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RESEARCH PAPER

Examining the Link between Economic Growth and Financial Indicators: Evidence from Pakistan (1980–2024)

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ABSTRACT

This study examines the relationship between Pakistan's GDP growth and selected financial indicators for the period from 1980 to 2024. The selected financial indicators are gross capital formation, market capitalization, financial development, foreign direct investment, remittances, foreign trade, government expenditure and debt service. With a larger data set for 45 years, this research addresses a vital gap in understanding the interplay of financial indicators in a developing economy. The Autoregressive Distributed Lag (ARDL) model along with a bounds test for cointegration is used to analyze the long-run and short-run relationship among the variables. The results indicated a significance relationship among GDP growth rate and remittances, foreign direct investment and government consumption expenditures. The critical contribution of this study lies in providing evidence-based insights for policymakers to examine Pakistan's economic issues with an emphasis on contributing novel perspectives on sustainable growth strategies. The recommendations emphasize enhancing investment and foreign inflows, optimizing remittance utilization, and refining government spending policies which can contribute to sustainable economic development. This study recommends the development of friendly regulations to encourage the inflows of foreign direct investments and remittances for enhancing economic growth.

| **KEYWORDS** | GDP Growth, Financial Indicators, ARDL, Long Run Relationship |

Introduction

Economic growth has long been at the forefront of economic policy and scholarly debate, particularly in developing economies like Pakistan. As nations strive to elevate living standards, reduce poverty, and achieve sustainable development, the pursuit of robust and consistent GDP growth remains central to economic policy making. The economic growth has however, complex yet dynamic relationship with a variety of financial and non-financial variables. Over the years, Pakistan has experienced a high level of variation in its macroeconomic conditions with some short-lived ups and corresponding stagnation. These macroeconomic challenges include structural adjustments, trade liberalization, capital market reforms, foreign direct investment and remittance inflows. However, the country continues to face revolving trade deficits, external debt servicing pressures, financial market volatility, and inadequate investment in productive sectors. Within the context of these challenges, there is a strong need to revisit how key macroeconomic financial variables such as exports, capital formation, stock market development, debt service, FDI, remittances, and foreign that may have high impact GDP growth over time. This study is intended to bridge this research gap by taking a longer year data set of 45 years from 1980 to 2024 for conducting a comprehensive time-series analysis.

Various researchers have studied the relationship between certain key financial indicators and economic growth. For example, the impact of foreign trade on accelerating growth has been empirically documented. Jawaid (2014) conducted one such study which found that exports positively contribute to Pakistan's GDP in the long run, whereas trade deficits and high levels of imports can have harmful consequences on foreign trade. The exports bring foreign exchange required for the stabilization of Pakistani rupee. Another study by Zafar (2020) argued that exports alongside FDI and current account balances collectively determine economic growth. With more exports, the production of local businesses is enhanced, and productivity is also increased due to the capacity utilization. A more comprehensive study by Mehar and Ashraf (2018) focused on the impact of continuous trade openness on economic growth. Other researchers have also studied the impact of gross capital formation and public and private sector investment on the growth of the economy. For instance, some authors, like Khan (2008), argue that capital formation has a significant long-term impact on the economic growth of Pakistan. Capital formation whether in the form of public or private investment, helps to increase the productivity of the local businesses. In support of these arguments, Ahmad and Qayyum (2008) showed that both public and private investments have a positive impact on GDP growth. Most recently, Siddique (2022) analyzing time series data has reiterated that capital formation is one of the most effective ways for small open economies such as Pakistan to stimulate economic growth. Specially SMEs can improve their performance and increase their productivity as a result of higher capital formation.

Similarly, some other researchers have documented the development of the stock market, especially in increasing economic growth in a country. Many researchers have supported this point, including Munir and Kakar (2023), who found that market capitalization is positively associated with comprehensive economic stability that leads to economic growth. On the same lines, a study by Raza and Jagat (2014) showed that the development of the stock market increases economic performance and development in Asian economies including Pakistan. Similarly, Kanwal et al. (2023) extended the perspective by saying that the financial depth measured in terms of credit and market liquidity is a strong long relationship with GDP development. These empirical studies collectively confirm that a sound financial infrastructure is necessary to efficiently transmit resources and support productive investment in various sectors of the economy. Searching for links between debt service and economic development, many researchers have seen the debt service as a pull-on economic growth. In terms of excessive external obligations, debt service may concentrate and limit private sector investment. This point was supported by Qurra Tul Ain et al. (2024) Those who used the rising loan service negatively affect financial development and economic development in Pakistan. A research work by Chaudhary and Mahmood (2022) confirmed that similar trends exist in South Asian countries, in which Pakistan is particularly weak due to the recurring fiscal deficit. Further supported by Farooq and Mahmud (2021), who said that high debt obligations have weakened Pakistan's capacity, which is to launch capital projects that eliminate long -term economic growth capacity.

Examining the role of foreign direct investment in supporting the economic growth, many researchers have produced empirical evidence in support of higher levels of FDIs. The foreign direct investment plays a complex but vital role in economic growth strategies, particularly in capital-scarce countries. Research such as Ahmed and Ahsan (2024) confirmed that such investment is significantly related to export-led economic growth in Pakistan, particularly when supported by investment friendly policies. The government policies play critical role in facilitating the inflows of foreign direct

investments. This point was further supported by Husnain et al. (2023) who emphasized the importance of institutional quality in mediating the economic growth effects of FDI and suggested that governance structures and regulatory frameworks matter greatly. The FDI is crucial for the developing countries such as Pakistan for long term investment in key technologies and industries. Along with this, the foreign investors require the regulatory provisions for the protection of their capital and ease of profit repartitions.

The role of investments is further explored by many other studies to understand their role in enhancing economic growth. Moreover, a research study by Mehmood et al. (2024) supported this view by demonstrating that FDI in combination with financial development, contributes robustly to the economic growth in Pakistan's context. For gaining a comprehensive understanding of the patterns of the economic growth, another notable variable in Pakistan is the remittances sent by overseas Pakistanis to their family and dependents. Researchers such as Khan, Imran, and Teng (2019) said that remittances significantly and positively affect GDP rate enabling financial support for household consumption and informal investment. The remittances have reached the level of 36 billion dollars a year in 2024 enabling individuals to enhance their social and economic consumption. This argument was further supported by Bashir et al. (2024) who found that remittance inflows also help stabilize income and smooth consumption particularly during economic downturns. This critical understanding of the trends in remittances is crucial for tracking eh economic growth in Pakistan. Most of these remittances have been received by lower strata of society enabling them to come out of the poverty cycle. A research work by Faheem et al. (2020) stated that remittances promote financial sector deepening enabling broader macroeconomic resilience. The financial deepening both in terms of financial institutions and markets (access and efficiency) enable the businesses to access the funds and expand their operations to meet the growing demand for products and services.

In the light of above discussion where each of these variables has been examined in isolation in earlier research, there remains a need to conduct an integrated study combing all major macroeconomic financial variables and examining their impact on economic growth. With more broader data set, advanced econometric technique, this study seeks to check the relationship among macroeconomic financial variables and the economic growth of Pakistan. This study, with below mentioned variables, seeks to apply the Autoregressive Distributed Lag (ARDL) econometric technique to assess both short-run and long-run linkages among the selected variables. By analyzing 45 years of data of Pakistan, this research not only contributes to the theoretical literature on finance-growth nexus but also provides valuable insights for policymakers seeking to design holistic and sustainable economic strategies for Pakistan.

Literature Review

This study critically examines the long run relationship among economic growth and the selected financial variables. Earlier researchers have documented the different variables which can affect the economic growth rate of Pakistan. These include studies by Raza and Aslam (2021) who said that macroeconomic stability indicators such as inflation, interest rates, and exchange rates significantly influence the economic growth rate in Pakistan. The impact of these financial variables in shaping the economic growth in Pakistan has been documented in many other studies. A study by Khoula et al. (2022) demonstrated that FDI has a strong long-run impact on economic growth which is moderated by regulatory provisions and capital market performance across the years. Since foreign direct investment enhances the capital formation and brings the necessary

technological productivity, the role of FDI is significant in increasing the economic growth of a nation.

The economic growth is a multifaceted concept which depends on multiple factors for witnessing growth trends over the years. As this study observes, many financial variables are connected with the economic growth rate of a country.

One such variable affecting the economic growth is the access to credit in domestic economic environment. To explore this relationship, a study by Kanwal et al. (2023) found that financial development indicators like credit to the private sector and market capitalization are strong predictors of economic growth in the long run. The provision of funds to the private businesses enables the purchase of new machinery and investments in new products leading to higher sales and profitability. Similarly, Ishfaq et al. (2024) concluded that economic growth in Pakistan is positively influenced by both institutional quality and financial depth measured across the multiple years. The facilitative role of institutions such as regulatory bodies is important to ease the business processes and enable the cost-saving compliance. To further support this point, a similar study by Mehmood et al. (2024) concluded that financial development indicators such as investments and liquidity are statistically significant contributors to the economic growth. The level of financial development in a country determines the access and utilization of funds to the private sector which works as growth engine. In this direction, many researchers have examined the role of different financial variables such as interest rates, investment and consumption rates, saving rate etc. as a determinant of the economic growth of a country. To examine the relationship between economic growth and the gross capital formation, many researchers have produced empirical evidence.

More factors such as the gross capital formation and domestic investments also affect the structure and process of the economic growth in log run. Many studies have examined the role of capital formation such as Khan (2008) who found that capital formation and investment have a statistically significant long-run positive effect on Pakistan's economic growth. Since capital formation is a long-term investment in both public and private sector, it enhances the overall productivity of the businesses across the country. This point was also confirmed by Ahmad & Qayyum (2008) who found both private and public investment significantly impact economic growth through capital formation (domestic investments by both public and private sector bodies) over the long term. The new investments in infrastructure, information technology, machines and tools enable the individuals and businesses to produce more goods and save costs for transportation and communication. Further evidence was provided by Sattar et al. (2018) who confirmed that stock market development and capital accumulation positively impact economic growth rate in South Asian economies including Pakistan. The ease of listing stocks on capital markets and enabling the access to wider sources of funds enhance the productivity and operations of the private sector enterprises. Similarly, a research study by Siddique (2022) demonstrated gross capital formation in both public and private sector remains a key growth determinant for small open economies like Pakistan. The gross capital formation is the backbone of future economic growth as investments in fixed assets result in improving productivity in future years. This point was further endorsed by Malik et al. (2024) who used timeseries data to assess the role of official development assistance and found that capital formation is central to long term economic growth. The development assistance is often needed by the developing countries who face budget constraints and require the foreign assistance for improving their financial conditions.

To understand the possible relationship between market capitalization and the GDP growth, different studies have produced empirical results. Thes studies include the work of Raza and Jawaid (2014) who analyzed the data of 18 Asian economies and found a strong positive relationship between stock market development and growth. The stock market development enables the access and provision of funds to the growth-oriented companies and provides opportunity for seeking the necessary funds. This point was further endorsed by Khan, Imran and Teng (2021) who showed that FDI and remittances positively influence market capitalization and that the stock market contributes to the economic growth. Both foreign direct investment and remittances provides necessary financial cushion for economic growth. A similar study by Ali et al. (2021) revealed that financial development, particularly stock market expansion, significantly supports FDI inflow and overall GDP. The growth in the stock market in terms of new IPOs and volume of stock trading leads to greater level of trust of investors on the market. Recent work by Munir & Kakar (2023) also demonstrated through time-series analysis that market capitalization leads to macroeconomic stability, indirectly supporting GDP. A higher level of market capitalization enables access to funds from wide group of investors. Another study by Kanwal et al. (2023) found a significant long-run relationship between financial development indicators like market cap and GDP.

To check how debt service affects the economic growth of Pakistan, various researchers have produced empirical studies. These include a study by Akram and Hussain (2019) who confirmed that debt service obligations negatively affect capital formation and thereby lowers the rate economic growth. The higher levels of debts create obligations in the form of interest payments reducing liquidity and the overall fiscal space of the govt. This point was further endorsed by Farooq and Mahmood (2021) who highlighted debt servicing crowds out public investment and reduce the potential economic growth. The higher payments of interest in the debt service obligations reduces the overall funds required for development schemes. A similar point was made by Choudhary and Mahmud (2022) who used time series data of South Asian countries and concluded that high debt servicing levels adversely affect the economic growth especially in Pakistan. This may be due to the higher outflows of funds for the interest payments associated with the debt services. Another evidence was provided by Zahid et al. (2023) who said that rising debt servicing burdens reduce private credit and resultantly the rate of economic growth is slowed down. The higher debt levels also squeeze the fiscal capacity of government to make productive investments in infrastructure. A significant work by Qurrat ul Ain et al. (2024) concluded that rising debt service obligations reduce Pakistan's financial development and resultantly reduce the economic growth. The higher debt levels indirectly signal the weaker capacity of governments to obtain funds through taxation measures.

To investigate the relationship between foreign direct investment and the economic growth, research studies such as Ali et al. (2021) provided empirical evidence that FDI is positively influenced by stock market depth and in turn boosts the rate of economic growth. The foreign investors bring their funds in critical sectors which result in the improvement of technology and expansion of operations. This point was further endorsed by Khoula et al. (2022) who demonstrated that FDI has a significant long-run effect on economic growth subject to the supportive regulatory and capital market settings. The investor friendly regulations and supportive regulatory regimes encourage the inflows of funds in developing countries. The research work by Husnain et al. (2023) found that institutional quality moderates the positive impact of foreign investment on economic growth of South Asian countries. The foreign investors seek support of local regulatory bodies and taxation structure so that they can positively contribute to the

business environment. An important study by Ahmed & Ahsan (2024) concluded that foreign investments significantly promote exports and long-run economic growth in Pakistan. Foreign investors focus on key sectors for establishing businesses and making investments in fixed assets to enhance their earnings. Another supporting work produced by Mehmood et al. (2024) confirmed that foreign direct investments combined with financial development is a robust predictor of economic growth in Pakistan. The presence of foreign investors in a country changes the business environment and brings the overall improvement in product quality and business operations.

Additional variable to examine the link between the economic growth and the financial variables is the remittances received by individuals. To check the relationship between personal remittances and economic growth, different authors have produced empirical evidence. For example, a work by Khan, Imran and Teng (2019) found that remittance inflows significantly boost economic growth in Pakistan with both short run and long run positive impacts. Remittances in the form of amounts sent by overseas Pakistanis provide crucial source of income for over 1 million households in Pakistan. They postulated that remittances have become a stable source of income contributing to macroeconomic stability of Pakistan. Faheem et al. (2020) demonstrated that remittances have a direct positive effect on financial development which may indirectly support GDP growth by increasing credit and savings. The receipt of remittances results in providing additional liquidity to the various consumption needs of individuals. This point was further endorsed by Bashir et al. (2024) conducted a comparative analysis confirming that remittances are positively correlated with GDP growth and work as an alternative to domestic investment in low-income households. Remittances received by individuals enables the families and households to enhance their social and economic consumption. A study by Raza (2024) evaluated long-run cointegration between remittances and poverty reduction, finding remittances to significantly uplift economic conditions and economic growth, especially in rural regions. The receipt of additional money enables the family members to enable more social and economic spendings resulting in higher levels of business activities. Moreover, a work by Nizam et al. (2024) examined the poverty channel of remittances in Pakistan and concluded they are positively associated with consumption-led economic growth.

Within the context of Pakistan exploring the relationship between foreign trade and GDP growth rate, many researchers have produced empirical studies. These include the work by Ali and Qayyum (2009) who used a sectoral analysis for Pakistan and confirmed that merchandise trade has a long-run positive relationship with investment and economic growth. The merchandize trade with foreign countries in the form of imports and exports enable the local investors to manage supply and demand trends in the local economy. A similar study by Jawaid (2014) found that exports and merchandise trade significantly enhance Pakistan's GDP over the long term, though imports can dampen that overall effect. A country should try to enhance the export level in order to earn maximum foreign exchange to cover for the imports. Further work by Mehar and Ashraf (2018) who conducted a cointegration test and concluded that increased merchandise trade openness has led to substantial improvements in GDP levels in Pakistan. Same argument was supported by Zafar (2020) found that merchandise trade, particularly exports, is a major growth driver in both the short and long run, with trade imbalances moderating long-run impact. Exports provide critical foreign exchange which help the govt. to stabilize the value of Pakistani rupee. Moreover, Ali (2022) found that the trade deficit negatively impacts economic growth, suggesting the need for improved export competitiveness. This effect can be mitigated through export diversifications and improvement in product quality.

       To understand the long run relationship between financial development and economic growth, different studies examined the data and produced supporting evidence. For example, a work by Ahmad and Qayyum (2008) illustrated that sustained increases in domestic credit and structured financial sector development have historically supported long-run GDP growth in Pakistan. This point was further endorsed by Raza and Jawaid (2014) who provided cross-country evidence that stock market development is a robust long-term driver of economic growth across Asian countries, including Pakistan. More evidence was provided by Sattar et al. (2018) who demonstrated that financial deepening, through stock market expansion, promotes sustainable GDP growth in Pakistan, India, and China. Same argument was supported by Munir and Kakar (2023) who showed that improvements in stock market capitalization and private-sector credit consistently enhance macroeconomic stability and indirectly boost GDP growth rates in Pakistan. Moreover, a work Kanwal et al. (2023) found that a well-developed financial system defined in terms of higher domestic credit and capital market activity, significantly raises long-run GDP growth in Pakistan.

Research Methodology:

       The variables of this study along their description and measurement are given in the table below;

Table 1
Variables & Measurement

Variable	Measurement	Description
Economic Growth (GDP)	GDP growth (annual %)	Annual percentage growth rate of GDP based on constant local currency.
Foreign Direct Investment (FDI)	FDI net inflows (% of GDP)	Net inflows of investment to acquire management interest in enterprises.
Government Consumption Expenditures (GCE)	Govt. final consumption expenditure (% of GDP)	Government spending on goods and services.
Market Capitalization (MKT)	Market capitalization (% of GDP)	Total market value of publicly listed domestic companies.
Financial Development (FD)	Domestic credit to private sector (% of GDP)	Financial resources provided by financial institutions to the private sector.
Remittances (RMT)	Personal remittances received (% of GDP)	Amounts sent by migrants to residents of the home country.
Merchandise Trade (MTD)	Merchandise trade (% of GDP)	Total foreign trade in physical goods (exports + imports) as a percentage of GDP.
Gross Capital Formation (GCF)	Gross capital formation (% of GDP)	Investment in fixed assets like buildings, machinery, and infrastructure.
Debt Service (DBT)	Total debt service (% of GNI)	Principal and interest payments on external debt as a share of gross national income.

       This study is aimed at exploring the relationship among the financial indicators and the economic growth of Pakistan. The data is obtained from the World Bank Database (WDI) for 45 years from 1980 to 2024.

       The econometric model used for this study is given below;

       GDP_t= F (, Foreign Direct Investment FDI, Government Consumption Expenditure GCE, Market Capitalization MKT, Financial Development FD, Remittances RMT, Merchandise Trade MTD, Gross Capital Formation GCF, Debt Service DBT). ----------------------(1).

So, the econometric model can be represented as

$$GDP_t = \propto + \beta1 FDI_t + \beta2 DCE_t + \beta3 MKT_t + \beta4 FD_t + \beta5 RMT_t + \beta6 MTD_t + \beta7 GCF_t + \beta8 DBT_t U \text{-----------------(2)}$$

We used 45 years (1980-2024) time series data from Pakistan, So, t has been added in subscript. While $\propto$ is used for constant and beta have been added for coefficient of each variable and u is error term in the model. To estimate the relationship among variables, many techniques are used in the economic literature. The most common techniques include ARDL, Johansen cointegration (1991) and Johansen-Juselius (1990) test and Engel-Granger (1987) cointegration test. Moreover, to test stationarity, we used DF and ADF test. For long run relationship, ECM is estimated. Along with that, we performed the normality & diagnostic tests for data and model validation.

Results and Discussion

Table 2
Descriptive Statistics

Statistic	DBT	FDI	GCE	GCF	GDP	MKT	RMT	TRD
Mean	3.56	0.79	11.27	17.04	4.63	14.30	5.26	27.50
Median	3.57	0.62	10.75	17.54	4.46	12.55	5.02	27.71
Maximum	6.81	3.04	16.78	20.69	10.22	37.86	10.25	34.15
Minimum	1.33	0.10	8.50	12.94	-1.27	5.05	1.08	19.95
Std. Dev.	1.50	0.63	1.75	1.85	2.30	7.69	2.46	3.93
Skewness	0.14	2.23	1.20	-0.10	-0.16	1.28	0.17	-0.23
Kurtosis	2.12	7.83	4.43	2.01	3.12	4.36	1.91	2.06
Sum	160.29	35.52	507.25	766.76	208.29	643.58	236.54	1237.58
Sum Sq. Dev.	98.94	17.23	134.09	149.94	231.93	2604.52	265.45	680.46
Observations	45	45	45	45	45	45	45	45

The descriptive statistics indicate that mean and median are closer to each other for DBT, GCF, GDP, RMT, and TRD indicating symmetric distributions among data, while FDI, GCE, and MKT show relatively larger discrepancies due to skewness. Moreover, a higher variability in MKT (5.05 to 37.86) and GDP (-1.27 to 10.22) reflects market volatility and economic fluctuations across the years while FDI (0.10 to 3.04) shows growth spurts. Similarly, higher standard deviations for MKT and GDP indicate instability, while GCE and GCF are more stable. These statistics reflect Pakistan's economic context which experience volatile markets similar to the other developing nations.

Table 3
Correlation Analysis

Variable	DBT	FDI	GCE	GCF	GDP	MKT	RMT	TRD
DBT	1.000	-0.315	0.515	0.420	-0.013	-0.214	0.005	0.446
FDI	-0.315	1.000	-0.080	0.080	-0.168	0.612	-0.438	0.188
GCE	0.515	-0.080	1.000	0.650	0.096	-0.158	-0.051	0.519
GCF	0.420	0.080	0.650	1.000	0.346	0.042	-0.201	0.618
GDP	-0.013	-0.168	0.096	0.346	1.000	-0.030	0.161	0.212
MKT	-0.214	0.612	-0.158	0.042	-0.030	1.000	-0.304	0.145
RMT	0.005	-0.438	-0.051	-0.201	0.161	-0.304	1.000	-0.131
TRD	0.446	0.188	0.519	0.618	0.212	0.145	-0.131	1.000

Strong correlation links exist between GCF and TRD (0.618), GCE and GCF (0.650), and DBT and GCE (0.515) reflecting interconnected fiscal and trade policies. The GDP correlates moderately with GCF (0.346) and TRD (0.212) potentially suggesting growth ties to investment and trade. On the other side, FDI with DBT (-0.315) and RMT (-0.438) indicates trade-offs (e.g., foreign vs. domestic capital). MKT with RMT (-0.304) suggests market growth competes with remittance reliance. The correlation between GDP and DBT (-0.013) and MKT (-0.030) is very weak possibly due to short-run volatility masking long-run effects.

Table 4
Unit Root Test: ADF Results

Variable	ADF Statistic (Level)	p-value (Level)	Stationarity (Level)	ADF Statistic (1st Diff)	p-value (1st Diff)	Stationarity (Order)
GCF	-2.15	> 0.05	Non-stationary	-4.2	< 0.01	I(1)
MKT	-3.9	0.005	Non-stationary	-3.9	0.0	I(1)
DBT	-1.85	> 0.10	Non-stationary	-4.1	< 0.01	I(1)
FDI	-2.3	> 0.05	Non-stationary	-4.5	< 0.01	I(1)
RMT	-1.04	0.73	Non-stationary	-3.8	< 0.05	I(1)
TRD	-1.7	> 0.10	Non-stationary	-4.3	< 0.01	I(1)
GDP	-3.6	< 0.05	Stationary	-	N/A	I(0)
GCE	-1.95	> 0.10	Non-stationary	-4.0	< 0.01	I(1)

This table indicate that variables which are non-stationary at level GCF, MKT, DBT, FDI, RMT, TRD, and GCE fail to reject the unit root null (p > 0.05) but become stationary after first differencing (p < 0.05). However, the GDP is stationary at Level (I(0)): GDP rejects the null (p < 0.05), consistent with growth rates fluctuating around a mean.

Table 5
Bound Test

Statistic	Value	I(0) Bound (5%)	I(1) Bound (5%)	Conclusion
F-statistic	4.75	2.45	3.61	Cointegration exists
p-value	< 0.05	-	-	Reject null (F > I(1) bound)

In the above table, F-statistic (4.75) exceeds the I(1) bound (3.61) resulting in rejecting no cointegration as supported by p < 0.05. This table indicates that a mix of I(0) (GDP) and I(1) variables allows ARDL bounds testing, and the high F-value reflects a strong long-run relationship.

Table 6
ARDL (Long Run)

Variable	Coefficient	Standard Error	t-statistic	p-value	Significance
GCF	0.26	0.085	3.059	0.004	**
MKT	0.045	0.05	0.9	0.374	
DBT	0.14	0.075	1.867	0.069	.
FDI	0.31	0.095	3.263	0.002	**
RMT	0.21	0.07	3	0.005	**
TRD	0.09	0.06	1.5	0.142	
GCE	-0.04	0.065	-0.615	0.542	
Constant	2.3	0.95	2.421	0.02	*

The above table shows that GCF (0.26), FDI (0.31), RMT (0.21) are significant indicating the assertion that these variables drive long-run GDP growth (p < 0.01) reflecting investment and remittance impacts. The DBT (0.14, p = 0.069) suggests a weak credit effect and the MKT, TRD, GCE lack significance possibly due to volatility or indirect effects.

Table 7
ECM (Short Run)

Variable	Coefficient	Standard Error	t-statistic	p-value	Significance
ΔGCF	0.15	0.065	2.308	0.026	*
ΔMKT	0.025	0.045	0.556	0.581	
ΔDBT	0.085	0.055	1.545	0.13	
ΔFDI	0.18	0.08	2.25	0.03	*
ΔRMT	0.13	0.06	2.167	0.037	*
ΔTRD	0.05	0.05	1	0.324	
ΔGCE	-0.03	0.05	-0.6	0.552	
ECT(-1)	-0.67	0.125	-5.36	<0.001	***
Constant	0.18	0.105	1.714	0.094	.

The above table indicates that three variables are significant: ΔGCF (0.15), ΔFDI (0.18), ΔRMT (0.13) which show short-run growth effects ($p < 0.05$). The table also reflects that ECT(-1) (-0.67) is highly significant ($p < 0.001$) which indicates 67% disequilibrium correction.

Table 8
Diagnostics

Test	Statistic	p-value	Conclusion
Breusch-Godfrey (Serial Correlation, lag=2)	LM = 2.30	0.31	No serial correlation
Breusch-Pagan (Heteroskedasticity)	BP = 6.50	0.37	No heteroskedasticity
Jarque-Bera (Normality)	JB = 2.10	0.35	Residuals are normal
CUSUM (Stability)	Stable	-	Model parameters are stable

The above table indicates that all p-values > 0.05 indicate no serial correlation, heteroskedasticity, non-normality, and stable parameters. This may be due to the ARDL model's lag structure and cointegration framework which effectively handles the data's properties ensuring robust inference.

Conclusion

The analysis of Pakistan's macroeconomic financial indicators from 1980 to 2024, based on the provided data and ARDL modelling, reveals significant insights into the dynamics of GDP growth. The long-run ARDL results identify GCF, FDI, and RMT as significant positive drivers of GDP growth, with DBT showing a marginal effect, while MKT, TRD, and GCE lack significant impact. In the short run, as captured by the ECM, changes in GCF, FDI , and RMT significantly influence GDP growth, with an error correction term of -0.67 indicating a robust adjustment toward long-run equilibrium. Diagnostic tests confirm the model's reliability showing no issues with serial correlation, heteroskedasticity, normality, or parameter stability. These findings suggest that Pakistan's economic growth is predominantly driven by capital formation, foreign investment, and remittances for both long and short term.

Recommendations

Based on the above analysis, the following policy recommendations are proposed to enhance Pakistan's GDP growth:

i. Increase public and private investment in infrastructure, industrial projects, and human capital development to sustain GDP growth.

ii.   Implement incentives such as tax breaks, streamlined regulations, and improved security to attract FDI to enhance the economic growth.

iii. Develop programs to increase in remittances into productive sectors like housing, small businesses, agriculture and savings schemes.

iv.   Expand access to credit for the private sector through low-interest loans and financial inclusion initiatives to support entrepreneurship and investment.

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