

Testing the Economic Theory of Crime in case of Pakistan

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ABSTRACT

In Pakistan, one of the biggest issues is crime. It has an impact on the economy in addition to society. This study's primary goal is to evaluate the economic theory of crime as it applies to Pakistan. The foremost impartial of this study were to check the relation between inflation, political stability, and income inequality with crime rate of Pakistan while implying the economic theory of crime, but regression analysis and correlation are employed to verify the impact of socioeconomic status on criminal activity. For this purpose, regression analysis was conducted. The findings of this study reveal that factors are positively associated with the dependent variable. However, the outcome of income inequality and political stability shows a negative association with crime. For this study quantitative method has been used. Furthermore, from 2004 to 2021 The Pakistan Bureau of Statistics and other sources have provided secondary data. Additionally, E-views software was utilized to measure the instruments. This study gives evidence by testing the economic theory that people move toward crime to maximize their needs.

Keywords: Crime theory, Inflation, Income inequality, Political stability.

1. INTRODUCTION

One of the most important societal issues, crime negatively impacts adult socioeconomic position, child development, and public safety. Crimes are considered a major dynamic to restrict the healthy and settled society whereas it consents to the simulated of anxiety, insecurities, and mental upsets among the masses. Crimes have different numbers and definitions as well according to regions or areas with distinct times.

Moreover, a crime is depicting human adverse behavior with others, which the state is sure to stop. It reduces the distinctive individual responsible for punishment because of taking place initiated through the country structures allotted to decide the environment, the degree, and the lawful values of the individual's unfairness. The economic theory of crime which was introduced by Nobel laureate Gray Becker in

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1968 states that potential criminals acknowledged drastically to the deterring incentives through the system of justice criminal. They evaluate the advantage of committing against the law with the tough concern that has been growing over the years. The number of murders, attempted murders, dacoities, robberies, burglaries, cattle thefts, sectarian deaths, terrorist attacks, and suicide explosions has increased over time, particularly in the last ten years. An increase in criminal activity has led to economic concern. This may have diminished the self-assurance of buyers in the economy. Increased crime rates could have had an impact on the economic boom. The current investigation tests the theory of crime in the case of Pakistan Time collection facts from 2004 to 2021 have been used for the analysis. Figure 1 indicates that crimes are increasing with the stream of time but on the other side economic growth also shows fluctuation with time.

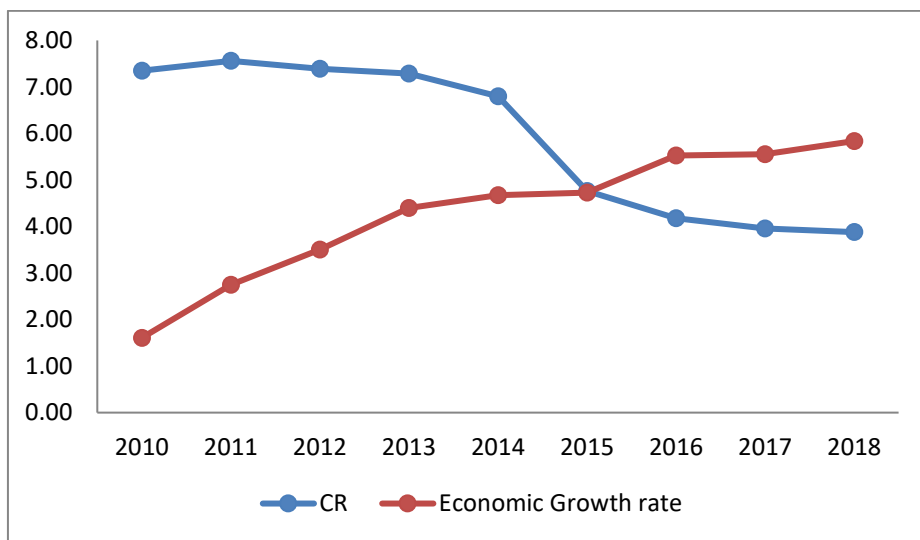


Figure 1: *Descriptive Data Analysis of Economic Growth VS Crime*

In Pakistan, crimes have various forms in which organized crime, illicit financial transactions, political unrest, terrorism, etc. Therefore, Pakistan has only a few studies that show the crime and economic variables. These figures display most effective the stated crimes; nonetheless, in Pakistan, between 30 and 50 percent of crimes may go undetected (Gillani & Rehman, 2009). Pakistan's overall crime rate is higher than last decade. Moreover,

Table 1: *Crime report Pakistan*

Offense	2017	2018	2019
Murder	8235	8241	8153
Attempt to Murder	9499	10067	10438
Kidnapping /Abduction	18363	20060	20256
Dacocity	1280	1414	1382

Robbery	12458	14914	18239
Burglary	13833	14646	16124
Cattle Theft	5342	6233	7793
Other Theft	37304	39418	55836
Others	577611	588488	648118
TOTAL RECORDED CRIME	683925	703481	786339

Source: (Pakistan Bureau of Statistics , 2021). Pakistan is spending an excessive amount of cash on its protection and safety for that reason, those numbers are quite concerning for the authorities and safety groups. Security expenses and the rate of crime are growing at the same time. Therefore, the government adopted drastic measures to reduce crime. Even though Pakistan's crime rate has been trending downward over the past several months, it is still relatively high when compared to other nations in the region. The Pakistani crime rate within the 12 months of 2013 turned into 7.67%. This study tests the theory and the main aim of the economic theory of crime is to describe the country's social and economic outcomes of crimes. Many studies reveal different factors which influence the growth of crime. The main aim of this study is to test an economic theory of crime in Pakistan's crime scenario.

1.1. Crime Scenario in Pakistan:

According to Pakistan's crime statistics, the country has seen a sharp increase in crime over the years, similar to other countries worldwide. It might be the result of growing inflation, poverty rates, or high unemployment. A variety of other non-economic variables are also to blame. The impact of growing crime is not limited to the ignorant and corrupt aspects of society; some well-off, well-educated, and well-located people are also involved in crime.

They are competing to amass fortune using shady methods. Additionally, these individuals have the resources to take advantage of legal gaps to commit crimes in Pakistan. In addition, the vast majority of individuals in the nation who have little resources available to them to meet their basic needs are also involved in criminal activity. Pakistan's crime statistics demonstrate the nation's poor performance in the areas of economics, society, culture, technology, the environment, ethics, and religion. In the case of Pakistan, crime rate increased from 683925 to 703481 in 2017 and 2018 whereas this value increased to 786339 in 2019 (Pakistan Bureau of Statistics , 2021).

1.2. The Economic Theory of Crime

The economic theory of crime, first introduced by Nobel winner Gray Backer in 1968, applies the neoclassical theory of demand. He won his prize based on his work on microeconomic analysis and its impact on human behavior. Before this theory,

human behavior was predominantly analyzed with in social sciences which include sociology.

Becker's primary areas of interest were rational choice theory and other aspects of household behavior, investments in human capital, the coercion of punishments and crimes, and perceptions in the financial market. This theory states or argues that rationally criminals maximize their needs and self-interest as considered utility. Hence, to become a criminal it is the decision is in principle which is not different from another's occupation. Gray Backer's theory claims that there is a negative association between crime and opportunity costs also with the chance of severe punishment moreover it is positively associated with gain from this criminal behavior. Within the concept of criminals maximizing their economic utility, Becker examined criminal conduct. In other words, he contended that a criminal chooses whether to commit a crime primarily based only on an evaluation of the advantages and disadvantages associated with the act. As a result, methods for preventing crime must focus on the most effective ways to alter the cost-benefit framework. Becker concluded that increasing fines and penalties might be a far less expensive strategy than raising funding for surveillance and preventative initiatives. Economic factors and crime rates are highly correlated. Numerous studies have demonstrated that dire economic circumstances can lead to an increase in crime rates. Pakistan is another country where this phenomenon occurs.

The nation's crimes increased as a result of the 2007–2008 economic downturn. At the beginning of 2007, there were 5,38,048 total crimes reported; however, by the end of 2008, that number had increased to 5,92,503. (Gulzar, 2013). Pakistan is a growing country dealing with bad Economic situations and those situations are contributing substantially to growing crimes. The main objective of this study is to test the significance of the economic theory of crime in the case of developing countries evidence from Pakistan.

2. LITERATURE REVIEW

Globally it is going through to increasing tendency in behavior violation and criminal activities over time. It is normally supposed crimes affect life, restricting scholastic possibility, hindering entry toward feasible available opportunities of job and inauspicious the buildup of assets. The volume of crimes regulates the capacity of a country to pavement the manner for bearable financial growth. (Nadeem, 2016) Discussed the functions of earnings in compelling the crimes through other people. The study provides evidence that low earnings and a lower expected rate of crimes cause an increase in the disposition of compelling the crimes.

Likewise, low-earnings humans view their authorized lifetime profits now no longer as much, and they expect to lose comparatively small income if they have a

criminal record. They suppose that legal income is not the most effective however additionally the opportunity cost of time consumed in custodial is low.

Becker (1968) recommends a version of crimes primarily constructed totally on cost and benefit evaluation and predicted utility. The study examines the factors that human beings will constrain crimes in the event they assume that their utility can be decreased in a few different activities. Moreover, a criminal can pay the cost of appellation punishment and period price as custody. The study is evidence that criminals are rational whilst constructing an evaluation among costs and benefits of activities of criminals. Ehrlich, (2017) reveals that there occurs an instantaneous affiliation among crime and unemployment. Consequences examines that for the opportunities of income, employment is an essential factor from lawful sources and if there may be a growth in the rate of unemployment then the participation in legal sources of people declines. Also, the degree of education, age construction, and income inequality additionally pay to the creation of choice of compelling crimes. The primary distinction between Becker and Ehrlich's research is that Becker considers opportunity costs in addition to observable costs and advantages of a society though Ehrlich finds employment as a factor of accessibility of income in a society.

Castro & Fajnzylber, (2017) examine a cross-sectional evaluation of the usage of income inequality, education, per capita income, and growth ratio. The observed factors that income inequality is a substantial element in crimes. The research observes and determines that a 5 percent growth in income inequality (Gini Index) helps to raise the murder rate by fifteen percent and lots of fold rises the robberies. Furthermore, another study conducted by the same author and therefore this study depicts the correlational evaluation, for panel data ordinary least square regression, and GMM located that an upsurge in income inequality helped to an upsurge in crimes. (Bernstein, 2002) examines the relationship between labor marketplace situations and distinctive crimes in Pacific countries of Asia, in this study, Bernstein used Johansen co-integration and Granger causality tests for econometric evaluation. The consequence of the study depicts long life of a relationship between unemployment and crimes.

Qamar & Safdar,(2021) research the impact of various macroeconomic variables on crimes through the use of the ordinary least square technique and accomplish that the crime rate increases with the growth of different factors likewise unemployment, inflation, and poverty. Another study makes use of metropolis-level statistics to resolve elements inducing crimes in inner-city regions. The examined consequences show that inequality, per capita GDP, and percentage of black people are the greatest elements in defining the crimes in city regions. Unemployment and police expenses are also observed to be considerable elements in illumination crimes (Latimaha, Bahari, & Ismail, 2019).

For many researchers, it isn't always poverty consistent with criminogenic however alternatively unequal useful resource allocation (Ouimet, 2012; Asghar, Qureshi , & Nadeem, 2016; Ghani, 2017) the maximum generally used measurement of inequality through those research is the Gini coefficient. According to Kelly, (2000), Anxiety will rise due to inequality not only in developing nations but also in all social classes. Additionally, inequality can weaken societal cohesiveness. Numerous hypotheses, including the stress viewpoint, the important perspective, and the frustration-aggression model, can be used to explain the relationship between inequality and homicide. Ríos, (2016) An anomie approach can also be used to understand income inequality, arguing that high levels of inequality lead to a lack of commitment to the prevailing normative framework (Goh & Kaliappan, 2018)). Inequality in the distribution of valuable resources can also exacerbate conflict between social groupings and possibly justify crime among the lower strata. According to (Asghar, Qureshi , & Nadeem, 2016), Many variations in homicide rates throughout time and space can be attributed to the fluctuating intensity of interpersonal struggle for scarce resources, both social and material.

Associated with the crime charge with inside the quick period and helps the presence of criminal motivation impact as introduced Meanwhile Adekoya & Abdul Raza, (2016) Meanwhile, (Habibullah, Shah, & Baharom, 2014) observed that the inflation charge isn't always a significant thing to influence the crime rate in Malaysia. Furthermore, Apart from this, an examine by (Alwee, Shamsuddin, & Sallehuddin, 2013) found that the consumer rate index (CPI) is the most significant financial indicator in the United States of America. However, these findings do not accurately reflect the overall crime rate because the researcher only considered the CPI for urban consumers (CPI-Apparel) aged sixteen to twenty-four, and came to the conclusion that it had a greater impact on property crime.

The conclusion showed strong correlations between unemployment, inflation, inequality, and other variables. (Phillips & Land, 2012) This could have been influenced by a variety of factors. First, as the Philips curve illustrates, there may be a trade-off between inflation and unemployment during the short term but not during the long term. Moreover, using the estimation version as a single equation may lead to a multicollinearity issue. (Habibullah, Shah, & Baharom, 2014) suggested that, because it takes time for inflation to gradually reduce people's purchasing power, crime rates in Malaysia may rise over a long period rather than quickly.

In evaluation with the findings of (Lobonț, Nicolescu, & Moldovan, 2017) Growing inflation presents additional chances for criminals, which will inevitably lead to an increase in the rate of property crime. It is a reality that varied ingredients result in different forms of crimes, each with unique characteristics related to the lead or period. Secondly, because the unemployment rate is mostly based on mixed data, it is difficult to determine how the rate affects homicide and whether previous

research findings hold. In contrast to inflation, the unemployment variable is purportedly much larger. Conversely, (Tabar & Noghani, 2019) found out that the unemployment rate is statistically significant (Ali & Bibi, 2020; Umair, 2019; Castro & Fajnzylber, 2017) and definitely through Becker (1968). Moreover, as found out in the examination undertaken by (Alwee, Shamsuddin, & Sallehuddin, 2013) and (Lobonț, Nicolescu, & Moldovan, 2017), the consequences acquired are suitable although the interpretation of the effects must be cautiously considered.

3. METHODOLOGY

The objective of this study is to test the economic theory of crime in case of Pakistan whereas unit of analysis is crime rate of Pakistan quantitative data has been taken from Pakistan bureau of statistics, World Bank and other sources due to the nature of study. Moreover, data included for analysis from 2004 to 2018.

3.1. Operationalization of variables

The crime rate in Pakistan is the dependent variable in this study. Any illegal act that a person commits that has the potential to inflict harm and that the state is obligated to stop is considered a crime. Different statistical methods had been used to compare the data collected. Explanatory variable while authentic crime statistics from many nations display that unemployed people have excessive crime rates and that communities with lots of unemployment experience lots of crime, this age or race.

Table 2: Sources of data

Variables	Source
Crime rate	(The World bank, 2021)
Inflation	(The World bank, 2021)
Income inequality	(The global Economy , 2021)
Political stability	(The global Economy , 2021)

3.2. Econometrics Model

$$CR = \beta_0 + \beta_1 * INF + \beta_2 * INI + \beta_3 * POL$$

Where

CR= Crime rate

INF= Inflation

INI= Income inequality

POL= Political stability

3.3. Financial Analysis

This research section is providing the predicted outcomes and dialogue. Basically, the study of descriptive usually used to evaluate the validity of data regardless of data is good for promoted research or not. In this case data for research should be normal. Table 3 displays the model's descriptive statistical data. The consequences indicated the presence of positive skewness in a dataset on Inflation Income inequality and political stability while crime rate and unemployment offer negative skewness. Skewness value measures the probability distribution and kurtosis measures distribution frequency. Fore skewness acceptable value -3 and +3 whereas for kurtosis range -10 to +10.

Therefore, their values show suitable because it lies between ranges. Moreover, probability values of Jarque bera presenting the sample data of variables are normally distributed over the chosen time period.

Table 3: Descriptive Analysis

	CR	INF	IIE	PS
Mean	6.1320	8.8826	32.374	-2.3693
Median	6.2900	8.6200	31.600	-2.4800
Maximum	7.5600	20.290	37.600	-1.5800
Minimum	3.8800	2.8600	29.800	-2.7700
Std. Dev.	1.3142	4.5244	2.1119	0.3491
Skewness	-0.6980	0.9182	1.2889	1.0537
Kurtosis	2.0135	3.7647	3.9896	3.1105
Jarque-Bera	1.8264	2.4734	4.7654	2.7833
Probability	0.4012	0.2903	0.0923	0.2486
Sum	91.980	133.24	485.61	-35.540
Sum Sq. Dev.	24.182	286.58	62.443	1.7064
Observation	15	15	15	15

In table 3 mean values presenting the average values of variables with crime rate has 6.1 average, inflation, income inequality, political stability presents 8.8, 32.3 and -2.36 respectively. Furthermore, table provides the statement of statistics distribution of independent variables from mean of dependent variable.

Table 4: Covariance Matrix

Covariance Analysis: Ordinary

Sample: 2004 2021

Included observations: 18

Correlation

t-Statistic

Probability	CR	INF	IIE	PS
CR	1.0000 ----- -----			
INF	0.7675 4.3178	1.0000 -----		
IIE	0.0008 -0.8812 -6.7237 0.0000	----- -0.5877 -2.6194 0.0212	1.0000 ----- -----	
PS	-0.1781 -0.6527 0.5253	-0.2077 -0.7656 0.4575	0.2649 0.9906 0.3399	1.0000 ----- -----

Covariance matrix indicates the association of two variables which can interpret value of variable changes due to other variables value. Further, if one variable value increases it shows the increase in other variable values both variables indicate positive results or positive covariance. If one variable decreases due to this other variable decrease it indicates the negative covariance relation between variables. Table 4 indicates the correlation estimation and results show crime rate whereas inflation estimated results show crime has significant results with inflation on other it has a negative correlation with income in equality. Furthermore, political stability shows a negative and insignificant correlation among variables. The empiric provides that political stability has an unfavorable and negligible relationship with the inflation rate and a positive with income inequality. Income inequality has a positive relation with unemployment whereas income inequality has a negative correlation with the inflation rate of Pakistan. Figure 2 represents the graphical representation of variables.

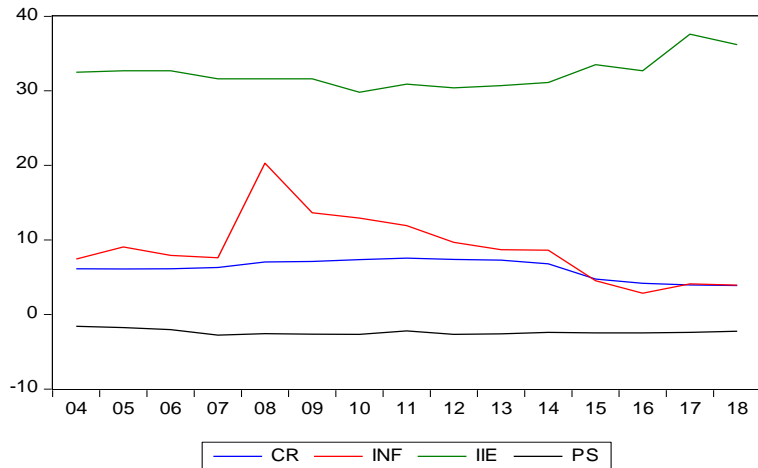


Figure 2: Graph of Variables

Table 5: Regression Model

Dependent Variable: CR

Method: Least Squares

Sample: 2004 2021

Included observations: 18

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	19.452	3.1793	6.1184	0.0001
INF	0.1126	0.0379	2.9716	0.0127
IIE	-0.4199	0.0823	-5.0982	0.0003
PS	0.3057	0.4121	0.7417	0.4738
R-squared	0.8779	Mean dependent var		6.1320
Adjusted R-squared	0.8446	S.D. dependent var		1.3142
S.E. of regression	0.5180	Akaike info criterion		1.7455
Sum squared resid	2.9516	Schwarz criterion		1.9343
Log likelihood	-9.0913	Hannan-Quinn criter.		1.7435
F-statistic	26.374	Durbin-Watson stat		2.1174
Prob(F-statistic)	0.0000			

Regression coefficient is derived to check marginal contribution of the independent variable to the dependent variable, holding all other variables fixed. According to regression model in table 5 R^2 value indicates the model provides a good fit to the data. The R-squared value is 0.87, or 87%, meaning that the INF, IIE, and PS account for 87% of the variation in CR. In contrast, the f test result is 13.23, meaning that the f value represents the ratio of two mean square values. Furthermore, the p-values for inflation and income disparity are significant, whereas the p-value for political stability is insignificant, indicating no relationship. Overall results indicate that the model fits the specific study well.

4. CONCLUSION

Developed and developing nations are dealing with the problem of rising crimes and it becomes extreme with each passing day. This study reveals the results by applying the economic theory of crime in the case of Pakistan. Consequences show people move towards crime when they are unable to fulfill their needs. Moreover, crime rate increased due to so many reasons. This study includes four variables in which unemployment, inflation, income inequality, and political stability are considered independent variables whereas crime rate is the dependent variable. Explanatory variables are positively related to crime, especially in developing countries like Pakistan.

As a result, human beings could have higher health and education facilities and they'll revel in extra income as they get extra opportunities and can be much less possibly to become involved in wrongdoings. Employment opportunities must be provided following each person's qualifications and experience. This will be done to lower unemployment. One of the countries with the highest rates of corruption is Pakistan. Effective action must be taken by Pakistani authorities to resolve this issue, and appropriate assessments and checks must be put in place inside the nation at each stage so that income inequality and inflation may be diagnosed and tackled properly.

The finding reveals that low unemployment does not show or mean the country has a low crime rate therefore it has a negative impact where as the inflation rate is highly significant and positively correlated with crime. Moreover, income inequality is not a short-run occurrence it takes the stage to expand the income gap between rich and poor but when people or individuals start to realize that particular gap this stage will enhance the crime activities for instance people desire to grab their rights despite legal way.

Government should take some steps regarding the equality of income which may reduce the crime rate in Pakistan. Furthermore, political stability is negatively associated with the crime rate. It is necessary to overcome the crime rate in developing countries like Pakistan where there is a large amount spent on mainlining

police forces, and judicial systems without finding the root of crimes. Economic theory of crime is positively applied in the case of Pakistan where people move for their rational purpose or move toward crime to maximize their needs by paying the cost and punishment of crime.

Many developing countries especially in South Asia present varied results due to the environment and affect the economy accordingly. However, this was an imperative study in which the economic theory of crime was tested in the case of Pakistan. This research will help to reduce crime by following by reducing unemployment, and inflation, stabilizing the political figures, and equaling income. This study was further generalized by applying to other countries with the same theory.

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