JOURNAL OF POLICY OPTIONS

Determinants of Domestic Savings in Pakistan: An Economic Analysis

Muhmmad Manzoor[a], Ali Agha[b]

Abstract

This study examines the impact of key economic factors—interest rate, unemployment rate, inflation rate, and worker remittances—on domestic savings in Pakistan. To assess the stationarity of these variables, the Augmented Dickey-Fuller unit root test is applied. Lag selection criteria are utilized to determine the optimal lag length, with a maximum of two lags chosen. To analyze the cointegration among the variables, the Autoregressive Distributed Lag (ARDL) model is employed. Cointegration analysis is essential for understanding long-term equilibrium relationships and assessing whether the variables move together over time. Through this model, the study evaluates whether changes in interest rates, inflation, unemployment, and remittances exert a significant and lasting impact on domestic savings. The estimated results confirm that all four factors substantially influence domestic savings in Pakistan, highlighting their critical role in shaping savings behavior. These findings underscore the necessity of economic policies that effectively address these determinants to enhance savings mobilization. Despite government efforts to increase savings rates, challenges such as low income levels, high unemployment, and ineffective policy implementation continue to hinder progress. This study contributes to existing literature by offering a comprehensive analysis of domestic savings determinants, providing valuable insights for policymakers and stakeholders. Addressing income inequality, unemployment, and policy gaps is imperative for fostering an environment conducive to higher savings rates. Continued research in this area will be instrumental in refining policy approaches and overcoming economic challenges to promote sustainable growth and financial stability in Pakistan.

Keywords: domestic savings, interest rate, unemployment rate, inflation rate, worker remittances

1. INTRODUCTION

According to classical economists, the principle of savings being equal to investment is foundational to understanding economic growth (Hussain, 2018). This idea, often attributed to classical economics and later refined by neo-classical economists, suggests that savings play a crucial role in driving economic expansion. Classical economic theory posits several key assumptions, including the notion that markets tend to self-regulate and that prices are flexible for both goods and wages. Additionally, classical economists believe in the concept of supply creating its own demand, and they emphasize the equality between savings and investments. From a neo-classical perspective, the link between savings and economic growth is further elucidated (Asif & Simsek, 2018; Iqbal, 2018). Neo-classical economists highlight the direct and indirect impacts of savings on economic development. They argue that a country's ability to accumulate savings and invest them wisely is essential for fostering long-term growth and prosperity. Both theoretically and empirically, there exists a strong relationship between economic growth and aggregate savings. Research, such as Romer's seminal work in 1986, has underscored the importance of savings for driving investment and ultimately fueling economic expansion. In practical terms, if a country seeks to enhance its economic growth, it must prioritize saving and investment simultaneously. By channeling savings into productive investments, nations can stimulate economic activity, create employment opportunities, and improve living standards for their citizens. Therefore, fostering a culture of saving and ensuring efficient investment mechanisms are crucial policy objectives for policymakers aiming to promote sustainable economic growth (Siddiqi, 2018).

Solow's seminal work in 1957 contributed significantly to our understanding of economic growth dynamics, particularly during transitional stages from traditional to modern economic structures. He

---

[a] Government College University, Lahore, Pakistan
[b] Government College University, Lahore, Pakistan

posited that a higher savings rate can bolster the growth rate of output per worker during this transition, facilitating the shift towards a more advanced economic model. The neoclassical growth theory, which builds upon Solow's framework, underscores the critical role of savings and capital accumulation in driving economic growth. According to this theory, savings and capital accumulation are intertwined factors that contribute to the exogenously determined growth of a country's economy. In essence, a higher savings rate translates into faster growth in capital per worker. As the capital stock increases, productivity improves, leading to higher income per capita. Conversely, a lower savings rate may hinder capital accumulation and limit economic growth potential. However, Keynesian economics presents a different perspective on the role of savings in economic growth. According to Keynesian reasoning, savings do not necessarily determine the supply of funds available for investment. Instead, factors such as aggregate demand, consumer behavior, and government policies play more prominent roles in shaping investment decisions and overall economic activity. While Solow's and neoclassical growth theory highlight the importance of savings in fostering economic development, Keynesian economics provides a nuanced view that considers a broader set of factors influencing investment and growth. Ultimately, the interplay between savings, investment, and other economic variables shapes the trajectory of a country's economic growth path (Maurya, 2018; Mahmood & Aslam, 2018).

According to Keynesian economics, savings do not hold a distinct advantage over consumption when it comes to releasing cash and restoring liquidity in the economy. Keynes argued that excessive saving, defined as saving beyond planned investment, could pose a significant problem, potentially leading to economic downturns such as recession or depression. Keynes identified several factors that could contribute to excessive saving. One such factor is a decline in investment, which may occur due to various reasons such as a decrease in consumer demand, over-investment in previous periods, or pessimistic business expectations about future profitability. If investment declines while saving remains high, it can create an imbalance in the economy and contribute to a slowdown in economic activity. In Keynesian theory, the concept of the paradox of thrift encapsulates the idea that while saving is generally considered prudent at an individual level, excessive saving at the aggregate level can have detrimental effects on the economy as a whole. This is because when individuals save more and consume less, overall demand for goods and services decreases, leading to a decline in production, income, and employment. To address excessive saving and its potential negative consequences, Keynes advocated for policies aimed at stimulating aggregate demand, such as government spending or monetary policy measures to lower interest rates and encourage borrowing and investment. By boosting demand, these policies aim to rebalance the economy and prevent or mitigate economic downturns caused by excessive saving (Shahid & Ali, 2015; Ali, 2015; Khan & Ahmad, 2018).

The Pakistan Economic Survey for the fiscal year 2011-2012 highlights an important aspect of the country's economic landscape: the relationship between aggregate savings and domestic investment. According to the survey, the level of aggregate savings in Pakistan is inversely related to the amount of foreign savings needed to fulfill investment requirements. However, what sets Pakistan apart is its notably low level of domestic savings compared to other countries in the region. Several studies and analyses have corroborated this observation. Hussain and Brookins (2001), Burnside, Hebble, and Serven (1999), Kazmi (1993), and Azam, Khan et al. (2010) have all contributed to the understanding of Pakistan's savings dynamics. Their research indicates that Pakistan consistently records one of the lowest levels of savings in the region, highlighting a significant economic challenge for the country. This disparity between savings and investment has important implications for Pakistan's economic development and growth prospects. Insufficient domestic savings hinder the country's ability to finance its investment needs internally, leading to a greater reliance on foreign capital and investment (Arshad & Ali, 2016; Ali & Naeem, 2017; Ali & Zulfiqar, 2018; Ahmad et al., 2018). This dependence on external sources of funding can make the economy more vulnerable to external shocks and fluctuations in global

JOURNAL OF POLICY OPTIONS

financial markets. Addressing the low savings rate in Pakistan requires a multifaceted approach that addresses both supply-side and demand-side factors. Policies aimed at promoting a culture of savings among households, improving financial literacy, and creating incentives for saving and investment can help boost domestic savings (Ali, 2015; Ali & Rehman, 2015; Ali & Ahmad, 2016). At the same time, measures to enhance productivity, infrastructure development, and business confidence can stimulate investment and create a more conducive environment for savings mobilization.

The World Bank's analysis in 2010 sheds light on the savings landscape in Pakistan, revealing a concerning trend in comparison to its regional counterparts. According to the World Bank, Pakistan's savings as a percentage of its Gross Domestic Product (GDP) stood at around 14 percent, significantly lower than countries like Bangladesh (38 percent), India (34 percent), and Sri Lanka (25 percent). Table-1 illustrates the saving trends within the Pakistani economy over the years. In the year 2000, economic growth was modest at around 2.0 percent. However, a remarkable turnaround occurred in subsequent years, with growth rates soaring to 7.5 percent in 2003 and 9.0 percent in 2004. This period marked a period of significant economic performance for the country. An analysis of savings components reveals interesting dynamics. While foreign savings remained negative until 2003, both national and domestic savings exhibited positive and robust growth rates during this period. However, from 2003 onwards, there was a notable increase in foreign savings, reaching 8.5 percent in 2007. Despite this surge, foreign savings reverted to negative territory in the 2010s. This fluctuation in savings patterns underscores the complex interplay of domestic and international factors influencing Pakistan's economy. While positive growth trajectories indicate economic resilience and potential, challenges remain in sustaining and diversifying savings sources. Addressing the structural impediments to savings mobilization and fostering an environment conducive to investment will be critical for Pakistan to achieve sustainable economic growth and development.

The historical trajectory of Pakistan's economy underscores the significance of domestic or household savings in driving capital accumulation and fostering high economic growth rates. As noted by Solow (1956), a decrease in domestic savings inevitably leads to a reduction in capital accumulation and subsequently, a decline in economic growth rates. This study delves into the economic factors that exert influence on domestic savings within the Pakistani context. By examining variables such as interest rates, unemployment rates, and inflation rates, the research seeks to illuminate the intricate dynamics shaping domestic savings behavior in Pakistan. Additionally, the study explores the impact of worker remittances on national savings, recognizing the role of external factors in influencing domestic savings patterns. Understanding the determinants of domestic savings is crucial for policymakers and economists alike, as it provides insights into the factors driving capital formation and economic development. By identifying the key drivers of domestic savings and their interrelationships, this study contributes to the broader discourse on economic policy formulation and implementation in Pakistan. Moreover, the findings of this research can inform strategies aimed at promoting savings mobilization and fostering sustainable economic growth in the country.

Table-1

Years	2011	2012	2013	2014
Growth rate	2.0	3.1	4.7	7.5
Total Investment	17.2	16.8	16.9	16.6
National saving	16.5	18.6	20.8	17.9
Foreign saving	0.7	-1.9	-3.8	-1.3
Domestic Saving	17.8	18.1	17.6	15.7

Source: Economic Survey of Pakistan

2. LITERATURE REVIEW

The theoretical and empirical literature on savings behavior encompasses numerous studies investigating the determinants of savings across both developed and developing countries. In the context of Pakistan, this study draws on a selection of relevant and recent research to inform its literature review. One notable contribution to this body of literature is Hussain's (1996) examination of Pakistan's saving performance. Hussain's study underscores the comparative weakness of Pakistan's saving performance in relation to other economies in Southeast Asia. By providing insights into the factors influencing saving behavior in Pakistan, this research sheds light on the challenges and opportunities for enhancing savings mobilization in the country. Building on Hussain's findings, subsequent studies have delved deeper into the determinants of savings in Pakistan, considering factors such as interest rates, inflation, unemployment, and external remittances. These studies contribute to a nuanced understanding of the complex dynamics shaping saving patterns in the country and provide valuable insights for policymakers and practitioners seeking to formulate effective strategies for promoting savings and fostering economic development. By synthesizing and analyzing the findings of these studies, the present research aims to enrich the existing literature on savings behavior in Pakistan and offer fresh perspectives on the factors driving domestic savings in the country. Through rigorous empirical analysis and robust theoretical frameworks, this study seeks to contribute to a deeper understanding of the drivers of savings behavior and their implications for economic policy and development outcomes in Pakistan.

Over the last decade, Pakistan has witnessed a gradual increase in private savings, a trend that can be attributed to various factors including changes in demographic structure and financial deepening. These factors have had a significant impact on the long-run movements observed in Pakistan's private saving rate during this period. One key driver of the increase in private savings is the demographic transition occurring within the population. Changes in population structure, such as an aging population or shifts in household composition, can influence saving behavior. Additionally, financial deepening, which refers to the expansion of financial services and institutions within an economy, has played a pivotal role in shaping saving patterns. As the financial sector becomes more accessible and sophisticated, individuals and households are incentivized to save and invest their resources more effectively. Furthermore, the ratio of private saving to income in Pakistan has shown a notable rise, indicating an improvement in saving behavior among the population. This increase can be partially attributed to the effects of financial development and deepening, which accounted for a significant portion of the observed growth in private savings. As financial markets become more efficient and inclusive, individuals are empowered to save and allocate their resources in ways that contribute to long-term wealth accumulation and financial security. Looking ahead, sustaining and enhancing the upward trajectory of private savings in Pakistan will likely require continued efforts to promote financial development and literacy, as well as policies aimed at addressing demographic challenges. By fostering an enabling environment for saving and investment, Pakistan can harness the potential of its growing private savings to drive economic growth, development, and prosperity for its citizens.

Ahmad et al. (2006) conducted a study to explore the long-term economic relationships among various determinants of household savings in Pakistan. Their findings revealed several significant insights into the factors influencing household saving behavior in the country. One key finding of the study was the significant negative impact of demographic variables on household saving. This suggests that factors such as age structure, household size, and dependency ratios exert downward pressure on saving rates. Demographic shifts can influence saving patterns by altering household composition and financial responsibilities, thereby affecting overall saving behavior. Additionally, the study highlighted the importance of real interest rates in shaping household saving rates. When the substitution effect dominates the income effect, indicating that individuals are more inclined to save in response to higher real interest rates, the saving rate tends to increase. This underscores the role of financial incentives, such

as interest rates, in encouraging saving behavior among households. Moreover, the study identified inflation rate as another significant determinant of household saving, albeit with a negative impact. High inflation rates erode the purchasing power of savings over time, reducing the incentive for households to save. This underscores the importance of price stability and sound monetary policy in promoting saving and financial stability. Based on their findings, the government should implement policies aimed at encouraging household savings and capital formation. One proposed strategy is the promotion of national saving schemes that offer attractive returns and incentives for households to save. By providing avenues for safe and profitable saving, such schemes can help channel household savings into productive investments, thereby stimulating economic growth and development.

Ciftcioglu and Begovic (2010) conducted a study to examine the impact of domestic saving on economic growth in the medium term, focusing specifically on Central and East European countries. Their empirical analysis revealed several important findings regarding the relationship between domestic saving and economic growth in these regions. One key finding of the study was the positive effect of domestic saving on the growth rate of Central and East European countries. Despite facing challenges such as low saving rates and the impact of the global financial crisis, countries in this region experienced positive growth outcomes when domestic saving levels were higher. This underscores the importance of domestic saving as a driver of economic growth, particularly in the medium term. Moreover, the study highlighted the significance of policy responses in addressing domestic saving constraints and promoting economic growth. In light of the challenges posed by low saving rates and the global financial crisis, the study suggests that countries should prioritize the formulation of new growth strategies. These strategies should focus on implementing microeconomic policies aimed at enhancing resource efficiency and increasing the accumulation of human capital.

Azam et al. (2010) underscore the significance of savings in the socio-economic development of Pakistan. Their study aimed to examine the effects of inflation rate, lagged saving rate, and per capita income on national savings in the country. Employing Ordinary Least Squares (OLS) for empirical analysis, they found several noteworthy results. The study revealed a positive impact of per capita income and lagged saving rate on national savings of Pakistan. This finding strongly supported the study hypothesis and emphasized the importance of income levels and past saving behavior in influencing current national savings. However, the impact of inflation rate was observed to be negative on national savings in Pakistan. This suggests that inflationary pressures can deter individuals and households from saving, thereby negatively affecting the overall national savings rate. Based on their findings, by increasing per capita income and controlling inflation as essential measures for enhancing the level of national savings in Pakistan. They emphasized that savings play a crucial role in improving economic development and emphasized the need for policies aimed at promoting savings behavior among individuals and households.

Temidayo and Taiwo (2011) conducted a study to assess the impact of domestic saving on economic growth in Nigeria. Utilizing secondary data spanning from 1970 to 2006, their analysis yielded several significant findings. The researchers discovered that investment in Nigeria's economy did not exhibit a responsive behavior to savings, contrary to expectations based on economic theories. Moreover, they observed that investment in the economy failed to translate into growth as predicted by conventional economic models. While savings and investment demonstrated a positive correlation, this relationship was found to be weak. Similarly, the correlation between growth and investment was weak and negative. Although there was a positive correlation between savings and economic growth, it was also very weak. These findings suggest a weak relationship between savings, investment, and the economic growth rate in Nigeria. The implications of these correlations underscore the need for policy interventions aimed at enhancing intermediation between savings and investment in the economy. To achieve this, the government should adopt policies that facilitate effective intermediation by providing regulatory and

coordinating roles. By ensuring efficient allocation of savings into productive investments, such policies can contribute to fostering sustainable economic growth and development in Nigeria.

Rasmidatta (2011) delved into the analysis of domestic saving as a crucial determinant of economic growth in Thailand. Employing Granger causality tests, the study aimed to examine the direction of causality between economic growth rate and the growth rate of domestic saving in Thailand. The results of the investigation favored the hypothesis suggesting that the causality flowed from the economic growth rate to the growth rate of domestic saving in Thailand alone. This finding indicates that economic growth in Thailand drives changes in domestic saving, rather than the other way around. Furthermore, the study's findings imply that the growth rate of gross domestic saving per capita does not contribute significantly to narrowing the gap in GDP between Thailand and other countries. This suggests that despite domestic saving playing a crucial role in economic growth, its impact may not be sufficient to significantly alter the GDP differential between Thailand and other nations. These findings shed light on the dynamics between domestic saving and economic growth in Thailand, emphasizing the need for further research and policy interventions to enhance the effectiveness of domestic saving as a driver of economic development in the country.

Faridi and Arif (2012) delved into the investigation of the significance of globalization as a determinant of national, private, and public savings. The study utilized annual data for variables including national savings, public savings, private savings, consumer price index, real interest rate, budget deficit, worker's remittances, and trade openness. Upon analysis, it was observed that the variables exhibited stationarity at level I (0), prompting the application of Ordinary Least Squares (OLS) regression analysis. The results of the analysis underscored the importance of globalization in bolstering savings. Specifically, the consumer price index and interest rate were found to be positively and significantly associated with national, private, and public savings. Conversely, government deficit showed an inverse relationship with savings. Notably, the study revealed that workers' remittances exerted a direct and significant impact on all types of savings. Based on these findings, policy recommendations were proposed, suggesting that governments should create an enabling environment and offer fiscal incentives to enhance foreign direct investment, thereby fostering increased savings within the country. The study sheds light on the multifaceted relationship between globalization and savings, emphasizing the need for targeted policy interventions to harness the potential of globalization for bolstering savings and promoting economic development.

In Keho's (2012) study, the focus is placed on the effect of dependency ratio on savings in African countries. Through empirical analysis employing Granger causality tests and co-integration tests, data from 16 African countries is examined. The results reveal that the savings rate is negatively influenced by the dependency ratio in nine countries, while it is positively affected in two countries. These findings underscore the significance of demographic factors in shaping savings behavior across African nations. Despite being in earlier stages of demographic transition characterized by lower fertility and mortality rates, many developing countries in Africa still contend with high dependency ratios compared to their Asian counterparts. The study suggests that efforts to address these demographic challenges should be prioritized, particularly in rural areas where the motivation for reducing birth rates may not yet be prevalent. Expanding programs aimed at providing affordable and accessible methods for birth control could play a crucial role in reducing dependency ratios and fostering higher savings rates in African countries.

In the study conducted by Jilani et al. (2013), the focus is on analyzing the influence of several factors on national savings in Pakistan, including GDP, inflation, fiscal deficit, and the rate of interest. Through the examination of these independent variables, the researchers aim to determine their long-term equilibrium with national savings. Their findings reveal that inflation has a negative but significant impact on national savings. This suggests that policies aimed at reducing inflation could potentially lead

to an increase in national savings. Additionally, the study indicates that the real rate of interest exhibits a negative and insignificant impact on national savings. As a result, the researchers argue against relying solely on interest rate manipulation as a means to stimulate national savings. The policy implications drawn from this research highlight the importance of implementing measures to mitigate inflation and discourage excessive reliance on interest rate adjustments for boosting national savings. Instead, policymakers should consider a multifaceted approach that addresses various factors influencing savings behavior in order to foster sustainable economic growth and stability.

In the study conducted by Khan et al. (2013), the focus is on examining the impact of demographic factors on household savings in Pakistan. The researchers utilized data obtained from the Federal Bureau of Statistics and employed co-integration estimation techniques to analyze the relationship between various factors and household savings. Their findings indicate that income, financial development, life expectancy, and education levels of both males and females have a positive impact on household savings. This suggests that policies aimed at increasing household incomes and enhancing access to education and financial services could contribute to higher levels of savings among households in Pakistan. Conversely, the study reveals a negative impact of the dependency ratio on household savings. This implies that a higher dependency ratio, which typically indicates a larger proportion of dependents relative to working-age individuals, tends to reduce household savings. Based on these findings, the researchers suggest that policymakers should focus on initiatives aimed at increasing household incomes and deepening the financial sector. Additionally, efforts to improve life expectancy and education levels, particularly among females, may also contribute to higher household savings rates. These policy recommendations aim to address demographic factors and promote a culture of saving among households in Pakistan, ultimately fostering economic stability and growth.

In the research conducted by Turan and Gjergji (2014), the focus is on examining the relationship between economic growth and savings. Utilizing the Johansen co-integration test, they analyze empirical data to investigate the dynamics between these two variables. The empirical results of their study reveal a positive relationship between savings and economic growth. This suggests that as savings increase, economic growth tends to follow suit. Moreover, the researchers also highlight the complementary role of Foreign Direct Investment (FDI) in economic growth, noting that FDI and savings move together in the long run. Based on these findings, the researchers propose that governments should prioritize policies aimed at attracting and facilitating foreign direct investment. By doing so, they argue, countries can enhance their savings rates and promote economic growth simultaneously. This recommendation underscores the importance of creating an environment conducive to foreign investment, which can stimulate savings and contribute to overall economic development. By fostering a favorable investment climate, governments can leverage FDI to bolster savings and drive sustained economic growth over the long term.

In the research conducted by Kaberuka and Namubiru (2014), the focus is on examining the effect of remittances on gross domestic savings in Uganda. Remittances, which are primarily utilized for daily consumption needs, are analyzed in relation to their impact on domestic savings. The empirical results of their study indicate that remittances have a negative effect on gross domestic savings in Uganda. This suggests that despite the inflow of remittances, the overall level of domestic savings decreases. Conversely, other variables such as deposit interest rate, real effective exchange rate, inflation, and per capita GDP are found to have a positive contribution to domestic savings in the country. Based on these findings, the researchers propose policy implications for the Ugandan government. They suggest establishing agencies in countries where most Ugandans migrate to capture their savings. By channeling these savings into productive projects within Uganda, the government can leverage remittances to stimulate domestic savings and foster economic development. This recommendation underscores the importance of strategic policy interventions to optimize the impact of remittances on domestic savings.

By facilitating the transfer of remittance funds into productive investments within the country, Uganda can enhance its savings rate and promote sustainable economic growth.

In the study conducted by Khan et al. (2014), the focus is on investigating the factors influencing household savings in Pakistan over the period from 1981 to 2011. Specifically, they analyze the impact of interest rates, inflation rates, and per capita income on household savings in the country. One of the key findings of their research is that the private sector savings serve as the primary driver of overall savings in Pakistan. Notably, within the private sector, household savings account for nearly 90 percent, underscoring their significant contribution to the country's economic development. Furthermore, the study reveals that Pakistan's savings trend is relatively low compared to regional countries with similar income levels. This disparity highlights the importance of understanding the factors influencing savings behavior in Pakistan and the need for targeted policy interventions to enhance savings rates. A critical observation made by the researchers is the high saving-investment gap in Pakistan, indicating that the country relies heavily on external borrowing to finance this disparity. This dependency on external sources to bridge the saving-investment gap poses challenges to the country's economic stability and sustainability. The study underscores the importance of promoting household savings as a vital component of economic development in Pakistan. Addressing factors such as interest rates, inflation, and per capita income can help stimulate higher savings rates, thereby reducing reliance on external financing and fostering long-term economic growth and stability.

In their study, Mansoor and Khattak (2014) explore the factors influencing household savings and propose policy recommendations to address the identified challenges. Through empirical analysis using Ordinary Least Squares (OLS), they ascertain that employment and income exhibit a positive correlation with savings, indicating that individuals with stable employment and higher income levels are more inclined to save. Conversely, factors such as tax burden and unemployment exert a negative impact on savings, suggesting that individuals facing higher taxes or unemployment tend to save less. Firstly, they advocate for government initiatives aimed at enhancing employment opportunities and income levels. This may include providing basic elementary education and scholarships to facilitate skill development and job creation, enabling individuals to secure better-paying jobs in the future. Additionally, they recommend the provision of micro-level loans to farmers and aspiring entrepreneurs, empowering them to invest in income-generating activities and stimulate their savings. By implementing these policy measures, policymakers can work towards mitigating the negative impact of tax burden and unemployment on household savings, while simultaneously fostering an environment conducive to higher savings rates. This, in turn, can contribute to improved financial stability and economic well-being at the household level.

In their study, Chaudhry et al. (2014) focus on examining the concentrated effects of fiscal and monetary factors on aggregate savings in Pakistan. Through their empirical analysis, they reveal several key findings regarding the relationship between various economic variables and national savings. One significant finding of their study is the negative relationship between M2, which represents the broad money supply, and national savings. This suggests that an increase in the broad money supply tends to be associated with a decrease in national savings. Conversely, they find that deposit rates and inflation rates exhibit a positive relationship with national savings. This implies that higher deposit rates and inflation rates may encourage individuals to save more. To estimate the long-run and short-run elasticities of these relationships, Chaudhry et al. (2014) employ the Autoregressive Distributed Lag (ARDL) and Error Correction Model (ECM) approaches, respectively. These methods allow them to analyze both the immediate and long-term impacts of fiscal and monetary factors on aggregate savings. They suggest expanding the network of National Savings Schemes, microfinance institutions, banks, and postal savings in the country. By providing a diverse range of savings options and financial services to the population, policymakers can incentivize and facilitate higher levels of saving among individuals and households.

3. THE MODEL

The research conducted by Khan et al. (2013), Rasmidatta (2011), Kaberuka and Namubiru (2011), Faridi and Arif (2012), Khan (2014), and Ciftcioglu and Begovic (2010) has shed light on the domestic saving behavior within nations, particularly in the context of developing countries facing economic challenges. The prevalence of low domestic saving rates poses a significant concern for economic development and stability in these countries. In this study, the model employed is adapted from the frameworks proposed by Kaberuka and Namubiru (2014) and Faridi and Arif (2012). This model seeks to elucidate the determinants of domestic saving, incorporating variables such as inflation, interest rates, unemployment, and worker remittances. By examining these factors, the study aims to provide insights into the factors influencing domestic saving behavior within the nation. The choice of variables in the model reflects their perceived significance in shaping saving patterns within the domestic economy. Inflation and interest rates are commonly recognized as key economic indicators that can impact individuals' propensity to save, with high inflation rates potentially eroding the value of savings and high interest rates providing incentives for saving. Unemployment rates, on the other hand, may affect households' disposable income and overall economic confidence, thereby influencing saving behavior. Worker remittances, a vital source of income for many households in developing countries, can also contribute to domestic saving levels. By analyzing these variables collectively, the study aims to provide a comprehensive understanding of domestic saving dynamics and offer insights that can inform policymakers and stakeholders in addressing the challenge of low domestic saving rates. Through empirical analysis and model validation, the study seeks to contribute to the existing body of knowledge on domestic saving behavior and offer potential avenues for policy intervention to promote higher levels of saving and economic resilience within the nation. Thus, model of the study becomes

$$SAV = f(INF_t, IR_t, UNP_t, WR_t)$$

Where,

SAV= Domestic Saving

INF=Inflation

IR= Interest Rate

UNP= Unemployment

WR=Worker Remittances

t = Time period

The primary aim of this research is to investigate the influence of interest rates and unemployment rates on domestic saving in Pakistan over the period spanning from 1972 to 2014. To achieve this objective, data for all relevant variables is sourced from multiple editions of the Pakistan Economic Survey and the World Development Indicators databases, which are maintained by the World Bank. By analyzing the historical trends and patterns of interest rates, unemployment rates, and domestic saving in Pakistan, the study seeks to discern any significant relationships or correlations between these variables. Understanding the dynamics between interest rates, unemployment, and saving behavior is crucial for policymakers and economists to formulate effective strategies for promoting economic stability and growth. The utilization of long-term data spanning nearly five decades allows for a comprehensive examination of the impact of interest rates and unemployment on domestic saving, encompassing various economic cycles, policy changes, and external factors that may have influenced saving behavior in Pakistan over time. Through rigorous empirical analysis and statistical techniques, the study aims to provide valuable insights into the determinants of domestic saving in Pakistan and contribute to the existing body of knowledge on the subject. The findings of this research can inform policymakers, economists, and stakeholders in designing policies and interventions aimed at fostering higher levels of domestic saving and promoting sustainable economic development in Pakistan.

4. ECONOMETRIC METHODOLOGY

For the rigorous economic analysis of macroeconomic models, the application of econometric tools is indispensable. One critical challenge in analyzing macroeconomic data stems from the non-stationarity of time series data, which is prevalent in many macroeconomic variables. This non-stationarity can lead to spurious regression results, undermining the reliability of the analysis. As noted by Nelson and Plosser (1982), macroeconomic time series data often exhibit a unit root problem, where the data generating process may not be stationary. The presence or absence of a unit root is a key consideration in assessing the validity of the data generating process. Stationary time series data typically exhibit temporary shocks that dissipate over time, causing the series to revert to its long-run mean values. In contrast, non-stationary time series data are characterized by shocks that have long-lasting effects. If the time series data only experience either negative or positive shocks, it is indicative of non-stationarity. To address the issue of non-stationarity and ascertain the stationarity of time series data, various unit root tests are available in the literature. One commonly used test is the Augmented Dickey-Fuller (ADF) unit root test (1981), which is employed in this study to assess the stationarity of the data. By conducting unit root tests, researchers can determine the stationarity properties of the data and ensure the robustness of their econometric analyses.

In econometric analysis, various cointegration tests are available to assess the long-run relationships among variables. Among the most well-known are the residual-based Engle-Granger (1987) test, as well as the Maximum Likelihood based tests proposed by Johansen (1991/1992) and Johansen-Juselius (1990). However, these traditional tests have certain limitations, particularly when the variables in the model exhibit different levels of integration. These tests assume the same order of integration for all variables, rendering them invalid and inefficient in such cases. Moreover, traditional cointegration tests often fail to account for structural changes in time series data, such as economic downturns, recessions, institutional changes, and shifts in policy regimes. These changes can significantly impact the relationships among variables but may go undetected by traditional methods. To address these limitations, the Autoregressive Distributed Lag (ARDL) bound testing approach was introduced by Pesaran and Shin (1999), Pesaran and Pesaran (1997), and Pesaran, Shin, and Smith (2001). Unlike traditional methods, ARDL can accommodate variables with different orders of integration, making it more flexible and applicable in various contexts. One of the key advantages of the ARDL approach is its ability to handle small sample sizes effectively, making it suitable for empirical analysis with limited data availability. Additionally, ARDL allows for the inclusion of an adequate number of lags to capture the data generating process accurately within a general-to-specific modeling framework. Another notable feature of ARDL is its capability to provide detailed information about structural breaks in the data, which is crucial for understanding the dynamics of the variables over time. By incorporating the Unrestricted Vector Error Correction Model (UVECM), ARDL accounts for both short-run dynamics and long-run equilibrium relationships more effectively than traditional techniques. The ARDL approach has been recognized for its efficiency in estimating long-run correlations among macroeconomic variables, offering a robust alternative to traditional cointegration methods. By employing ordinary least squares (OLS) estimation after lag order selection, ARDL provides valid estimates and inferences, allowing researchers to identify and interpret the long-run associations essential for cointegration analysis (Pesaran et al., 2001; Pesaran and Shin, 1997). If there exits long-run cointegration relationship among the variables, then for finding short-run relationship the study uses the Vector Error Correction Model (VECM).

5. RESULTS AND DISCUSSION

The descriptive statistics provided in Table-1 offer insights into the characteristics of the variables in our model. Skewness and kurtosis measures help assess the distributions of the variables and provide

JOURNAL OF POLICY OPTIONS

indications of their volatilities and normality. From the descriptive statistics, it is observed that worker's remittances and unemployment exhibit negative skewness, indicating that their distributions are skewed towards lower values. On the other hand, savings, inflation, and interest rate display positive skewness, suggesting that their distributions are skewed towards higher values. Furthermore, all variables in the model exhibit positive kurtosis values, indicating that their distributions have heavier tails compared to a normal distribution. This suggests that extreme values may occur more frequently in the data. The results of the Jarque-Bera test indicate that all variables in the model follow a normal distribution. This implies that the data are consistent with a Gaussian distribution, further supporting the reliability of the statistical analysis conducted on these variables.

Table-1: Descriptive Statistics

	SAV	LWR	LUNP	LIR	LINF
Mean	11.25542	7.583164	0.872295	2.355762	2.118387
Median	10.21141	7.559839	1.615663	2.302585	2.145665
Maximum	17.61168	9.541345	2.112635	2.995732	3.283278
Minimum	4.688731	4.912655	-1.108663	1.791759	1.069573
Std. Dev.	3.932042	1.057431	1.133728	0.244805	0.527926
Skewness	0.243158	-0.555720	-0.485628	0.465424	0.022381
Kurtosis	1.706602	3.749171	1.616461	3.301253	2.756433
Jarque-Bera	3.341417	3.143976	5.000656	1.675154	0.107325
Probability	0.188114	0.207632	0.082058	0.432758	0.947752
Sum	472.7277	318.4929	36.63640	98.94199	88.97227
Sum Sq. Dev.	633.8991	45.84455	52.69887	2.457106	11.42696
Observations	49	49	49	49	49

The correlation matrix presented in Table-2 illustrates the relationships between the variables in our model. Saving exhibits a positive and significant correlation with unemployment, indicating that as savings increase, unemployment tends to decrease. However, the correlation between saving and interest rate, as well as worker's remittances, is positive but insignificant, suggesting that these variables may not have a strong linear relationship with savings. Additionally, saving shows a negative and insignificant correlation with inflation, implying that higher inflation rates may not necessarily correspond to lower levels of saving. Worker's remittances display a positive and significant correlation with unemployment and interest rate, indicating that higher levels of worker's remittances are associated with increased unemployment and interest rates. However, the correlation between worker's remittances and inflation is negative and insignificant, suggesting that inflation may not be strongly influenced by changes in worker's remittances. Unemployment exhibits a positive and significant correlation with interest rate, suggesting that higher unemployment rates tend to coincide with higher interest rates. Conversely, unemployment shows a negative and insignificant correlation with inflation, indicating that changes in unemployment may not be strongly related to inflation. Interest rate displays a positive and significant correlation with inflation, indicating that higher interest rates are associated with higher inflation rates. Overall, the results suggest that most of the independent variables in our model have a positive correlation with our dependent variable, savings. However, the strength and significance of these correlations vary across the different variables.

Table-2: Covariance Analysis: Ordinary

Variables	SAV	LWR	LUNP	LIR	LINF
SAV	1.000000				
LWR	0.062530	1.000000			
LUNP	0.715511	0.593069	1.000000		
LIR	0.115258	0.311217	0.379579	1.000000	
LINF	-0.282729	-0.217794	-0.185757	0.323263	1.000000

The Augmented Dickey-Fuller (ADF) test, as outlined by Dickey and Fuller (1981), is employed to assess the stationarity of the variables in our model. The results presented in Table-3 indicate that inflation and interest rate are stationary at the level. However, domestic saving, unemployment, and worker remittances exhibit stationarity at the first difference. Notably, all variables become stationary at the first difference, indicating a mixed order of integration among the variables in our model. Given this mixed order of integration, we can proceed with the Auto-regressive Distributed Lag (ARDL) bound testing approach to cointegration. This approach is suitable for addressing situations where variables have different orders of integration, as it does not require uniform integration levels across all variables. Therefore, the ARDL approach will allow us to explore potential long-run relationships among the variables despite their varying integration orders.

Table-3: Augmented Dickey-Fuller Unit root test

Variables	T-Statistic	Prob.
At level		
LNINF	-3.423090	0.0164
LIR	-4.078927	0.0028
SAV	-1.739099	0.4046
LWR	-0.805204	0.8070
LUNP	-1.463377	0.5416
At first difference		
DLNINF	-7.550930	0.0000
DLIR	-9.635016	0.0000
DSAV	-7.224687	0.0000
DLWR	-10.52270	0.0000
DLUNP	-4.005396	0.0034

Table 4 provides the lag order selection criteria for the variables in our model. Various criteria, including Sequential Modified Likelihood Ratio (LR), Final Prediction Error (FPE), and Akaike Information Criterion (AIC), suggest an optimal lag length of 2. Since the maximum permitted lags in Vector Auto-Regressive (VAR) analysis is two, we proceed with this lag length for our analysis. Moving forward, Table 5 presents the results of the bound testing approach for domestic saving, unemployment, interest rate, worker's remittances, and inflation rate. The F-statistic computed exceeds the upper bound value at the 2.5 percent level, leading us to accept the alternative hypothesis indicating cointegration among the variables in our model. This implies the presence of long-term relationships among the variables, supporting our analysis of their interconnections.

Furthermore, the negative relationship between inflation and domestic saving suggests that as the general price level rises, consumers' purchasing power diminishes, leading to a decrease in their ability to save. This phenomenon may be attributed to the erosion of real income and wealth caused by inflation, prompting individuals to allocate a larger portion of their income to consumption rather than saving

(Friedman, 1957). Additionally, high inflation rates often coincide with economic uncertainty and instability, which can further deter households from saving as they prioritize immediate consumption over long-term financial planning (Fischer, 1981). Moreover, the inverse association between inflation and domestic saving underscores the importance of implementing effective monetary policies aimed at controlling inflationary pressures. Central banks play a crucial role in maintaining price stability and preserving the value of the domestic currency, thereby fostering an environment conducive to saving and investment (Bernanke et al., 1999). By implementing prudent monetary policies, such as adjusting interest rates and managing the money supply, authorities can mitigate the adverse effects of inflation on household savings and promote economic stability. Furthermore, the findings suggest that policymakers should focus on implementing measures to curb inflationary pressures and stabilize the economy, as excessive inflation can have detrimental effects on long-term economic growth and development. This may involve adopting fiscal and monetary policies aimed at reducing government spending, controlling budget deficits, and ensuring price stability through effective regulation and oversight of financial markets (Taylor, 1993). Additionally, efforts to enhance productivity, foster competition, and promote investment in key sectors of the economy can help alleviate inflationary pressures and encourage greater household saving.

Table-4: VAR Lag Order Selection Criteria

SAV, LINF, LIR, LWR, LUNP

Time Period: 1972-2013

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-196.5696	NA	0.021228	10.33690	10.55018	10.41342
1	-56.97782	236.2322	6.03e-05	4.460401	5.740064*	4.919533*
2	-27.11491	42.88008*	5.02e-05*	4.211021*	6.557069	5.052763
3	-10.15942	19.99878	9.06e-05	4.623560	8.035994	5.847912

* indicates lag order selected by the criterion

LR: sequential modified LR test statistic (each test at 5% level)

FPE: Final prediction error

AIC: Akaike information criterion

SC: Schwarz information criterion

HQ: Hannan-Quinn information criterion

Table-5: ARDL Bound Testing Approach

Dependent Variable SAV; ARDL (1,1,1,1,1)

F-Statistics 4.682342

Critical values	Lower Bound	Upper bound
97.5%	3.25	4.49
95%	2.86	4.01
90%	2.45	3.52

The significant but negative relationship between worker's remittances and domestic saving in Pakistan suggests that an increase in remittance inflows may lead to a decrease in domestic saving levels. This phenomenon could be attributed to several factors. Firstly, remittances are often used for immediate consumption or to meet household expenses, rather than being saved or invested for future needs (Yang, 2008). Many recipients of remittances prioritize meeting daily living expenses or addressing urgent financial needs, leaving little room for discretionary saving (Woodruff and Zenteno, 2007). Moreover, the negative impact of worker's remittances on domestic saving could also be linked to the phenomenon

of "Dutch disease," whereby an influx of foreign currency leads to an appreciation of the domestic currency, making exports less competitive and contributing to a decline in domestic industries (Corden and Neary, 1982). This can result in reduced employment opportunities and lower income levels, thereby limiting households' ability to save. Additionally, remittances may indirectly discourage domestic saving by fueling consumption-driven growth patterns and reducing incentives for domestic investment (Adams Jr, 1991). On the other hand, the insignificant and negative impact of interest rates on domestic saving implies that changes in interest rates do not have a significant effect on household saving behavior in Pakistan. This finding contradicts traditional economic theory, which suggests that higher interest rates should incentivize saving by offering greater returns on savings deposits and investments (Modigliani and Brumberg, 1954). However, in the context of Pakistan, other factors such as economic uncertainty, inflationary pressures, and limited access to formal financial services may outweigh the influence of interest rates on saving decisions (Deaton, 1992).

The negative impact of interest rates on domestic saving, as indicated by our findings and supported by Jilani (2013), suggests that higher interest rates may discourage saving behavior among households in Pakistan. This result contradicts conventional economic theory, which posits that higher interest rates should incentivize saving by offering greater returns on savings deposits and investments. However, several factors specific to the Pakistani context may contribute to this phenomenon. One possible explanation is that the majority of households in Pakistan have limited access to formal financial services, such as banks and other financial institutions (Demirgüç-Kunt and Klapper, 2012). As a result, changes in interest rates may have a limited impact on saving behavior, as many households may not have significant savings or investments in interest-bearing accounts. Additionally, high levels of economic uncertainty and inflationary pressures in Pakistan may erode the real value of savings, reducing the effectiveness of interest rate incentives. Moreover, the negative relationship between interest rates and saving could also be attributed to the prevalence of informal saving mechanisms, such as informal savings groups or "committee" savings schemes, which are common in many developing countries, including Pakistan (Jack and Suri, 2014). These informal savings mechanisms often operate outside the formal financial sector and may offer alternative avenues for saving that are less influenced by changes in interest rates. Furthermore, structural factors such as income inequality, limited financial literacy, and cultural attitudes toward saving and investment may also play a role in shaping saving behavior in Pakistan. For example, households with lower incomes may prioritize meeting immediate consumption needs over saving for the future, while those with higher incomes may have access to alternative investment opportunities that offer higher returns than traditional savings accounts.

The significant and positive impact of unemployment on domestic saving, as revealed by our findings, suggests an interesting relationship between labor market dynamics and saving behavior in Pakistan. This result may seem counterintuitive at first glance, as one might expect that higher unemployment rates would lead to decreased saving due to reduced income and increased financial insecurity among households. However, several factors specific to the Pakistani context may help explain this phenomenon. One possible explanation is that higher levels of unemployment may lead individuals and households to adopt more conservative financial behaviors, including increased saving as a precautionary measure against future income shocks (Carroll, 1992). In the face of uncertain job prospects and economic instability, households may prioritize building up savings buffers to mitigate the impact of potential income loss or to cover essential expenses during periods of unemployment. Moreover, unemployment may also influence saving behavior indirectly through its impact on household consumption patterns. For example, individuals who are unemployed or facing precarious employment may reduce discretionary spending and consumption in order to conserve financial resources and prioritize essential expenses (Kaplan and Violante, 2014). This reduction in consumption expenditure could free up additional funds for saving, contributing to the positive relationship between

JOURNAL OF POLICY OPTIONS

unemployment and domestic saving. Furthermore, it is important to consider the role of social safety nets and support systems in shaping saving behavior among unemployed individuals in Pakistan. In the absence of robust unemployment benefits or social welfare programs, households may rely more heavily on personal savings as a means of financial support during periods of unemployment or economic hardship (Caliendo et al., 2011). This reliance on personal savings as a form of self-insurance against income loss could drive up saving rates among unemployed individuals.

Table-6: Long Run Coefficient using the ADRL Approach

Dependent variable is SAV; ARDL (1,1,1,1,1): Time Period 1972-2013

Regressor	Co-efficient	Standard-Error	T-Ratio (Prob)
LINF	-2.215593	1.056224	-2.098[.045]
LIR	-1.782095	2.520728	-0.707[.485]
LUNP	4.079647	0.473897	8.609[.000]
LWR	-2.626635	0.534520	-4.914[.000]
C	36.094014	6.186868	5.834[.000]

The short-run dynamics captured in Table 7 provide valuable insights into the immediate responses of domestic saving to changes in key economic variables in Pakistan. The findings shed light on how short-term fluctuations in worker remittances, unemployment, interest rates, and inflation affect saving behavior among households. Firstly, the significant and negative impact of worker remittances on domestic saving highlights the complex relationship between international migration and domestic financial flows. While remittances represent an important source of income for many households in Pakistan, particularly those with family members working abroad, the short-run analysis suggests that increases in remittance inflows may not necessarily translate into higher levels of domestic saving. This finding may reflect the immediate consumption needs or investment decisions of recipient households upon receiving remittance payments, which could outweigh any potential saving behavior in the short term. Secondly, the positive and significant impact of unemployment on domestic saving in the short run underscores the role of economic uncertainty and precautionary saving motives among households facing job insecurity. During periods of heightened unemployment, individuals and households may prioritize saving as a means of buffering against future income shocks or economic downturns, even in the absence of stable employment income. Thirdly, the positive and significant relationship between interest rates and domestic saving in the short run suggests that changes in borrowing costs can influence saving behavior among households in Pakistan. Higher interest rates may incentivize individuals to allocate a greater proportion of their income towards saving rather than consumption, as the returns on savings accounts or other interest-bearing assets become more attractive relative to spending on goods and services. Lastly, the negative and significant impact of inflation on domestic saving in the short run highlights the erosion of purchasing power and wealth preservation concerns that may prompt households to reduce saving in response to rising prices. Inflationary pressures can diminish the real value of savings over time, leading individuals to prioritize immediate consumption or investment in inflation-hedging assets rather than saving in nominal terms. Overall, the short-run dynamics of domestic saving in Pakistan are influenced by a complex interplay of economic factors, including international remittances, labor market conditions, interest rates, and inflation. Understanding these dynamics is crucial for policymakers seeking to design effective interventions to promote saving and financial resilience among households in Pakistan, particularly in the face of economic volatility and uncertainty.

The negative and statistically significant value of the error correction term (ECMt-1) at -0.690676 provides strong evidence of a long-run relationship among the variables in the context of Pakistan. This

coefficient, significant at the 2.5% level, indicates the speed at which deviations from the short-run equilibrium are corrected and the system returns to its long-run equilibrium path. Specifically, the negative sign of the error correction term suggests that adjustments in the short run are directed towards restoring long-run equilibrium. The magnitude of the error correction term indicates that approximately 69% of the deviation from the long-run equilibrium is corrected each year. This implies that any deviations from the equilibrium relationship between the variables are gradually corrected over time, with the system converging towards its long-run equilibrium state at a relatively rapid pace. The significance of the error correction term underscores the presence of a stable and enduring relationship among the variables, indicating that any short-term fluctuations or shocks to the system are temporary and tend to be corrected over time. This long-run equilibrium relationship provides valuable insights for policymakers and analysts seeking to understand the underlying dynamics of the economic system in Pakistan and formulate appropriate policies to promote stability and sustainable growth. Overall, the error correction mechanism serves as a crucial tool for analyzing the dynamics of adjustment between short-run fluctuations and long-run equilibrium in the context of Pakistan's economy. By incorporating this mechanism into the analysis, researchers can better understand the nature and speed of adjustments in response to economic shocks and policy interventions, thereby facilitating more informed decision-making and policy formulation.

Table-7: Vector Error-Correction Model (VECM)

ADRL (1,1,1,1,1): Dependent variable is DSAV: Time Period 1972-2013			
Regressor	Coefficients	Standard-Error	T-Ratio (Prob)
D(LWR)	-2.860775	1.409907	-2.029(0.05)
D(LWR(-1))	1.432364	0.734786	1.949(.061)
D(LUNP)	4.978860	1.405231	3.543(.001)
D(LIR)	2.408005	1.530058	1.574(.126)
D(LIR(-1))	3.743585	1.437107	2.605(.014)
D(LINF)	-1.530258	0.649153	-2.357(.025)
ECT	-0.690676	0.149360	-4.624(.000)

Table-8: Diagnostic Test

| Breusch-Godfrey Serial Correlation LM Test:			
F-statistic 0.845179		Prob. F(2,27) 0.4405	
Obs*R-squared 2.356692		Prob. Chi-Square(2) 0.3078	
Heteroskedasticity Test: White			
F-statistic	2.184540	Prob. F(5,36)	0.0775
Obs*R-squared	9.776791	Prob. Chi-Square(5)	0.0818
Scaled explained SS	5.263752	Prob. Chi-Square(5)	0.3845

Table 8 presents the results of the serial correlation and heteroscedasticity tests conducted on our model. The LM test for residual serial correlation indicates that there is no evidence of serial correlation among the variables, suggesting that the residuals are not correlated over time and that the model adequately captures the temporal dynamics of the data. Furthermore, the White test for heteroscedasticity does not detect any significant heteroscedasticity issues in our data. This suggests that the variance of the error terms is constant across observations, indicating that the model's assumptions regarding the variance of the error term are satisfied. Overall, these diagnostic tests provide assurance regarding the reliability of

our model's estimates and suggest that the model is adequately specified to analyze the relationship between the variables of interest. Additionally, assessing the stability of the model over time is crucial for ensuring the validity of the estimated parameters and their interpretation.
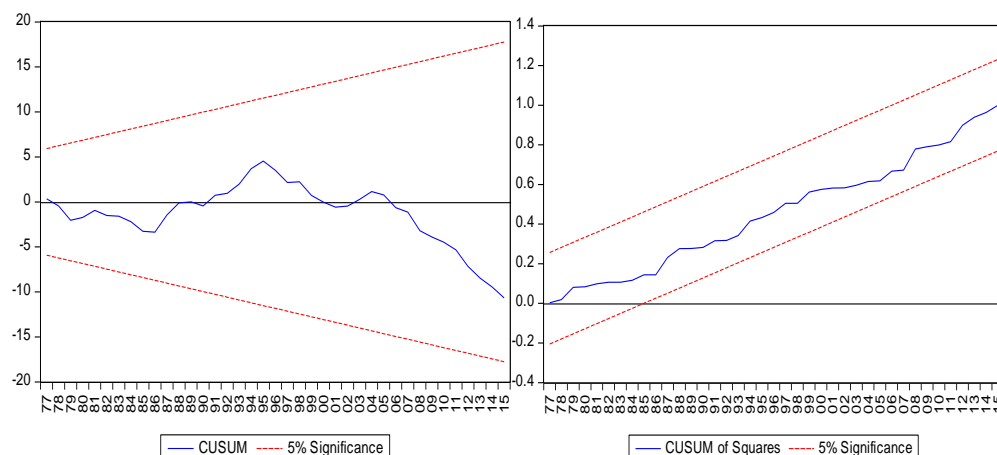
Hansen (1996) emphasizes the importance of correctly specifying the model to ensure unbiased results and reliable explanatory power. In line with this recommendation, the stability of the short-run and long-run coefficients in our model is assessed using the Cumulative Sum (CUSUM) and Cumulative Sum of the Squares (CUSUM sq) tests, as suggested by Brown, Durbin, and Evans (1975). The results of these tests, depicted in Figure 1 and Figure 2, indicate that both the Cumulative Sum (CUSUM) and Cumulative Sum of the Squares (CUSUM sq) statistics remain within the critical boundaries. This suggests that the coefficients of the model remain stable over time and do not exhibit significant deviations from the expected values. The figures provide visual confirmation that the model is correctly specified and that the estimated coefficients can be considered reliable for inference and interpretation. Ensuring the stability of the coefficients is essential for maintaining the validity of the model's results and their usefulness for understanding the relationship between the variables under investigation.

6. CONCLUSIONS

The primary objective of this study is to analyze the dynamics of domestic saving in Pakistan amidst varying interest rates and economic conditions, utilizing data spanning from 1972 to 2013. Inflation, unemployment, and worker's remittances are selected as independent variables, while domestic savings in Pakistan serves as the dependent variable. The study employs the Augmented Dickey-Fuller (ADF) unit root test to ascertain the stationarity of the variables. Subsequently, the Auto Regressive Distributed Lag (ARDL) model is utilized to investigate the presence of co-integration among the variables, with the Vector Error-Correction model applied to examine short-run phenomena. The findings of the unit root test reveal mixed orders of integration among the variables under study. In the long run, unemployment demonstrates a positive and significant impact on domestic saving, while worker remittances and inflation exert a negative and significant influence. Conversely, interest rates display a negative and insignificant impact on domestic saving in the long run. In the short run, unemployment emerges as statistically significant, positively impacting domestic saving. Worker remittances exhibit a significant but negative relationship with domestic saving, whereas interest rates positively affect domestic saving with statistical significance. Conversely, inflation negatively impacts domestic saving significantly in both the short and long run. Moreover, the study reveals that short-run deviations are corrected by 97.206 percent in the subsequent period, indicating a high degree of adjustment towards equilibrium. These empirical results underscore the adverse impact of economic misery on domestic saving in Pakistan. Based on these findings, several policy recommendations are proposed to enhance domestic saving in

the country. Notably, efforts to control inflation through contractionary monetary policy are suggested, alongside the diversification of savings schemes such as bonds and shares. Additionally, while short-term interest rate increases are found to positively influence domestic saving, long-term policies should focus on addressing the insignificance of interest rates in the context of saving behavior.

REFERENCES

Ahmad, K., Safdar, A., & Amjad, A. (2018). Trade Revenue Implications of Trade Liberalization in Pakistan. *Pakistan Journal of applied economics*, *28*(1), 27-50.

Ahmad, M. H., Atiq, Z., Alam, S., & Butt, S. M. (2006). The Impact Of Demography, Growth And Public Policy On Household Saving:A Case Study Of Pakistan. *Asia-Pacific Development Journal*, 57-71.

Ali, A. (2015). The Impact of Macroeconomic Instability on Social Progress: An Empirical Analysis of Pakistan. Ph.D Dissertation. NCBA&E, Lahore, Pakistan., 1-152.

Ali, A., & Ahmed, F. (2016). Impact of Government borrowing on financial development (a case study of Pakistan). *Bulletin of Business and Economics (BBE)*, *5*(3), 135-143.

Ali, A., & Naeem, M. Z. (2017). Trade Liberalization and Fiscal Management of Pakistan: A Brief Overview. *Policy Brief-Department of Economics, PU, Lahore*, *1*(1), 1-6.

Ali, A., & Rehman, H. U. (2015). Macroeconomic instability and its impact on gross domestic product: an empirical analysis of Pakistan. *Pakistan Economic and Social Review*, 285-316.

Ali, A., & Zulfiqar, K. (2018). An Assessment of Association between Natural Resources Agglomeration and Unemployment in Pakistan. *Journal of Pakistan Vision*, *19*(1).

Arshad, S., & Ali, A. (2016). Trade-off between inflation, interest and unemployment rate of Pakistan: Revisited. *Bulletin of Business and Economics (BBE)*, *5*(4), 193-209.

Asif, M., & Simsek, S. (2018). The Difference between Price and Value: Empirical Discussion. *Journal of Business and Economic Options*, *1*(1).

Asim, A., & Husain, M. (1996). Private Saving and Its Determinants:The case of Pakistan. *The Pakistan Development Review*, 49-70.

Azam, M., Khan, M., Khan, Z., Shafiqullah, Ali, S. I., & Qaiyum, A. (2010). Significance Of National Saving In The Socio-Economic Development Of Pakistan: 1974-2009. 413-417.

Chaudhry, I. S., Riaz, U., Farooq, F., & Zulfiqar, S. (2014). The Monetary and Fiscal Determinants of National Savings in Pakistan: An Empirical Evidence from ARDL to Co-integration. *Pakistan Journal of Commerce and Social Sciences*, 521-539.

Ciftcioglu, S., & Begovic, N. (2010). Are domestic savings and economic growth correlated? Evidence from a sample of Central and East European countries. *Problems and Perspectives in Management*, 30-35.

Faridi, M. Z., & Arif, A. (2012). Globalization and Saving Behavior of Pakistan: An Empirical Analysis. *Pakistan Journal of Social Sciences*, 79-91.

Hussain, A. (2018). Banking Privatization and Profitability in Pakistan: A Time Series Analysis. *Journal of Business and Economic Options*, *1*(1).

Iqbal, A. (2018). Determinants of Micro Finance in Pakistan. *Journal of Business and Economic Options*, *1*(1).

Jilani, S., Sheikh, S. A., Cheema, F.-E.-A., & Shaik, A.-u.-H. (2013). Determinants of National Savings in Pakistan: an Exploratory Study. *Canadian Center of Science and Education*, 225-262.

Kaberuka, W., & Namubiru, R. (2014). The effect of remittances on gross domestic savings in Uganda (1999-2011). *International Journal of Business Management and Administration*, 29-39.

Khan, I. H., Khilji, B. A., & Abbas, G. (2014). Relationship Between Interest Rate and Household's Savings In Pakistan. *International Journal of Innovation and Scientific Research*, 295-308.

Khan, R. I. A., & Ahmad, K. (2018). Revitalizing the Pakistan Textile Industry: Challenges and Opportunities. *Journal of Policy Options*, *1*(1).

Khan, T., Gill, A. R., & Haneef, S. (2013). Determinants of private saving: a case of Pakistan. *Asian Journal of Economic Modelling*, 1-7.

Mahmood, H., & Aslam, M. (2018). Impact of Plastic Money Adoption on Consumer Purchasing Habits: A Study in Pakistan. *Journal of Policy Options*, *1*(1).

Maurya, R. (2018). Indian mutual funds: An empirical investigation. *Journal of Business and Economic Options*, *1*(1).

Shahid, M., & Ali, A. (2015). The impact of decentralized economic affairs expenditures on economic growth: A time series analysis of Pakistan. *Bulletin of Business and Economics (BBE)*, *4*(3).

Siddiqi, M. W. (2018). Pakistan's Mutual Funds: An Empirical Analysis. *Journal of Business and Economic Options*, *1*(1).