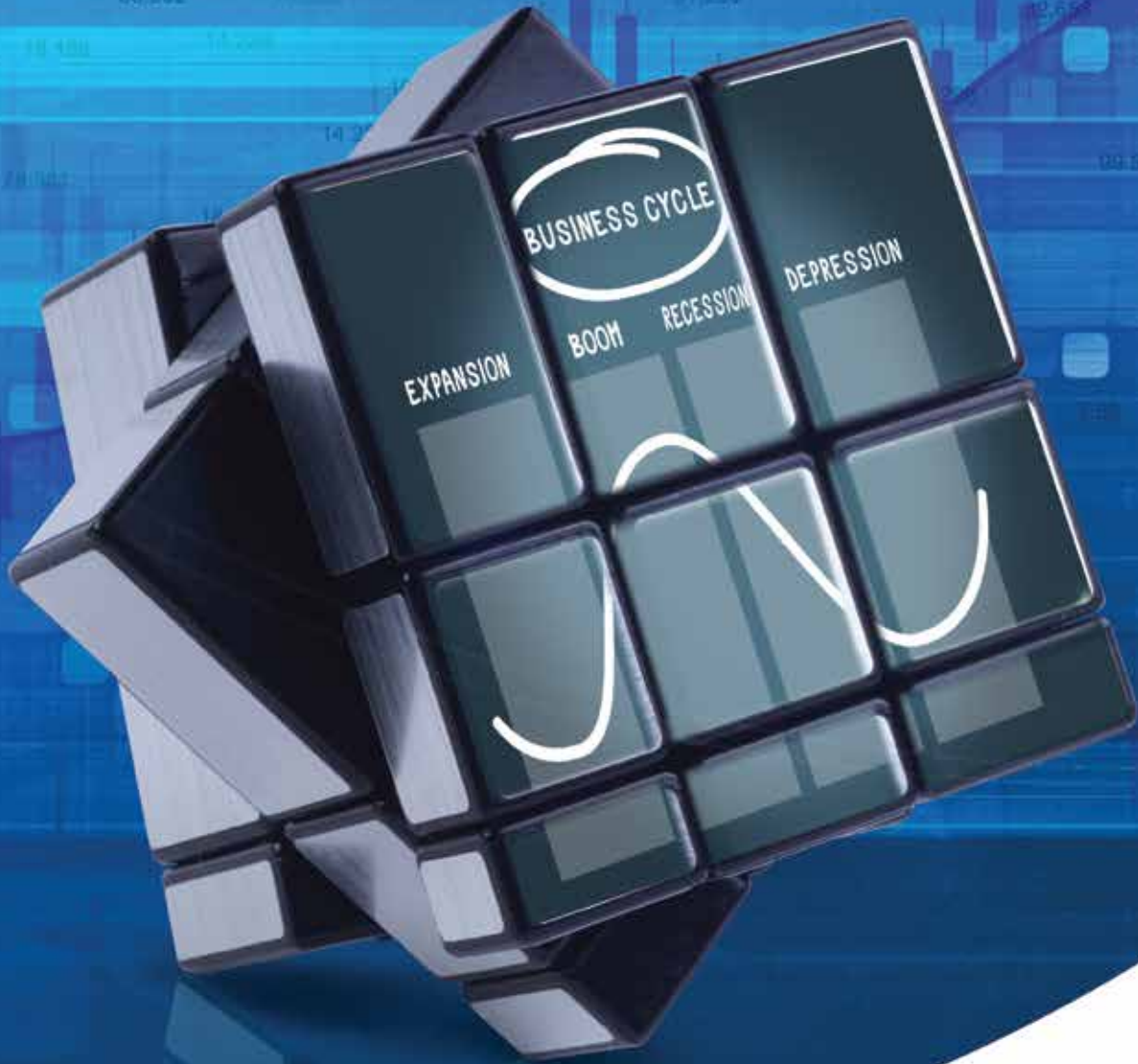


Tracking the Business Cycles and Prospects of Economic Growth: A Context of Pakistan



**The Federation of Pakistan
Chambers of Commerce & Industry**

Policy Advisory Board

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List of Acronyms

ADF	Augmented Ducky Fuller
APO	Asian Productivity Organization
ARDL	Auto Regressive Distributed Lag
AT&C	Aggregate Technical & Commercial
BMR	Balancing, Modernization and Replacement
CEE	Central and Eastern European
CPI	Consumer Price Index
DFIs	Development Finance Institutions
EAC	East African Community
ECM	Error Correction Model
ECOWAS	Economic Community of West African States
EDF	Export Development Fund
EFF	Extended Fund Facility
FDI	Foreign Direct Investment
FMOLS	Fully Modified OLS
FRDLA	Fiscal Responsibility and Debt Limitation Act
FTA	Free Trade Agreement
FY	Fiscal Year
GDP	Gross Domestic Product
GENCOs	Generation Companies
GFC	Global Financial Crisis
GI	Geographical Indication
GIS	Government Ijara Sukuk
GNI	Gross National Income
IDI	Inclusive Development Index
IMF	International Monetary Fund
NEPRA	National Electric Power Regulatory Authority
NSS	National Saving Schemes
PIBs	Pakistan Investment Bonds
PSDP	Public Sector Development Programme
PSWF	Pakistan Sovereign Wealth Fund
PTA	Preferential Trade Agreement
SACU	South African Custom Union
SBP	State Bank of Pakistan
SECP	Securities and Exchange Commission of Pakistan
SMEs	Small and Medium Enterprises
SOEs	State-Owned Enterprises
TFP	Total Factor Productivity
UNCTAD	United Nations Conference on Trade and Development
WAT	Weighted Average Tariff

Executive Summary

Pakistan shows a nascent sign of recovery with economic growth rebounded to 5.4¹ percent during the fiscal year 2021 after the decline of -0.5 percent amid the pandemic in 2020 and the low economic growth of 2.1 percent in 2019. The government's accommodative stance on both monetary and fiscal policy fronts amid the pandemic helped revamp the already challenged economy.

Despite visible growth prospects, Pakistan's economic outlook appears fragile in comparison to the peer countries. The World Bank reports that Pakistan's annual per capita growth has averaged 2 percent in the last two decades which is less than half of South Asia's average. Pakistan's economy already had a volatile growth pattern over the years, with regular boom and bust cycles facing challenges in achieving long-term and inclusive growth. This study is devoted to tracing the business cycle position of Pakistan which is followed by examining the determinants of economic growth. Business cycle theories contend accommodative monetary and fiscal policies are inevitable when a country is undergoing a recession and vice versa. The decomposition of real GDP into its components reflects that Pakistan is currently under the recessionary phase of the business cycle and is anticipated to remain in the recession till the fiscal year 2023. However, the government maintained a restrictive stance on both monetary and fiscal policies. It is imperative to set monetary and fiscal policies based on the business cycle positioning.

The factors influencing economic growth in the short-run were domestic credit to the private sector, electricity consumption, consumer price inflation, and total factor productivity. Being an import-oriented economy, expansion in imports in excess of exports put downward pressure on the local currency. Pakistani authorities must replace the market-based flexible exchange rate regime with the managed float regime in order to avoid importing inflation. To manage demand-induced inflation more effectively, the government should use prudential regulations to control inflation in a focused manner. Monetary policy measures have a differential impact on different industries and income classes. Impact on the spectrum of industries and income classes must be evaluated before formulating policies. The total factor productivity (TFP) is found to be positively related to economic growth, the consistent government efforts for increasing TFP would help revive the economic growth. Industry-specific training programs are crucial in enhancing labor productivity. Moreover, effective enforcement of labor laws such as minimum wages and others would help increase labor productivity and economic growth as a consequence. In the era of modernization, capital productivity can be brought by incentivizing the up-gradation of existing technology as well as adopting modern technology. Government should facilitate the industries in upgrading and purchasing modern efficient technology by lowering the import duties on capital goods and providing tax credits.

¹After rebasing GDP on 2015-16 prices

The empirical results of this study further indicate that in the long run increase in debt servicing adversely impacts the economic growth of Pakistan whereas an increase in exports tends to enhance the real GDP growth rate. Debt management by reprofiling the current debt portfolio will help reduce the fiscal deficit. The government should frame effective policies for export promotion such as the renegotiation of trade agreements, rectifying anomalies in bilateral trade regimes, and hedging export risks. Results also reflect that the IMF program had no significant impact on the revival of Pakistan's economy though the country has undergone 23 IMF programs and as a result, the reforms prescribed by IMF mostly trigger inflation in the country.

To foster sustainable economic growth, coordinated and consistent efforts along with a prudent macroeconomic framework are inevitable. Adoption of an export-led economic growth model is instrumental for the revival of Pakistan's economy and would provide economies of scale to the domestic industry arising from participation in world markets. In order to minimize prevalent pressure on current account, a well-calibrated and time bound import substitution policy framework is inevitable for economic security of the country in the medium term.

Adopting a policy framework that enhances productivity and extends credit to the private sector tends to improve the competitiveness of local industries. Similarly, managing debt at sustainable levels will provide fiscal space and allow the government to undertake development programs. The inconsistent and sub-optimal economic policies have impeded the country to achieve sustainably high economic growth. It is high time to restore fiscal prudence and align policies with the economic cycles.

1. Introduction

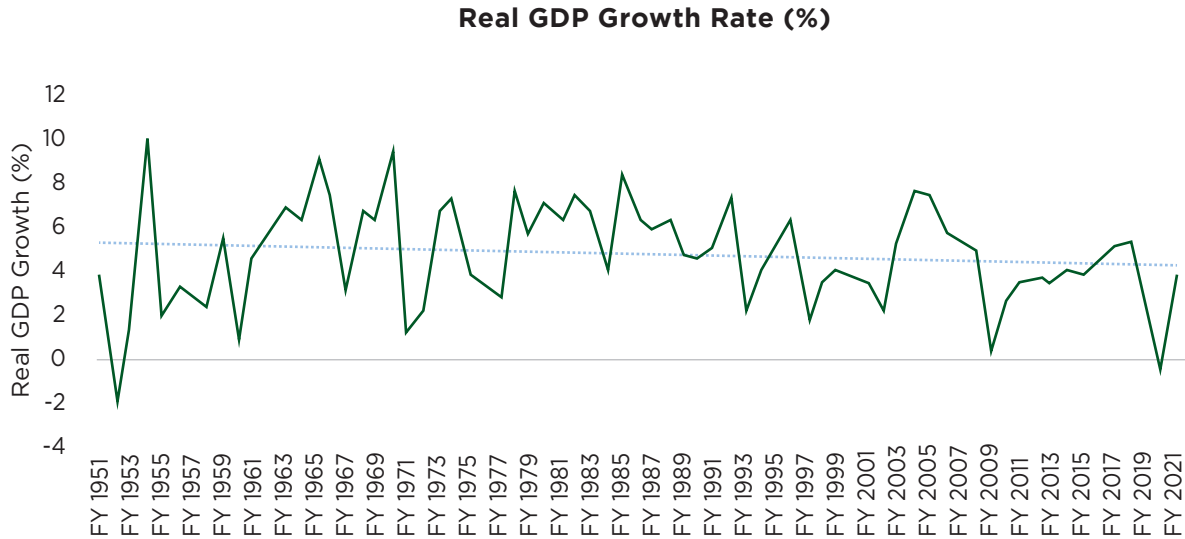
It has long been debated by economists and social scientists to figure out factors that can foster economic growth. The issue is more relevant for developing economies like Pakistan where economic and political turmoils are common. Historically, Pakistan's economy has exhibited recurrent waves of high economic growth followed by episodes of economic crisis, however, the declining trend in real GDP growth is evident in the last couple of years.

Pakistan's economy has witnessed negative economic growth for the second time in 2020 after 1952 mainly due to pandemic (with the imposition of first lockdown in April 2020) along with crippling twin deficits i.e. current account and fiscal deficits. In 1952, Pakistan's real GDP growth was recorded at -1.8 percent – the lowest real GDP growth rate in Pakistan's economic history. However, it touched the highest growth rate in Pakistan's economic history, that is, 10.2 percent in 1954. The industrial growth-oriented policies as well as import substitution and export promotion were among the top priorities. The imports of cotton and luxury goods were totally banned in the country². However, the agricultural sector was neglected during this time, hence the agriculture productivity was heavily affected. The decade of 1960s is also considered by many as the 'golden age' in terms of high growth rates achieved through the protection of local industries. Pakistan-India war of 1965 and the Fall of Dhaka in 1971 however halted the economic progress. Floods in 1973, 1974, and 1976-77, the pest attacks on crops, the nationalization policy, and the global oil price shock of 1973 further deteriorated the economy. Economic mismanagement along with these reasons had moderated the economic growth with an average growth rate recorded 4.8 percent during 1971-80 as opposed to 6.8 percent during the 1960s. The economic revival was witnessed again during the 1980s with a 10-year average growth rate of 6.2 percent. During this decade, the nationalization policies were reversed and the state-owned organizations were privatized again such as banks and insurance companies. Although the macro-economic management was not up to the mark but the fiscal stimulus, foreign remittances, and foreign aid stimulated the economic activities in the country during that time. The export base was broadened with the significant increase in manufacturing export during the 1980s. However, due to the fiscal stimulus, the fiscal deficit as well as a level of debt surged considerably. Pakistan introduced trade liberalization reforms after becoming a member of the World Trade Organization (WTO) in 1995 but the period 1990-1999 can be marked as a period of low economic growth with an average growth rate of 4.4 percent. The huge debt burden and sanctions on Pakistan amid the nuclear test of 1998 could be regarded as the major reasons for sluggish economic growth.

The Global Financial Crisis 2007-09 and the Great Lock Down amid pandemic during 2019-20 were the major crises during the last two decades that had hit the economies around the globe. The economic growth also remained muted to 0.36 percent in 2009 and -0.47 percent in 2020. The Nationwide Lockdown was imposed on 1st April and extended twice until 9th May 2020 in Pakistan. Other major economic challenges during 2000 - 2020 include political unrest amid the Afghan war. Debt stock pile-up, circular debt, and twin deficits are some of the major challenges that Pakistan's economy has been facing consistently. The figure below presents the real GDP growth rate from 1951 - 2021 reflecting an overall decreasing trend.

²Anjum and Sgro (2017)

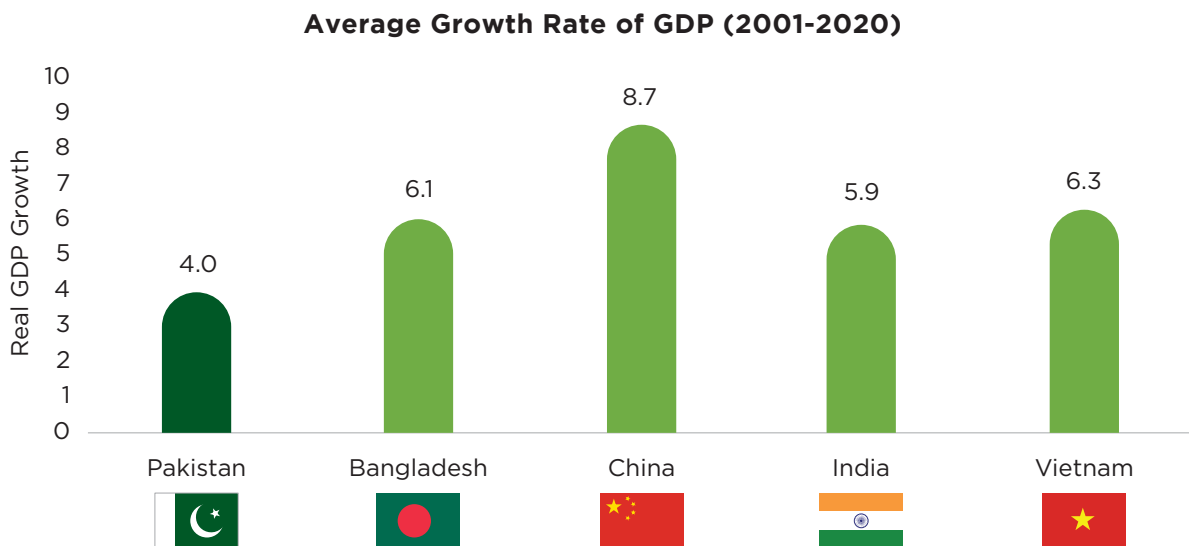
Figure 1: Real GDP Growth (%) of Pakistan



Source: State Bank of Pakistan

Pakistan’s average real GDP growth rate from 2001-2020, i.e. 4.0%, was significantly lower than that of peer countries including Bangladesh (6.1%), China (8.7%), India (5.9%), and Vietnam (6.3%). In addition, economic growth in Pakistan remained relatively less inclusive. For instance, Pakistan’s score on World Economic Forum’s (WEF) Inclusive Development Index (IDI) 2018 was 3.55 which is lower than that of China, i.e. 4.09, Bangladesh (3.98), and Vietnam (3.98). The figure below shows the average growth rate of GDP for Pakistan and its peers from 2001-2020.

Figure 2: Average real GDP Growth Rate of Pakistan and its Peers (from 2001-2020)



Source: World Development Indicators (WDI)

This research attempts to address two related issues (1) examine determinants of economic growth, and (2) decomposing real GDP growth rate into the business cycle.

2. Macroeconomic Factors Influencing Growth

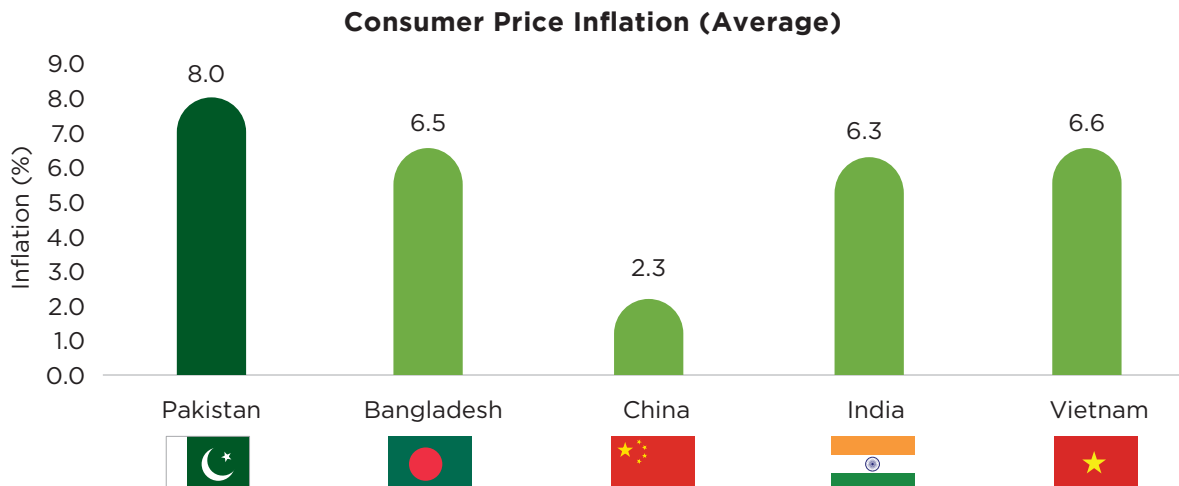
This section discusses the macroeconomic indicators that are crucial in fostering economic growth in Pakistan.

2.1. Inflation

One of the major policy goals of economists is to control the inflation rate so as to ensure sustainable economic growth in the country. Developing countries mostly rely on imported inputs which import inflation due to a rise in input prices causing cost-push inflation. Such inflation is detrimental to economic growth and most of the time induced due to unprecedented supply-side shocks such as a pandemic. On the contrary, the demand-pull inflation is due to the surge in demand and massive economic activities. Pakistan's economy has experienced several episodes of inflation with the highest inflation rate of 26.6% in 1974 and 20.2% in 2008. The impact of Inflation on economic growth has been widely researched in academic literature for different countries. However, the findings vary from country to country. Previous studies have also investigated the impact of inflation on economic growth. According to the study of Ahmed and Mortaza (2005) inflation has a negative relationship with economic growth in the case of Bangladesh. The study of Fakhri (2011) found that inflation has a threshold effect on economic growth which explains that at a certain level inflation is positively related to economic growth, however, above a certain threshold it reduces economic growth such as in the case of Azerbaijan. Ayyoub et al., (2011) investigated the relationship between inflation and economic growth and found that inflation reduces economic growth in Pakistan. To curb the inflation in the short-run Pakistan should frame active policies such as the SBP must target core inflation rather than general inflation as core inflation is a better proxy of demand-pull inflation. As headline inflation includes the impact of energy prices as well as food prices which are generally inelastic to changes in domestic policy rates.

In comparison to peer countries, the highest average inflation i.e. 8.0% was observed in Pakistan over 2001-2020. During the same period, the inflation average for Bangladesh, China, India, and Vietnam were 6.5 percent, 2.3 percent, 6.3 percent, and 6.6 percent respectively as presented in the figure below.

Figure 3: Inflation, Consumer Prices (annual %) - Pakistan and Peers



Source: World Development Indicators (WDI)

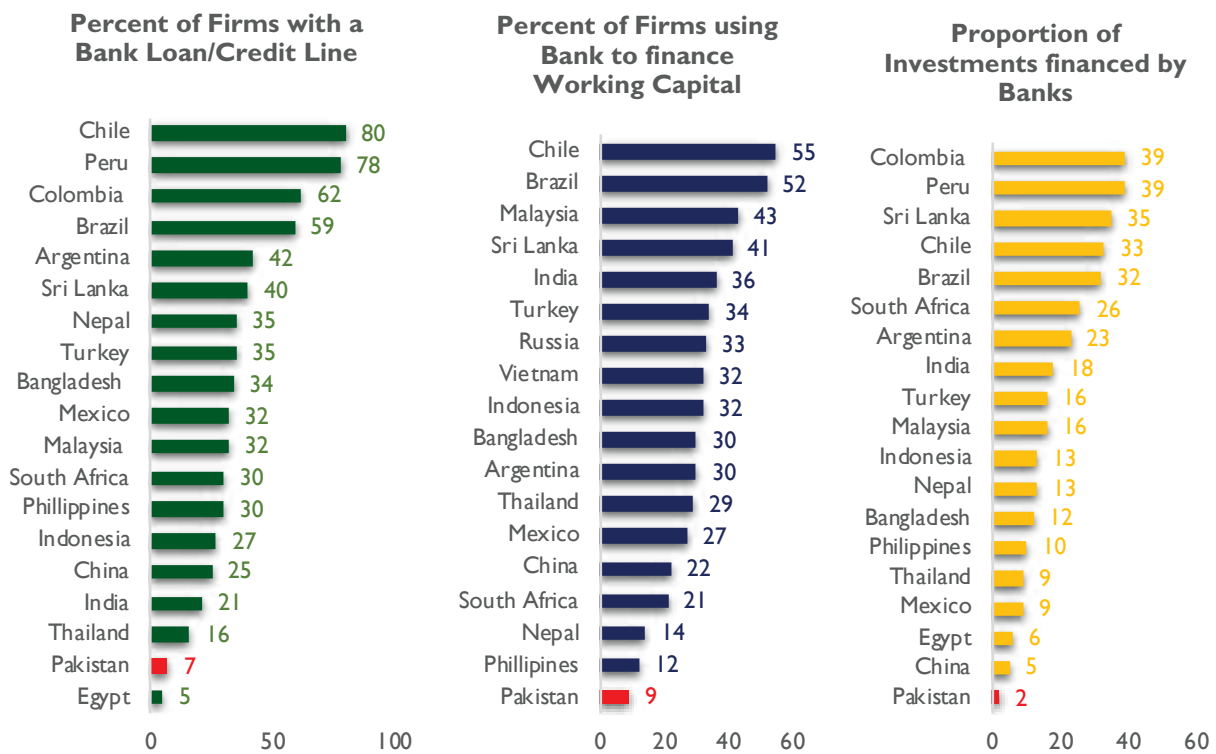
Some of the key reasons for the relatively higher level of inflation in Pakistan are as follows:

- Pakistan so far has undergone 23 IMF programs for which most of the reforms dictated by IMF triggered inflation. Adoption of a flexible exchange rate regime, setting policy rate above the headline inflation, and other such measures fueled inflation significantly.
- Being an import-oriented economy, expansion in imports in excess of exports put downward pressure on the local currency.
- Higher fiscal deficits have compelled the government authorities to mobilize additional revenues. However, excessive reliance on indirect taxes such as sales tax and customs duties raises the price level and are among a few of the factors.
- In addition, higher energy tariffs have a spillover impact in raising the price level for the value chain across the board.

2.2. Credit to Private Sector

Formal credit to the private sector in Pakistan has reached one of the lowest levels as compared to most of the emerging markets. Low credit to the private sector in a recent scenario is attributed to high-interest rates, crowding out effects due to excessive government borrowing, and economic slowdown amid COVID-19. Rent-seeking behavior of financial institutions to place greater emphasis on serving the well-off and already well-served segments of industrial clusters and shy away from lending to SMEs. As a consequence, the proportion of firms seeking bank loans in Pakistan is 6.7 percent which is only marginally better than the minimum threshold of 5.0 percent as defined by the World Bank. Pakistan's private sector credit to GDP ratio is far behind its regional peers. According to World Bank, Pakistan's private sector credit to GDP ratio in 2020 was lowered to 17.13% as compared to 21.4 percent in 2010. However, private sector credit as a percentage of GDP for Bangladesh and India has increased to 45.2 percent and 55.3 percent respectively in 2020. A number of previous studies have endorsed a positive relationship between credit to the private sector and economic growth. For instance, Olowofeso et al., (2015) state that private sector credit increases the output in a developing economy in Nigeria. Similarly, the study by Osman (2014) also found that credit to the private sector increases economic growth in Saudi Arabia.

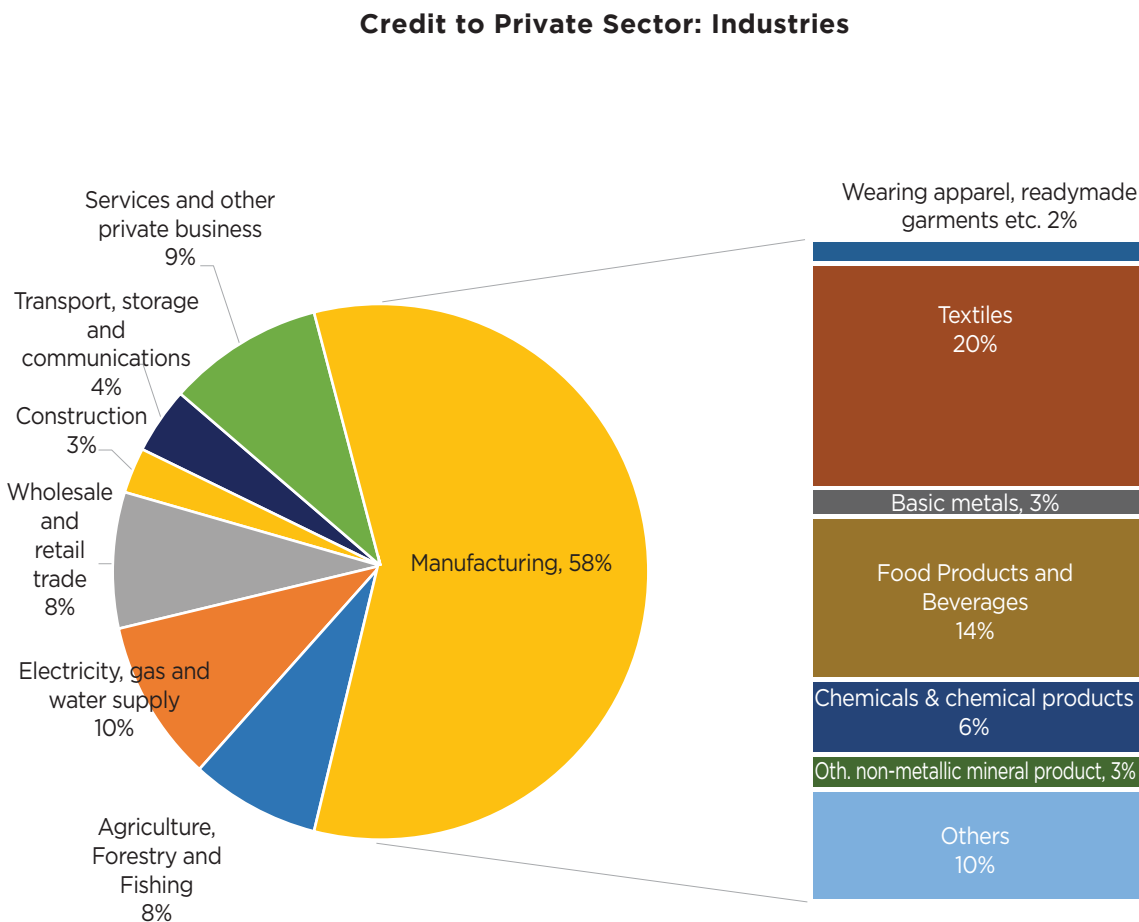
The figure below presents the proportion of firms seeking finance from the formal sector. It is evident that 7.0 percent of firms in Pakistan utilize bank loans/credit lines which are significantly lower as compared to peer countries including India (21%), China (25%), and Bangladesh (34%). Similarly, only 9.0 percent finance their working capital from banks against 36 percent, 22 percent, and 30 percent respectively for India, China, and Bangladesh. The proportion of investments financed by banks is only 2.0 percent for Pakistan whereas the proportion for India was 18 percent; China, 5 percent; and Bangladesh, 12 percent.

Figure 4: Proportion of Firms using Formal Borrowing Channels

Source: World Enterprise Survey, 2013

In addition, the private sector credit portfolio is heavily concentrated in a few sectors. The figure below shows the shares of private sector credit to different industries during the last decade. The sector-wise breakup of credit indicates that industries in the manufacturing sector together account for 58.4 percent of overall credit to the private sector. Within the manufacturing sector, the textile along with wearing apparel's share is around 22 percent. The food industry (14%); electricity, gas, and water supply (9.7%), services & other private businesses (9.2%); and wholesale & retail trade (8.2%) are also notable sectors with significant shares in overall credit to the private sector.

Figure 5: Industry-wise Credit to the Private Sector



Source: State Bank of Pakistan (SBP)

Potential reasons for low credit to the private sector are as follows:

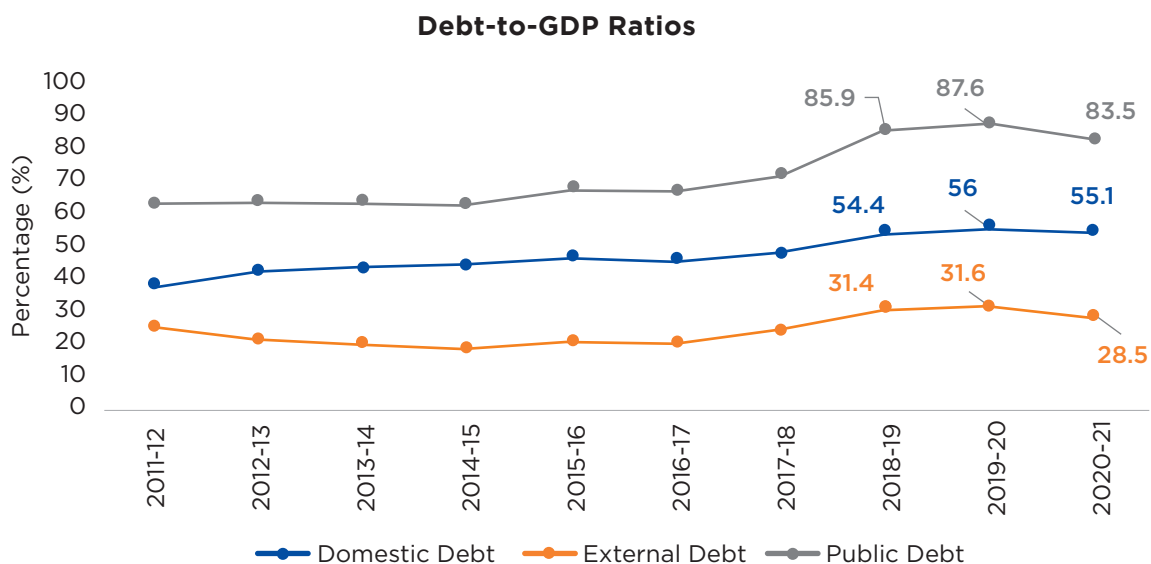
- Deregulation, liberalization, and aggressive risk management practices of the financial sector since the 1990s have provided them greater autonomy to mobilize their funds. After these reforms, credits are being increasingly geared towards government debt instruments to earn risk-free returns.
- Due to huge fiscal deficits in the past years, the central government relied heavily on domestic credit. As a consequence, the pool of funds available to the private sector, particularly for Small and Medium Enterprises (SMEs), narrowed significantly. The government’s increased borrowing from commercial banks also induced crowding out of the private sector along with a hike in interest rates.
- Three-way collateralization of loans including mortgage, personal guarantees, and charge creation on assets through SECP, also discourage the private sector to secure loans.

2.3. Pakistan's Debt Profile

Pakistan's public debt portfolio has reached Rs 41.5 trillion by December 2021. Domestic debt is about 66 percent of the total public debt whereas external debt accounts for 34 percent of the total debt for the fiscal year 2021-22. The domestic debt of the government has been increasing since the 1990s, however, a sharp increment can be seen in the last two decades. Main sources of domestic credit include federal government bonds which can be categorized into short-term, medium-term, and long-term instruments. Domestic debt comprises three categories: permanent debt, floating debt, and unfunded debt. Permanent debt encompasses medium to long-term debt instruments and market loans such as Pakistan Investment Bonds (PIBs), and Government Ijara Sukuk (GIS) whereas floating debt consists of short-term debt instruments including T-Bills. Unfunded debt comprises National Saving Schemes (NSS). The Government of Pakistan has issued 3, 5, and 10 years PIBs based on both fixed and floating rates. Debt from PIBs has doubled during the period of 10 years and touched Rs. 12.8 trillion in 2020 whereas the percentage of short-term borrowing has been declining since 2013. It bounced back to 54.15 percent of total debt in 2018 but declined again and reached 23.96 percent in 2020. To optimize the debt portfolio, a prudent approach is to overweight the debt portfolio with short-term loans when interest rates are relatively higher and vice versa. The figure below presents that the current debt to GDP ratio of 83.5 percent in the fiscal year 2021 is substantially higher than the sustainable debt to GDP ratio of 65 percent. Similarly, the total government debt of 74.9 percent of the GDP is way above the limit of 60 percent of the GDP imposed by the Fiscal Responsibility and Debt Limitation Act (FRDLA), 2005.

The external debt portfolio of Pakistan typically includes loans from four multilateral loans sources (49 percent), bilateral loans (31 percent), commercial loans (13 percent), and Eurobonds/Sukuk (7 percent). The external debt of Pakistan has started increasing since the decade of 1990s similar to domestic debt. However, during the period 2000 to 2007, it has remained stagnant and again started increasing and reached a peak in 2020. Debt servicing has grown substantially and reached 34.5 percent of the total budget outlay in 2021-22.

Figure 6: Trend in Debt-to-GDP Ratios



Source: Pakistan Economic Survey (PES)

Evidence from scholarly literature is also quite rich for exploring the relationship between debt and economic growth, however, mixed evidence has emerged from various studies. For instance, Mera and Ryskulov (2012) argue the positive relationship of government debt and debt servicing with economic growth in Albania. In the context of India, Bal and Rath (2014) do not find any statistically meaningful relationship between public debt and economic growth. On the other hand, Schclarek (2004) contends the negative relationship between external public debt and economic growth.

The following reasons can be marked as the major reasons for debt accumulation and higher debt servicing:

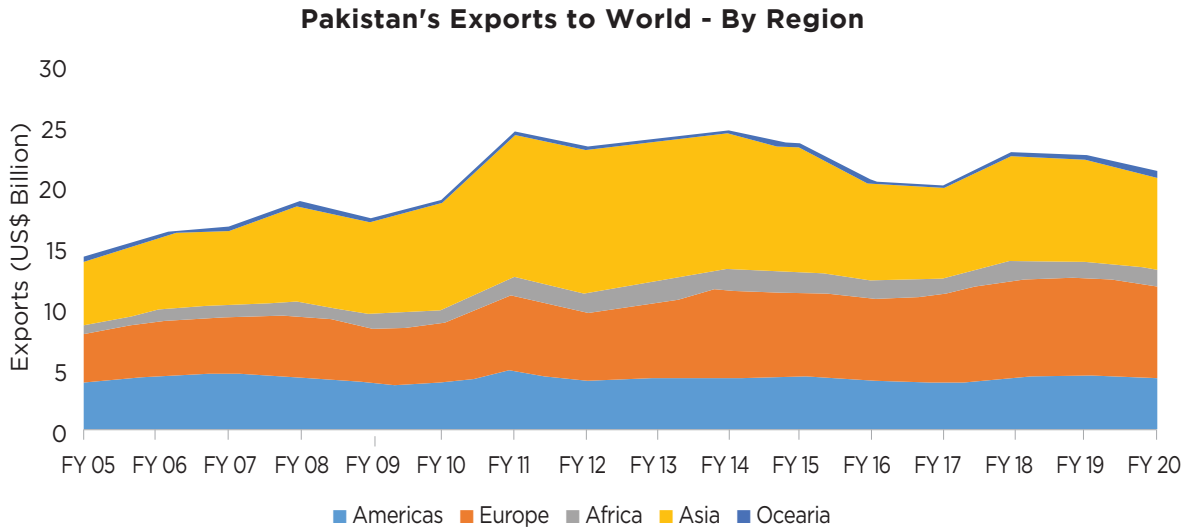
- Imprudent debt management practices have increased debt servicing significantly. During a high-interest rate environment, fiscal managers secured long-term loans which compelled the government to continue servicing debt at higher rates even though interest rates went down.
- Higher policy rates to contain cost-push inflation are mainly induced due to disruption in the global supply chain found to be counterproductive. It has raised the cost of debt significantly.
- Fiscal deficit due to limited fiscal consolidation has also increased government reliance on both domestic and external borrowing.

2.4. Exports

Asian economies such as Taiwan, Hong Kong, Singapore, and Korea followed export-led economic growth and remained successful in witnessing robust economic growth. Pakistan however has a narrow export base with a concentration of exports for a few products directed towards only a few markets. A growing trade deficit to the worrying level calls for immediate policy reforms. A key factor driving the trade imbalance is the declining export competitiveness. Pakistan's export basket is concentrated in only a few products and are being exported to a handful of countries. Although the Ministry of Commerce of Pakistan has identified non-traditional markets and additional 2 percent duty drawbacks for exporting goods to those countries, much needs to be done on the international front. Credit guarantees, the establishment of warehouses, and better payment mechanisms are required to cater demands of non-traditional markets such as Africa and Central Asia. Furthermore, to increase exports and improve the global footprints of Pakistani products, the competitiveness of industries must be enhanced.

The figure below presents that Pakistan's top exports destination were mainly Asia, Europe, and the US (in the Americas region). Although exports grew between 2005 and 2020 however proportion of exports remained the same.

Figure 7: Pakistan’s Export to World by Region

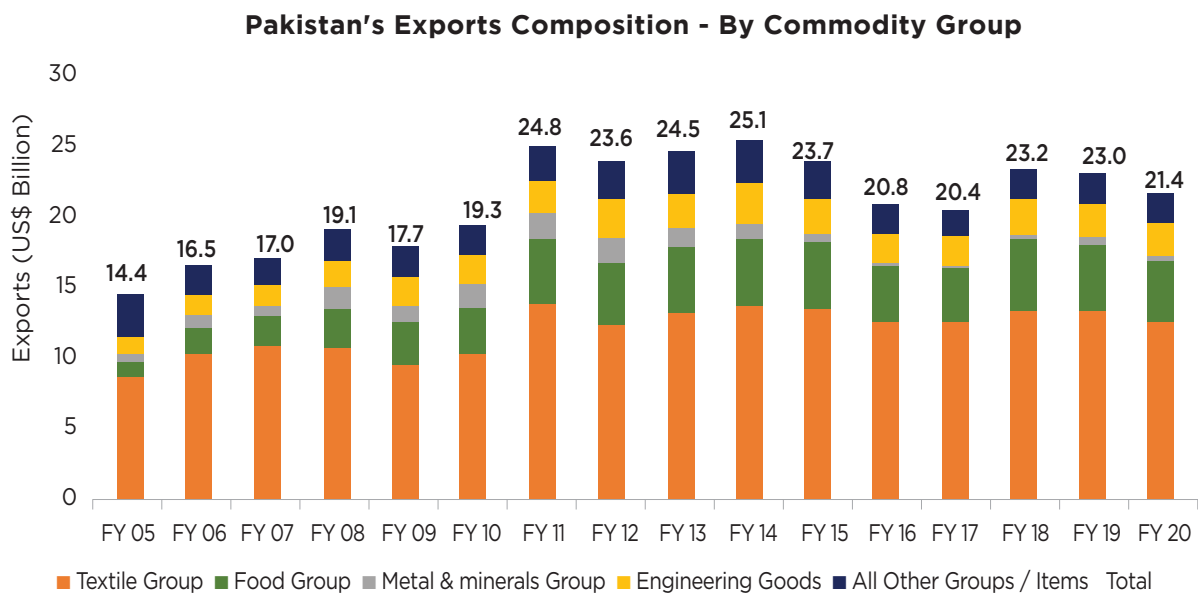


Source: Pakistan Bureau of Statistics (PBS)

Similarly, Pakistan’s economy is semi-industrialized and has been de-industrializing prematurely with a narrow export base relying heavily on textiles and food groups only. As presented in the figure below, the textile group has an overwhelming concentration in total exports with an average share of 57.2 percent over FY2005-2020 which is followed by the food group (17.1%), engineering goods (9.9%), and all others (11.4%). Moreover, total exports have increased only marginally during the last fifteen years.

The figure below shows the trend of the export composition of Pakistan from the year 2005 to 2020. According to data the major exports of Pakistan are textile products from 2005 till 2020. The second export group is the food items group and the third is metals and minerals while the engineering services export is on the fifth number in the total export composition of Pakistan.

Figure 8: Pakistan’s Exports Composition by Commodity Group



Source: Pakistan Bureau of Statistics (PBS)

The significance of exports in enhancing economic growth is also well-acknowledged in scholarly literature. A number of studies have investigated the link between export and economic growth in different countries and regions. For instance, the study of Kilvuz and Topcu (2012) analyzed the relationship of export with economic growth in the case of 22 developing economies including Argentina, Bolivia, Algeria, Ecuador, South Africa, Indonesia, Gabon, Côte D'Ivoire Mexico, Philippines Malaysia, Honduras, Peru, India, Romania, Egypt, Chile, Thailand, Turkey, Pakistan, Uruguay, and Venezuela. The findings of their study show that manufacturing export significantly increases economic growth. In addition, the study of Adebayo (2020) also supports the argument of Kilvuz and Topcu (2012) that export significantly increases economic growth in the case of Nigeria.

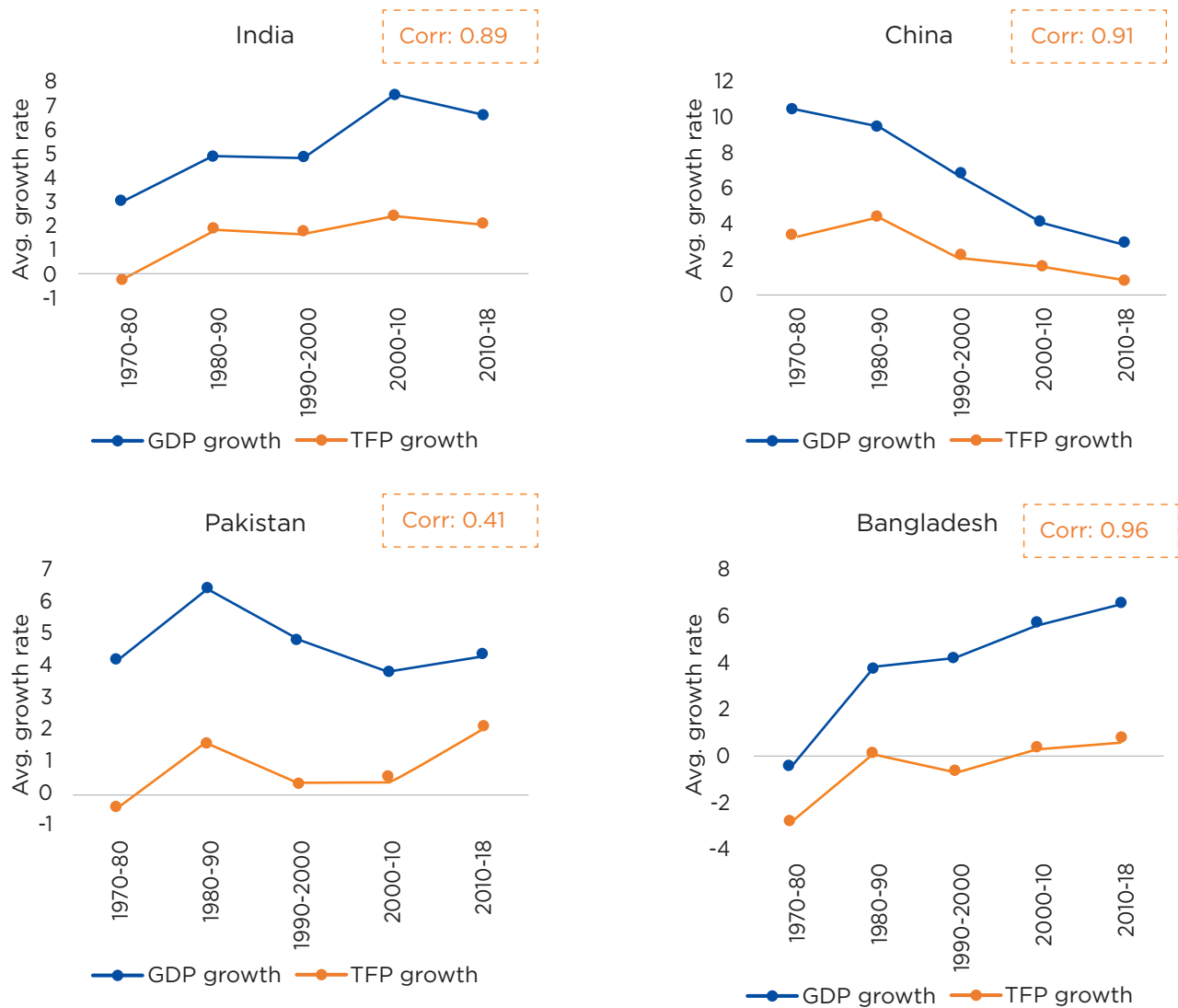
Following are the major reasons for the narrow export base of Pakistan:

- A fewer number of trade agreements of Pakistan as compared to peer countries have impeded both product and market diversification for exports.
- Export-oriented industries are less competitive due to heavy reliance on imported raw materials. The massive depreciation of the rupee has increased the cost of production significantly.
- The lack of presence of international brands and tendency to export bulk quantities have rendered Pakistani exporters to earn relatively lower prices in international markets.
- Unlike peer counties, the absence of credit guarantees and pending operationalization of EXIM Bank have exposed exporters to various risks pertaining to exports.

2.5. Total Factor Productivity

Total factor productivity (TFP) refers to the productivity of all inputs taken together. Economists analyze TFP which is GDP per unit of combined inputs to arrive at the overall productivity of a country's production. Improvements in TFP tend to enhance economic growth by allocating inputs more appropriately and efficiently. TFP can be interpreted as growth through technological innovation and efficiency achieved by enhanced labor skills and capital management.

The Structural Adjustment Programmes and macroeconomic reforms have impacted the TFP significantly in the context of Pakistan. The figure below presents TFP growth as well as real GDP growth rates for China, India, Pakistan and Bangladesh. It can be observed that a positive relationship exists between TFP and the real GDP growth rate for all four countries. However, the highest positive correlation is found in the case of Bangladesh.

Figure 9: GDP Growth and Total Factor Productivity

In academic literature, numerous studies have also tested the impact of TFP on economic growth. Abidin et al., (2020) investigated the role of TFP shocks in economic growth in ASEAN+3 countries for the period 1981 to 2014. The empirical results of their study, obtained from Panel vector autoregressive (PVAR), reveal that TFP growth shocks increase economic growth in these countries. In addition, the study of Yalçinkaya et al., (2017) also investigated the relationship of TFP with economic growth in different groups of countries i.e. G-7, G-12, and G-20. The findings of their study also indicate a positive relationship between TFP and economic growth in all these economies. Furthermore, Jia et al., (2020) analyzed the impact of manufacturing and non-manufacturing TFP on economic growth for 12 developed nations including Austria, Belgium, Germany, France, Finland, Netherlands, Sweden, Spain, Italy, United Kingdom, the USA, and Japan. Their study urges that the TFP growth in the manufacturing sector contributes to economic growth both directly and indirectly. However, no meaningful relationship has been found between TFP and economic growth in the non-manufacturing sector. A comparison of Pakistan with its peer countries reflects that China's TFP growth rate was 2.78, followed by India at 1.54% and Pakistan at 0.84% whereas Bangladesh had a negative TFP growth rate of -0.04% on average from 1970-2018.

2.6. Electricity Consumption

The demand for energy is increasing rapidly in this globalizing world. Most countries are facing a shortage of energy and consequently, it is severely affecting economic growth. According to World Bank data, the trend of electricity consumption of total consumption of electricity is increasing in the country.

Numerous studies have investigated the relationship between energy consumption and economic growth. The study of Altinay and Karagol (2005) tested a similar relationship in Turkey by using the data from 1950–2000. The empirical results from the various econometric tests reveal that there is a positive electricity consumption increases economic growth in the country though there is unidirectional causality between electricity consumption and income. Yoo (2006) examined the similar relationship in 4 ASEAN countries including Indonesia, Malaysia, Singapore, and Thailand for the period 1971–2002. The empirical findings of their study indicate that there is bi-directional causality between dependent and independent variables in Malaysia and Singapore which explains that an increase in electricity consumption tends to increase economic growth and vice versa. However, the uni-directional causality from economic growth to electricity consumption was found in the case of Indonesia and Thailand. This study also conjectured the positive relationship between total electricity consumption and economic growth in the context of Pakistan.

3. Research Design

3.1. Data and Variables

This study uses the annualized data from 1971 to 2019. The real GDP growth rate is the dependent variable whereas independent variables include domestic credit to the private sector (% of GDP), debt servicing (% of GNI), consumer price inflation, broad money (% of total reserves), total factor productivity (TFP), exports, electricity consumption, and foreign direct investment. Description and data sources are provided in the table below.

Table 1: Data and Variables

Variables	Description	Source
Real GDP Growth rate	The real GDP growth rate is measured as a % change in GDP measured at a constant price.	World Development Indicators, World Bank & State Bank of Pakistan
Inflation (CPI)	Inflation as measured by the consumer price index reflects the annual percentage change in the cost to the average consumer of acquiring a basket of goods and services that may be fixed or changed at specified intervals, such as yearly	World Development Indicators, World Bank
Commercial electricity consumption	Commercial electricity consumption is measured in Gigawatt hours (GWh)	Economic Survey of Pakistan
Broad money to total reserves	The ratio of broad money (M2) to total foreign reserves. Broad money includes all the items included in narrow money, but also any other liquid assets that can be used to buy goods and services.	World Development Indicators, World Bank
Domestic credit to the private sector	Domestic credit to the private sector refers to financial resources provided to the private sector by financial corporations. Measured in % of GDP	World Development Indicators, World Bank
Total Factor Productivity	The growth of a nation's economic output compared with the growth of its labor force and its capital stock.	Asian Productivity Organization (APO)
Exports	Exports of goods and services (% of GDP)	World Development Indicators, World Bank
Foreign direct investment	Foreign direct investment, net inflows (as a % of GDP)	World Development Indicators, World Bank
Debt servicing	Total Debt servicing (% of GNI)	World Development Indicators, World Bank

3.2. Model Diagnostics

3.2.1. Granger Causality Test

Economic theories have predicted bi-directional (or causal) relationships among certain variables, any existence of such relationships violates the assumption of least square regression. This study tests the causality of GDP growth rate with consumer price inflation (CPI) and money supply which are more likely to have a causal relationship.

Results corresponding to the Granger Causality test provided in the appendix reflect no statistically significant causal relation therefore incorporation of these variables does not violate the causality assumption.

3.2.2. Augmented Ducky-Fuller (ADF) Unit Root Test

The ADF belongs to a category of unit root tests. ADF test is an extension of the Ducky Fuller test. The presence of unit root in data may cause unpredictable outcomes in times series analysis. The null hypothesis in the ADF unit root test states that there is a presence of unit root in data. We will conduct the ADF test for each variable to confirm the stationary condition of the same variable. ADF test results indicate whether the selected variable is stationary at its level or at the first or second difference.

3.2.3. Breusch-Godfrey Serial Correlation LM Test

Breusch-Godfrey Serial Correlation LM Test is used to check the autocorrelation problem in data. The null hypothesis in this test is that there is autocorrelation in errors in a statistical model. Results provided in the appendix show that serial correlation exists, however, the presence of serial correlation does not matter while using the ARDL Bound testing approach (Pesaran et al., 2001).

3.3. Business Cycle Decomposition

The business cycle reflects variations in the economic activity of a country. A complete business cycle consists of four phases i.e. expansion, peak, recession, and trough. During the recessionary period, the country faces a decline in output, employment, income, and sales. Therefore, to revive the economy from recession countries often implement expansionary policies. Nevertheless, during the expansion period, the contractionary policies are taken into consideration to control the inflation and crowding out. However, the situation is different in the case of Pakistan, the country is going through a recessionary period and the contractionary policies are in practice. Pakistan is currently undergoing the fifth business cycle since its inception. The economy entered into a recessionary phase of the 5th business cycle in 2016 which is expected to continue till 2023.

Gross Domestic Product (GDP), like other time-series, is comprised of three components long-term trends, business cycles, and short-term shocks. This study uses the Hodrick-Prescott (HP) filter of Hodrick and Prescott (1997) to decompose the real GDP growth rate into its components. The HP filter refers to a data-smoothing technique that removes short-term fluctuations associated with the business cycle. Removal of these short-term fluctuations reveals long-term trends. This can help with economic or other forecasting associated with the business cycle. The time series of real GDP can be decomposed into the following three components:

$$\text{Real GDP}_t = Y_t + C_t + I_t$$

Where $Y_t = \text{Long-run trend}$; $C_t = \text{Cyclical movements}$; $I_t = \text{Random movements}$

The HP filter decomposes the series by following two steps. In the first step, the long-run trend (T_t) component is extracted from the real GDP series. It then filters out cyclical components (C_t) from the rest³. The filtering methodology disintegrates the components by minimizing the following objective function:

$$\sum [\ln y(t) - \ln y^*(t)]^2 - \lambda \sum \{[\ln y^*(t+1) - \ln y^*(t)] - [\ln y^*(t) - \ln y^*(t-1)]\}^2$$

Where y^* is the long-term trend and λ is the smoothness parameter. Hodrick and Prescott suggested $\lambda = 100$ for the annual frequency time series. The procedure is repeated to isolate cyclical variation from irregular variations.

The table below summarizes business cycles identified using HP-filter. Pakistan is currently undergoing the fifth business cycle since its inception. The economy entered into a recessionary phase of the 5th business cycle in 2016 which is expected to continue till 2023.

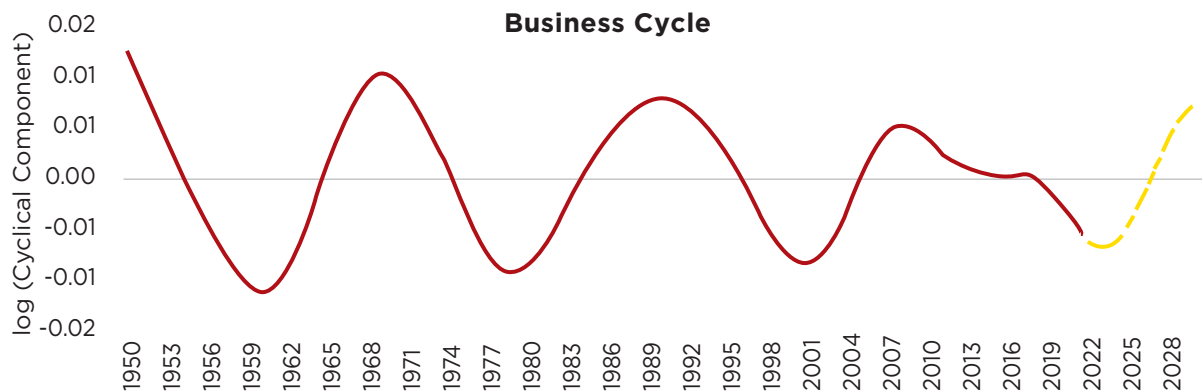
Table 2: Business cycle turning points using HP-filter

Business Cycles (Fiscal Year)	Duration	Recession	Trough	Recovery	Peak
First cycle	1950 - 1969	1950 - 1960	1960	1960 - 1969	1969
Second cycle	1969 - 1990	1969 - 1979	1979	1979 - 1990	1990
Third cycle	1990 - 2008	1990 - 2001	2001	2001 - 2008	2008
Fourth cycle	2008 - 2016	2008 - 2015	2015	2015 - 2016	2016
Fifth cycle	2016 - to date	2016 - 2023*	2023	2023 -	-

* Denotes forecasted dates

The figure below presents the business cycles of Pakistan since its inception. Moreover, it forecasts the phases of the fifth business cycle. Economic rebound is expected from the fiscal year 2023-24 which will continue till 2029-30. The flattened area shows the short recovery due to the accommodative policies measures taken by the than government during 2013 to 2018 even undergoing 21st IMF Program. However, the contractionary policies as per the prescription under 22nd IMF Program in 2019 and the pandemic in 2020 led the economy towards another recession.

Figure 10: Business Cycles of Pakistan



³Details on methodology can be found at SBP Working Paper Series (WP 01)

3.4. The Econometric Model

This study follows ARDL bound testing approach to test cointegration developed by Pesaran et al. (2001) to analyze factors cointegrated with the aforementioned components. The advantage of the approach is that it can be applied irrespective of whether the variables are cointegrated of order zero $I(0)$ or integrated of order one $I(1)$. The advantage of the ARDL methodology is that it is valid for stationary $I(0)$ or integrated-order $I(1)$ variables as in the case of variables used in this study. Furthermore, it has better small sample properties. The ARDL Bound testing approach involves estimating the following unrestricted error correction model (also called conditional ECM).

The long-term impact of macroeconomic variables on real GDP growth rate is investigated using Autoregressive Distributed Lag Model (ARDL) approach. Characteristics of the ARDL model to examine long-run relationship is explained by Pesaran and Smith (1995) and Pesaran and Shin (1999).

$$\begin{aligned} \text{Real GDP Growth Rate}_t &= \alpha_0 + \sum \beta_i \Delta \text{Real GDP Growth}_{t-i} + \sum \partial_i \Delta \text{Broad Money}_{t-i} \\ &+ \sum \gamma_i \Delta \text{Domestic Credit to Private Sector}_{t-i} + \sum \delta_i \Delta \text{Debt Servicing}_{t-i} \\ &\quad + \sum \theta_i \Delta \log(\text{Electricity Consumption})_{t-i} \\ &\quad + \sum \pi_i \Delta \text{Consumer Price Inflation}_{t-i} + \sum \tau_i \Delta \text{Exports}_{t-i} \\ &+ \sum \varphi_i \Delta \text{Total Factor Productivity}_{t-i} + \lambda_1 \text{Real GDP Growth}_{t-i} \\ &+ \lambda_2 \text{Broad Money}_{t-i} + \lambda_3 \text{Domestic Credit to Private Sector}_{t-i} \\ &+ \lambda_4 \text{Debt Servicing}_{t-i} + \lambda_5 \log(\text{Electricity Consumption})_{t-i} + u_t \end{aligned}$$

The first part of the equation, with β , ∂ , γ , δ , θ , π , τ , and φ represents the short-term coefficients of the model. The second part with λ s represents the long-term relationships. The null hypothesis that needs to be tested is, $\lambda_1 = \lambda_2 = \lambda_3 = \dots = 0$, which implies the nonexistence of a long-term relationship.

Following the various similar studies, we have used ARDL as the most relevant method for empirical analysis. In the existing literature, various determinants of economic growth have been identified. Ho and Njindan Iyke (2020) analyzed the determinants of economic growth in Ghana by using ARDL bounds testing on a time series data set from 1975 to 2014. The empirical findings of their study reveal that in the long run human capital and foreign aid have a positive impact on output and the labor, financial development, and debt servicing are negatively associated with output. In the same vein, the study of Thaddeus et al., (2021) investigated the macroeconomic determinants of economic growth in Cameroon. They used the ARDL method for empirical analysis and found that government expenditure, trade openness, investment, and exchange rate have a significant positive impact on economic growth whereas human capital development, foreign aid, money supply, inflation, and FDI have an adverse effect on economic growth.

Rahman and Salahuddin (2009) examined the determinants of economic growth in Pakistan. Using time-series data from 1971 to 2006, they employed FMOLS, ARDL and ECM models for empirical investigation. Results of their study state that an efficient stock market, FDI, and human capital significantly increase economic growth. However, inflation and financial instability have a negative impact on economic growth in the case of Pakistan. In addition, the study by Tahir et al., (2015) empirically analyzed the determinants of economic growth in Pakistan. Their study used time series data from 1977-2013 and estimated through the ARDL approach. The main empirical findings of their study exhibit that there is a positive relation between FDI and foreign remittances with economic growth and the imports have a negative impact.

4. Empirical Results

To test whether a long-run relationship exists among the variables, a bound test was performed as presented in the table below. The value of F-statistics lies outside the band of critical values at a 1% significance level, indicating that a long-term relationship exists between real GDP growth rate and macroeconomic variables used in this study.

Table 3: Results of ARDL Bound Test

Test Statistic	Value	Degree of freedom
<i>Null hypothesis: No long-run relationship (i.e. $\lambda_1 = \lambda_2 = \lambda_3 = \dots = 0$)</i>		
Calculated F-statistic	19.62	8
Level of Significance	Lower Bound	Upper Bound
10 percent	1.95	3.06
5 percent	2.22	3.39
2.5 percent	2.48	3.7
1 percent	2.79	4.1

The table below reports the coefficients for both short-run and long-run coefficients corresponding to the ARDL equation. As expected, the error correction term i.e. real GDP Growth t-1, represented as a speed of adjustment coefficient from long-term equilibrium within one year, is negative with an associated coefficient estimate of -1.25. From these results, it can be concluded that there exists a long-run relationship between real GDP growth rate with export-to-GDP and debt servicing-to GDP ratios. Specifically, a one percentage point increase in the export-to-GDP ratio will result in a long-run change in the real GDP growth rate of about 0.4 percentage points assuming all other variables are constant. In contrast to this, any increase in debt servicing (as a % of GDP) will slow down the real GDP growth rate by 0.8 percentage points at ceteris paribus. However, in the short run, private sector credit is found to be positively related to GDP growth. A one percentage point increase in private sector credit (as a % of GDP) increases real GDP growth by 0.23 percentage points. Similarly, electricity consumption also increases real GDP growth in Pakistan. A one percent increase in electricity consumption will increase real GDP growth by 0.12 percentage points. In contrast, inflation is been found to be negatively related to economic growth in Pakistan. A one percentage point increase in inflation tends to decrease real GDP growth by 0.11 percentage points. The total factor productivity also turns out to be positively related with the real GDP growth rate.

Table 4: Results of ARDL estimation

Variable	Coefficient	Standard Error (Newey-West)	t-Statistic	Prob.
Speed of adjustment coefficient				
Real GDP Growth t_{-1}	-1.25*	0.11	-11.64	0.00
Short-run coefficients				
Δ Broad Money t_{-1} (% of reserves)	0.08	0.05	1.56	0.13
Δ (Domestic Credit to Private Sector) t	0.23***	0.13	1.80	0.08
Δ (Domestic Credit to Private Sector) t_{-1}	0.15	0.08	1.84	0.08
Δ (Debt Servicing, % of GNI) t	-0.05	0.22	-0.25	0.81
Δ log(Electricity Consumption) t	0.12**	5.56	2.22	0.04
Δ log(Electricity Consumption) t_{-1}	0.25*	4.97	5.20	0.00
Δ Consumer Price Inflation t	-0.11***	0.06	-1.94	0.06
Δ Consumer Price Inflation t_{-1}	0.16*	0.05	2.97	0.01
Δ Exports (% of GDP) t	0.12	0.15	0.79	0.44
Δ Total Factor Productivity t	31.59*	8.45	3.74	0.00
Long-run coefficients				
Broad Money t_{-1} (% of reserves)	0.01	0.06	0.18	0.86
Domestic Credit to Private Sector t_{-1}	0.03	0.11	0.28	0.78
Foreign Direct Investment t_{-1}	-0.18	0.49	-0.38	0.71
Debt Servicing t_{-1} (% of GNI)	-0.78*	0.28	-2.81	0.01
log (Electricity Consumption) t_{-1}	-1.13	0.95	-1.18	0.25
Consumer Price Inflation t_{-1}	-0.13	0.08	-1.59	0.12
Exports (% of GDP) t_{-1}	0.39**	0.15	2.60	0.02
Total Factor Productivity t_{-1}	1.36	6.56	0.21	0.84
Dummy Variables				
IMF Program (1 for IMF, 0 otherwise)	0.37	0.40	0.92	0.37
Democracy (1 for democracy, 0 otherwise)	0.33	0.53	0.62	0.54
Intercept	11.81	6.37	1.85	0.08
Model Fit Statistics				
R-squared	0.92	Mean dependent var		0.00
Adjusted R-squared	0.86	S.D. dependent var		2.49
S.E. of regression	0.94	Akaike info criterion		3.02
Sum squared resid	22.03	Schwarz criterion		3.88
Log-likelihood	-48.88	Hannan-Quinn criterion		3.34
F-statistic	14.27	Durbin-Watson stat		2.25
Prob(F-statistic)	0.00*			

* Significant at 1% level of significance, **Significant at 5%, and significant at 10%

5. Conclusion and Policy Recommendations

The economic problems of Pakistan are intricately, deep-rooted, and huge as the country has gone through various boom-bust cycles and largely remained unsuccessful in chasing sustainable economic growth. This study aims to explore the determinants of economic growth in Pakistan along with analyzing business cycles. The finding of this study revealed a long-run relationship exists between the real economic growth and debt-servicing to GDP and exports to GDP. To curtail the recurring twin deficits and achieve sustainable economic growth, Government must focus on reducing the cost of debt and promoting exports. In the short-run, domestic credit to the private sector, electricity consumption, and total factor productivity favor growth whereas inflation adversely impacts the economic growth of Pakistan. It is imperative for the economic managers to keep an eye on these macroeconomic indicators while taking decisions on short-term economic stabilization policies. No significance of the IMF programs in fostering economic growth reflects the gross failure of these programs in preserving macroeconomic stability. IMF's generic prescription largely remained counterproductive and failed to address the core issues.

Pakistan is currently undergoing the recessionary phase of the fifth business cycle and is expected to continue till 2023. However, due to the strict conditionalities under the current IMF program, the government turned its stance to restrictive on both fiscal and monetary policies which are contrary to the prudent policy response for the economy undergoing a recession. Sub-optimal and politically motivated economic decisions distract the country from the natural phases of business cycles and tend to remain in the recessionary phase for a prolonged period.

5.1. Policy Recommendations

Following are the recommended measures in different areas for the revival of the economy of Pakistan.

5.1.1. Suggested Measures based on Business Cycle Positioning

Business cycle theories contend that expansionary monetary and fiscal policies should be adopted to boost economic activity when the economy is undergoing recession and vice versa.

Accommodative Stance on Monetary Policy

Following measures are recommended to adopt an accommodative stance on monetary policy consistent with the current business cycle position:

- **Lowering policy rate.** In line with the regional average of 4 percent, it is urged that policy rates between 4-5 percent be maintained. Higher policy rates are appeared to be counterproductive in controlling inflation due to a lower level of credit to the private sector and excessive government borrowing.
- **Inflation targeting must be based on core inflation.** The SBP must target core inflation rather than general inflation as core inflation is a better proxy of demand-pull inflation. Headline inflation includes the impact of energy prices as well as food prices

which are linked with global commodity prices and are generally inelastic to changes in domestic policy rates.

- **Use prudential regulations to control demand-pull inflation.** To manage demand-induced inflation more effectively, the government should use prudential regulations to curb demand pulls in a more focused manner.
- **Allow government borrowing from the central bank.** Authorities must restore government borrowing from the central bank. The government's alternative reliance on commercial banks would end up borrowing expensive loans along with a crowding-out effect on private borrowing. However, there must be statutory limits on government's borrowing

Accommodative Stance on Fiscal Policy

Following measures for fiscal policy are suggested to revive the economy of Pakistan from the recessionary pressure.

- **Reduction in corporate Tax Rates.** Previously, the government announced to reduce the corporate tax rates from 29 percent to 25 percent gradually by 2023 but the amendment was withdrawn in 2019. It is urged that the amendment should be restored and the corporate tax rate should be gradually reduced to 25 percent.
- **Restructuring state-owned enterprises.** It is suggested to introduce an SOE reform/privatization strategy with measures that can at least reduce SOEs' share in the budget deficit by 8 percentage points during 2022-23. It will help save around Rs. 273 billion.

5.1.2. Suggested Measures for optimizing Private Sector Credit Regime

This study reveals a positive relationship between the real GDP growth rate and domestic credit to the private sector (as a % of GDP). The following measures are suggested to optimize the private sector credit regime:

- **Dedicated share for the private sector:** The State Bank of Pakistan should regulate financial institutions to dedicate a certain proportion of loans to the private sector within which a considerable share for SMEs must be allocated. SMEs account for 30% of GDP, employ 80% of nonfarm labor, and have a significant share in exports.
- **A shift in consumer lending regime:** Most of the consumer lending products offered by banks are based on floating rates tied with the treasury bills and bonds' yield which varies with benchmark policy rates⁴. The otherwise fixed rate consumer lending schemes generally charge mark-ups higher than similar floating rate consumer financing. The SBP should optimize the consumer financing regime and also initiate soft loan schemes.

5.1.3. Suggested measures for Improving Productivity

Total factor productivity turned out statistically significant in promoting economic growth. Improvements in productivity allow using relatively fewer resources to maintain a similar level of output. The following measures are recommended to enhance productivity:

- **Capital Productivity.** To compete in the globally innovative environment, industries require to keep upgrading their plants and machinery along with the installation of newer ones. Tax credit under Section 65B of Income Tax Ordinance, 2001, on investment in balancing, modernization, and replacement (BMR) activities was 10 percent during 2018 which was reduced to 5 percent in 2019 and removed in 2020. Restoration of a tax credit is inevitable for industries to maintain and improve productivity and remain competitive in local as well as global markets. Policies to divert investments toward physical capital should also be devised.
- **Labor Productivity.** To improve labor productivity, it is suggested that the employer should be given the right to spend Workers Welfare Fund on its employees' training and other such purposes. In addition, effective enforcement of labor laws such as minimum wages must be ensured.

5.1.4. Suggested measures for Debt Management

This study estimated that any increase in debt servicing (as a % of GDP) tends to decrease the real GDP growth rate by 0.78 percentage points, on average. Following measures are recommended to manage overall debt better.

- Gradually reduce policy rates from 13.75% and consider reprofiling existing loan to reduce the burden of markup payment.
- Government must put higher weight on long-term debt instruments when inflation is less than 8% and vice versa.
- Strict adherence to the Fiscal Responsibility and Debt Limitation Act (FRDLA), 2005 must be ensured. In particular, a medium-term debt strategy at regular intervals must be published.

5.1.5. Suggested measures for Export Promotion

A strategic export policy underpinned by a well-articulated industrial policy is instrumental to achieve export-oriented growth objectives. Following measures are recommended to boost exports:

- **Trade agreements:** Negotiating trade agreements with countries where Pakistani products have the potential for exports will help diversify exports. As per the 'Look Africa Policy', it is high time for authorities to negotiate Preferential Trade Agreements (PTAs) with African trade blocs. Similar market access agreements (PTAs/FTAs) be negotiated with South American economies, ASEAN and GCC. In addition, Pakistan-Malaysia Free Trade Agreement (FTA) needs to be revisited as Malaysia extended a more generous tariff structure to competing countries such as

India, China, Vietnam, Thailand, and others than Pakistan. Moreover, Pakistani authorities should insist to introduce safeguard measures that allow for the increase in tariffs or suspend reduction in an event of abnormal current account deficits.

- **Anomalies in the trade regime to be rectified.** The bilateral trade regime of Pakistan must be optimized by identifying anomalies. For instance, South African authorities slapped antidumping duties between 14-77 percent on Pakistani cement exporters whereas offering free market access to all other countries. On the other hand, Pakistan has been importing coal from South Africa in large quantities to feed cement and power plants amidst the coal-fired power plants at Port Qasim and Sahiwal under CPEC.

A diplomatic push from Pakistani authorities is inevitable to tackle bilateral trade anomalies with South Africa as well as with other countries.

- **Hedging export risks.** Currently, there are markets for which Pakistani products bear the immense potential to penetrate, however, high-risk status/war wretchedness of countries such as Afghanistan, Iraq, Yemen, and other Middle Eastern and African countries have severely restricted exports.

Authorities must ensure the operationalization of EXIM Bank in full essence at the earliest to hedge such risks.

- **Product as well as market diversifications are inevitable to strengthen the export base.** Pakistan's export basket is concentrated in only a few products and are being exported to a handful of countries. Although the Ministry of Commerce of Pakistan has identified non-traditional markets and additional 2 percent duty drawbacks for exporting goods to those countries, much needs to be done on the international front.

Credit guarantees, the establishment of warehouses, and secured payment mechanisms are required to cater demands of African and Central Asian markets.

- **Utilization of Export Development Funds for Improving competitiveness**

To increase exports and improve the global footprints of Pakistani products, the competitiveness of industries must be enhanced.

As per the Export Development Fund (EDF) mandate, the private sector should come up with well-articulated proposals whereas the government authorities must ensure the timely and effective implementation of the development plans of export-oriented industrial clusters.

- **National Branding Strategy.** The presence of global brands helps exporters to earn a premium. Government must devise a well-articulated National Branding Strategy for which the following initiatives are recommended:

- *National Brand Development Program.* It is imperative to develop a brand development program at the national level. Successful national branding programs such as the 'TURQUALITY' program of Turkey, 'Brand Estonia' program of Estonia, or others may be used as benchmark national branding models. Focusing on top sectors based on the estimated price premium linked to branding would be a good starting point.

- *Product registration under Geographical Indication (GI) law.* Launch a nationwide awareness campaign for the registration of products under Geographical Indication (GI) Law. Much awaited Geographical Indications (Registration and Protection) Act 2020 was enacted in March 2020. According to a study conducted by UNCTAD India Programme, the price premium in terms of agriculture-based GIs was around 10-15%. List of potential products is provided in appendix.
- *Acquisition of foreign brands.* Authorities must facilitate the acquisition of foreign brands by providing subsidies as well as by relaxing foreign exchange regulations to acquire foreign brands.

Appendix

Table 5: Results of Granger Causality Test

Null Hypothesis	F-Statistics	Probability
CPI <i>does not</i> Granger Cause GDP growth	1.51	0.23
GDP growth <i>does not</i> Granger Cause CPI	0.98	0.38
Broad Money to Reserves <i>does not</i> Granger Cause GDP Growth	1.87	0.16
GDP Growth <i>does not</i> Granger Cause Broad money to Reserves	0.10	0.90

* Significant at 1% level of significance, ** significant at 5%, and significant at 10%

Table 6: Results of Autocorrelation

Breusch-Godfrey Serial Correlation LM Test:			
Null Hypothesis: No autocorrelation			
F-statistic	3.913283	Prob. F(2,23)	0.0345**
Obs*R-squared	11.93284	Prob. Chi-Square(2)	0.0026*

* Significant at 1% level of significance, ** significant at 5%, and significant at 10%

Table 7: Results of Augmented Ducky Fuller Unit Root Test

Variables	t-statistics (at level)	t-statistics (at first-difference)
Real GDP Growth Rate (%)	-4.97*	-
Broad Money (% of total reserves)	-4.47*	-
Domestic Credit to Private Sector (% of GDP)	-1.87	-6.22***
Total debt servicing (% of GNI)	-2.09	-6.86*
Foreign Direct Investment (FDI)	-2.94**	-
Log (Electricity Consumption)	-3.61*	-
Total Factor Productivity	0.56	-6.13***
Consumer Price Inflation	-3.26**	-
Exports (% of GDP)	-2.69***	-

* Significant at 1% level of significance, ** significant at 5%, and significant at 10%

Table 8: Potential Products for inclusion in Geographical Indication

Basmati rice	Khewra Salt	Chaman Grapes
Hunza Apricots	Charsadda/Peshawari Chappal	Multani Halwa
Sindhi Ajrak	Sargodha's Kinnow	Kasuri Methi
Sindhri Mangoes	Gujranwala metal engravings	Swat Wild Mushrooms
Pashmina Shawls	Dates from D.I Khan, Khairpur & Turbat	Bhawalpur chunri
Dir Knives	Hala colored woodwork	Harnoli peanut
Hunza apples	Hyderabad Rabri(sweets)	Hyderabad Bangles
Nili-Ravi Buffalo	Mansehra Tea	Truck Art
Kohat Shawl	Hunza Rubbi	Skardu Topaz
Multan Camel Skin Art	Patuki Floriculture	Sahiwal Cattle
Sindhi Topi	Wazirabad Cutlery Work	Sialkot Sports Goods

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