Economic Growth and Financial Intermediation Nexus in Pakistan: An ARDL Analysis

Zahid Mehmood Akhtar[1], Dr. Faid Gul[2], Dr. Fauzia Mubarak[3]

Abstract
This paper explores the relationship between economic growth and financial intermediation in Pakistan. By utilizing data from 1996 to 2022, presence of cointegration in the long run is investigated by employing the auto regressive distributed lag (ARDL) bounds testing approach, whereas error correction model (ECM) is used to depict short run linkages. The augmented dickey fuller (ADF) test verifies the stationarity properties of the series. The results show that financial intermediation promotes economic growth both in short run as well as in long run and confirm the view of Schumpeter regarding finance growth nexus. The findings also reveal that investment and human development also significantly contribute to productivity and economic expansion whereas public expenditure exhibits a positive but insignificant effect due to crowding out effects. The study found that despite improvements in Pakistan's financial structure, sustainable economic growth requires an enabling investment climate and robust governance which can be achieved by implementing suitable reforms for development of a well-organized financial sector.
Keywords: Financial Intermediation, Economic Growth, Cointegration

1. Introduction

The linkage between economic growth and finance has sparked an ample debate among academic researchers, policymakers, and finance practitioners, particularly during the 2007-2009 financial crisis, which had a global impact on output, remittances, employment, and economic growth (Alpha et al., 2016). This discussion raises the question of whether high economic success can be attributed to effective financial intermediation. The research of the underlying link between economic growth and finance has important significance for policymakers, development organizations, and researchers in determining the most practicable growth and development framework to be implemented (Fatima & Zaman, 2018; Bosma et al., 2018).

The function of financial intermediaries in an economy extends beyond credit creation, savings mobilization, and risk management mechanisms to include monitoring and providing financial guidance to borrowers in order to ensure positive returns on investment and thus economic growth (Khan & Ullah, 2017; Rahman et al., 2020). The financial literature extensively documents the significant link between economic growth and financial development. Greenwood and Jovanovic (1990) pointed out that an efficient and dynamic financial system conveys better information and monitors borrowers' activities to reduce the risk of default and generate healthy growth. Jalil & Ma (2008) likewise, and Beck & Levine (2004) emphasize the pivotal role of financial development in fostering economic growth. Moreover a financial system which is well functioning, well-structured and well organized is deemed essential and vital for economic growth. (Qayyum, & Sheikh, 2005; Levine, 2005). The influential work of Schumpeter (1912) exhibits strong theoretical relationship between economic growth and financial development. He advocates that a key to faster growth in the economy is an organized and efficient financial system which promotes mobilization of savings, allocation of capital, management of risk and ultimately alleviates innovation. Endogenous growth theories of 1980s and 1990s also stress upon the development of financial sector and consider a robust and well-functioning financial system as a prime factor that determines economic growth (Berthelemy & Varoudakis, 1996). Theses theorists are of the view that sound financial system causes improvement in allocation of capital along with enhanced management of liquidity risks and well diversified efficient portfolios of investors and more efficient projects of investment. These all factors combine to elevate productivity of capital and sways positively on growth of the economy (Bencivenga & Smith, 1991; Saint-Paul, 1992; King & Levine, 1993).

However, there is an opposing position that the influence of the financial sector in economic expansion is exaggerated in academic discourse (Lucas, 1988). It is the degree of financial development which actually determines the nature of the interaction between economic growth and financial development (Rioja & Valev, 2004). Without sufficient laws and adequate regulations, finance can have detrimental effects on economic growth and the potential to bring future crises with negative consequences for societal well-being (Schularick & Taylor, 2012; Mian et al., 2014). It is also argued that while financial development initially boosts economic expansion, there comes a point at which further expansion of the financial system may not provide further advantages or perhaps have the opposite impact. Deidda and Fattouh (2002) demonstrated that, after a certain point, the positive relationship between financial development and economic growth weakens. Arcand et al. (2015) propagated the same notion and determined a threshold beyond which the good impacts of increasing financial depth on economic growth cease, as discussed by Beck et al. (2014). Another body of research argues that financial markets have a negative or no impact on economic growth .e.g. (Singh, 1997; Luintel & Khan, 1999; Naceur & Ghazouani, 2007; Narayan & Narayan, 2013; Demetriades & Rousseau, 2016; Ismail & Saeed, 2017; Labeeque & Sanaullah, 2017; Ali & Afzal, 2016). As a result, empirical studies have conflicting implications for ultimate conclusions about the finance-growth nexus.

Regarding Pakistan, it is believed that the country's economic prosperity is primarily dependent on an efficient and robust financial sector. Among various researchers who espouse this belief, Khan et al. (2005) emphasize the importance of financial development, which entails the establishment and expansion of financial institutions and services within an economy. Khan (2008) supports this view by emphasizing the favorable influence of financial development on economic prosperity. Tahir (2008) agrees with this viewpoint, noting that financial development is critical in generating economic well-being.

In the last four decades, various reforms have been exercised in Pakistan to develop and liberalize its financial system with the ambition to increase the contribution of financial sector in economic growth (Munir et al. 2013). To increase the efficiency and innovation in the economy of Pakistan, significance of financial liberalization by easing of government regulations on financial institutions and markets is also emphasized by Naveed and Mahmood (2019). The objective of these reforms was to improve proficiency and to streamline state-owned banks' cost structures in order to facilitate their sale; to fully privatize

---

[1] PhD Scholar, Department of Management Sciences, NUML, Islamabad, Pakistan, zmakhtar@numl.edu.pk
[2] Professor, Department of Management Sciences, NUML, Islamabad, Pakistan, fgul@numl.edu.pk
[3] Associate Professor, Department of Management Sciences, NUML, Islamabad, Pakistan, fmubarik@numl.edu.pk

partially privatized banks; to liberalize bank branching policies; to lower bank taxes; to facilitate loan collateral foreclosure; to reinforce prudential regulations; to recover non-performing loans; to reduce the excess staff; to introduce market-based interest rates; to establish banking courts; and to integrate national savings schemes with the financial markets (Khan et al. 2007).

Despite all these reforms, Pakistan has been experiencing upswings and downswings in its economic performance. Financial sector has remained the major concern and financial institutions are given due importance in economic growth. To explore the dynamics of financial sector in the Pakistan's economy, different dimensions of this sector has been explored by many researchers to analyze its impact on economic growth (Kiani & Ali, 2019; Rahman et al., 2020; Jalil et al., 2011; Khan, 2016; Maune et al., 2020; Abigail, 2023; Muhammad, 2023). Many studies have been carried out to assess the role of financial development, financial inclusion and financial liberalization in Pakistan's economic growth but limited research is conducted so far to review the financial intermediation's impact on growth of economy. Consequently, it is important to look at the relationship between economic growth and financial intermediation, because the analysis could give decision-makers deeper understanding to formulate wise policy suggestions. Therefore, the goal of this research is to investigate this link and ascertain the potential impact of financial intermediation on economic growth.

2. Literature Review
The scholarly debate regarding nexus of economic growth and finance began after the eminent scholarly endeavor of Schumpeter (1912), who acknowledged the significance of finance in growth of the economy. His work emphasized that advancement in technology and accumulation of capital by the banking system support economic progress. Subsequently, Shaw (1973) and McKinnon (1973) affirmed that developments in financial sector not only contribute but are significantly favourable for the process of economic expansion.

Patrick (1966) established the "stages of development" hypothesis in regard to the finance-growth relationship, and took two propositions into account. The demand-following proposition, assumes a positive causality from economic growth to financial development whereas, supply-leading proposition is a reciprocal of the former. For instance, as per supply leading hypothesis; resource pooling, risk management, and intermediary roles play a major part in financial development's ability to support economic growth (Levine, 1998). Numerous researchers used panel, cross-sectional, and time series data to test this theory, with varying degrees of success. For example, in ten developing nations, Luintel and Khan (1999) discovered strong evidence in favor of the supply-leading concept. For Latin American countries, De-Gregorio and Guidotti (1995) found in panel data a negative association between growth in the economy and development of financial sector, whereas, in cross-sectional data, the association was found to be positive. The primary cause of this negative association was the high degree of financial deregulation and limited banking regulations. Conversely, the demand-following proposition promoted the idea that development in financial sector follows economic growth in a one-way causal relationship (Ang & McKibbin, 2007; Sossounov & Kolenikov, 2023; Ackah, 2023; Ali & Mohsin, 2023). Rehman & Cheema (2013) also acknowledged the validity of the demand-following concept. Khan et al. (2018) came to the conclusion that the primary driver of economic expansion is financial development.

Numerous studies acknowledge that the development in the financial sector contributes in expansion of the economy. Robinson (1952) argued that development in the financial sector especially in its initial stages, the sector itself lags behind the growth of businesses because financial institutions and services may not be readily available or sophisticated enough to meet the needs of a growing economy. Kuznets (1955) corroborated this claim by emphasizing the influence of economic cycles on financial development, i.e. periods of sustained economic expansion might encourage the development of new financial instruments and institutions, whereas recessions could hinder such progress. Romer (1986), taking into account the endogenous growth framework, asserted that the financial sector significantly aided the economic growth by facilitating the exchange of goods and services, facilitating savings accumulation, effectively distributing capital resources, diversifying risks and reducing expenses of surveillance, information, and transactions. Greenwood & Jovanovic (1990) emphasized a reciprocal relationship between economic growth and finance, showing that development in the financial sector spurs investment and economic growth, thereby further fostering financial development.

On the other hand, Arestis and Demetriades (1997) as well as Sassi and Gasmi (2014) discovered that financial development has the potential to enhance or deteriorate economic growth, because of a significant influence of consumer credit i.e. type of loans that banks offer. However, Beck et al. (2012) stressed that the real determinant is not the consumer credit, but it is the enterprise credit which drives financial development to sway positively on economic growth.

An alternative set of studies demonstrates no association between economic progress and financial development. Lucas (1988), for instance, contended that excess capital had no apparent impact on economic growth once the economy reached a steady-state level, so financial development is not a factor in determining economic growth. Numerous scholars (e.g., Kar et al., 2011; Ali, 2014; Ibrahim & Alagidede, 2018; Ali, 2015; Pacillo, 2022) have come to the uncertain conclusion that, financial development has not any discernible effect on expansion of economy in underdeveloped nations.

There is conflicting evidence in the empirical literature about how development in the financial sector affects economic progress. For example, studies by Pradhan et al. (2018) and Herwartz and Walle (2014) indicated a favorable correlation between economic growth and financial sector development, Demetriades and Rousseau (2017) underscored the necessity for bank supervision and laws to ensure the positive relationship, whereas, Naveed and Mahmood (2019) discovered that although internal financial liberalization had a negative short-term association, but it had a significant long-term favorable influence on expansion of the economy. On the contrary, Ductor and Grechyna (2015) identified a very weak correlation between expansion in the economy and development in the financial sector. Then there is an alternative perspective that economic growth declines with the expansion of financial system, such as Narayan and Narayan (2013) found the association to be negative, likewise, Chong et al. (2017) also illustrated that development in the financial system of Europe declined the economic growth. In the same way, Samargandi et al. (2015) not only found the inverse U-shaped association but also identified that economic growth may only be strengthened by increased financial development up to a certain extent. Law and Singh (2014) also came to the conclusion that lending money can boost economic growth only to a certain extent and that

lending money above that point can be detrimental to the economy. Similarly, Deidda & Fattouh (2002) as well as Arcand et al. (2015) established that when development in the financial system stays beneath a particular threshold, economic growth is deteriorated. In the same way, finance-growth threshold in the Malaysian economy examined by Alaabed & Masih (2016), who discovered that increasing credit has a detrimental effect on economic growth.

Recently, another strand of the researchers tried to explore some other dimensions of this nexus. To determine the financial sector's performance in economies that are thought to be driven by innovation, Zhu et al. (2020) looked into 50 countries and discovered that innovation had little to no effect in nations with more advanced financial systems. They also figured out that innovation's incremental effect on economic progress is inversely correlated with financial development in such economies. Similarly, to determine the impact of institutions in the finance-growth relationship with regard to Sub-Saharan African nations, Aluko and Ibrahim (2020) observed varying degrees of institutional performance and came to know that the growth-promoting impacts of finance are greater in the low-institutional-quality countries than in high-institutional-quality ones.

In the context of Pakistan (Jalil & Ma, 2008; Tahir, 2008; Khan, 2008; Rehman & Cheema, 2013 and Naveed & Mahmood, 2019; Khan & Rehman, 2021; Chen, 2022) used a linear modeling technique to examined the finance-growth relationship. In addition, Khan et al. (2005) delved into a new perspective after an empirical analysis and found a favorable bond between financial enlargement and economic progress. Conversely, on the contrary, Rahman et al. (2020) used nonlinear modeling to study this connection. Waheed and Younus (2009) examined how economic growth was affected by improved finances and Jalil et al. (2011) reinforced the positive interaction of economic progress and development in the financial system. Further to this, Shaheen et al. (2011) endorsed this positive association by taking into consideration financial commerce in the analysis. However, Munir et al. (2013) focused on financial liberalization and probed its association with economic expansion, however, Mahmood (2013) concentrated on financial development and explored its relationship with economic prosperity.

We inferred from the aforementioned literature review that the majority of empirical research employed financial innovation, financial development, and financial liberalization to forecast Pakistan's finance-growth link. Therefore, this study endeavors to augment the literature of finance and economics by analyzing the nexus between financial intermediation and economic growth in Pakistan.

3. Data and Empirical Methodology
3.1. Data

We used data of time series for our analysis spanning from 1996 to 2022, depending on data availability and available literature. The description of variables and data source is illustrated in the following table:

Table 1: Description of Variables

Variables	Description	Notation	Data Source
Economic growth	Gross Domestic Product (GDP) per capita	EG	World Development Indicators (WDI)
Financial Intermediation	Domestic credit to private sector as a percentage of GDP (DCPS)	FI	WDI
Investment	Gross fixed capital formation (GFCF)	I	WDI
Public Expenditure	General government final consumption expenditure as a percentage of GDP	PE	WDI
Human Development	Human Development Index	HD	WDI

Economic growth is a dependent variable, and average income per capita, or GDP per capita, is employed as a proxy (Levine, 1997). It is generally regarded as a good overall representation of how well-off the population of a specific country are (Michael and Todaro, 2008).

In the literature, two variables are frequently employed as proxies for financial intermediation. These are (i) the nominal gross domestic product (NGDP) divided by the broad money supply (M2). (Ansong et al., 2011; Bara & Mudzingiri, 2016; Qamruzzaman & Jianguo, 2017) and (ii) the nominal gross domestic product (NGDP) divided by DCPS (Shittu, 2012; Michalopoulos et al., 2009). The former evaluates the capability of financial system to generate funds required for investments, conversely the latter gauges the accessibility of funding opportunities to businesses, specifically those who are just starting out (Jalil et al., 2010 & Wolde-Rufael, 2009). The later therefore reflects an increase in financial depth and hence will be used in this study. A lot of Studies such as (Beck et al., 2004) and (Ang, 2007) have confirmed that financial intermediation contributes positively in economic growth.

GFCF, a proxy for investment (I) is employed in the study which is considered a crucial factor for economic growth. Many studies for instance (Kong et al., 2020) and (Trpeski & Cvetanoska, 2019) etc used the same measure for investment. (Solow, 1957) argued that productivity in an economy increases along with accumulation of physical capital. Hence it is considered as a good measure for domestic investment as it represents value addition in the economy by reinvesting total factor income in new fixed assets. There are studies such as (Barro, 1991; Levine & Renelt, 1992; Ghali & Ahmed, 1999) etc. that have established a progressive association between economic progress and GFCF.

Other variables are public expenditure and human development. To analyze the association amongst human development & economic growth, many researchers considered Human Development Index (HDI) to be used as an indicator of human development e.g. (Fatah et al., 2012; Grubaugh, 2015; Suri et al., 2011). Moreover, International Labour Office (ILO) and United Nations Development Program (UNDP) also considers Human Development Index (HDI) a more appropriate measure

for human development (Kwon, 2009). Because this index constitutes standard of living, knowledge and health along with many sub variables; which include adult literacy rate, life expectancy at birth and gross enrollment ratio etc. Therefore this study also used HDI as an indicator of human development.

3.2. The Model

The model of this study corresponds to the model of growth proposed by Odedokun (1996) which is a single sector neoclassical production function. The model is specified in the eq.1 representing economic growth is an output whereas financial intermediation is an input:

$$EG_t = f(FI_t, I_t, PE_t, HD_t) \quad \text{..} (1)$$

By taking logarithms of eq.1 it takes the following econometric form:

$$\ln EG_t = \alpha_0 + \alpha_1 \ln FI_t + \alpha_2 \ln I_t + \alpha_3 \ln PE_t + \alpha_4 \ln HD_t + \mu_t \text{..................................} (2)$$

Economic growth (EG) is the independent variable, whereas independent variables include Financial Intermediation (FI), investment (I), Public Expenditure (PE) and Human Development (HD) at time t, whereas α_i (0,1,2, …) are the coefficients and μ_t is the residual term in the equation. To achieve the goal of this study, Autoregressive Distributed Lag (ARDL) methodology will be employed to evaluate the association between economic growth and financial intermediation.

In the last few decades various tests have been employed for cointegration which includes residual based test (Engle & Granger, 1987), maximum likelihood based test (Johansen, 1988), (Johansen, 1991), (Johansen, 1995) and (Johansen & Juselius, 1990). However, previous models of cointegration faced certain limitations specifically in context of variable integration order. Therefore, a cointegration model Auto Regressive Distributive Lag (ARDL) was proposed by (H. H. Pesaran & Shin, 1998) to overcome those limitations. This model not only depicts larger flexibility in the variables' integration order i.e. either I(0) or I(1) but long-run estimates, which are considered unbiased with valid t statistics are also provided. The same was elaborated further by (M. H. Pesaran et al., 2001), (Narayan, 2004) and then by (Odhiambo, 2008). Additionally, compared to the Johansen cointegration technique, this approach requires a smaller sample size (Ghatak & Siddiki, 2001). It also offers a way to separately analyze the short-term as well as long-term effects by deriving the error correction term through linear transformation and simultaneous impact of one variable on other variables of the model (Bentzen & Engsted, 2001).

The process of implementing ARDL requires checking stationarity of data. Unit root analysis is used to look at the order of integration in order to look into cointegration among variables of interest. For detection of unit root, this study employs Augmented Dicky Fuller Test (ADF) test which takes into account the assumption of error term ε_t that it should be asymptotically normal (Dickey & Fuller, 1981). The null hypothesis (H0) is tested as:

$$H_0 : \beta = 0 \quad \text{in}$$

$$\Delta y_t = a_0 + \beta y_{t-1} + \sum \lambda_i \Delta y_{t-i} + \varepsilon_t$$

We obtained satisfactory results from this test for employing ARDL, the pre-requisite of which is mixed integration order of times series. Outcome of the ADF test is depicted in Table 2, which is showing mixed integration order and indicating that there are no second-order integrated variables.

Table 2: Unit Root

Variables	ADF Test Statistic Null Hypothesis: Variable has a unit root		Integration Order
	Level	1st Difference	
lnEG	-3.385**	- - -	I(0)
lnFI	-2.237	-3.084**	I(1)
lnI	-0.502	-4.989***	I(1)
lnPE	-0.539	-3.374**	I(1)
lnHD	-1.261	-4.949***	I(1)

Test Critical values (MacKinnon, 1996)
1% Level   -3.593
5% Level   -2.932
10% Level   -2.604

EG for economic growth, FI for financial intermediation, I for investment, PE for public expenditure and HD for human development.
Each variable was transformed into a natural log
* implies significance of coefficient at 10% level of probability
** implies significance of coefficient at at 5% level of probability and
*** implies significance of coefficient at at 1% level of probability

It is obvious from the unit root test results that EG is I(0) whereas all other variables i.e. FI, I, PE and HD are I(1) therefore cointegration can be run.

3.3. Methodology

The ARDL bounds test is used to evaluate cointegration between dependent and independent variables in the long-run.. Thus, the ARDL form of Eq. 2 can be written as:

$$\Delta \ln EG_t = \alpha_0 + \sum_{i=1}^{n} c_i \Delta \ln EG_{t-i} + \sum_{i=1}^{n} d_i \Delta \ln FI_{t-i} + \sum_{i=1}^{n} e_i \Delta \ln I_{t-i} + \sum_{i=1}^{n} f_i \Delta \ln PE_{t-i} + \sum_{i=1}^{n} g_i \Delta \ln HD_{t-i}$$

$$+ \phi_0 \ln EG_{t-1} + \phi_1 \ln FI_{t-1} + \phi_2 \ln I_{t-1} + \phi_3 \ln PE_{t-1} + \phi_4 \ln HD_{t-1} + \omega_t \text{...................}(3)$$

where Δ is the first difference operator, drift component is α_0, time trend is t, n is the maximum lag length, coefficients c_i to g_i and ϕ_0 to ϕ_4 symbolize short-run & long-run elasticities, whereas ω_t is the typical white noise residual.

Furthermore, the matrix form of eq.3 is depicted in eq.4, where every variable of research is considered dependent (see eq. 4).

$$
(1-B)\begin{bmatrix}\ln EG \\ \ln FI \\ \ln I \\ \ln PE \\ \ln HD\end{bmatrix} = \begin{bmatrix}\alpha_0 \\ \alpha_1 \\ \alpha_2 \\ \alpha_3 \\ \alpha_4\end{bmatrix} + \sum_{i=1}^{K} 1-B\begin{bmatrix}\ln EG \\ \ln FI \\ \ln I \\ \ln PE \\ \ln HD\end{bmatrix}_{t-i} \times \begin{bmatrix}c_{11} & c_{12} & c_{13} & c_{14} & c_{15} \\ d_{11} & d_{12} & d_{13} & d_{14} & d_{15} \\ e_{11} & e_{12} & e_{13} & e_{14} & e_{15} \\ f_{11} & f_{12} & f_{13} & f_{14} & f_{15} \\ g_{11} & g_{12} & g_{13} & g_{14} & g_{15}\end{bmatrix} + \begin{bmatrix}\ln EG \\ \ln FI \\ \ln I \\ \ln PE \\ \ln HD\end{bmatrix}_{t-1} \times \begin{bmatrix}\phi_{11} & \phi_{12} & \phi_{13} & \phi_{14} & \phi_{15} \\ \phi_{21} & \phi_{22} & \phi_{23} & \phi_{24} & \phi_{25} \\ \phi_{31} & \phi_{32} & \phi_{33} & \phi_{34} & \phi_{35} \\ \phi_{41} & \phi_{42} & \phi_{43} & \phi_{44} & \phi_{45} \\ \phi_{51} & \phi_{52} & \phi_{53} & g_{54} & g_{55}\end{bmatrix} + \begin{bmatrix}\omega \\ \omega \\ \omega \\ \omega \\ \omega\end{bmatrix}_t \quad (4)
$$

This study formulated hypotheses to assess the existence of long-term as well as short-term cointegration i.e. The null hypothesis (H$_0$) over the long run in eq. 4 is that there is no cointegration [H$_0$: ϕ_{11} to ϕ_{55} = 0]. The existence of cointergration [H$_1$: ϕ_{11} to ϕ_{55} ≠ 0] is the alternative hypothesis (H$_1$). Similarly, in short-run, association exists [H$_1$: c_{1i} to g_{5i} ≠ 0] is the alternative hypothesis (H$_1$), whereas the null hypothesis (H$_0$) is [H$_0$: c_{1i} to g_{5i} = 0] i.e. association doesn't exist.

The f-statistic and critical values are compared to determine whether the hypothesis should be accepted or rejected. To draw a definitive conclusion about cointegration, critical value is examined, put forward by M. H. Pesaran et al. (2001) and Narayan (2004). Existence of cointegration in the long-run is confirmed if the value of f-statistic exceeds the critical value of upper bound. Additionally, any possibility of serial correlation in the model is tested by running test of LM Breusch-Godfrey, Existence of homoscedasticity is checked by applying test of LM Breusch Pagen, the Ramsey RESET test is run to determine if the functional form of the model is correct and the Jarque-Berra (JB) test of normality is used to verify if the data are normal.

4. Empirical Results and Discussion
4.1. ARDL Bounds Testing
Pesaran et al. (2001) developed the methodology of ARDL bounds testing. It is an appropriate approach to check the cointegration in the long-run. Table 3 shows the outcome of bounds test, and it is apparent that the upper bound's critical value is exceeded by the value of f-statistics which is 7.77 even at 1% level of significance. This outcome rejects the null hypothesis and confirms the cointegration in the long-run.

Table 3: ARDL Bounds Test

Dependent Variable : EG		Significance	Lower Bound I(0)	Upper Bound I(1)
Test Statistic	Value			
F-statistic	7.769***	10%	2.2	3.09
		5%	2.56	3.49
		1%	3.29	4.37

Note: *, ** and *** implies significance at 10%, 5% and 1% level of probability

4.2. Long & Short Run Analysis
After confirmation of cointegration, we estimated the elasticities of long-run as well as short-run by using eq.3 which are shown in table (4).

It is evident from the above outcome that financial intermediation exhibits a significant positive influence on economic growth. This corresponds to the findings of (Saleem et al., 2021), (Naveed & Mahmood, 2019) and many others in the prevalent literature. One of the possible reasons of this positive stimulus is the provision and accessibility of credit to the private sector and households. Because when funds are channelized from savers to borrowers through financial institutions, the private sector and households make investments in productive activities, which results in creation of various jobs and overall economy expands. Development of banking sector over time and crucial role of banks ensure efficient financial intermediation which ultimately facilitates accumulation of capital and promotes investment. Moreover access to banking and financial services by increasing number of people over time causes surge in savings, investment and entrepreneurship which together elucidate positively on overall growth in economy. However this positive implication is subject to some policy areas which are extremely important to further strengthen this relationship and to promote a sound and efficient financial system.

Investment is extremely significant and apparently sways positively on economic growth similar to the findings of Kong et al. (2020) and Trpeski & Cvetanoska (2019). This is due to the fact that increase in investment helps to expand the productive capability which ultimately elevates the productivity and contributes positively towards economic growth. The resultant outcome of investment is increase in employment opportunities, enhanced infrastructure and path towards industrialization which helps to warrant ample growth in the economy. Moreover investment generates a crowding-in effect by attracting additional investment and financing nationally as well as from abroad. This helps to induce investment in latest machinery and equipment, updated technology and infrastructure i.e. transportation and communication system, energy efficiency etc., which further aides to improve production process, lowering cost of production and improvement in the quality of goods and services. Thus a multiplier effect is stimulated and contributes towards a progressive spillover influence on economic growth.

The impact of public expenditure on economic growth is although positive but statistically insignificant. This finding aligns with the studies conducted for developing countries (Bose et al., 2007), and underdeveloped counties of Sub-Saharan Africa (Yasin, M., 2011). This limited impact seems to be obvious because of certain leakages in the economy, inefficient use and allocation of funds. Weak governance, corruption and mismanagement are some of the additional factors that fade the efficacy of public expenditure on economic growth. Moreover, it has been a persistent problem and reported frequently that major

portion of public expenditure is consumed for unproductive purposes e.g. for repayment of debt and debt servicing etc. then for those expenditures which are non-essential in nature. Public spending on luxury items and excessive perks for public servants and politicians, undue expenditure on events of extravagant nature, investments in politically motivated infrastructure projects with low economic viability and not based on economic rationale, unnecessary and non-productive subsidies to meet political objectives are some of the prominent factors which are actually futile and liable for wastage of resources.

**Table 4: Long & Short Run Elasticities**

Dependent Variable $= \ln EG_t$

Variable	Coefficient	Std. Error	t-Statistic	Prob.
Long Run Results				
$\ln FI$	0.053**	0.025	2.176	0.045
$\ln I$	0.169***	0.057	2.963	0.009
$\ln PE$	0.031	0.030	1.009	0.327
HD	1.808***	0.436	4.149	0.001
C	0.119	1.254	0.095	0.926
Short Run Results				
$\Delta \ln EG_{t-1}$	0.121	0.126	0.964	0.363
$\Delta \ln FI$	0.065***	0.012	5.280	0.001
$\Delta \ln FI_{t-1}$	0.025*	0.013	1.843	0.105
$\Delta \ln I$	0.027	0.022	1.225	0.255
$\Delta \ln I_{t-1}$	0.134***	0.023	5.737	0.000
$\Delta \ln PE$	-0.024*	0.013	-1.873	0.098
$\Delta \ln PE_{t-1}$	-0.001	0.013	-0.083	0.936
ΔHD	2.575***	0.445	5.777	0.000
ΔHD_{t-1}	2.374***	0.424	5.593	0.001
ECT_{t-1}	-0.621***	0.069	-8.964	0.000
Diagnostic Tests				
R^2	0.749		Akaike info criterion	-6.153
Adj-R^2	0.725		Schwarz criterion	-6.006
Durbin-Watson	1.994		Hannan-Quinn criterion	-6.115
Serial Correlation LM Test:				
F-statistic	1.019		Prob. F(2,10)	0.395
Obs*R-squared	3.894		Prob. Chi-Square	0.142
Normality Test:				
Jarque Bera	0.223		Probability	0.894
Ramsey RESET Test:				
t-stats	1.417		Probability	0.184
f-stats	2.010		Probability	0.184

The significance level of Human development is 1% with positive coefficient. Hence found to be very influential towards economic growth and matches the findings of Fatah et al. (2012) and Grubaugh (2015). It is apparent that enhancement in education, health and elevated per capita income helps to increase the productivity and expansion in economy. More educated, skilled and healthy workforce exhibits efficiency and prove to be more productive and innovative, finds to be involved in more research and development, which ultimately translates into technological advancement and paves the way towards sustainability and economic prosperity.
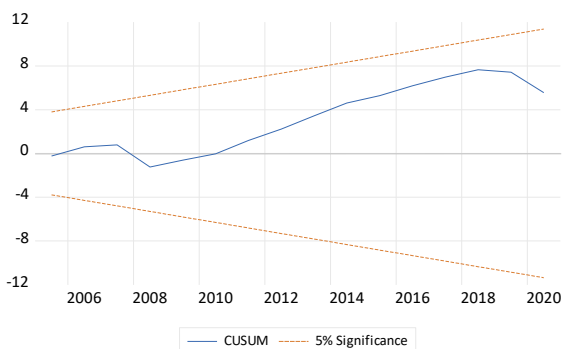
Figure 1

CUSUM Test   **CUSUM of Squares Test**
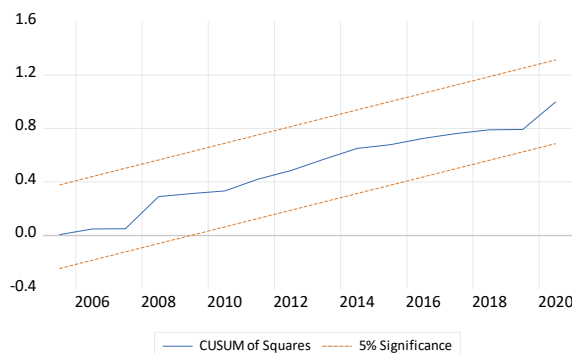
The short run results depict a statistically significant and negative coefficient of the ECT and its value -0.621 i.e. less than one which shows the speed to correct any deviations of variables from long run equilibrium path. It propounds that in case of any fluctuation or shock in the short span the variables will adjust quickly towards path of long run equilibrium. It is quite obvious from the results that statistically significant financial intermediation and human development stimulates positively in the short run as well, whereas public expenditure in the short-run negatively influences the economic expansion whereas in the long run it turns out to be irrelevant. As for as investment is concerned, it's lagged effect on economic growth is substantial as it takes time to translate investment in economic growth and therefore strongly influenced by its own lag as well.

To ensure the validity of the model and the reliability of the estimated parameters, the study applied the Ramsey RESET (Regression Equation Specification Error Test) test to confirm that the functional form of the model is correct, the LM Breusch-Godfrey test for autocorrelation, the LM Breusch-Pagen test for heteroscedasticity, and the Jarque-Bera test for normality. The values of F-statistics and Prob X^2 provided sufficient proof of the model's homoscedasticity, data normality, lack of autocorrelation, and accurate functional form. Thus, the diagnostic test suggests that the model is in accordance with the fundamental assumptions of ordinary least squares (OLS). Furthermore, stability of the model is assessed by CUSUM test as per recommendation of Pesaran et al. (2001) which is represented in Fig 1.

The critical lines are 5% red lines and it is evident from the graphs that blue line falls within the 5% critical lines which proves that the residual variances are stable and the estimated model is stable.

5. Conclusion

The study's objective was to determine the association between financial intermediation and economic growth in Pakistan. Employing ARDL and ECM models with time series data spanning from 1996 to 2022, we sought to establish the long-term as well as short-term connection between financial intermediation and economic growth. Unit root test proved stationarity at the first order and cointegration was ascertained using the ARDL technique.

Our findings revealed that financial intermediation significantly impacts both short-term and long-term economic growth in Pakistan, indicating its pivotal role in fostering economic development. This relationship is attributed to the substantial contributions of both private and public financial institutions in facilitating business activities. By providing funds to investors, these institutions enable the execution of projects, thereby fostering economic growth. The stability of the financial sector emerges as a critical factor in facilitating growth, highlighting the importance of optimal allocation of surplus funds to address financial challenges prevalent in Pakistan.

Regarding control variables, investment demonstrated positive effects on economic growth in both short and long terms. Notably, a one percent increase in investment corresponded to a 0.16 percent increase in economic growth, underscoring the significance of investment in driving economic expansion. This finding can be linked to ongoing government and private sector projects, particularly in sectors such as construction and energy, which have witnessed notable advancements in recent years.

Government expenditure exhibited a positive yet insignificant long-term effect and a negative short-term effect on economic growth, indicative of crowding out due to leakages in the economy. Human development emerged as a significant contributor to economic growth, with education, health, and per capita income positively influencing productivity and economic expansion. A more educated, skilled, and healthy workforce fosters efficiency, innovation, and technological advancement, thereby contributing to sustainable economic prosperity.

The study also noted improvements in Pakistan's financial structure over the past two decades, characterized by more efficient resource allocation by banks. However, sustainable economic growth necessitates an enabling investment climate, contingent upon factors such as good governance, political stability, and the quality of credit disbursal by the banking sector. The State Bank of Pakistan is urged to enact liberal policies and strengthen the financial system, including the establishment of a robust Islamic finance system alongside conventional counterparts, to instill confidence among investors and foster capital accumulation and manufacturing processes.

Future research avenues include exploring the mediating role of entrepreneurship in the finance-growth nexus, as well as investigating the relationship between entrepreneurship and finance for a comprehensive understanding of economic growth drivers. These endeavors will further refine our understanding of the intricate dynamics shaping the finance-growth relationship and inform policy decisions aimed at promoting sustainable economic development in Pakistan

References

Ackah, I. (2023). Examining Government Expenditure and Economic Growth in Ghana. *Journal of Business and Economic Options*, 10(1), 29-36.

Alaabed, A., & Masih, M. (2016). Finance-growth nexus: Insights from an application of threshold regression model to Malaysia's dual financial system. *Borsa Istanbul Review*, *16*(2), 63-71.

Ali, A. (2015). *The impact of macroeconomic instability on social progress: an empirical analysis of Pakistan* (Doctoral dissertation, National College of Business Administration & Economics Lahore).

Ali, A., & Afzal, M. (2016). Human Capital Development and Economic Growth: A Panel Data Analysis. *Journal of Policy Options*, *3*(3), 49-59.

Ali, R. (2014). The role of bank-based finance in economic growth of Pakistan. *Middle-East Journal of Scientific Research 22*, 82-90.

Ali, S. B., & Mohsin, A. (2023). Exploring Financial Soundness and Economic Growth Dynamics in Pakistan. *Journal of Business and Economic Options*, 10(1), 1-15.

Alpha, B. B., Ding, Y., Abdrahmane, K., & Kargbo, M. (2016). A study on the impact of financial intermediation on economic growth: Panel evidence from West Africa. *Journal of Management Policies and Practices*, *4*(1), 27-55.

Aluko, O. A., & Ibrahim, M. (2020). Institutions and the financial development–economic growth nexus in sub-Saharan Africa. *Economic Notes*,

Ang, J. B. (2008). A survey of recent developments in the literature of finance and growth. *Journal of Economic Surveys*, *22*(3), 536–576.

Ang, J. B., & McKibbin, W. J. (2007). Financial liberalization,financial sector development and growth: evidence from Malaysia. *Journal of Development Economics*, *84*(1), 215-233.

Ansong, A., Marfo-Yiadom, E., & Ekow-Asmah, E. (2011). The effects of financial innovation on financial savings: evidence from an economy in transition. *Journal of African Business*, *12*(1), 93–113.

Arcand, J. L., Berkes, E., & Panizza, U. (2015). Too much finance? *Journal of Economic Growth*, *20*, 105-148.

Arestis, P., & Demetriades, P. (1997). Finance and growth: Institutional considerations, financial policies, and causality. *Zagreb International Review of Economics and Business*, *2*(1), 37-62.

Ayogu, M. (2023). Fostering Transparency and Accountability Enhancing Statutory Audits in Nigeria. *Journal of Business and Economic Options*, 10(1), 37-44.

Bara, A., & Mudzingiri, C. (2016). Financial innovation and economic growth: evidence from Zimbabwe. *Investment Management and Financial Innovations*, *13, Iss. 2*, 65–75.

Barro, R. J. (1991). Economic growth in a cross section of countries. *The Quarterly Journal of Economics*, *106*(2), 407–443.

Beck, T., Buyukkarabacak, B., Rioja, F. K., &Valev, N. T. (2012). Who gets the credit? and does it matter? household vs. firm lending across countries. *The B.E. Journal of Macroeconomics*,*12*(1) 1-46.

Beck, T., Degryse, H., & Kneer, C. (2014). Is more finance better? Disentangling intermediation and size effects of financial systems. *Journal of financial stability*, *10*, 50-64.

Beck, T., Demirguc-Kunt, A., & Levine, R. (2004). *Finance, inequality, and poverty: Cross-country evidence*. National Bureau of Economic Research Cambridge, Mass., USA.

Ben Naceur, S., Ghazouani, S., & Omran, M. (2007). Does Financial Market Liberalization Spur Economic and Financial Development in the MENA Region?. *Available at SSRN 979122*.

Bencivenga, V. R., & Smith, B. D. (1991). Financial intermediation and endogenous growth.*The review of economic studies*, *58*(2), 195-209.

Bentzen, J., & Engsted, T. (2001). A revival of the autoregressive distributed lag model in estimating energy demand relationships. *Energy*, *26*(1), 45–55.

Berthelemy, J. C., & Varoudakis, A. (1996). Economic growth, convergence clubs, and the role of financial development. *Oxford economic papers*, *48*(2), 300-328.

Bose, N., Haque, M. E., & Osborn, D. R. (2007). Public expenditure and economic growth: A disaggregated analysis for developing countries. *The Manchester School*, *75*(5), 533-556.

Bosma, N., Content, J., Sanders, M., & Stam, E. (2018). Institutions, entrepreneurship, and economic growth in Europe. *Small Business Economics*, *51*, 483-499.

Chen, S. (2022). Dynamics of GDP Growth and Unemployment: Evidence from Developed and Developing Asian Countries. *Journal of Business and Economic Options*, *9*(3).

Chineze, A. E. (2023). Unlocking Economic Growth Through Taxation in the case Nigeria. *Journal of Business and Economic Options*, 10(4), 19-25.

Chong, E. Y. L., Mody, A., & Sandoval, F. V. (2017). Finance and growth: The direction of causality. *VOX, CEPR's Policy Portal*.

De-Gregorio, J., & Guidotti, P. E. (1995). Financial development and economic growth. *World Development*, *23*(3), 433-448.

Deidda, L., & Fattouh, B. (2002). Non-linearity between finance and growth. *Economics Letters*, *74*(3), 339-345.

Demetriades, P. O., & Rousseau, P. L. (2016). The changing face of financial development. *Economics Letters*, *141*, 87-90.

Demetriades, P. O., Rousseau, P. L., & Rewilak, J. (2017). Finance, growth, and fragility. *Working Paper* No. 17/13, University of Leicester.

Dickey, D. A., & Fuller, W. A. (1981). Likelihood ratio statistics for autoregressive time series with a unit root. *Econometrica: Journal of the Econometric Society*, 1057–1072.

Ductor, L., & Grechyna, D. (2015). Financial development, real sector, and economic growth. *International Review of Economics and Finance*, *37*, 393-405.

Engle, R. F., & Granger, C. W. J. (1987). Co-integration and error correction: representation, estimation, and testing. *Econometrica: Journal of the Econometric Society*, 251–276.

Fatah, F. A., Othman, N., & Abdullah, S. (2012). Economic growth, political freedom and human development: China, Indonesia and Malaysia. *International Journal of Business and Social Science*, *3*(1).

Fatima, N., & Zaman, A. (2018). Financial Development, Innovation, and Economic Growth: Evidence from Developing Countries. *Journal of Policy Options*, *5*(1), 6-17.

Ghali, K. H., & Ahmed, A.-M. (1999). The intertemporal causal dynamics between fixed capital formation and economic growth in the group-of-seven countries. *International Economic Journal*, *13*(2), 31–37.

Ghatak, S., & Siddiki, J. U. (2001). The use of the ARDL approach in estimating virtual exchange rates in India. *Journal of Applied Statistics*, *28*(5), 573–583.

Ghosh, M. (2006). Economic growth and human development in Indian states. *Economic and Political Weekly*, 3321-3329.

Greenwood, J., & Jovanovic, B. (1990). Financial development, growth, and the distribution of income. *Journal of political Economy*, *98*(5, Part 1), 1076-1107.

Grubaugh, S. G. (2015). Economic growth and growth in human development. *Applied Econometrics and International Development*, *15*(2), 5-16.

Herwartz, H., & Walle, Y. M. (2014). Determinants of the link between financial and economic development: Evidence from a functional-coefficient model. *Economic Modeling*, *37*, 417-427.

Ibrahim, M. H. & Alagidede, P. (2018). Nonlinearities in financial development–economic growth nexus: Evidence from sub-Saharan Africa. *Research in International Business and Finance*, *46*, 95-104.

Ismail, H., & Saeed, A. (2017). Islamic Banking and Finance in Pakistan: Growth Trends, Outlook, and Strategic Imperatives. *Journal of Policy Options*, *4*(3), 70-78.

Jalil, A., & Ma, Y. (2008). Financial development and economic growth: Time series evidence from Pakistan and China. *Journal of Economic Cooperation*, *29*(2), 29-68.

Jalil, A., Feridun, M., & Ma, Y. (2010). Finance-growth nexus in China revisited: New evidence from principal components and ARDL bounds tests. *International Review of Economics & Finance*, *19*(2), 189–195.

Jalil, et al. (2011). "Impact of financial development on economic growth: empirical evidence from Pakistan". *journal of the Asia Pacific economy*, vol.16. no.1. February 2011, 71-80.

Johansen, S. (1988). Statistical analysis of cointegration vectors. *Journal of Economic Dynamics and Control*, *12*(2–3), 231–254.

Johansen, S. (1991). Estimation and hypothesis testing of cointegration vectors in Gaussian vector autoregressive models. *Econometrica: Journal of the Econometric Society*, 1551–1580.

Johansen, S. (1995). *Likelihood-based inference in cointegrated vector autoregressive models*. OUP Oxford.

Johansen, S., & Juselius, K. (1990). Maximum likelihood estimation and inference on cointegration—with applications to the demand for money. *Oxford Bulletin of Economics and Statistics*, *52*(2), 169–210.

Kar, M., Nazlıoglu, S., & Agir, H. (2011). Financial development and economic growth nexus in the MENA countries: Bootstrap panel granger causality analysis. *Economic Modeling*, *28*(1-2),685-693.

Khan, A. (2016). Driving Economic Growth Through Vocational Education: Empirical Evidences from Pakistan. *Journal of Policy Options*, *3*(2), 29-36.

Khan, A., Ahmed, M., & Bibi, S. (2018). Financial development and economic growth nexus for Pakistan: A revisit using maximum entropy bootstrap approach. *Empirical Economics*, 1-13.

Khan, M. A. (2008). Foreign direct investment and economic growth: The role of the domestic financial sector. *Working Paper* No.18, Pakistan Institute of Development Economics.

Khan, M. A., & Qayyum, A. (2007). *Trade, financial and growth nexus in Pakistan* (No. 2007, 14). Economic Analysis Working Papers.

Khan, M. Z. U., & Rehman, F. (2021). Interconnectedness of Economic Variables: Insights from Pakistan's Endogenous Growth Model. *Journal of Business and Economic Options*, *8*(4).

Khan, M., Qayyum A. and Shiekh, S. (2005). " Financial development and economic growth: The case of Pakistan" *The Pakistan development review*,44: 4 part II (Winter 2005) pp: 819-837

Khan, R., & Ullah, B. (2017). Examining the Impact of Firm Sustainability Practices on Firm Growth: Evidence from the United States. *Journal of Policy Options*, *4*(4), 89-103.

Kiani, A., & Ali, M. (2019). Impact of Financial Intermediation and Financial Sector Efficiency on Economic Growth in Pakistan. *JISR management and social sciences & economics*, *17*(1), 21-40.

King, R. G., & Levine, R. (1993). Finance and growth: Schumpeter might be right. *The quarterly journal of economics*, *108*(3), 717-737.

Kong, Y., Nketia, E. B., Antwi, S. K., & Musah, M. (2020). Scrutinizing the complex relationship between financial development gross fixed capital formation and economic growth in Africa by adopting CCEMG and AMG estimation techniques. *International Journal of Science and Business*, *4*(11), 160–174.

Kuznets, S. (1955). Economic growth and income inequality. *The American Economic Review*, *45*(1), 1-28.

Kwon, D.-B. (2009). Human capital and its measurement. *The 3rd OECD World Forum on "Statistics, Knowledge and Policy" Charting Progress, Building Visions, Improving Life*, 27–30.

Labeeque, A., & Sanaullah, A. (2017). Towards Inclusive Economic Growth: Synthesizing Strategies for Social Inclusion in Development. *Journal of Policy Options*, *4*(1), 16-26.

Law, S. H., & Singh, N. (2014). Does too much finance harm economic growth? *Journal of Banking & Finance*, *41*, 36-44.

Levine, R. (1997). Financial development and economic growth: views and agenda. *Journal of Economic Literature*, *35*(2), 688–726.

Levine, R. (2005). Finance and growth: theory and evidence. *Handbook of economic growth*, *1*, 865-934.

Levine, R., & Renelt, D. (1992). A sensitivity analysis of cross-country growth regressions. *The American Economic Review*, 942–963.

Lucas, R. (1988). On the mechanics of economic development, *Journal of Monetary Economics* 22(1), 3-42.

Luintel, K. B., & Khan, M. (1999). A quantitative reassessment of the finance–growth nexus: evidence from a multivariate VAR. *Journal of development economics*, *60*(2), 381-405.

MacKinnon, J. G. (1996). Numerical distribution functions for unit root and cointegration tests. *Journal of Applied Econometrics*, *11*(6), 601–618.

Mahmood, A. (2013). Impact of financial development on economic growth of Pakistan. *Abasyn journal of social sciences*, *6*(2), 106-116.

Mansoor Khan, M. (2008). Main features of the interest-free banking movement in Pakistan (1980-2006). *Managerial Finance*, *34*(9), 660-674.

Maune, A., Matanda, E., & Mundonde, J. (2020). Does financial inclusion cause economic growth in Zimbabwe? An empirical investigation. *Acta Universitatis Danubius. Œconomica*, *16*(1).

McKinnon, R. I. (1973). Money and capital in economic development. Washington DC: Brookings Institution.

Mian, A., Sufi, A., & Trebbi, F. (2014). Resolving debt overhang: Political constraints in the aftermath of financial crises. *American Economic Journal: Macroeconomics*, *6*(2), 1-28.

Michael, P., & Todaro, S. (2008). *Economic Development* .

Michalopoulos, S., Laeven, L., & Levine, R. (2009). *Financial innovation and endogenous growth*. National Bureau of Economic Research.

Muhammad, A. A. (2023). Examining the Relationship among Unemployment, Inflation, and Economic Growth. *Journal of Business and Economic Options*, *10*(2), 23-31.

Munir, S., Chaudhry, I. S., & Akhtar, M. H. (2013). Financial liberalization and economic growth in Pakistan: Empirical evidence from co-integration analysis. *Pakistan Journal of Social Sciences*, *33*(2), 227-241.

Narayan, P. (2004). *Reformulating critical values for the bounds F-statistics approach to cointegration: an application to the tourism demand model for Fiji* (Vol. 2, Issue 04). Monash University Australia.

Narayan, P. K., & Narayan, S. (2013). The short-run relationship between the financial system and economic growth: New evidence from regional panels. *International Review of Financial Analysis*, *29*, 70-78.

Naveed, S., & Mahmood, Z. (2019). Impact of domestic financial liberalization on economic growth in Pakistan. *Journal of Economic Policy Reform*, *22*(1), 16-34.

Odedokun, M. O. (1996). Alternative econometric approaches for analysing the role of the financial sector in economic growth: Time-series evidence from LDCs. Journal of Development Economics, 50(1), 119–146.

Odhiambo, N. M. (2008). Financial depth, savings and economic growth in Kenya: A dynamic causal linkage. *Economic Modelling*, *25*(4), 704–713.

Pacillo, G. (2022). Urbanization, Economic Growth, and Equity in Sri Lanka: Trends, Patterns, and Policy Implications. *Journal of Business and Economic Options*, *9*(3).

Patrick, H. T. (1966). Financial development and economic growth in underdeveloped countries. *Economic Development and Cultural Change*, *14*(2), 174-189.

Pesaran, H. H., & Shin, Y. (1998). Generalized impulse response analysis in linear multivariate models. *Economics Letters*, *58*(1), 17–29.

Pesaran, M. H., Shin, Y., & Smith, R. J. (2001). Bounds testing approaches to the analysis of level relationships. *Journal of Applied Econometrics*, *16*(3), 289–326.

Pradhan, R. P., Arvin, M. B., & Bahmani, S. (2018). Are innovation and financial development causative factors in economic growth? Evidence from a panel granger causality test. *Technological Forecasting and Social Change*, *132*, 130-142.

Qamruzzaman, M., & Jianguo, W. (2017). Financial innovation and economic growth in Bangladesh. *Financial Innovation*, *3*(1), 1–24.

Rahman, A., Khan, M. A., & Charfeddine, L. (2020). Financial development–economic growth nexus in Pakistan: new evidence from the Markov switching model. *Cogent Economics & Finance*, *8*(1), 1716446.

Rehman, A., & Cheema, A. (2013). Financial development and real sector growth in Pakistan. *Interdisciplinary Journal of Contemporary Research in Business*, *5*(1), 618-636.

Rioja, F., & Valev, N. (2004). Finance and the sources of growth at various stages of economic development. *Economic Inquiry*, *42*(1), 127-140.

Robinson, J. (1952). *The Generalization of the General Theory, in the Rate of Interest and Other Essays.* London: Macmillan.

Romer, P. M. (1986). Increasing returns and long-run growth. *Journal of Political Economy*, *94*(5), 1002-1037.

Saint-Paul, G. (1992). Fiscal policy in an endogenous growth model. *The Quarterly Journal of Economics*, *107*(4), 1243-1259.

Saksena, S., & Deb, M. (2017). Economic Growth and Human Development in Indian States after Two Decades of Economic Reforms1. *Indian Journal of Economics and Development*, *13*(2), 269-280.

Saleem, A., Sági, J., & Setiawan, B. (2021). Islamic financial depth, financial intermediation, and sustainable economic growth: ARDL approach. *Economies*, *9*(2), 49.

Samargandi, N., Fidrmuc, J., & Ghosh, S. (2015). Is the relationship between financial development and economic growth monotonic? Evidence from a sample of middle-income countries. *World Development*, *68*, 66-81.

Sassi, S., & Gasmi, A. (2014). The effect of enterprise and household credit on economic growth: New evidence from European Union countries. *Journal of Macroeconomics*, *39*, 226-231.

Schularick, M., & Taylor, A. M. (2012). Credit booms gone bust: monetary policy, leverage cycles, and financial crises, 1870–2008. *American Economic Review*, *102*(2), 1029-1061.

Schumpeter, J. (1912). The theory of economic development: An inquiry into profits, capital, credit, interest and business cycle. Cambridge Mass: Harvard University Press.

Shaheen, S. et al. (2011). "Financial development, International trade, and economic growth: empirical evidence from Pakistan,

Shaw, E. S. (1973). Financial deepening in economic development. New York: Oxford University Press.

Shittu, A. I. (2012). Financial intermediation and economic growth in Nigeria. *British Journal of Arts and Social Sciences*, *4*(2), 164–179.

Singh, A. (1997). Financial liberalisation, stockmarkets and economic development. *The economic journal*, *107*(442), 771-782.

Solow, R. M. (1957). Technical change and the aggregate production function. *The Review of Economics and Statistics*, 312–320.

Sossounov, K., & Kolenikov, S. (2023). Addressing Inequality Amidst Economic Growth in Russia. *Journal of Business and Economic Options*, 10(2), 18-22.

Suri, T., Boozer, M. A., Ranis, G., & Stewart, F. (2011). Paths to success: The relationship between human development and economic growth. *World Development*, *39*(4), 506-522.

Tahir, M. (2008). An investigation of the effectiveness of financial development in Pakistan. *The Lahore Journal of Economics*, *13*(2), 27-44.

Trpeski, P., & Cvetanoska, M. (2019). *Gross fixed capital formation and productivity in Southeastern Europe*.

Waheed, A., Najia.Y. (2009). Financial development and economic growth: empirical evidence from Pakistan. *Asian Economic Review*, 51(1), 33-42.

Wolde-Rufael, Y. (2009). Re-examining the financial development and economic growth nexus in Kenya. *Economic Modelling*, *26*(6), 1140–1146.

Yasin, M. (2011). Public spending and economic growth: empirical investigation of Sub-Saharan Africa. *Southwestern Economic Review*, *30*, 59-68.

Zhu, X., Asimakopoulos, S., & Kim, J. (2020). Financial development and innovation-led growth: Is too much finance better?. *Journal of International Money and Finance*, *100*, 102083.