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The Impact of Remittances on Crime Rate: A Case Study of Pakistan

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Abstract

This study investigates the relationship between remittances and crime in Pakistan from 1980 to 2020, employing econometric techniques such as the Augmented Dickey-Fuller test and Juselius methodology. Three models were developed to analyze how remittances interact with economic and socio-economic variables (inflation, income inequality, unemployment, education) to influence crime. The findings reveal a direct, robust long-term relationship between remittances and increased crime. Economic factors like inflation and inequality consistently correlate positively with crime, while education generally shows an inverse relationship. However, in the presence of unemployment (third model), education paradoxically associates positively with crime, possibly reflecting frustration among educated individuals lacking opportunities. The study emphasizes improving income distribution, reducing unemployment, and creating targeted job policies for educated youth to mitigate crime. It advocates for equitable economic growth to enhance social stability and reduce criminal activities in Pakistan.

Keywords: Crime rate, Remittances, Socio-Economics, Pakistan

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Introduction

Migration, whether within a country or across borders, is often driven by better working conditions, improved opportunities, escape from violence, or other personal reasons. In the past, migration typically meant losing touch with friends and family due to limited communication options. However, advancements in telecommunications have significantly enhanced migrants' ability to stay connected with those they leave behind. These technological improvements have also streamlined international and domestic money transfers, enabling migrants to send a portion of their earnings back home. They can now transfer money through agencies like Western Union by paying a small fee, making funds available in their home communities within minutes. This financial transfer is known as Workers' Remittance. According to (1), remittances are one of the most significant determinants of migration's impact. Remittances represent one of the largest sources of financial flows to developing nations (2), and these flows have grown rapidly in recent years. Global remittances in 2024 amounted to $905 billion, marking a 6.7 percent increase from the previous year. These figures only account for flows through official channels; the actual total is likely higher when considering unofficial channels that are difficult to measure and record, such as transfers via postal services or carried across borders by friends (2). In some countries, remittance receipts even surpass financial inflows from foreign direct investment and exports of goods and services (3). Like many developing nations, Pakistan is highly reliant on remittances, ranking twelfth globally in terms of remittance dependence as a percentage of GDP (World Bank, 2024). Due to significant economic challenges, studies indicate that Pakistan's economy heavily depends on remittances (4). While theories suggest that remittances can promote industrial growth and economic development, they may also have a darker side, potentially encouraging crime. This is because remittances can create social and community-level costs, fostering vicious competition among societal members. Crime, which lacks a precise definition and varies across time and regions, imposes significant social and economic costs on individuals and society. Numerous studies have explored the cost of crime, focusing on its social and economic impacts based on various premises. In both developed and developing regions, a substantial portion of the population lives below the poverty line and faces unemployment, particularly in Asian countries like Pakistan. Crimes are often committed due to mental illness or after weighing the benefits and costs of illegal activities.

Crime in Pakistan has reached alarming levels, with nearly 1.8 million people affected by the pervasive sense of insecurity. A glance at recent events in major cities like Karachi, Lahore, Islamabad, Quetta, and Peshawar is enough to unsettle any citizen. The rapid rise in crime in Pakistani society raises questions about its root causes, which may include increasing inequality, unemployment, and inflation.

This research examines the impact of remittances on crime rates in Pakistan. The effect of remittances can vary by location. Some researchers argue that remittances may reduce crime by directly benefiting poor recipients and increasing their families' purchasing power. However, in Pakistan, remittances might exacerbate crime by creating social and community-level costs, fostering income inequality, and widening the gap between rich and poor. Persistent unemployment among the poor often drives them to illegal activities to meet basic needs. Educated youth, unable to secure white-collar jobs, may become frustrated and turn to crime. As a result, both unemployment and crime are on the rise in Pakistan. Despite the growing relevance of this issue, there has been no comprehensive study on the relationship between remittances and crime in Pakistan. While existing literature offers various perspectives on crime, none thoroughly analyse the link between remittances and crime. This study aims to fill this gap by conducting empirical

research on the relationship between remittances and crime, as well as other macroeconomic factors such as inflation and unemployment. The central question is: How does an increased inflow of remittances affect crime? This study uses time series data from Pakistan covering the period 1980 to 2020. Using Johansen Co-Integration Analysis, the findings reveal a direct relationship between crime and remittances in Pakistan. Income inequality, inflation, and unemployment are also significant determinants of crime. Conversely, education has a negative impact on crime. Three models are estimated using different variables to ensure robustness and address multicollinearity. The study is structured as follows: Section II reviews the literature on crime and its determinants. Section III relationship between remittances and crime rate, Whereas Section IV explores the relationship between all variables and crime, presenting the theoretical model and econometric methodology and Section V details the variables and their sources. Section VI Results and their Interpretation, and Section VII Conclusion of study and policy recommendations and directions for future research.

Review of Literature

The complex relationship between remittances and crime has garnered increasing academic attention globally, yet its examination within the context of Pakistan remains underexplored. Remittances, widely recognized as a crucial source of economic stability, have been extensively analyzed for their effects on poverty reduction, education, and overall development. However, their potential influence on crime rates has received limited scrutiny. While economic theories propose that higher household income from remittances may deter criminal activities by enhancing living standards, alternative perspectives suggest that income inequality and social disparities driven by remittance inflows could intensify criminal behavior.

Empirical studies on crime determinants in Pakistan have largely focused on economic and social factors such as unemployment, inflation, education, and poverty (5), (6), and (7). (8) employed the ordinary least squares method to analyze data from 1967 to 1998, examining the impact of the consumer price index (CPI), unemployment, education, income, and poverty on crime. He found that employment, inflation, and poverty positively influenced crime rates, with education and income also showing a positive association. (5) utilized time-series data from 1975 to 2011 and applied the Toda-Yamamoto Granger causality test, establishing that CPI, poverty, and unemployment Granger-cause crime. (6) explored the relationship between crime, inflation, health, unemployment, education, and investment using cointegration regression on 1980–2010 data. Their findings indicated that health and education had a significant positive impact on crime, investment had a negative effect, while unemployment and inflation were insignificant. (7) Using multiple regression analysis on 1980–2020 data, the authors found that household consumption, GDP, population, literacy, wage rates, and migration had a strong positive correlation with crime, while electricity exhibited a weak positive relationship.

Research suggests that remittances can have both positive and negative effects on education. (9) found that international migration remittances generally enhance development outcomes, increasing children's school attendance in Mexican municipalities. Conversely, (10) highlighted negative consequences, noting that children in migrant households, particularly those without fathers, often perform poorly in school. (11) reported similar findings regarding the relationship between remittances and literacy in Pakistan.

(12) and (13) concluded that remittances exacerbate income inequality, with more pronounced effects in rural than in urban areas. Income disparity can lead to social and political envy and, in some cases, fuel rivalry within and beyond households. (14) examined the impact of labor migration and remittance inflows on income distribution in Nicaragua. They found that remittances and migration both elevated the average income of recipient families but simultaneously widened the income gap between migrant and non-migrant households. (15) recognized both positive and negative

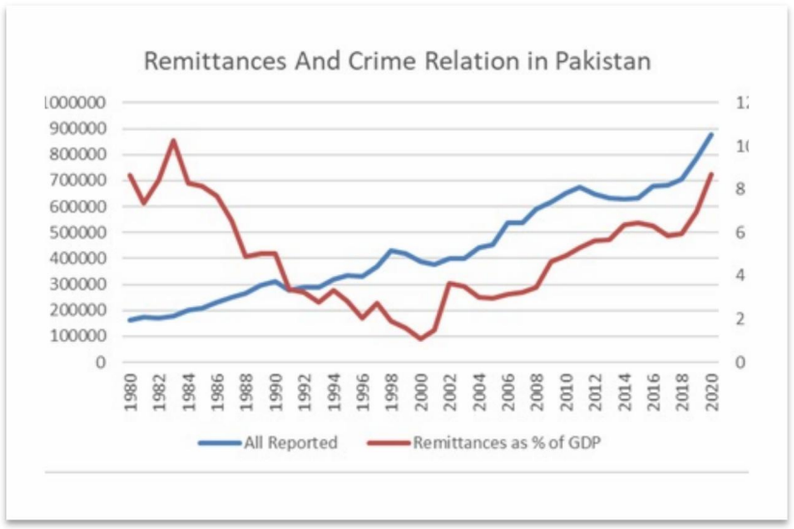
effects of remittances, concluding that while remittances alleviate poverty, they also heighten household and community-level inequality. As inequality deepens, the rich become wealthier, and the poor become poorer, potentially driving lower-income individuals toward criminal activities.

(16) investigated the causal and robust relationship between violent crime and income inequality across nations. Their panel dataset included averages from 37 countries for robbery rates over five-year intervals from 1970 to 1994 and data from 39 countries for homicide rates from 1965 to 1995. The study found a direct relationship between inequality and crime both within and across nations, with evidence suggesting that inequality drives crime.

A comprehensive review of this literature suggests that while remittances contribute to Pakistan's economic growth, they also entail economic and social costs. This research posits that rapid remittance growth fosters inequality among youth, potentially influencing their inclination toward criminal activities. Moreover, there is a gap in the literature regarding the association between remittances and crime. While (17) examined the impact of crime on remittance transfers, and (18) analyzed remittances' effect on corruption, studies specifically linking remittances to crime remain scarce. (17) used Colombia's 2003 QLS data to demonstrate that both international and domestic remittance transfers are inversely affected by crime, while (18) found that a one standard deviation increase in remittances raises corruption index points by 1.5.

In Pakistan, the substantial flow of remittances over the past decades has attracted significant academic interest. Extensive literature has explored the impact of remittances on growth and development at both micro and macro levels [(19); (20); (21); (22); (23); (24); (25); (26)]. The overarching conclusion from these studies is that remittances directly influence Pakistan's economic growth. However, research on the effects of remittances on crime rates remains largely unexplored. This paper seeks to address this gap in the literature.

Relation Between Remittances and Crime Rate in Pakistan



The graph illustrates the relationship between remittances (as a percentage of GDP) and reported crime in Pakistan from 1980 to 2020. Initially, during the early 1980s, crime rates were relatively high, followed by a significant decline in the late 1980s and early 1990s. However, after 1992, crime rates began to rise again, showing fluctuations but maintaining an overall upward trend, particularly after 2010. On the other hand, remittances as a percentage of GDP followed a different trajectory. They were high in the early 1980s but experienced a sharp decline in the late 1980s and early 1990s. From 2000 onwards, remittances started increasing steadily, showing a sharp rise after 2010.

The relationship between remittances and crime appears to change over time. Between 1980 and 1995, there seems to be an inverse relationship, where a decline in remittances coincided with a decline in crime rates. One possible explanation for this trend is that during this period, remittances were often utilized for education and productive investments, which contributed to economic stability and a reduction in criminal activities. Families prioritized education and business ventures, leading to improved socio-economic conditions and a decline in crime.

However, from 1995 to 2010, no clear correlation is observed, as both variables fluctuated independently. After 2010, both crime and remittances showed a simultaneous increase, indicating a possible positive correlation. A key factor influencing this shift could be the widespread availability of smartphones and social media, which became common in households. Instead of focusing on education and productive investments, people started directing their financial resources toward consumer goods, luxury items, and digital consumption. This shift in spending patterns contributed to rising social inequality, as not everyone could afford these new technological advancements. As a result, a sense of jealousy and frustration grew among individuals who were unable to keep up with these lifestyle changes. Some of those who felt left behind sought alternative means, including engaging in criminal activities, to fulfil their material desires.

Theoretical Framework and Econometric Methodology

The phenomenon of immigration is not a recent development. The movement of individuals across regions or states in search of a healthier or more luxurious lifestyle has existed since the dawn of humanity. People often migrate to escape failing economies and seek opportunities in more prosperous regions. Migration, whether internal or external, defined by geographic boundaries, has occurred historically and continues to be prevalent in the modern era. It significantly impacts the social and economic lives of migrants and their households (27).

Various theoretical frameworks have been employed to explain the concept of migration. Among these, the most prominent is the "push-pull" model introduced by (28). This theory posits that "push" factors compel individuals to leave their place of origin due to adverse conditions such as harsh weather, poverty, drought, conflict, or political and religious instability. Conversely, "pull" factors attract individuals to relocate in pursuit of better opportunities or an improved quality of life. These include access to better healthcare, political and religious freedom, enhanced educational and medical facilities, and a stable, peaceful political environment.

The human capital model offers another perspective, suggesting that individuals' decisions to migrate are based on the expectation of improved well-being at the destination compared to their current circumstances. Individuals weigh the potential future benefits against the costs of migration, and if the balance favors the former, they choose to migrate (29).

Many people work in various regions to secure higher-paying jobs. When immigrants send a portion of their earnings, either in cash or goods, to support their families back home, these financial transfers are known as migrant or workers' remittances. In recent years, remittances have grown rapidly in many developing countries, becoming the largest source of foreign income (30).

Some studies have identified theoretical models that highlight both the benefits and costs of remittances. While remittances bring significant prosperity to recipient households, they can also lead to economic drawbacks, such as increased inequality and social jealousy at the community level. These factors may incentivize individuals to engage in criminal activities, driven by the goal of utility maximization. Drawing on earlier debates and considering the works of (31), (12), (10), (32), (5), and (6), researchers have developed models that incorporate various components of crime.

$$Crime = f(Remittances, Unemployment, Inflation, Inequality, Education)$$

The model incorporates both social and purely economic factors of crime, which are theoretically justified and widely utilized in empirical studies within the crime literature. A substantial body of empirical research has demonstrated that each of these variables plays a critical role in influencing crime rates in the specific countries under investigation.

The first variable considered is remittance. An increase in remittance inflows may trigger individuals to engage in criminal activities, as discussed in the literature review section. The first purely economic independent variable is unemployment. It has been observed that unemployment can lead individuals to seek alternative, often illegal, means of earning income. Additionally, the opportunity cost of committing crimes is lower for unemployed individuals, which may incentivize their participation in criminal activities. Thus, unemployment has a direct impact on crime rates, as supported by studies such as (33), (34), (35), and (36).

The second purely economic variable is inflation, measured by the growth rate of the Consumer Price Index (CPI). Persistent price increases typically reduce real income, leading to the conclusion that inflation is a significant factor influencing crime. Its impact on crime can be positive, as indicated by (8), (37), and (5).

The remaining two variables are socio-economic in nature. The first is income inequality, a crucial determinant of crime. As the income gap widens, individuals with lower incomes may attempt to emulate the lifestyles of higher-income groups. However, achieving such luxury through legal means is often unattainable for low-income groups, potentially driving them toward criminal behavior (32). The second socio-economic variable is education, which can reduce crime through its impact on earnings. Education serves as the foundation for increasing an individual's salary, and there are two primary mechanisms through which education can decrease crime, as argued by (38). The first mechanism is that higher education raises the opportunity cost of engaging in criminal activities, as the time spent on illegal acts could otherwise be used for lawful employment, which becomes more accessible with better education. The second mechanism is the high cost of lost time for offenders due to incarceration, as this time could have been used to improve earnings through legal means.

Econometric Methodology

The paragraph discusses the econometric methodology employed in the study, specifically the use of the Johansen Cointegration technique, which was initially introduced by (39). This method was further refined through contributions by (40), (41), and (40). The primary objective of this approach is to identify cointegration among stationary time series. In the study, all variables are stationary at the first difference but non-stationary at the level, indicating the possibility of cointegration among them. This relationship is referred to as the cointegration equation, which represents the long-run association between the variables. To examine the long-run relationship among the variables, the study employs the Johansen Maximum Likelihood (ML) method, which is considered the most reliable approach for this purpose.

$$Crime = \beta_0 + \beta_1 Remittances + \beta_2 Unemployment + \beta_3 Inflation + \beta_2 Income\ inequality + \beta_3 Education$$

Variables Detail and their Sources

The dependent variable in the study is the total number of crimes recorded in Pakistan from 1980-2020, normalized per 100 individuals of the total population. This crime rate encompasses various categories, including attempted murders, cattle theft, murder, kidnapping, burglaries, robberies, dacoities, child lifting, and others.

The macroeconomic variable, remittances, is employed as an explanatory variable, measured as a percentage of GDP. The unemployment rate (U) is defined as the number of unemployed individuals relative to the total labor force. Data on the unemployment rate for several years is available in published form, and missing values are estimated using interpolation to compute the compound growth rate.

Inflation (p) is derived using the Consumer Price Index (CPI), with the base year set to 2000. The inflation rate is calculated by determining the growth rate of the CPI. To represent income inequality, the socio-economic variable Gini coefficient is utilized, which measures the disparity in income distribution.

Education enhances individuals' ability to access resources and increases job opportunities, particularly with higher levels of education. As noted by (8), education facilitates legal earning opportunities. To incorporate this variable, the population with sixteen or more years of education is considered. Using higher education as a proxy for literacy rate helps avoid multicollinearity issues with remittances, as literacy rate reflects the prevalence of higher education in the economy.

All selected variables are sourced from published data, including surveys, articles, and reports. Crime data from 1980 to 2020 is obtained from various editions of the Statistical Yearbook of Pakistan, which compiles this information from the Police Research and Development Bureau. Unemployment and labor force data are extracted from different issues of the Pakistan Statistical Yearbook for calculating the unemployment rate. The Gini coefficient data is sourced from the World Institute for Development Economic Research (WIDER), while CPI data is gathered from International Financial Statistics (IFS) to compute inflation.

Results and their Interpretation

Table 1: Descriptive Statistics

Variables	Mean	S.D.	Skewness	Kurtosis	Jarque-Bera	CV
Crime Per 100 Persons	0.20	0.08	0.52	2.26	2.22	40.00
Unemployment Rate	5.24	1.68	0.26	2.03	1.64	32.06
Income Inequality	39.15	2.92	-0.22	1.97	1.74	7.40
Inflation	8.56	3.83	0.67	3.82	3.41	44.74
Remittances	4.74	2.26	0.63	2.60	2.37	47.67
Education	41.85	11.29	0.08	1.59	2.77	26.97

The table-1 descriptive statistics of annual data for crime, unemployment rate, Gini coefficient, inflation, remittances, and education in Pakistan reveal non-normal distributions. Most variables (crime, unemployment, inflation, remittances, and education) are positively skewed, while income inequality (Gini coefficient) is negatively skewed. Skewness values indicate moderate skewness for most variables, except education, which is asymmetrically skewed. Kurtosis values show that crime, remittances, unemployment, Gini coefficient, and education have Platykurtic distributions (kurtosis < 3), while inflation is Leptokurtic (kurtosis > 3). The Jarque-Bera test confirms deviations from normality for all variables.

The coefficient of variation highlights that remittances, inflation, and crime are the most volatile and less stable. Over 40 years, the average crime rate is 0.20 per hundred individuals, the unemployment rate is around 5%, the Gini coefficient is 39.15, inflation averages 8.56%, remittances account for 4.74% of GDP, and the average education level is 41.85. Standard deviations are generally below 4, except for education. Overall, the data indicates non-normal distributions and varying levels of volatility across the variables.

Table 2: Correlation Matrix

Variables	CR	GINI	INF	EDU	PCGDP	REM	U
CR	1.000						
GINI	0.942[a]	1.000					
INF	0.309[b]	0.182	1.000				
EDU	0.955[a]	0.974[a]	0.180	1.000			
PCGDP	0.932[a]	0.838[a]	0.382[b]	0.867[a]	1.000		
REM	0.796[a]	0.633[a]	0.347	0.693[a]	0.919[a]	1.000	
U	0.398[b]	0.587[a]	-0.242	0.608[a]	0.235	0.067	1.000

This sign a, b, c shows significant at 1%, 5% and 10% respectively

In the data, it is crucial to assess the issue of multicollinearity before estimation by utilizing a correlation matrix. We exclude one variable in our estimation, specifically per capita GDP, based on the correlation matrix table. As shown in Table-.2, this variable exhibits a linear relationship with the Remittances variable.

Unit Root Test

Time series data is utilized to analyze demand and examine the presence of a unit root in the data. The Augmented Dickey-Fuller (ADF) test is employed to address the issue of non-stationarity in variables. The following two applications are considered for the Dickey-Fuller test.

Standard form of augmented Dickey-Fuller test explains the following

1. When Intercept included

$$\Delta y_t = \beta_0 + \gamma y_{t-1} + \sum_{i=1}^{k} \delta_i \Delta x_{t-1} + \varepsilon_t$$

2. When Intercept and trend included

$$\Delta y_t = \beta_0 + \beta_1 t + \gamma y_{t-1} + \sum_{i=1}^{k} \delta_i \Delta x_{t-1} + \varepsilon_t$$

$$-: \Delta y_t = x_t + x_{t-1}$$

K = Number of lags in the variables and $\varepsilon_t$is the stochastic term

Augmented Dickey Fuller has the following hypothesis

Null Hypothesis $H_0: \gamma = 0$; Variable x_t is non-Stationary

Alternative Hypothesis $H_1: \gamma < 0$; Variable x_t is Stationary

If the critical value is greater than the calculated value, we will accept the alternative hypothesis of stationarity in favor of the null hypothesis of non-stationarity. However, rejecting the alternative hypothesis would indicate that the series is non-stationary at the level and needs to be transformed into a stationary series. The results of the Augmented Dickey-Fuller test are presented in Table-3.

Table 3: Results of the Unit Root Test

Variables	Trend and Intercept	Intercept	Conclusion
Crime			
Level	-2.2202	-0.1768	**I(1)**
	(0.4631)	(0.9318)	
1st Difference	-5.2288	-5.3041	
	(0.0011)	(0.0001)	
Remittances			
Level	-1.4729	-1.1912	**I(1)**
	(0.8181)	(0.3232)	
1st Difference	-5.6998	-5.6881	
	(0.0004)	(0.0000)	
Education			
Level	-2.9676	1.4428	**I(1)**
	(0.1565)	(0.9988)	
1st Difference	-3.5698	-3.4453	
	(0.0494)	(0.0169)	
Income inequality			
Level	2.1217	-4.4116	**I(1)**
	(1.0000)	(0.0019)	
1st Difference	-6.7147	1.4209	
	(0.0000)	(0.9986)	
Inflation			
Level	-2.9281	-2.7749	**I(1)**
	(0.1676)	(0.0733)	
1st Difference	-6.8681	-6.9234	
	(0.0000)	(0.0000)	

Unemployment			
Level	-2.2086 (0.4692)	-1.9778 (0.2949)	**I(1)**
1st Difference	-6.2202 (0.0001)	-6.3065 (0.0000)	

The results of the Augmented Dickey-Fuller test suggest that all the variables under consideration are non-stationary at their level, supporting the null hypothesis (Ho) that a unit root issue persists in these variables. Consequently, all variables are integrated of order one, I(1), indicating that they become stationary at the first difference. The next step involves selecting the appropriate econometric technique. The choice between cointegration analysis or a Vector Autoregression (VAR) model depends on the outcomes of the (40) cointegration test. The cointegration approach is suitable if a unique long-run relationship exists among all the variables in the analysis. Conversely, the VAR method is applied if no unique long-run relationship is found among the variables. In light of the above discussion, the Johansen cointegration test is employed to examine the presence of a unique long-run association among all the I(1) variables included in the analysis.

The Johansen and Juselius cointegration test, employing both eigenvalue and trace statistics, identifies a distinct long-term relationship among the variables, whether tested with economic parameters such as remittances, unemployment, and inflation or with social parameters such as education and inequality. Both the eigenvalue and trace tests indicate the presence of one cointegrating equation at the 5 percent significance level. Therefore, the Johansen-Juselius cointegration test confirms a unique long-run relationship among the variables: remittances, inflation, unemployment, and crimes. As a result, the null hypothesis of no cointegrating vectors is rejected in favor of the alternative hypothesis, which suggests the existence of one cointegrating vector. This finding implies that the cointegration technique should be applied, and the long-run parameters obtained from this estimation should be interpreted. We now move on to the estimation of the variables. The results of the Johansen cointegration test estimation are provided in Table- 4.

Table 4: Cointegrating Coefficients

Variables	Coefficient	Std. Error	T-Statistics
Remittances	0.057092	0.01314	4.3482
Unemployment	0.09374	0.02057	4.5589
Inflation	0.023397	0.00703	3.3328

The results from Table 4 confirm that in Pakistan, all three variables are essential components of crime. The findings indicate that all components of crime are significant at conventional significance levels. This is logical because remittances are linked to migration. When individuals move from their home country to host countries, it may provide numerous benefits to recipient households, but it also comes with certain socio-economic costs. According to (10), the absence of parents, particularly fathers, often leads to children requiring psychiatric treatment two to three times more frequently to address emotional or behavioral issues. Numerous studies have highlighted that children who grow up without a father from an early age are more

likely to engage in criminal activities and consistently perform poorly in educational institutions. Additionally, a significant proportion of these children are more prone to attempting or committing suicide compared to those who grow up with both parents. Furthermore, remittances can create family tensions within migrant households. Another perspective suggests that when a family receives remittances, their lifestyle begins to improve, which can foster jealousy among neighbors or relatives who cannot afford similar luxuries. This envy may drive them to commit crimes, such as robbery or kidnapping, targeting the remittance-receiving household for ransom.

Unemployment is the second economic factor that directly influences crime rates. These findings align with the research of (35), (33), and (42), who identified an inverse relationship between unemployment and lawful income opportunities. An increase in unemployment reduces income opportunities, thereby raising the likelihood of criminal activity, and vice versa.

Inflation is the third economic variable that directly impacts crime in the context of Pakistan. Inflation negatively affects the real income of individuals. Consequently, if a person aims to maintain their utility at a constant level, they must increase their real income, which may push them toward illegal activities, as noted by (37) and (43).

Table 5: Cointegrating Coefficients

Variables	Coefficient	Std. Error	T-Statistics
Remittances	0.007966	0.00205	3.9045
Education	-0.003478	0.00146	2.3994
Income Inequality	0.049048	0.00608	8.0806

The coefficients of the cointegrating relationship are presented in Table- 5. The findings reaffirm that remittances have a significant direct impact on crime in the case of Pakistan. (13) concluded that remittances increase income inequality. The effects of income inequality include unhealthy competition, envy in public and governmental matters, and some cases, the consequences escalate to external or intra-household rivalry. The significant outflow of labor from home countries to foreign nations directly reduces the labor supply in the home country, leading workers' organizations to demand higher wages or threaten strikes. Thus, the results also confirm that income inequality is a critical factor contributing to crime in Pakistan. However, this finding contradicts (44), who suggested that the demand-side effect is weaker in this context, implying that higher income levels deter individuals from engaging in criminal activities. In other words, individuals with sufficient lawful income are less likely to resort to crime. In Pakistan, however, the supply-side effect is stronger, meaning that as the gap between the "haves" and "have-nots" widens, the "have-nots" are more likely to turn to criminal activities to earn income. This indicates that income inequality has a long-run direct relationship with crime in the country.

Education is the second socio-economic variable showing a negative long-run association with crime. In this model, we consider three independent variables: remittances, education, and income inequality. The negative sign of education indicates that an increase in higher education levels leads to a decrease in criminal activity. However, this result is observed in the presence of the income inequality variable. To further validate the relationship between education and remittances, we introduced a purely economic variable, unemployment, in the next model, replacing the socio-economic variable. When we ran the third model, we found that a unique and long-run association still exists. Incorporating unemployment with education yielded significant results, but this time, the sign of the higher education variable turned positive. This positive association can be explained

by the lack of job opportunities for highly educated individuals. When young degree holders face limited job opportunities or corruption, they may turn to crime. The increase in unemployment also highlights the participation of educated individuals in criminal activities. These results align with the works of (35), (8), and (6), as mentioned in previous studies. The t-values, shown in Table- 5, are significant at the 5 percent level. Therefore, we can conclude that higher education may have a positive association with crime in Pakistan.

Robustness of Results

To assess the robustness of the results, we estimated three models. This rationale led to the construction of Table 6, which summarizes the findings from these three models. Additionally, Table 6 facilitates a clear focus on the robustness of the parameter values. The coefficient value of remittances is highly robust regarding both sign and magnitude, as evident from Table 6. The significance of this variable remains consistent across all three models. Therefore, we can confidently conclude that remittances are a robust determinant of crime in Pakistan.

Table 6: Cointegrating Coefficients

Variables	*Model 1*	*Model 2*	*Model 3*
Remittances	0.057091	0.007965	0.0061
	(4.3481*)	(3.9044*)	(6.77*)
Unemployment	0.09373		0.017362
	(4.5588*)		(15.50*)
Inflation	0.023396		
	(3.3327*)		
Income Inequality		0.049049	
		(8.0805*)	
Education		-0.003479	0.008385
		(2.3993*)	(49.32*)

Conclusion

The primary finding is that there is a positive correlation between remittances and crime in Pakistan. By analysing three models, we demonstrate that remittances are a highly significant and critical factor influencing crime in Pakistan. Despite incorporating various variables alongside remittances in the models, the coefficient value of remittances remains largely unchanged. The robust analysis further confirms the strong relationship between remittances and crime in Pakistan.

The positive relationship between remittances and crime can be attributed to migration. While remittances and labor migration offer numerous benefits to recipient households, they also come with certain social and economic costs. Economically, migration can increase dependency among migrant families (45). As observed by (46), remittances may encourage laziness within recipient households. (2) suggest that migration can lead to moral hazard issues, discouraging work among recipient families. (10) highlights the social consequences of parental absence due to migration, which negatively impacts migrant families, resulting in issues such as fatherless children and other related problems. Additionally, remittances can exacerbate income inequality at the community level, fostering jealousy among neighbors and relatives. These negative outcomes of migration and remittances contribute to the rise in criminal activities.

Another key finding is that income inequality, unemployment, and inflation are also significant factors contributing to crime in Pakistan. Education shows a positive association with crime, but this relationship is questionable as the model under study includes remittances, unemployment, and education. However, when income inequality is substituted for unemployment in the model, the sign of education becomes negative. This suggests that the true impact of education on crime is captured by income inequality, which has a negative effect. Crime in Pakistan will only decrease when job opportunities and higher education levels increase simultaneously.

Policy Implications

The study explores a range of policy instruments to address income inequality, unemployment, and education. The findings do not advocate banning remittances but propose levying a tax on remittances to channel funds toward improving these indicators.

1. **Reducing Inequality via Education:** Income inequality can be mitigated by enhancing the education system through tax revenue from remittances. This would boost individual productivity and enable transitions from low-income agricultural work to higher-income roles in industry and services.
2. **Dual Benefits of Public Education Spending**: Prioritizing public education investments for marginalized groups yields dual advantages: immediate poverty and inequality reduction, as well as increased opportunities for poor youth to secure skilled employment, breaking intergenerational poverty cycles. Strengthening educational quality requires sustained investment.
3. **Job Creation for Degree Holders:** The Government of Pakistan must generate viable opportunities for educated youth, ensuring their integration into the formal sector. Tax revenues from remittances should fund initiatives to expand job availability, elevate wages, and enhance benefits. Policymakers must align higher education expansion with job creation, as unemployment among educated youth risks frustration, crime, and inequality. Simultaneously, inflation must be stabilized to safeguard real wage purchasing power.

Directions for Further Research

This analysis relies on 42-year time series data from Pakistan; extending the timeframe could enhance validity. Comparative cross-sectional or panel studies across developing economies (e.g., India, Sri Lanka, Bangladesh) could broaden insights into remittances' relationship with crime. Future research should also assess remittances' impact on literacy, health, poverty, living standards, and fertility rates to comprehensively evaluate their socioeconomic significance.

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