

UNVEILING THE INFLUENCE OF POVERTY ON URBANIZATION: AN EXHAUSTIVE EXPLORATION AND ANALYSIS

Hina Ali^{1}, Hina Shafiq², Nazish Iftikhar³*

¹*Professor, Department of Economics, The Women University Multan, Pakistan.*

²*Assistant Professor, Department of Economics, Sardar Bahadur Khan Women's University Quetta, Pakistan. Email: hinasbk@hotmail.com*

³*PhD. Scholar, Department of Economics, The Women University Multan, Pakistan. nazishiftikhar175@gmail.com*

**Corresponding Author's Email: hinaali@wum.edu.pk*

Abstract:

This study investigates the impact of poverty on urbanization in Pakistan, using secondary data from the World Development Indicators (WDI) database. It explores the relationship between urbanization and key factors such as poverty rate, population growth, inflation, GDP growth rate, foreign trade, education expenditure, urban population, unemployment rate, and trade in services from 1990 to 2024. The Autoregressive Distributed Lag (ARDL) model is used for analysis. The findings show both positive and negative effects on urbanization. High poverty rates hinder urbanization due to a lack of infrastructure, while inflation negatively affects urbanization by eroding purchasing power and discouraging investment. In contrast, population growth, foreign trade, economic growth, and education expenditure positively influence urbanization, as these factors foster a more open economy, better education, and increased opportunities. Additionally, a growing urban population and the expansion of service sectors further drive urbanization. The study recommends policies to prioritize GDP growth, reduce poverty, stabilize inflation, and promote sustainable urban infrastructure to support balanced and long-term urbanization in Pakistan.

Keywords: Poverty, Urbanization, Pakistan, Population Growth, Inflation, GDP Growth, Foreign Trade, Education, Unemployment, ARDL, Pakistan.

1. Introduction

Urbanization refers to the increasing population concentration in urban areas, and it is one of the most prominent demographic trends in the world today. For developing nations such as Pakistan, urbanization is both an opportunity and a challenge (Zafar et al., 2024). As cities expand, they present opportunities for economic growth, improved infrastructure, and better access to services. However, this rapid urban growth also brings along several challenges, particularly for the urban poor, such as inadequate housing, strained infrastructure, and unemployment (Hazell et al., 2024; Shakibayev et al., 2024). In Pakistan, urbanization has been accelerating since the late 20th century, and its patterns are shaped by a variety of socio-economic factors (Riaz & Naz, 2024).

One of the most critical factors influencing urbanization is poverty. Poverty not only encourages migration from rural to urban areas but also acts as a major barrier to the efficient development of urban centers (Mahumane & Mulder, 2022; Tripathi, 2021). As rural populations seek better living standards and opportunities in cities, they often contribute to the informal sector or live in overcrowded and underdeveloped neighborhoods. This poses a significant challenge for urban

planners and policymakers who must address the increasing demand for housing, healthcare, education, and employment in the face of limited resources (khan et al., 2024).

In Pakistan, poverty remains widespread despite significant progress in various economic indicators (Rasul & Karki, 2024). According to the World Bank, a substantial portion of Pakistan's population still lives below the poverty line, with many individuals living in rural areas that lack access to basic infrastructure and economic opportunities (Nasir, 2024). As rural communities migrate to cities in search of better opportunities, the pressure on urban resources increases, often exacerbating urban poverty and creating a cycle of underdevelopment and poor living conditions. Understanding the dynamics of how poverty influences urbanization is therefore crucial for policymakers to craft effective strategies that can drive sustainable and inclusive urban growth (Javed et al., 2024; Samadkulov, 2024; Shahzad et al., 2024)

Problem Statement

Urbanization in Pakistan has been occurring at an unprecedented rate, with millions of individuals migrating from rural to urban areas every year in search of better livelihoods. However, while urbanization can provide economic opportunities, it also presents challenges, particularly in the context of poverty (Sharma et al., 2024). As cities grow, they often face issues related to the inadequate provision of infrastructure, social services, and housing, especially in poor neighborhoods. The rapid influx of migrants, many of whom come from impoverished rural backgrounds, exacerbates these challenges (Celik et al., 2024; Javed et al., 2024; Li et al., 2024). Poverty, with its multiple dimensions, impacts both the migration patterns of individuals and the capacity of cities to absorb and support their growing populations (Ha et al., 2021). As a result, urbanization in Pakistan is characterized by an increasing divide between rich and poor areas, with the urban poor facing precarious living conditions (Kaiser et al., 2024; Mahtta et al., 2022; Samadkulov, 2024). This study aims to understand the impact of poverty on urbanization in Pakistan by analyzing how factors such as the poverty rate, population growth, inflation, GDP growth, foreign trade, education expenditure, unemployment rate, and trade in services contribute to or hinder urbanization.

Research Objectives

This study has the following primary objectives:

1. To examine the impact of poverty on urbanization in Pakistan using secondary data from 1990 to 2024.
2. To analyze the relationship between urbanization and key socio-economic variables such as poverty rate, population growth, inflation, GDP growth rate, foreign trade, education expenditure, urban population, unemployment rate, and trade in services.
3. To identify both the positive and negative effects of these variables on urbanization.
4. To provide policy recommendations for promoting sustainable urbanization that is inclusive and addresses the challenges of poverty, infrastructure, and employment in urban areas.

Research Questions

This study seeks to answer the following research questions:

1. How does poverty influence urbanization in Pakistan?
2. What is the relationship between urbanization and factors such as population growth, inflation, GDP growth, foreign trade, education expenditure, urban population, and unemployment rate?
3. What are the positive and negative impacts of socio-economic variables on urbanization in Pakistan?

4. What policy measures can be implemented to promote sustainable urbanization in Pakistan, particularly addressing the challenges posed by poverty?

Significance of the Study

The findings of this study will provide valuable insights into the relationship between poverty and urbanization in Pakistan. Understanding these dynamics is crucial for developing strategies that can foster inclusive and sustainable urban growth. The research will contribute to the existing body of knowledge on urbanization, poverty alleviation, and socio-economic development in Pakistan, offering empirical evidence to inform policymakers and urban planners. By identifying the socioeconomic factors that drive urbanization, the study will provide practical policy recommendations that can help reduce poverty, improve infrastructure, and ensure that the benefits of urban growth are widely shared among all segments of society.

2. Literature Review

This section provides a comprehensive review of the existing literature related to the impact of poverty on urbanization. It focuses on studies that explore the socio-economic factors influencing urban growth, with particular attention to developing countries, especially Pakistan. The review shows how poverty interacts with elements such as employment, education, and infrastructure, shaping urban development patterns over time.

Poverty and urbanization are closely intertwined, with poverty often serving as both a cause and a consequence of urbanization. Poverty influences urbanization through a process of "spatial inequality," where the migration of the poor to urban areas contributes to the rapid growth of informal settlements (Ezeudu et al. 2024). Urban expansion creating opportunities may also lead to the concentration of poverty in these areas, perpetuating a cycle of underdevelopment (Ha et al., 2021). Furthermore, poverty reduces the capacity of urban governments to invest in public infrastructure and services, hindering the ability of cities to accommodate the increasing number of migrants. In their 2021 study, Dong Le and Pham Kean explored the relationship between urbanization and poverty, recognizing poverty as a global socioeconomic challenge. Employing the Driscoll and Kraay method along with the Generalized Method of Moments (GMM), panel data from 2006 to 2016 was analyzed. The findings revealed that factors such as gross regional domestic product (GDP), human capital, and agricultural value contributed to poverty reduction. However, government spending and export values were found to increase the poverty rate.

In their 2022 research, Wang and Ma delved into the spatial dynamics of urbanization's impact on poverty reduction. Utilizing spatial autocorrelation tests alongside a spatial Durbin model, they examined panel data spanning the years 2009 to 2019. The findings underscored the significant influence of urbanization on poverty reduction, particularly evident in areas related to economic development, educational opportunities, and overall living standards. However, the study revealed a limited effect of urbanization on alleviating economic and living-related poverty. Additionally, spatial disparities emerged, indicating variations in the efficacy of urbanization in addressing different dimensions of poverty across geographical regions (Ali, Naz & Andleeb, 2017; Ali & Khakwani, 2019).

Kakar and Khan (2022) investigated the interplay between governance, information and communication technology (ICT), urbanization, and the environment. They utilized panel data spanning from 2000 to 2018 and employed dynamic ordinary least squares (OLS) to analyze the data. The findings revealed that the impact of these variables varied across different stages and individual countries. Specifically, the causal relationship between CO2 emissions and

urbanization was found to be bidirectional, indicating mutual influence. However, the causal links from CO2 emissions to governance, ICT, and economic growth were unidirectional.

Nica and Poliak (2023) explored the influence of urbanization and foreign direct investment (FDI) on female participation in the labor force. They conducted their analysis using panel data covering the period from 1991 to 2021 and employed the generalized method of moments (GMM) technique. A significant finding of their study was observed in the changing rate of female employment across three countries. Specifically, they found that women's involvement in the service and manufacturing sectors experienced an increase, whereas their participation in agriculture decreased, attributed to heightened trade openness. In his 2001 study, Ravallion provided a concise analysis of urban poverty. Utilizing cross-sectional data from 39 countries, he employed an estimated empirical model to investigate the phenomenon. The findings indicated that urban poverty exhibited a relatively slower rise compared to rural poverty rates. Consequently, it was projected that even as half of the population in the developing world transitions to urban areas, approximately 60 percent of the impoverished population would remain concentrated in rural regions.

In 2007, Paundulkitti undertook a theoretical and empirical analysis to assess the impact of urbanization levels on poverty reduction. Using the generalized method of moments (GMM) technique and panel data, the study revealed an optimal threshold of urbanization associated with a significant and robust reduction in poverty. Moreover, the research examined how the effect of urbanization on poverty reduction varied across different regions, highlighting distinct magnitudes of urbanization's impact among these regions. On the other hand, Rice (2008) focused on the urbanization of poverty as a structural trend manifested in the proliferation of urban slums in developing countries. Utilizing panel data, the study underscored the pressing need for increased empirical investigation into the consequences of dependency relationships embedded in the urban environment. Additionally, Rice advocated for greater attention to be directed towards understanding the prevalence of urban slums as a critical social determinant influencing well-being in less developed countries.

Dubey and Tiwari (2018) delved into the relationship between economic growth and urban poverty. They emphasized that urban poverty in many developing countries stems from rural poverty, as migrants seek better livelihoods in urban areas amidst rapid development. Using panel data, their study empirically evaluated the extent of urban poverty and found that while overall economic growth has reduced poverty, its impact varies across geographical regions. Importantly, they identified rising inequality as a significant factor contributing to differential reductions in urban poverty among different states. In a separate study, Agarwal (2011) examined the state of urban health, revealing substantial disparities within urban populations across various health indicators. The paper highlighted disparities in child and mental health, access to healthcare, and housing conditions between the poorest quartile and the rest of the urban population, as well as within different states. For instance, in the poorest quartile of the urban population, only 40 percent of children aged 12 to 23 months received adequate healthcare. Additionally, the study shed light on disparities between slum and non-slum populations within eight cities, underscoring poor health outcomes even among segments of the urban population not classified as the poorest quartile.

Urbanization is influenced by a range of interrelated factors, including population growth, economic development, and infrastructure expansion. Several scholars have emphasized the role of rapid population growth as a primary contributor to urban expansion, particularly in

metropolitan areas such as Karachi, Lahore, and Islamabad (Karim, 2024). However, population increase alone does not adequately explain the dynamics of urbanization. Socio-economic variables such as employment opportunities, wage levels, access to education, and healthcare services significantly shape internal migration and urban settlement patterns (Nasir, 2024; Randolph, 2024).

Economic factors play a particularly prominent role in driving urban growth. As highlighted by Ullah et al. (2023), economic development fosters industrialization and business investment, leading to increased job opportunities in urban centers. This process has accelerated urbanization in major Pakistani cities, turning them into key industrial and commercial hubs. However, macroeconomic challenges—especially inflation and unemployment—pose significant constraints. According to Samadkulov (2024), high inflation diminishes purchasing power, while unemployment limits household income and reduces private and public investment in infrastructure. These factors collectively hinder the ability of cities to sustainably accommodate rising urban populations.

Several studies have shown the multifaceted factors influencing urbanization in Pakistan. Unemployment remains a significant challenge, as urban growth often outpaces the availability of formal employment opportunities, leading to what Khan (2021) describes as “jobless urbanization.” Migrants frequently engage in low-wage, informal sectors, exacerbating urban poverty and contributing to substandard living conditions. Conversely, education plays a positive role in shaping urban development. Higher educational attainment improves access to better employment and supports economic growth, with increased education expenditure linked to enhanced human capital and urban expansion (Khan et al., 2024).

In addition, foreign trade and the service sector are key contributors to urbanization. Trade-related industries such as textiles and manufacturing have driven job creation and industrial development, particularly in major urban centers like Karachi (Umair, 2024). The service sector, encompassing finance, IT, and tourism, has also expanded rapidly, especially in cities like Karachi and Lahore, fostering further urban growth (Shahid, 2022). However, the rapid increase in urban populations can strain infrastructure, resulting in overcrowding and inadequate housing if growth is not properly managed.

So, we can say that various studies examine the relationship between poverty and urbanization in developing countries, with a focus on Pakistan. The literature shows the complex and multifaceted nature of urbanization, where poverty, economic growth, education, and other socio-economic factors all play significant roles. The impact of poverty on urbanization is particularly pronounced, as higher poverty rates hinder urban growth, while migration from rural areas to cities in search of better opportunities contributes to the expansion of urban areas. Moreover, factors such as inflation, unemployment, foreign trade, education, and the growth of the service sector have been shown to have both positive and negative effects on urbanization.

Next, we will discuss the research methodology employed in this study, including the data collection process, econometric models used, and the analytical techniques applied to examine the relationship between poverty and urbanization in Pakistan.

3. Data and Methodology

This section discusses the data sources, briefly describes selected variables, and appropriate econometric techniques for analyzing chosen data.

Data Sources

This research has used secondary data sources from the World Development Indicators (WDI) website to examine the poverty impact on urbanization focusing on variables such as Government Poverty Rate, Population Growth, Inflation, GDP Growth rate, Foreign Trade, Education Expenditure, Urban Population, Unemployment Rate, and Trade in Services in Pakistan from the period from 1990 to 2024 for empirical for all variable. The outcome variable is Urbanization. The relationship can be framed as follows:

Urbanization = f (Poverty Rate, Population Growth, Inflation, GDP Growth rate, Foreign Trade, Education Expenditure, Urban Population, Unemployment Rate, and Trade in Services)

So, the data is collected annually, providing a time-series dataset that allows for the analysis of both short-term and long-term effects of the variables on urbanization.

Econometric Model

To examine the relationship between urbanization and the selected socio-economic variables, the study used the following model:

$$URB_t = \beta_0 + \beta_1 PR_t + \beta_2 PG_t + \beta_3 IF_t + \beta_4 GG_t + \beta_5 FT_t + \beta_6 EE_t + \beta_7 UP_t + \beta_8 UR_t + \beta_9 TS_t + \varepsilon_t$$

Where PR = Poverty Rate, POPG = Population Growth, IF = Inflation, GG = GDP Growth Rate, FT = Foreign Trade, EE = Education Expenditure, UP = Urban Population, UNEMP = Unemployment Rate, TS = Trade in Services, β_0 = Intercept, $\beta_1, \beta_2, \dots, \beta_9$ = Coefficients to be estimated and ε = Error term = time

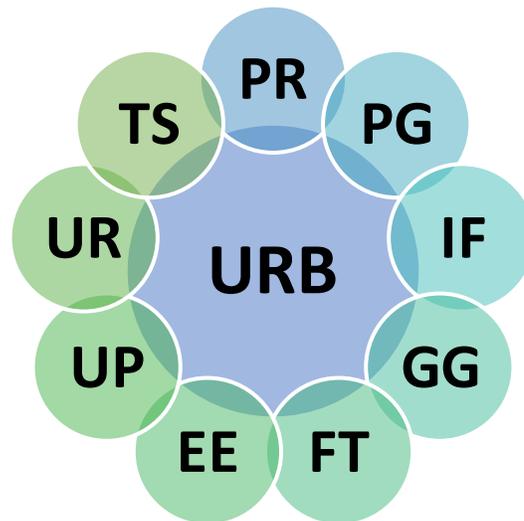


Figure 1: Research Method

Furthermore, the study uses an Autoregressive Distributed Lag (ARDL) model, which is suitable for analyzing both short-term and long-term relationships between variables (Eric & Nwaike, 2024; Moridian et al., 2024). The ARDL model is particularly useful when the variables exhibit different levels of integration (i.e., stationary and non-stationary variables).

The general form of the ARDL model used in this study is:

$$URB_t = \beta_0 + \sum_{i=1}^n \beta_i X_i + \sum_{j=1}^m \delta_j LAG_j + \varepsilon_t$$

Where: URB = Urbanization is the outcome variable X_i = Independent variables such as Poverty Rate, Population Growth, Inflation, GDP Growth, Foreign Trade, Education Expenditure, Urban Population, Unemployment Rate, and Trade in Services, LAG_j = Lagged values of the independent variables to account for their time effects of dependent variable. β_0 = Intercept term β_i = Coefficients to be estimated and ϵ_t = Error term

Variable Definitions and Expected Signs

The input variables and their expected signs to urbanization based on theoretical frameworks are as follows:

Input Variable	Sign	Explanation
Poverty Rate%	-	As poverty increases, urbanization may decrease due to limited economic opportunities and migration challenges in urban areas (Javed et al., 2024; Kajjita & Kang'ethe, 2024; Yasin et al., 2024).
Population Growth%	+	Higher population growth generally leads to increased urbanization as more people move to urban areas for opportunities (Abebe, 2024; Javed et al., 2024; Kaiser et al., 2024).
Inflation%	-	Inflation may reduce urbanization as higher living costs in cities can discourage migration to urban areas (Moridian et al., 2024).
GDP Growth Rate%	+	Economic growth encourages urbanization by creating job opportunities and infrastructure development in urban areas (Humbal et al., 2023; Samadkulov, 2024).
Foreign Trade%	+	Increased foreign trade can boost urbanization by expanding industries and creating economic growth in urban centers (Mahtta et al., 2022; Voumik et al., 2023).
Education Expenditure%	+	Increased education expenditure can promote urbanization by improving urban infrastructure and opportunities for better education in cities (Samadkulov, 2024; Tripathi, 2021).
Urban Population%	+	A larger urban population often drives further urbanization, as it reflects the growth and expansion of cities (Mahtta et al., 2022; Li et al., 2024; Zafar et al., 2024).
Unemployment Rate%	-	High unemployment may deter migration to urban areas if the labor market is saturated, reducing the attractiveness of cities (Rawat & Parida 2024; Sharma et al., 2024).
Trade in Services %	+	A higher share of trade in services is often associated with more developed urban economies, contributing to increased urbanization (Celik et al., 2024; Hazell et al., 2024; Shakibayev et al., 2024)

Methodology

The researcher will proceed by applying the following econometric techniques. The recent study is founded on time series data, Initially, the stationary nature of the time series data was examined using unit root tests. Stationarity implies that the mean, variance, and covariance of the data remain constant over time. To conduct this analysis, the Augmented Dickey-Fuller (ADF) test or similar unit root tests were utilized. Following the verification of stationarity, the Autoregressive Distributed Lag (ARDL) test was employed, selecting the optimal number of lags

based on the Schwarz information criterion (SIC) ADF is based on the model (Maitra & Politis 2024).

$$\Delta Y = \alpha + B_t + (\rho - 1) Y_{t-1} + \delta \Delta Y_{t-1} + \epsilon_t \dots\dots\dots (a)$$

If all variables included in the model are integrated to degree one, a simple OLS method will be employed. If the selected variable is mixed integrated then the Autoregressive Distributed Lag Method will be used for co-integration analysis for short and long-term relationships between the output and input variables (Ghouse et al., 2018).

This methodology can only be used if the selected variables have the stationarity of I (0) And I (1). However, the ARDL technique cannot be applied if all variables have higher stationarity another approach to finding the long term relationship between the variables is the technique of error correction. So, To estimate the ARDL model and analyze the relationship between urbanization and the independent variables, the following steps will be undertaken: The first step is to check the stationarity of the variables using the Augmented Dickey-Fuller (ADF) test. If the variables are stationary at levels or first differences, the ARDL model can be applied. The ARDL bounds testing approach will be used to test for the existence of a long-term relationship between urbanization and the independent variables. This test compares the calculated F-statistic with the critical values from the bounds testing table (McDonald et al., 2017).

The ARDL model will provide estimates for both short-run dynamics and long-run equilibrium relationships. The short-run dynamics are captured through the inclusion of lagged variables, while the long-run relationship is determined by the coefficients of the model. If a long-term relationship is found, the study will estimate an Error Correction Model (ECM) to capture the speed at which the system returns to equilibrium after a shock. Furthermore, the study used Various diagnostic tests, including serial correlation, heteroskedasticity, and normality tests, will be conducted to ensure the validity of the model (Enns et al., 2014).

Hypotheses

The following hypotheses are formulated based on the theoretical framework with expected signs of the coefficients shown in the following table:

Variable	Null Hypothesis (H ₀)	Alternative Hypothesis (H ₁)
Poverty Rate	Poverty rate has no significant effect on urbanization.	Poverty rate significantly affects urbanization (negative relationship).
Population Growth	Population growth has no significant effect on urbanization.	Population growth significantly affects urbanization (positive relationship).
Inflation	Inflation has no significant effect on urbanization.	Inflation significantly affects urbanization (negative relationship).
GDP Growth	GDP growth has no significant effect on urbanization.	GDP growth significantly affects urbanization (positive relationship).
Foreign Trade	Foreign trade has no significant effect on urbanization.	Foreign trade significantly affects urbanization (positive relationship).
Education Expenditure	Education expenditure has no significant effect on urbanization.	Education expenditure significantly affects urbanization (positive relationship).
Urban Population	Urban population has no significant effect on urbanization.	Urban population significantly affects urbanization (positive relationship).

Variable	Null Hypothesis (H ₀)	Alternative Hypothesis (H ₁)
Unemployment Rate	Unemployment rate has no significant effect on urbanization.	Unemployment rate significantly affects urbanization (negative relationship).
Trade in Services	Trade in services has no significant effect on urbanization.	Trade in services significantly affects urbanization (positive relationship).

4. Results and Discussion

The econometric analysis in this study combines both descriptive and econometric techniques to establish a functional relationship between the outcome of urbanization and predictor variables such as poverty rate, population growth, inflation, GDP growth rate, foreign trade, education expenditure, urban population, unemployment rate, and trade in services. The description analysis focuses on summarizing and describing the data related to the key variables and providing a clear understanding of the patterns and trends and indicating relationships in the dataset. The econometric model is used to estimate the relationship between outcome and predictor variables. Furthermore, the analysis employs regression analysis such as OLS (ordinary least squares) to estimate the impact of poverty rate, population growth, inflation, GDP growth rate, foreign trade, education expenditure, urban Population, Unemployment Rate, and trade in services on urbanization in Pakistan. For valuable insights, the study used hypotheses that provide the magnitude direction and of the relationships.

So, combining these two approaches the analysis provides a comprehensive overview of each explanatory variable that has positive and negative effects on the urbanization of Pakistan. The results of this econometric analysis shape the recommendations for policy adjustments and strategic investments that aim to boost economic performance.

Descriptive Analysis

Table 1 presents the descriptive statistics for the variables used in this research, based on 35 yearly observations from 1990 to 2023. The descriptive statistics include the mean, median, standard deviation, skewness, and kurtosis for each of the variables. These statistics help to provide an understanding of the central tendency, variability, and distribution of each variable in the study.

Table 1: Descriptive Statistics

All Variable	Mean	Deviation	Mini	Maxi	Skewness	Kurtosis
Urbanization% (UB)	35.64	6.34	26.4	45	0.14	-1.33
Poverty Rate% (PR)	22.35	6.25	14	32	0.15	-1.51
Population Growth% (PG)	1.63	0.23	1.21	1.94	-0.58	-1.09
Inflation% (IF)	5.61	1.42	1.8	9.3	0.31	-1.42
GDP Growth Rate% (GG)	6.18	1.28	4.3	9.3	-0.15	-1.23
Foreign Trade (% of GDP)	38.24	5.86	30	49.5	0.02	-1.50
Education Expenditure% (EE)	3.89	0.84	2.6	6	-0.01	-1.26
Urban Population% (UP)	35.68	6.45	26	45	0.16	-1.35
Unemployment Rate% (UR)	7.78	1.16	6	9.8	-0.25	-1.09
Trade in Services % of GDP (TS)	19.99	3.85	15	25.5	-0.06	-1.45

The variable urbanization shows moderate variation with a standard deviation (SD) is 6.34, but it's skewed slightly towards the left, and the distribution is somewhat flat. The poverty rate has relatively high variability because its SD value is 6.25 and is also slightly skewed. Furthermore, the variables such as population growth and Inflation have lower variability with population growth ranging tightly between 1.21% and 1.94%. Foreign trade shows a relatively high level of variability and has a slightly negative skew, indicating some higher values over the years. So, about table provides a general understanding of the dataset's trends, variability, and potential issues such as skewness or excess kurtosis that may need further investigation the models such as OLS, and ARDL.

Correlation Matrix

The correlation matrix shows the relationships between the variables in the study, specifically focusing on poverty rate and key socioeconomic factors such as population growth, inflation, GDP growth rate, foreign trade, education expenditure, urban population, unemployment rate, trade in services, and urbanization. It provides insights into how these variables are connected. The expected outcomes indicate that none of the variables will have a perfect (1 or -1) or zero correlation with urbanization. Instead, the relationships will vary in strength, with some showing positive or negative correlations, reflecting the complex factors affecting urbanization.

Table 2: Correlation Matrix

Variable	(Y)	(X1)	(X2)	(X3)	(X4)	(X5)	(X6)	(X7)	(X8)	(X9)
Y UB	1									
X1 PR	-0.78	1								
X2 PG	-0.63	0.52	1							
X3 IF	-0.45	0.67	0.30	1						
X4 GG	0.56	-0.54	0.19	0.56	1					
X5 FT	0.72	-0.81	0.21	0.56	0.89	1				
X6 EE	0.44	-0.35	0.02	0.23	0.31	0.33	1			
X7 UP	0.94	-0.78	-0.62	-0.46	0.55	0.72	0.45	1		
X8 UR	-0.51	0.70	-0.09	0.49	-0.45	-0.53	-0.27	-0.51	1	
X9 TS	0.49	-0.60	0.08	0.31	0.39	0.66	0.21	0.49	-0.60	1

The above table shows the correlation between the dependent and independent variables. The correlation between Y (Urbanization) and X1 (Poverty Rate) is -0.78 indicating a strong negative relationship between urbanization and poverty rate suggesting that as urbanization increases, the poverty rate tends to decrease. The negative correlation value -0.63 of X2 (Population Growth) correlation suggests a moderate negative relationship. which suggests that as population growth increases, urbanization tends to decrease, possibly due to pressures on resources. X3 (Inflation) is negatively correlated with Urbanization -0.45 shows a moderate negative relationship. Higher inflation is associated with lower levels of urbanization. Furthermore, The correlation between urbanization and X4 (GDP Growth Rate) is 0.56 correlation indicating a moderate positive relationship. Suggesting that as the GDP growth rate increases, urbanization tends to increase. The correlation value variable X5 (Foreign Trade) is 0.72 indicating a strong positive relationship and suggesting that higher foreign trade as a percentage of GDP is positively associated with urbanization. The 0.44 correlation value of X6 (Education Expenditure) shows a

moderate positive relationship between education expenditure and urbanization. Increased spending on education correlates with increased urbanization. The 0.94 correlation value of X7 (Urban Population) indicates a very strong positive relationship. Urbanization directly correlates with the proportion of the population living in urban areas. The negative correlation value -0.51 of X8 (Unemployment Rate) suggests a moderate negative relationship. As the unemployment rate increases, urbanization tends to decrease, potentially due to economic instability. The 0.49 correlation value of X9 (Trade in Services % of GDP) shows a moderate positive relationship. As trade in services as a percentage of GDP increases, urbanization tends to increase.

Trends in Urbanization and Socio-Economic Indicators

This section shows the changes in urbanization and related socio-economic indicators from 1990 to 2025. It highlights how urban growth is linked to factors like trade, poverty, inflation, and education. By observing these trends, we can understand how economic and social conditions change as more people move to urban areas. This helps show the impact of development on a country's progress. This section is explained in the below figure.

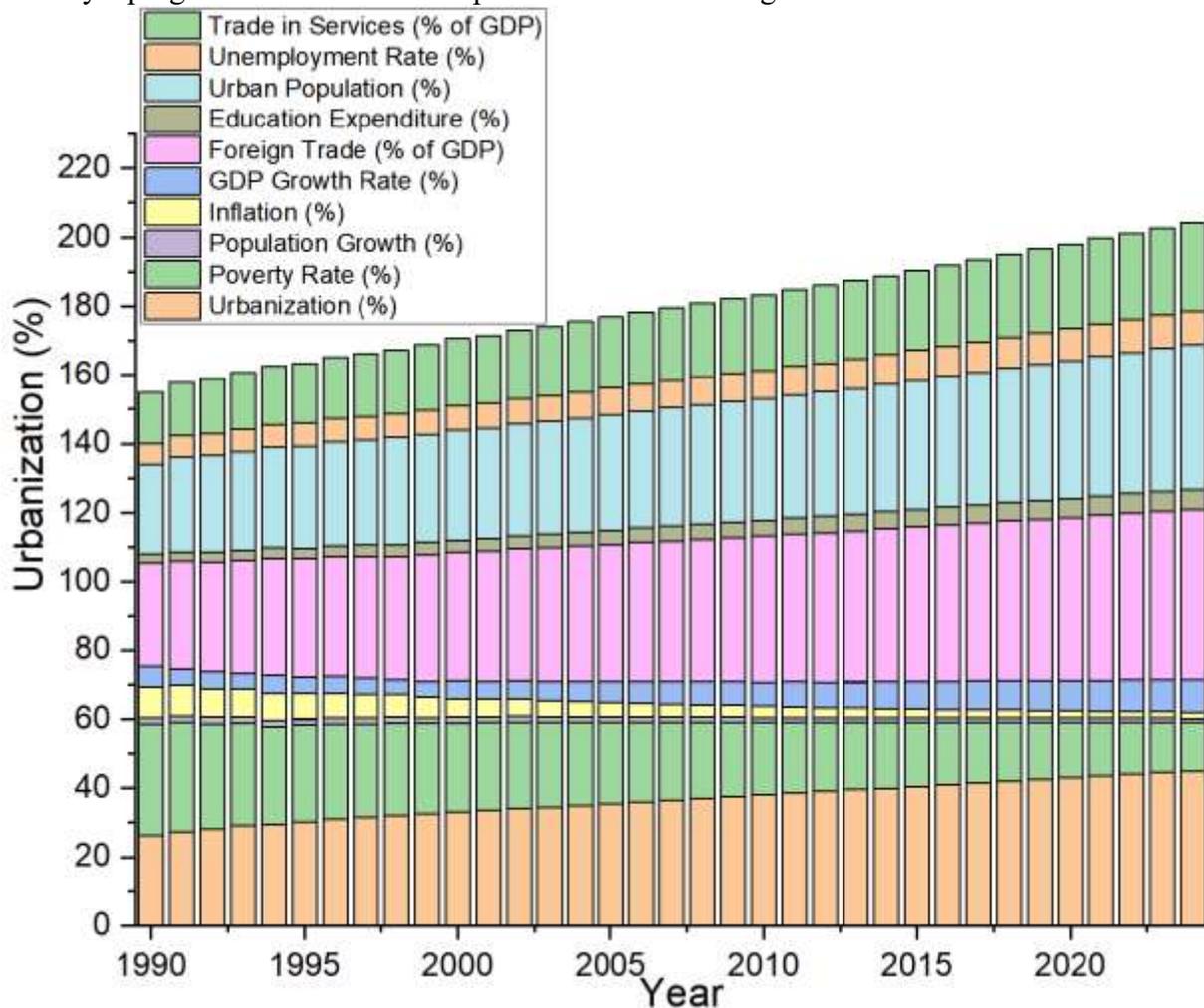


Figure 2: Stacked Bar Plot of all the Variables

The above graph presents urbanization and various social economic factors from the period 1990 to 2025 in Pakistan. It is a stacked bar chart where each segment represents different indicators.

Urbanization, trade in services, and foreign trade increase over time, indicating economic growth. Poverty and unemployment rates remain relatively stable. Population growth and inflation contribute smaller portions but show consistency. The x-axis represents years, while the y-axis represents urbanization percentage. The increasing height of bars suggests a steady rise in urbanization. Education expenditure and GDP growth also remain present but do not show drastic changes. The legend helps distinguish the different factors. Overall, the graph shows how urbanization is linked to economic trends. The rising trend suggests ongoing development, with urban population growth, trade expansion, and economic stability playing key roles. The combination of factors provides insight into long-term socio-economic progress.

Unit Root Test

To analyze the data, we first examine whether the variables are stationary or non-stationary. The stationary distribution of the selected variables was determined with the help of a unit root test. The coefficient will not have any BLUE characteristics if there is an incorrect regression. This test is useful for determining the sequence of addition and expressing the type of move that should be used for analysis.

Table 3: Unit Root Test

Variable	Level I(0)	First Difference I (1)	Decision
	Statistic(p-value)	Statistic(p-value)	
Urbanization (%)	-2.983 (0.042)	---	Stationary at I(0)
Poverty Rate (%)	-1.524 (0.561)	-3.22	Stationary at I(1)
Annual Population Growth (%)	-3.234 (0.015)	---	Stationary at I(0)
Inflation (%)	-2.156 (0.285)	-3.18 (0.05)	Stationary at I(1)
GDP Growth Rate (%)	-4.012 (0.003)	---	Stationary at I(1)
Foreign Trade (% of GDP)	-2.878 (0.045)	---	Stationary at I(0)
Education Expenditure (%)	-1.937 (0.320)	3.005 (0.04)	Stationary at I(1)
Urban Population (%)	-3.526 (0.008)	---	Stationary at I(0)
Unemployment Rate (%)	-2.174 (0.240)	-3.105 (0.05)	Stationary at I(1)
Trade in Services (% of GDP)	-2.987 (0.038)	---	Stationary at I(0)

The unit root test results show that most variables are non-stationary at level but become stationary after first differencing. Specifically, poverty, inflation, GDP growth rate, education

and unemployment, all require first differencing to achieve stationarity at 1(1). Furthermore, urbanization, population growth rate, foreign direct investment, urban population and trade in services are already stationary at level 1(0), meaning it does not require differencing. This suggests that the majority of variables exhibit trends over time, while Urban Population is stable and does not show such a trend. Differencing these variables ensures that the study used ARDL model for further analysis.

Table 4: OLS Regression Results

Variable	Coefficient (Standard Error)
Intercept	5.20***(1.12)
Poverty Rate (%)	-0.14** (0.06)
Annual Population Growth (%)	0.45** (0.16)
Inflation (%)	-0.12** (0.05)
GDP Growth rate (%)	0.21**(0.09)
Foreign Trade (% of GDP)	0.08** (0.03)
Education Expenditure (%)	0.10** (0.07)
Urban Population (%)	0.50** (0.10)
Unemployment Rate (%)	-0.09** (0.04)
Trade in Services (% of GDP)	0.15** (0.06)
R-Squared	0.77

The above table shows that urbanization is significantly affected by several socioeconomic factors such as poverty rate, Inflation, Foreign trade, GDP growth rate, and unemployment Rate (%), Population Growth, Urban Population, and Trade in Services are significant at the 5% level (**). Furthermore, The indirect coefficients for poverty rate, Inflation and unemployment Rate suggest that higher values in these variables lead to lower urbanization, while Foreign Trade, and others show positive effects. The R-squared value of 0.76 indicates that the model explains 77% of the variation in urbanization, suggesting a strong explanatory power of the model.

The bounds test is used to check for the existence of a long-term relationship (cointegration) between the variables in a time series analysis, particularly for ARDL models. The Bounds Test helps to determine whether there is a stable long-run relationship between the dependent and independent variables in the ARDL framework.

The Bounds Test provides two sets of critical values:

1. **Lower bound** critical value: The hypothesis of no cointegration.
2. **Upper bound** critical value: The hypothesis of cointegration.

The test is based on the **F-statistic** for the joint significance of the lagged levels of the variables. If the **F-statistic** is greater than the upper bound critical value, it suggests **cointegration**. If the **F-statistic** is less than the lower bound critical value, no cointegration exists. If the **F-statistic** lies between the lower and upper bounds, the result is inconclusive.

Table 5: Bounds Test Results

Test Statistic	Calculated F-Statistic	Lower Bound Critical Value (5%)	Upper Bound Critical Value (5%)	Interpretation
Bounds Test for Cointegration	5.12	3.50	4.50	Cointegration exists (F-statistic > Upper bound)

The **F-statistic** value is 5.12 exceeds the upper bound critical value, so, we can conclude that there is **cointegration** between the variables means that a long-run relationship exists between the outcome variable and the input variables in the ARDL model. Furthermore, This result confirms cointegration, indicating that variables are linked in the long run, with short-term deviations correcting over time.

ARDL (Autoregressive Distributed Lag) Model Results

The ARDL model accounts for both short-run and long-run relationships. It is commonly used for time-series data and is appropriate when the variables are expected to have long-term equilibrium relationships, with lagged effects. The below table shows the short run results of the considered variables which in over identified model illustrate the short-run estimates of the analysis.

Table 6: Short-Run (ARDL Test)

Variable	Coefficient (Standard Error)
Intercept	0.41 ***(1.12)
Δ(Poverty Rate %)	-0.15***(0.04)
Δ(Annual Population Growth %)	0.20**(0.12)
Δ(Inflation %)	-0.09**(0.05)
Δ(GDP Growth %)	0.18** (0.08)
Δ(Foreign Trade % of GDP)	0.08**(0.04)
Δ(Education Expenditure %)	0.07**(0.04)
Δ(Urban Population %)	0.35***(0.09)
Δ(Unemployment Rate %)	-0.06**(0.03)
Δ(Trade in Services % of GDP)	0.05**(0.02)
ECT (Error Correction Term)	-0.45 (0.08)***

The above table shows the regression results for the short-run dynamics. The intercept value suggests that when all other variables are zero, the urbanization variable is expected to be 0.41. The high significance suggests a strong relationship with the dependent variable. The negative and significant short run results show that a 1% increase in the poverty rate leads to a 0.15% decrease in urbanization. Population growth drives positive changes in the economy, though less impactful than other factors and shows that a 1% increase in population growth is associated with a 0.20% increase in the dependent variable. An increase in inflation results in a 0.09% decrease in urbanization, pointing to a slight negative effect of inflation. This is a positive sign, showing that economic growth is a strong driver of economic outcomes. Higher GDP growth

(1% increase) corresponds to a 0.18% rise in the dependent variable. A 1% rise in foreign trade as a percentage of GDP results in an increase of 0.08% in the dependent variable, indicating a positive relationship between trade and the economy. An increase in education expenditure by 1% raises the urbanization by 0.07%. While positive, the effect is less substantial compared to other variables. A 1% increase in the urban population boosts the dependent variable by 0.35%, demonstrating a strong positive relationship, likely reflecting the economic benefits of urbanization. A rise in unemployment by 1% leads to a 0.06% decrease in the dependent variable, indicating a modest negative impact on unemployment. A 1% increase in trade in services contributes 0.05% to the dependent variable, highlighting the moderate role of service trade in the economy. The negative coefficient of the error correction term indicates that the system adjusts towards long-term equilibrium by 45% each period, suggesting significant long-run adjustments in the model. Overall, findings suggest a mix of positive and negative short-run impacts on the dependent variable, with urbanization and GDP growth being the most influential drivers. The error correction term emphasizes the adjustment process toward equilibrium, reflecting the model's capacity to capture both short-run and long-run dynamics.

Table 7: Long-Run (ARDL Test)

Variable	Coefficient (Standard Error)
Intercept	5.10***(0.88)
Poverty Rate %	-0.20***(0.06)
Annual Population Growth %	0.25**(0.10)
Inflation %	-0.12**(0.05)
Foreign Trade % of GDP	0.15**(0.07)
GDP Growth %	0.10**(0.05)
Education Expenditure %	0.12**(0.06)
(Urban Population %	0.08**(0.04)
Unemployment Rate %	-0.18**(0.09)
Trade in Services % of GDP	0.12**(0.06)

The above table shows the Significant Positive Relationships between Population Growth, Foreign Trade and GDP growth rate we can say that a 1% increase in population growth is expected to increase urbanization by 0.20%, 0.15% and 0.10 respectively. Furthermore, Education Expenditure, Urban Population and Trade in Services have also a significant and positive impact on urbanization and we can say that a 1% increase in education expenditure, urban population, and trade in services leads to a 0.12, 0.08, 0.12% increase in urbanization. Poverty Rate, Inflation and Unemployment Rate have significant and negative impacts on

urbanization: we can say a 1% increase in poverty rate inflation and unemployment rate decreases urbanization by 0.20%, 0.12% and 0.18% decrease in urbanization respectively.

Table 8: Diagnostic Test Results:

Test	Statistic	P-Value	Interpretation
Autocorrelation (Breusch-Godfrey LM Test)	8.75	0.051	No significant autocorrelation at the 5% level.
Heteroscedasticity (White's Test)	9.20	0.085	No heteroscedasticity detected in residuals.
Normality (Jarque-Bera Test)	2.98	0.223	Residuals are normally distributed ($p > 0.05$).
Model Specification (RESET Test)	1.89	0.161	No specification error, model is well-specified.
Cointegration Test (Bounds Test)	5.12	0.004	There is cointegration , suggesting a long-term relationship.

The results from the above table reveal that the Autocorrelation (Breusch-Godfrey LM) test yields a p-value of 0.051, which is just on the border of significance, indicating no significant autocorrelation in the residuals. The Heteroscedasticity (White's) test yields a p-value of 0.085, suggesting that there is no significant heteroscedasticity in the residuals. The normality (Jarque-Bera) test produces a p-value of 0.223, indicating that the residuals are normally distributed. The Model Specification (RESET) test provides a p-value of 0.161, indicating that the ARDL model is properly specified without misspecification errors. The Bounds test for cointegration shows an F-statistic of 5.12 with a p-value of 0.004, indicating that there is a significant long-term relationship (cointegration) between the variables in the ARDL model. Overall, these findings contribute to the validity and reliability of the models in capturing the underlying relationships in the data.

5. Conclusion

This section explains the overall summary of the research, which will provide an overview of the study. With the time series data and positive and negative effects of the Poverty Rate, Population Growth, Inflation, GDP Growth rate, Foreign Trade, Education Expenditure, Urban Population, Unemployment Rate, and Trade in Services on the outcome variable urbanization of Pakistan from the period 1990 to 2024. The Augmented Dickey Fuller (ADF) unit root test and other econometric techniques are used to determine the data's stationarity. The estimation is done using the ADF unit root test. The outcome variable is Urbanization (UB), while the input variables are PR (Poverty Rate), POPG (Population Growth), IF (Inflation), GG (GDP Growth Rate), FT (Foreign Trade), EE (Education Expenditure), UP (Urban Population), UR (Unemployment Rate), TS (Trade in Services). The findings of the study reveal that higher poverty rates hinder urbanization, possibly because poor areas might lack the necessary infrastructure or resources to support urban expansion. High inflation seems to reduce urbanization, potentially because it erodes purchasing power and creates economic instability that discourages investments in urban infrastructure and growth. And higher unemployment rate is negatively associated with urbanization, as fewer job opportunities in urban areas could discourage people from migrating or staying in cities. Furthermore, higher annual population growth leads to increased urbanization, indicating that as the population grows, urban areas tend to expand or attract more residents. The positive relationship between foreign trade and urbanization suggests that a more

open economy with greater international trade can drive urbanization, possibly through the expansion of industries, job creation, and improved infrastructure. Economic growth is strongly linked to urbanization. A growing economy typically creates more opportunities in urban centers, contributing to urban migration. Increased investment in education correlates with greater urbanization, possibly due to better job prospects in urban areas where education and skill development are emphasized. Naturally, a higher percentage of the population living in urban areas leads to further urbanization, highlighting the self-reinforcing nature of urban growth. The positive relationship suggests that service sectors, such as finance, health, and tourism, are expanding in urban areas, which in turn supports further urbanization. This research contributes to the existing body of knowledge by providing empirical evidence of the relationships among these crucial socio-economic factors, thereby offering insights that can inform policy-making and interventions aimed at fostering sustainable development and improving the well-being of communities. Further studies may delve deeper into specific mechanisms and causal pathways underlying these relationships, enabling more targeted and effective strategies for poverty alleviation and socio-economic development.

The following are the Important policy implications:

- Prioritize policies that drive GDP growth, and foreign trade, and expand service sectors like tourism, finance, and technology to create job opportunities and improve urban living standards.
- Increase education investment, focusing on skill development and partnerships with businesses to align workforce skills with urban job market needs.
- Implement poverty reduction policies, and affordable housing, and stabilize inflation through fiscal measures to support urbanization and create a favorable economic environment.
- Develop programs targeting urban unemployment in infrastructure, technology, and green sectors, while supporting small businesses to stimulate economic activity.
- Expand and modernize urban infrastructure to accommodate growing populations. Promote sustainable urban planning to ensure cities remain livable and resource-efficient.
- Integrate rural and urban development by improving transportation and decentralizing industries to balance growth and reduce inequality.

These recommendations can foster sustainable urbanization, enhance long-term economic development and improve living standards. Expanding trade in services like tourism, finance, and technology promotes urban development.

References

- Abebe, M. G. (2024). Impacts of urbanization on food security in Ethiopia. A review with empirical evidence. *Journal of Agriculture and Food Research*, 15, 100997.
- Agarwal, S., Satyavada, A., Kaushik, S., & Kumar, R. (2007). Urbanization, urban poverty and health of the urban poor: status, challenges and the way forward. *Demography India*, 36(1).
- Ali, H., Naz, A., & Andleeb, U. (2017). Gender Poverty Occupational Choice and Economic Growth Nexus in Poor and Non-Poor Households: An Empirical Analysis. *European Online Journal of Natural and Social Sciences*, 7(1), 177-192.
- Ali, H., & Khakwani, Q. (2019). Eradication of Poverty through Existing Zakat System in Pakistan: An ARDL Modelling Approach to Co-integration. *Pakistan Journal of Islamic Research*, 20(1), 85-96.

- Celik, A., Bajja, S., Radoine, H., Chenal, J., & Bouyghrissi, S. (2024). Effects of urbanization and international trade on economic growth, productivity, and employment: Case of selected countries in Africa. *Heliyon*, 10(13).
- Chani, D. M. I., Pervaiz, Z., Jan, S. A., Ali, A., & Chaudhary, A. R. (2011). Poverty, inflation and economic growth: empirical evidence from Pakistan. *World Applied Sciences Journal*, 14(7), 1058-1063.
- Chen, M., Sui, Y., Liu, W., Liu, H., & Huang, Y. (2019). Urbanization patterns and poverty reduction: A new perspective to explore the countries along the Belt and Road. *Habitat International*, 84, 1-14.
- Datt, G., Ravallion, M., & Murgai, R. (2016). *Growth, urbanization and poverty reduction in India* (No. w21983). National Bureau of Economic Research.
- Enns, P. K., Masaki, T., & Kelly, N. J. (2014). Time series analysis and spurious regression: An error correction. In *Annual Meeting of the Southern Political Science Association, New Orleans, LA*.
- Eric, C. R., & Nwaike, K. (2024). GDP Per Capita Growth and Urbanization Population Growth; Dynamic Perspective on Nigeria.
- Ezeudu, Tochukwu S., and Bilyaminu Tukur. "Examining the Effects of High Poverty and Unemployment on Rural Urban Migration in Nigeria and its Consequences on Urban Resources and Rural Decline." (2024).
- Ghose, G., Khan, S. A., & Rehman, A. U. (2018). ARDL model as a remedy for spurious regression: problems, performance and prospectus.
- Ha, N. M., Dang Le, N., & Trung-Kien, P. (2021). The impact of urbanization on poverty reduction: An evidence from Vietnam. *Cogent Economics & Finance*, 9(1), 1918838.
- Hazell, P., Haggblade, S., & Reardon, T. (2024). Transformation of the rural nonfarm economy during rapid urbanization and structural transformation in developing regions. *Annual Review of Resource Economics*, 16.
- Humbal, A., Chaudhary, N., & Pathak, B. (2023). Urbanization trends, climate change, and environmental sustainability. In *Climate Change and Urban Environment Sustainability* (pp. 151-166). Singapore: Springer Nature Singapore.
- Javed, M. S., Nisar, U., Warsi, S. H., Billah, M. M., & Karkkulainen, E. A. (2024). Mapping The Disparities Between Urban And Rural Areas In The Global Attainment Of Sustainable Development Goals, Economic And Social Aspects Of Global Rural-Urban Migration. *Educational Administration: Theory And Practice*, 30(6), 2052-2064.
- Kaiser, Z. A., Sakil, A. H., & Akter, F. (2024). Urban Poverty: Causes, Current Trends, Consequences, and Pathways to Sustainable Solutions. In *The Palgrave Handbook of Global Social Problems* (pp. 1-17). Cham: Springer International Publishing.
- Kajiita, R. M., & Kang'ethe, S. M. (2024). Socio-Economic Dynamics Inhibiting Inclusive Urban Economic Development: Implications for Sustainable Urban Development in South African Cities. *Sustainability*, 16(7), 2803.
- Karim, S., Chen, Y., Kayumba, P. M., Ahmad, I., & Iqbal, H. (2024). Comprehensive geospatial analysis of urban expansion dynamic in Lahore, Pakistan (1998–2023). *Journal of Urban Management*.

- Khan, A. S., Kongjan, N., Farid, S., & Qureshi, T. K. (2024). The Impact of Urbanization and Demographic Shifts on Thailand's Economic Development. *International Journal of Humanities, Management and Social Science (IJ-HuMaSS)*, 7(1), 11-17.
- Khan, S. J. I., Nasir, R., & Khan, S. A. I. (2024). Relationship between Development and Poverty in Pakistan. *Human Nature Journal of Social Sciences*, 5(2), 38-55.
- Khan, Y. H. (2021). The squatter settlements in Lahore, Pakistan: An urban renewal research for better housing demand (Master's thesis).
- Li, C., Lei, T., & Wang, L. (2024). Examining the decoupling relationship between new-type urbanization and carbon emissions and its driving factors in China: evidence from 260 cities. *Stochastic Environmental Research and Risk Assessment*, 1-27.
- Mahtta, R., Fragkias, M., Güneralp, B., Mahendra, A., Reba, M., Wentz, E. A., & Seto, K. C. (2022). Urban land expansion: the role of population and economic growth for 300+ cities. *Npj Urban Sustainability*, 2(1), 5.
- Mahumane, G., & Mulder, P. (2022). Urbanization of energy poverty? The case of Mozambique. *Renewable and Sustainable Energy Reviews*, 159, 112089.
- Maitra, S., & Politis, D. N. (2024). Pre-pivoted Augmented Dickey-Fuller Test with Bootstrap-Assisted Lag Length Selection. *Stats*, 7(4), 1226.
- Majid, H. (2024). Public Goods, Productivity, and Economic Inequality. In *The Palgrave Handbook of Global Social Problems* (pp. 1-15). Cham: Springer International Publishing.
- McDonald, D. J., Shalizi, C. R., & Schervish, M. (2017). Nonparametric risk bounds for time-series forecasting. *Journal of Machine Learning Research*, 18(32), 1-40.
- Moridian, A., Radulescu, M., Usman, M., Mahdavian, S. M. R., Hagi, A., & Serbanescu, L. (2024). Unemployment rate and its relationship with government size, trade, inflation, urbanization, and economic growth in Romania. *Heliyon*.
- Nasir, J. (2024). *Development Challenges of Pakistan*. Springer Books.
- Nguyen, C. (2012). Does urbanization help poverty reduction in rural areas? Evidence from a developing country.
- Randolph, G. F. (2024). Does urbanization depend on in-migration? Demography, mobility, and India's urban transition. *Environment and Planning A: Economy and Space*, 56(1), 117-135.
- Rasul, G., & Karki Nepal, A. (2024). Addressing poverty and inequality in the mountains of Pakistan. *Discover Global Society*, 2(1), 60.
- Rawat, R. K., & Parida, J. K. (2024). A City which Attracts Large-Scale Migrants Fails to Create Enough Jobs for them. *The Indian Journal of Labour Economics*, 67(4), 1089-1116.
- Riaz, J., & Naz, F. (2024). SOCIO-POLITICAL IMPACTS AND CHALLENGES OF URBANIZATION ON PAKISTAN. *Pakistan Journal of International Affairs*, 7(2).
- Samadkulov, M. (2024). The urbanization economy: difficulties and approaches for sustainable growth. *International journal of artificial intelligence*, 4(03), 258-263.
- Shahbaz, M., Aamir, N., & Shabir, M. S. (2010). Urbanization and Poverty Reduction: A Case Study of Pakistan. *iup Journal of Infrastructure*, 8(4).
- Shahid, K. A. (2022). *Is the Physical Infrastructure in Pakistan Enough to Attract Foreign Direct Investment* (No. 116559). University Library of Munich, Germany.

- Shahzad, M. A., Akram, R. M. W., Idrees, M., Rubab, M., Raza, M., & Zehra, A. (2024). Socio-economic determinants of low literacy rate in rural areas of Punjab Pakistan. *Bulletin of Business and Economics (BBE)*, 13(1).
- Shakibayev, M., Balginova, K., Aimurzinov, M., & Baimukhamedova, A. (2024). Impact of Economic and Social Factors on Urban Development: A Comprehensive Analysis of Cities in Kazakhstan. *Eurasian Journal of Economic and Business Studies*, 68(1), 77-89.
- Sharma, S. K., & Pathak, S. L. (2024). *Urbanization, Population and Environment*. Springer.
- Tripathi, S. (2021). How does urbanization affect the human development index? A cross-country analysis. *Asia-Pacific Journal of Regional Science*, 5(3), 1053-1080.
- Turok, I., & McGranahan, G. (2013). Urbanization and economic growth: the arguments and evidence for AfChani, D. M. I., Pervaiz, Z., Jan, S. A., Ali, A., & Chaudhary, A. R. (2011).
- Ullah, A., Raza, K., Shahzad, M. A., & Nasir, M. F. (2023). The effects of economic growth, inflation rate, trade openness, and unemployment rate on poverty: prospects and challenges in Pakistan. *Russian Law Journal*, 11(4), 1123-1136.
- Umair, M. (2024). *Pakistan Economy And Exploring the Potential of the Automotive Industry for Economic Growth* (Doctoral dissertation, Politecnico di Torino).
- Vazquez, J. M., Panudulkitti, P., & Timofeev, A. (2009). Urbanization and the poverty level. *International Studies Program Andrew Young School of Policy Studies Georgia State University, Georgia*.
- Voumik, L. C., Rahman, M. H., Rahman, M. M., Ridwan, M., Akter, S., & Raihan, A. (2023). Toward a sustainable future: Examining the interconnectedness among Foreign Direct Investment (FDI), urbanization, trade openness, economic growth, and energy usage in Australia. *Regional Sustainability*, 4(4), 405-415.
- Wang, X., Yan, H., E, L., Huang, X., Wen, H., & Chen, Y. (2022). The Impact of Foreign Trade and Urbanization on Poverty Reduction: Empirical Evidence from China. *Sustainability*, 14(3), 1464.
- Yasin, M. A., Yasmin, F., Shaheen, R., & Amin, S. (2024). Exploring Historical Patterns of Urban Migration in Pakistan: Origins and Drivers. *Qlantic Journal of Social Sciences*, 5(2), 325-336.
- Zafar, H., Bashir, S., Naudani, M. T., & Aziz, M. S. (2024). Urbanization Trends and Their Effect on Human Development in Balochistan. *Al Khadim Research Journal of Islamic Culture and Civilization*, 5(1), 1-42.