poverty is more than the decrease in rural poverty. Urban poverty declines to 9.4 percent from 16.1 percent whereas rural poverty reduces to 54.6 percent from 61 percent. However, rural poverty may be significantly reduced with improved performance of the agriculture sector and stabilizing commodity prices.

Table 5: Incidence of poverty for the years 2006-07 and 2014-15 (Pakistan)

	2006-07	2014-15
Region	Incidence (H) of poverty (%)	Incidence (H) of poverty (%)
Urban	16.1	9.4
Rural	61.0	54.6
Pakistan	46.4	38.8

Source: Planning Commission, Government of Pakistan

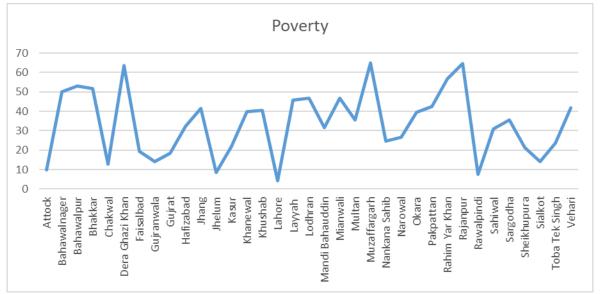


Figure 8: Incidence of Poverty across districts of Punjab

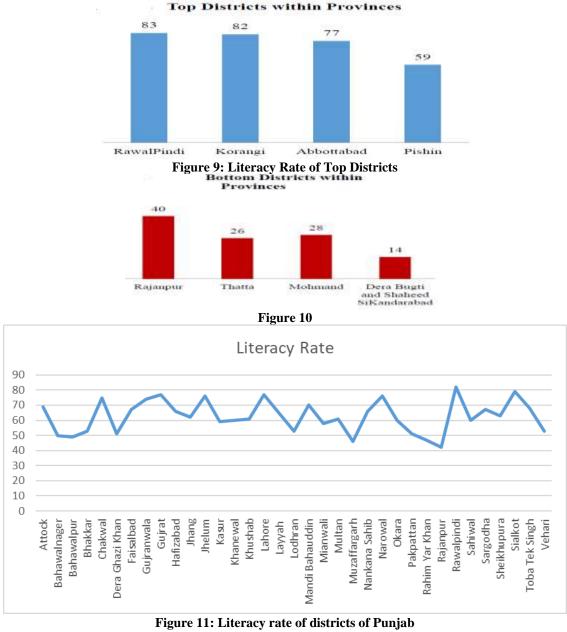
Source: Multiple Indicator Cluster Survey (2017-18)

The above figure shows the incidence headcount poverty for the districts of Punjab during 2017-18. The headcount poverty is much lower in districts Lahore, Rawalpindi and Jhelum which is less than 10 percent. Whereas, Dera Ghazi Khan, Muzaffargarh and Rajanpur are showing highest headcount poverty which is more than 60 percent. These districts are comprising of mostly rural regions may cause higher poverty rate. Poverty may be one of the causes of property crime related to cattle theft in those districts.

# 4.6. Literacy Rate

The education system of Pakistan has greatly evolved historically from British and Islamic origins. During 20<sup>th</sup> and 21<sup>st</sup> centuries the system has marginally improved even then it relies on orthodox teaching and examination system and routine memorization. Nevertheless, excessive progress has been made to boost up enrolment and literacy rates in Pakistan. Moreover, the more affluent or well-connected elites have access to best educational opportunities in the country. One of the reliable sources for data on education is Pakistan Social and Living Measurement Survey (PSLM) that monitor the developments in entire education sector for all provinces and districts. For monitoring Sustainable Development Goals (SDGs) the PSLM is one of the key sources for education indicators. According to PSLM (2019-20) the 60 percent of the population of age ten years or more has ever attended

school at national level. The province Punjab has the most population percentage of 66 that has ever attended school, then came Sindh with 61 percent following KP with 56 percent and Balochistan with least 44 percent. Overall male proportion is higher with 70 percent than female proportion with 50 percent. The capital city Islamabad has highest 85 percent population that ever-attended school. Furthermore, district wise Rawalpindi from Punjab with 83 percent population, Korangi from Sindh with 82 percent, Abbottabad from KP with 77 percent and Pishin from Balochistan with 59 percent are at top. Similarly, the bottom districts are Rajanpur from Punjab with 40 percent, Mohmand from KP with 28 percent, Thatta from Sindh with 26 percent, and Dera Bugti from Balochistan with 14 percent.



Source: Multiple Indicator Cluster Survey (2018)

The above figure shows the literacy rate of all districts of Punjab. The districts Rawalpindi, Sialkot and Lahore have the highest literacy rate of 82, 79 and 77 percent respectively. On the other hand Rajanpur, Muzaffargarh and Bahawalpur have lowest literacy rate of 42, 46 and 49 percent respectively. Low literacy rate may have association with high rate of unemployment that may lead to high rate of crimes.

## 4.7. Population Density

In Pakistan, the total population is 207.7 million according to the recent census of 2017 from census department. Punjab has the maximum population of 110 million. Then comes Sindh with 47 million people. Similarly, KP has population of 30 million and Baluchistan has population of 12 million. Even though at country level the decline has been reported in the growth rate of population, still KP and Balochistan Provinces have high population growth rate as compare to Punjab and Sindh.

"Population density is the concentration of individuals within a species in a specific geographic locale". There has been taken into account the population density of 536 persons per square kilometers for Punjab Province which is higher as compare to 236 persons per square kilometers for Pakistan. The district Lahore with 6276 persons/km<sup>2</sup> is the most densely populated in Punjab. It

causes more urbanization in Punjab with urban advance of 2.7 percent and a decline in rural population by 1.8 percent. Punjab has no particular division of urban and rural areas, just few cities have boundary of urban-rural separation and rest are totally urban.

Table 6: The Urban Rural share of population in Punjab

	Tuble 0: The Ciban is	turur share or population in r ar	Juo
Classification	Urban population	Rural population	Total population
	(Millions)	(Millions)	(Millions)
Population	40.4	69.6	110
Male	20.76	35.19	55.96
Female	19.62	34.42	54.05

Source: Mazhar (2018)

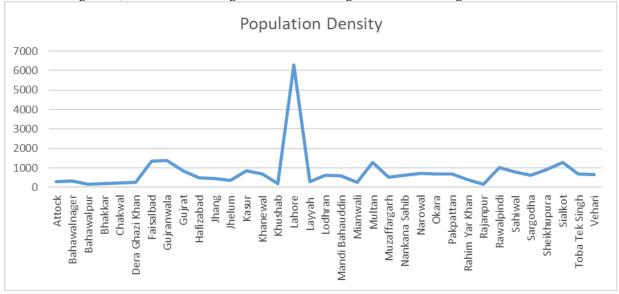
**Table 7: Urban-Rural Population Density** 

Pointers	Pakistan	Punjab
Population	207.8 million	110 million
Urban population	75.6 million	40 million
Rural population	132 million	70 million
Population Density	236 persons/km <sup>2</sup>	536 persons/km <sup>2</sup>

Source: Mazhar (2018)

The urban population share has increased in Punjab which is threat of decreasing land for rural crops and ultimately an alarm for food security. The large cities such as Lahore, Faisalabad and Gujranwala are expanding by engulfing rural land. For the improvement of people of Punjab, the government should try to encourage expansion of cities vertically instead of horizontally. Rising population density is associated with climate change, waste management and pollution that need to address on priority basis by policy makers.

The figure below shows the population density of all districts of Punjab. Most densely populated districts are Lahore, Gujran wala, Faisalabad and Sialkot and with 6276, 1383, 1342 and 1293 persons per square kilometers respectively. Population density may cause issues of housing needs, inflation and shortage of resources leading to crimes in the large cities.



**Figure 12: Population Density** 

#### 5. Methodology, Models and Procedure

There are multiple factors both social and economic which may be responsible for existence of crimes across the districts of Punjab, Pakistan. This study is an effort to analyze some selected social and economic factors responsible for increasing crimes in all thirty-five districts of Punjab for the year 2018. For this purpose, migrants, population density, poverty, literacy rate, police strength and police-proclaimed offenders are used as independent variables and crimes against property as dependent variables. Crime rate is high in most populated regions of the society. Migrants and population density may increase crimes (Nolan, 2004). Poverty may instigate to increase crimes by affecting savings, standard of living and inflation (Hassan et al., 2016). "Education serves as an investment to human capital as it raises the person's choice of selecting professions". It may help in reducing crimes (Machin et al., 2011). Police strength may decrease crime rate while number of police proclaimed offenders may increase property crime (Jabbar and Mohsin, 2013). This indicates that migrants, poverty, population density, literacy rate, police strength and police proclaimed offenders may have an impact on crimes in different districts of Punjab. Following the methodologies of Coomer (2003), Gillani et al. (2011), Gillaniet al. (2011) and Rout (2013), this study investigates the impact of migrants, population density, poverty, literacy rate, police strength and proclaimed offenders on crime in all thirty-five districts of Punjab for the year 2018. The functional form of the model is as:

PCr = f (Migrants, Population Density, Poverty, Literacy Rate, Police Strength, Police Proclaimed Offenders)

The regression model of above functional form is given below:

 $Cr = \alpha + \beta_1 MIGi + \beta_2 PDi + \beta_3 POVi + \beta_4 LRi + \beta_5 PSi + \beta_6 PPOi + e_i$ 

PCr= Property crime, MIG= Migrants, PD= Population Density, POV= Poverty, LR= Literacy rate, PS= Police Strength, PPO= Police Proclaimed offenders

The dependent variable is Property crimes (PCr) and population density, poverty, migrants, police strength, proclaimed offenders and literacy rate explanatory variables. Registered crimes include murders, attempted murders, hurts, rioting, rapes, kidnapping, dacoity, robbery and burglary. The part of active labor force that is seeking jobs and cannot find a job is called unemployed. Active labor force comprises of private sector and government employees, laborers, self-employed, those labors working in livestock, agriculture, fishery and poultry etc. Total population divided by land area per square kilometers. The land area is considered as total area of region. In this study, industrialization has been calculated by dividing total number of factories in the district by total population of that district. Education index is constructed by combining combined enrollment rate and literacy rate. Combined enrollment rate includes primary, secondary and tertiary enrollment. This includes age group five to twenty-four years. The transfers of money which the households receive in their home place are termed as remittances. Such transfers which are received by one district from another district in same country are termed as domestic remittances. Those transfers which are collected from foreign country are termed as foreign remittances. In this study both domestic and foreign remittances are used as remittances. The literacy rate includes age group ten years and above. The education index is composed of literacy rate and combined enrollment rate.

In this study cross-sectional data is used for thirty-five districts of Punjab for the year 2018. The data of property crimes, population density is collected from Punjab Crime Statistics (2018) and Punjab Development Statistics (2018). The data for poverty has been taken from Multiple Indicator Cluster survey (MICS, 2017-18). Data of combined enrolment rate and migrants has been taken from Pakistan Social and Living Standard Measurements Survey (PSLM, 2018). The data for police strength and police proclaimed offenders has been taken from Annual Administration Report, AIG Police (Establishment) and Annual Crime Report, AIG Police (Crime), Punjab.

#### 6. Results and discussion

The descriptive statistics is given below in Table 1 for the variables to be used in present study. The values depict in the table that average Crime against Property is 5965 for thirty-five districts of Punjab. It is obvious from the magnitude of standard deviation that migrants have least variation while Proclaimed offenders are more volatile among independent variables. Except the average value of proclaimed offenders which lies above the middle of data, averages of the rest of the variables in data lie almost in the center of the data which shows that data is almost equally spread around its mean values.

**Table 8: Descriptive Statistics** 

-	PCR	MIG	PD	POV	PPO	PS	LR
Mean	5965.7	5.6777	775.28	33.787	1664.40	1073.69	39.628
Median	2386.0	5.3100	611.84	35.400	771.000	1148.31	39.000
Maximum	82013.0	15.040	6275.3	64.800	18905.0	1503.72	78.000
Minimum	670.00	1.1100	147.77	4.3000	58.0000	320.29	21.000
Std. Dev.	13793.4	3.2755	1018.35	17.203	3277.63	291.19	11.111
Skewness	5.0185	1.2376	4.6683	0.0736	4.46163	-0.6654	1.2319
Kurtosis	28.0190	4.6729	25.801	2.0451	23.4630	2.8953	5.6142
Jarque-Bera	1059.76	13.017	885.34	1.3611	726.777	2.5612	18.8209
Probability	0.00000	0.2014	0.0000	0.5063	0.00000	0.2778	0.11201
Sum	208801.0	198.72	27134.9	1182.50	58254.0	37579.3	1387.00
Sum Sq. Dev.	6.4729	364.79	352595	10062.9	3.6508	2882854.	4198.17
Observations	35	35	35	35	35	35	35

Source: Author's own calculation

The findings of the correlation matrix for the study are shown in Table 2 below which describes the relationship between socioeconomic factors and property crime in different districts of Punjab. Migrants, population density, poverty, and police-proclaimed offenders have a positive relationship with crime against property which means these socioeconomic variables move in the same direction as property crime. Police strength and combined enrolment rate have a negative relationship with crime against property which means these variables move in the opposite direction as property crimes.

The empirical results are reported in table 3 which show the impact of Migrants (MIG), Population Density (PD), Poverty (POV), Police Proclaimed Offenders (PPO), Police Strength (PS) and Combined Enrolment Rate (CER) on Property Crime (PCr) in all the districts of Punjab. The data is meeting all the prerequisites of Ordinary Least Square (OLS) to be implemented to analyse the findings. In statistics, "Ordinary Least Squares (OLS) is a type of linear least squares method for choosing the unknown parameters in a linear regression model (with fixed level-one effects of a linear function of a set of explanatory variables) by the principle of least squares: minimizing the sum of the squares of the differences between the observed dependent variable (values of the variable being observed) in the input dataset and the output of the (linear) function of the independent variable". The results indicate that migrants have positive and significant impact on crimes against property across districts of Punjab. The data from PSLM (2019-20) shows that "Punjab has the highest rate of Intra province migration i.e. migration within province from one

district to other or from rural to urban is 6 percent whereas only 1 percent people migrated to other provinces". Pakistan has faced vast challenges of inter and intra province migration along with many other problems. The reason behind the migration to urban areas from less developed or rural areas is Urbanization. Everyone tries to get better job opportunities, best education system, and better living standard with economic and social security but unfortunately these standards are existing in few cities of Pakistan. So, migrants rush towards cities in massive numbers that cause shortage of resources and food supply leading to increase crimes.

Table 9: Correlation Matrix

	Tuble 7. Correlation Matrix							
	PCR	MIG	PD	POV	PPO	PS	LR	
PCR	1							
MIG	0.6364	1						
PD	0.9611	0.6406	1					
POV	0.3614	-0.5932	-0.4517	1				
PPO	0.9493	0.5603	0.9420	-0.3258	1			
PS	-0.5222	-0.3944	-0.5013	0.5514	-0.4831	1		
CER	-0.0206	0.1631	0.0850	-0.3052	-0.0415	-0.1469	1	

Source: Author's own calculation

The population density has a positive and significant impact on property crime that is consistent with findings of Regoeczi (2002), Jabbar and Mohsin (2013) and Kassem *et al.* (2019). It implies that population density is one the key factors of crime against property in Punjab. The reason of the findings is simple that the chances of being arrested decrease with the increase in population density leading to minor cost for criminals and provokes them to commit crimes. The positive relationship between population density and property crime can also be explained with the logic that crime targets and criminals increase and protection of victims decrease when population density surges.

The results show that poverty has positive and significant impact on crime against property. The findings are broadly in line with the prior studies such as Alam and Akbar (2021) and Hassan et al. (2016). To fulfil wants and desires, the poor have limited income resources. The statistics figures on poverty display miserable picture in Pakistan along with high income inequality. Low potential savings are associated with low income leading to low level of living standard. The higher price level in relation with low income prompting individual's moral verge to commit crime. There is a significant negative association between literacy rate and crimes against property. The findings confirm the prior empirical results of Lochner (2020) and Jabbar and Mohsin (2013). The justification of the empirical result is that an educated person relatively avoid risk of being arrested. The economic rationale behind this empirical finding is that a literate person rather avoids risk and forward thinking which have negative impact on committing crimes. Averse and forward-looking, which produces a negative association of education with illicit behaviour (Haider and Ali, 2015).

Additionally, present study finds negative and significant relationship between police strength and crime against property which is in line with previous empirical results such as Sjoquist (2012). This association can be explained that a police man over fewer numbers of people increases the chances of arrest that minimizes the number of crimes. It is well known that police effectiveness regarding detection and prevention of crime in Punjab depends upon the geographically focused police practices along with the hot-spots policing. As property crimes are often considered as an urban phenomenon, the presence of free media and influential personalities in these areas compel crime prevention authorities to deter property crimes first. Crime prevention authorities try to depute their most efficient employees to prevent the property crime for the sake of departmental reputation and for some of the other job-related incentives. Hence, the result is quite logical and consistent with the international literature and most of the institutions of the province are correspond to the current culture.

Tabla	10.	$\Omega$ T	C	Paculte

		Dependent Variabl	e: PCr		
Variable	Coefficient	Std. Error	t-Statistic	Prob.	
MIG	491.8994	241.4627	2.037165	0.0512	
PD	9.029621	1.892713	4.770729	0.0001	
POV	101.0745	46.72350	2.163247	0.0392	
PPO	1.030311	0.559934	1.840058	0.0764	
PS	-4.853387	2.438444	-1.990362	0.0564	
CER	-77.97064	53.76324	-1.450259	0.1581	
C	-656.4532	3895.787	-0.168503	0.8674	
R-squared	0.956788 Adjusted l	R-squared 0.947528	3		
Durbin-Watson	stat 1.788677 F-statis	stic 103.3285			

Source: Author's calculation

Finally, the present study has specified a positive and significant relationship between numbers of police proclaimed offenders and property crime in a society. It obviously considers that in the community if there is an increase in number of police proclaimed absconders then clearly there will be an increase in crime against property. This result is quite logical and dynamics of this result need some discussion. When police department declares a person as an absconder then termination of such a person from

legitimate labour market is not amazing because a person of such repute is not accepted as a labourer by any person or organisation. Furthermore, fear of arrest, imprisonment and monetary penalties do not allow him to join legitimate labour market for legal earnings. Then it becomes inevitable for such a person to commit crime of theft and snatching for his survival. The opportunity cost of committing a crime is lower for police proclaimed offender which supports the above reasoning of a positive and significant impact of population of proclaimed offenders on property crime.

#### 7. Conclusions

The core objective of this paper was to find the socioeconomic determinants of crime against property in districts of Punjab. The current Cross-section data was used for this purpose. To test the relationship among variables, simple OLS has been applied. The empirical finding concludes that there is found to be positive and significant relationship between property crime and population density which is considered to be the major determinant of property crime in Punjab. The results also show that poverty has positive and significant impact on crime against property. The poor has limited income resources in order to meet basic needs of the family which provoke him to commit crime. It leads us to believe that poverty is the main determinant of property crime in Punjab. The results indicate that migrants have positive and significant effect on property crime in Punjab. The data from PSLM shows that Punjab has six percent migration rate from district to district or rural to urban areas where as it is only one percent in other provinces. The migration creates problem of urbanization leading to shortages of resources and food supply. This potential determinant of property crime needs to address to prevent increasing number of crimes. It is concluded from findings that education plays an important role to control crime against property in Punjab as literacy rate has a significant negative link with crimes. Finally, the empirical findings have proved that there is a preventive effect of police strength on crime against property and an increase in number of police proclaimed offenders has a positive and significant effect on property crime in a society.

#### References

- Abbas, T., Muhammad, Y., Raza, S., Nazir, A., & Höreth-Böntgen, D. W. (2014). Some facts and issues related to livestock theft in Punjab province of Pakistan: Findings of series of cases. *Berliner und Münchener Tierärztliche Wochenschrift, 127*(1/2), 10-13.
- Ajimotokin, S., Haskins, A., & Wade, Z. (2015). The effects of unemployment on crime rates in the US. Georgia Tech Library.
- Alam, M., & Akbar, M. (2021). Relationship Of Unemployment and Poverty with Crimes Against Property: Evidence from Pakistan. *PalArch's Journal of Archaeology of Egypt/Egyptology*, *18*(7), 480-492.
- Ali, A., & Bibi, C. (2020). Public Policies, Socio-economic environment and crimes in Pakistan: a time series analysis. *Bulletin of Business and Economics (BBE)*, 9(1), 1-11.
- Anwar, A., Arshed, N., & Anwar, S. (2017). Socio-economic determinants of crime: An empirical study of Pakistan. *International Journal of Economics and Financial Issues*, 7(1), 312-322.
- Arshad, S., & Ali, A. (2016). Trade-off between Inflation, Interest and Unemployment Rate of Pakistan: Revisited. *Bulletin of Business and Economics (BBE)*, 5(4), 193-209.
- Azhar, M., & Siddique, K. (2020). Crime Dynamics in District Bahawalpur: A Case Study in Socio-Economic Paradigms. *Research Journal 'Ulūm-e-Islāmia*, 27(1), 63-78.
- Becker, G. S. (1968). Crime and punishment: An economic approach. Journal of Political Economy, 76,169-217.
- Becsi, Z. (1999). Economics and Crime in the States. Economic Review-Federal Reserve Bank of Atlanta, 84(1), 38-56.
- Bhorat, H., Thornton, A., & Van der Zee, K. (2017). Socio-economic determinants of crime in South Africa: an empirical assessment.
- Cerulli, G., Ventura, M., & Baum, C. F. (2018). The economic determinants of crime: an approach through responsiveness scores. *Report, Department of Economics, Boston College*.
- Coomer, N. (2003). America's underclass and crime: The influence of macroeconomic factors. *Issues in Political Economy*, 12(1), 1-25.
- Draca, M., & Machin, S. (2015). Crime and economic incentives. Annual Review of Economics, 7(1), 389-408.
- Palermo, G. B., & Kocsis, R. N. (2005). Offender profiling: An introduction to the sociopsychological analysis of violent crime (Vol. 1107). Charles C Thomas Publisher.
- Gillani, S., Khan, R. E. A., & Rashid Gill, A. (2011). Unemployment and property crimes in Pakistan. *Asian Economic and Financial Review, 1*(3), 124-133.
- Government of Pakistan (2020). Bureau of Police Research and Development, Federal Bureau of Statistics,
- Government of Pakistan (2020). Pakistan Social and Living Standard Measurement Survey, Federal Bureau of Statistics, Islamabad.
- Government of Punjab (2018). Multiple Indicator Cluster Survey, Bureau of Statistics, Lahore.
- Government of Punjab (2018). Punjab Development Statistics, Bureau of Statistics, Lahore.
- Government of Punjab (2020). Punjab Crime Statistics, Bureau of Statistics, Lahore.
- Gümüş, E. (2013). Crime in urban areas: An empirical investigation. Akdeniz IIBF Dergisi, 3(7), 98-109.
- Haider, A., & Ali, A. (2015). Socio-economic determinants of crimes: a cross-sectional study of Punjab districts. *International Journal of Economics and Empirical Research*, 3(11), 550-560.
- Hassan, M. S., Akbar, M. S., Wajid, A., & Arshed, N. (2016). Poverty, urbanization and crime: Are they related in Pakistan. *International Journal of Economics and Empirical Research*, 4(9), 483-492.
- Jabbar, S. M., & Mohsin, H. M. (2013). Economics of property crime rate in Punjab. *The Pakistan Development Review*, 52(3), 221-233.

- Kassem, M. Ali, A. and Audi, M. (2019). Unemployment Rate, Population Density and Crime Rate in Punjab (Pakistan): An Empirical Analysis. *Bulletin of Business and Economics*, 8(2), 92-104.
- Kearney, M. S., Harris, B. H., J'acome, E. & Parker, L. (2014), Ten economic facts about crime and incarceration in the United States, Hamilton Project, Brookings.
- Khan, N., Ahmed, J., Nawaz, M., & Zaman, K. (2015). The socio-economic determinants of crime in Pakistan: New evidence on an old debate. *Arab Economic and Business Journal*, 10(2), 73-81.
- Kizilgol, O., & Selim, S. (2017). Socio-economic and demographic determinants of crime by panel count data analysis: The case of EU 28 and Turkey. *Journal of Business Economics and Finance*, 6(1), 31-41.
- Lilenstein, A. (2017). The socio-economic determinants of crime in South Africa: An empirical assessment.
- Lochner, L. (2020). Education and crime. In The economics of education (pp. 109-117). Academic Press.
- Machin, S., Marie, O. & Vuji'c, S. (2011), 'The crime reducing effect of education', The Economic Journal 121(552), 463-484.
- Mazhar, F. (2018). Population Growth & Distribution Pattern in Punjab, Pakistan (1998-2017): A Geospatial Approach. *International Journal of Innovative Science and Research Technology*, *3*(1), 508-511.
- Nolan III, J. J. (2004). Establishing the statistical relationship between population size and UCR crime rate: Its impact and implications. *Journal of Criminal Justice*, 32(6), 547-555.
- Omotor, D. G. (2010). Demographic and Socio-economic determinants of crimes in Nigeria (A panel data analysis). The Journal of Applied Business and Economics, 11(1), 181.
- Palermo, G. B., & Kocsis, R. N. (2005). Offender profiling: An introduction to the sociopsychological analysis of violent crime (Vol. 1107). Charles C Thomas Publisher.
- Regoeczi, W. C. (2002). The Impact of Density: The Importance of Nonlinearity and Selection on Flight and Fight Responses. *Social Forces* 81(2), 505–530.
- Rout, C. (2013). Juvenile Crime and Punishment: An Overview. The IUP Law Review, 3(2), 68-71.
- Shafiq, N. B., & Ali, D. H. A. (2022). The Economic Determinants of Crime Rate in 7 Selected Countries: A Panel Data Analysis Approach. *Asian Journal of Empirical Research*, *12*(1), 44-53.
- Shah, S., & Kanwal, R. (2021). Understanding Crime Dynamics: Social and Demographic Influences in Punjab, Pakistan. *Journal of Business and Economic Options*, 4(3).
- Sjoquist, D. L. (1973) Property Crime and Economic Behaviour: Some Empirical Results. *The American Economic Review*, 439–446.
- Syed, S, H., (2018). Crime, Business Activity, Unemployment and Economic Growth in Punjab, *Punjab Economic Research Institute (PERI)*, Publication No. 434.