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**Productivity in Pakistan: Estimates, Bottlenecks, and The Way Forward** 

**Pakistan Institute of Development Economics** 



**Asian Productivity Organization** 

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# **PRODUCTIVITY IN PAKISTAN: ESTIMATES, BOTTLENECKS, AND THE WAY FORWARD**

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PRODUCTIVITY ANALYSIS Productivity in Pakistan: Estimates, Bottlenecks and The Way Forward

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## ABSTRACT

Productivity growth is the driving force behind economic growth and well-being. A secular increase in productivity leads to sustained economic growth, which is what developing countries, including Pakistan, need. Various factors affect productivity growth, such as policy environment, R&D, innovation, skills of the workforce, and management practices, among other things. In addition, events such as the recent coronavirus disease 2019 (COVID-19) pandemic can also affect productivity negatively, which, again, has consequences for economic growth and well-being. The evidence clearly shows that the pandemic hurt the world economies causing unemployment, especially among low-wage and daily workers, increasing poverty, driving firms out of business, lowering productivity, and bringing down GDP growth. In this study, the effects of the pandemic on Pakistan's economy are analyzed, with a particular focus on productivity growth. It reviews the government's response to the pandemic-induced socioeconomic situation and best practices of productivity-enhancing policies and measures by the public and private sectors. However, Pakistan's productivity growth, even before the pandemic, was low and declining. It implies that Pakistan's economy is plagued with structural issues, distortions, and various other bottlenecks. Therefore, in addition to reviewing the effects of the pandemic, this study also looks at the factors that have led to low and declining productivity growth since 1972. The structural issues are analyzed by examining a time series of productivity indicators, the literature that discusses factors affecting long-run productivity, and key informant interviews (KIIs).

## **EXECUTIVE SUMMARY**

Productivity is one of the main drivers of economic growth and wellbeing. Economies with better technology, supporting policies, higher investment, and skilled workforces, among other things, have high productivity, leading to higher growth and living standards. Therefore, the study has assessed productivity and other related socioeconomic indicators in Pakistan in the aftermath of the COVID-19 pandemic. It has specifically looked at the steps that the government took to mitigate the spread of the pandemic and reduce its socioeconomic impact. It has also assessed strategies businesses adopted to insulate themselves from the effects of the pandemic.

Since productivity growth matters more in the long run, the study's main focus is on the long-run pattern of productivity growth and other economic indicators to see how Pakistan's economy has fared in terms of these indicators. It also looked at the best practices adopted during the pandemic to insulate the economy from the negative effects of the pandemic, bottlenecks that Pakistan has been facing in improving productivity and economic performance, and the way forward for productivity growth in Pakistan.

## Economic Impact of the Pandemic on Pakistan's Economy

In Pakistan as well as in other Asian countries, GDP growth, investment rate, labor productivity (LP) growth, and total factor productivity (TFP) growth declined in the aftermath of the pandemic. However, Pakistan's performance on these indicators, except for TFP growth, has been the poorest among the comparators. It indicates structural problems Pakistan has been facing for some time now.

The pandemic has changed Pakistan's socioeconomic landscape. The employed labor force before the pandemic was 35% of the population aged 10 years and above, which declined to 22% due to the pandemic and the associated lockdown. However, the employed labor force recovered quickly after the restrictions were lifted. Furthermore, the pandemic affected the informal sector workers disproportionately more than the formal sector workers. Similarly, female workers also suffered more than their male counterparts.

Pakistan's GDP growth turned negative during the COVID-19 year. It is not surprising since output decreased globally due to the pandemic. Lockdown-induced travel and logistical restrictions imposed globally disrupted global value chains (GVCs), which halted global economic activity. Later, as the restrictions eased gradually, Pakistan's economic growth bounced back sharply in 2021. There is an upside to the situation as well. The silver lining is that the pandemic has presented an opportunity for digitization and remote work opportunities, which are productivity-enhancing activities. For example, consumers have shifted to online platforms, which has the potential to enhance the ICT sector. This has enabled a shift to more knowledge-intensive services exports. Remote work is also suitable for those educated women who otherwise cannot go out of their homes physically for jobs. Looking ahead, productivity growth will depend heavily on the consolidation of widespread digital uptake.

## **Policy Response**

As in other countries, Pakistan also responded to the situation arising due to the pandemic with certain policy measures. As several other countries did, Pakistan imposed a complete lockdown. Pakistan also used the track and trace method, albeit without the use of technology, to identify the infectees so that they could be quarantined. Similarly, as many countries did, Pakistan supported vulnerable groups with cash transfers, wage support and employment to low-wage and daily workers, credit support to businesses to help them sustain during lockdowns and help them not to lay off employees, and loans on subsidized interest payment terms. The most important policy that the government introduced was the smart lockdown by shutting down virus hotspots.

According to key informant interviewees, there was no discernable difference between labor market conditions and labor availability preand post-COVID-19, especially in rural areas. However, after the gradual opening of the economy, timings were shortened and workdays were limited, standard operating procedures (SOPs) had to be followed, and there were health concerns, which affected productivity because of difficulty in adaptability.

The lockdown also affected workers' attitudes as some workers shirked work after the lockdown was lifted, which has affected productivity negatively. Citing the reasons for low LP, KIs were of the view that the incentive structure is not in favor of the workforce in Pakistan, which hampers productivity. Daily wagers shirk but when they are offered lumpsum payment, their efficiency increases again showing how incentives induce higher productivity.

## **Bottlenecks to Improving Productivity**

In Pakistan, certain policy measures distort incentives, introduce market frictions, and reduce competition, thereby hurting productivity and GDP growth. For example, there are firm-specific and industry-specific subsidies and certain industries are protected in the form of higher tariffs on inputs and export subsidies. Furthermore, the export-oriented industry in Pakistan has certain advantages over the domestic-oriented industry due to government policies. For example high tariffs on the import of machinery and restrictions on the use of hybrid seeds, Pakistan also lags in technology adoption. Moreover, there is a heavy presence of government in sectors where it should not be and vice versa.

### Skilled Labor Force

The skilled labor force is also scarce in Pakistan due to capacity issues with technical and vocational education institutes, outdated vocational and technical education curricula, a lack of relevant technical and vocational courses, and a mismatch between education and jobs. Although firms provide in-house training to apprentices, the workers leave jobs for higher wages after the completion of training.

#### Technology

Pakistan continues to use outdated technology in the majority of cases. In the manufacturing sector, which is the major user of technology, productivity is declining because the technology adoption rate is low due to management practices.

#### R&D and Innovation

In Pakistan, R&D expenditure is very low. It was around 0.2% of GDP in 2019, whereas in PR China, R&D expenditure in 2020 was 2.4% of GDP. Similarly, Pakistan's rank is 87 out of 132 countries in the Global Innovation Index 2022. Reasons for low R&D and innovation include policy distortions, lack of academia–industry linkages, and absence of intellectual property rights protection, among other things.

#### Cost of Doing Business

Pakistan's economy's competitiveness is consistently eroding due to high energy costs and other policies, such as high tariffs on inputs. Pakistan's energy sector is beset with poor governance which has made the current energy model in Pakistan unsustainable. Other factors, such as high tariffs on raw materials and unstable exchange rate, are also adding to the cost of doing business in Pakistan.

## **Best Practices**

Among the best practices used in different countries to stop the virus from spreading and aiding the economy, the highlights were a quick and decisive response (e.g., Republic of China [ROC], Republic of Korea [ROK], and New Zealand), the use of technology in contact tracing (e.g., ROC, ROK, and Singapore), mass testing (e.g., ROC, ROK, and Singapore), social protection for the vulnerable groups, fiscal packages, and economic incentives. Pakistan's response to the pandemic was satisfactory even though the country experienced three waves of the virus. Despite the surge in positivity rates at different times, economic activities were allowed to resume rather quickly, which helped the economy avert a deeper economic crisis. Perhaps the best policy response in Pakistan was the smart lockdown. The government also worked with the private sector to declare telecom services as essential. The government cooperated with those businesses that required some of their employees to travel to work. The government asked companies to provide lists of employees to city administration who needed to be at the workplace during the lockdown. The government also fast-tracked the vaccination program to vaccinate everyone regardless of age. As far as the private sector is concerned, businesses in the private sector adjusted management practices to better cope with the social distancing rules and the lockdown policy. Companies in the private sector provided hardship allowances to those employees who were required to visit during the lockdown and low-salaried employees were given bonuses to boost their morale and efficiency.

### **Way Forward**

#### Policy

Despite averting a deeper socioeconomic catastrophe, Pakistan's economy is hampered by deep structural problems that need to be addressed to increase productivity, investment, and economic growth. Productivity growth, in the long run, depends on the regulatory framework, market development, removal of distortions, private sector dynamism, and the state of innovation and R&D in the economy, among other things. However, in Pakistan, policies have often created distortions, which have impeded productivity and GDP growth potential. Some examples of such policies include taxes, subsidies, firm- and sector-specific industrial policies, and trade restrictions through tariffs and other policies.

Removing distortions will allocate resources in a better way, which will enhance aggregate productivity. For example, tax policy needs to be changed to widen the tax net, and tax rates across sectors need to be rationalized. Income tax should be universal and not segmented. Similarly, the anti-export bias of trade policy can be removed or reduced by reducing import duties. Moreover, a gradual phasing out of agricultural subsidies will facilitate a market-based allocation of land based on comparative advantage.

Removing policy and other distortions creates competition among economic actors. Higher competition leads to higher productivity because when there is competition in the market, producers find ways to be more productive, which leads to higher productivity and an increase in wages, which is a reflection of the higher marginal productivity of workers.

Currently, the regulatory environment in Pakistan is very complex. There are 122 regulatory authorities under the federal government alone, and according to an estimate, regulations, no objection certificates (NOCs), and permissions cost 39% of the GDP in three sectors alone. One possible

solution to reduce the regulatory burden is the regulatory guillotine strategy.

#### Digitalization

Post-pandemic digitalization needs to continue to spur productivity and GDP growth in Pakistan. Digitalization can be beneficial both for consumers and producers. Furthermore, although the pandemic has shrunk some products' demand domestically and globally, digitalization can be used not only to sustain demand but also to create new demand and markets. Digitalization can also speed up various procedures, such as registration and payments.

To increase digitalization, certain steps would need to be taken, such as the facilitation of education and skill acquisition. Similarly, the private sector's capability for digitalization development will have to be subsidized and financed through grants and concessionary loans. For digitalization, the role of academic institutions and universities is important; they will have to help the government in promoting digitalization by redesigning their syllabi to meet the demands of digitalization.

The digital infrastructure needs to be treated as a public good and must be provided uniformly across regions. In developing countries, including Pakistan, there is a divide between rural and urban education systems. Therefore, digital technology will help the rural population to benefit from digitalization as they will be able to acquire new skills remotely. Moreover, internet availability is a serious issue in Pakistan as in remote areas mobile internet is either nonexistent or slow and unreliable. The government must pursue the policy of the internet for all. Pakistan's government should treat the sale of the digital spectrum (i.e., frequency or bandwidth) as a vehicle for increasing internet access rather than revenue generation.

#### Vocational and Technical Education

One of the binding constraints on low productivity growth in Pakistan is low skill levels, lack of appropriate technical and vocational training programs, and education-industry demand mismatch. Going forward, training and education are very important in enhancing long-term productivity. Therefore, the technical and vocational sector needs to be improved by keeping in view industries' demand for skills, designing curricula in coordination with the industry players, and improving trainers' capacity.

#### Management Practices

Management practices play an important role in productivity growth. Better and quality management practices are found to be correlated with LP. In Pakistan, however, firms mostly adopt poor management practices because, perhaps, firms tend to overestimate their managerial capacities. Similarly, firms face informational barriers in terms of the role of consulting firms in improving management practices. Firms, especially small firms, also lack resources to engage consulting service providers and they have no way to know the quality of these services. A possible solution could be subsidizing consultation services through a public–private partnership. Policy in this regard can help by funding within-firm training programs to keep managers abreast of best management practices. Similarly, business trade bodies, such as chambers of commerce, can send their members on study tours to other countries to learn from their experiences.

#### **R&D** and Innovation

There are very strong linkages between R&D and innovation and productivity growth. Therefore, it is critical to increase R&D expenditures and establish an innovation ecosystem. Important measures to encourage innovation include the removal of policy distortions, establishing academia-industry linkages, investment in quality education in all tiers, and protection of intellectual property rights.

#### Female Labor Force Participation

To increase the overall productivity in the economy, the female labor force participation rate needs to be increased in Pakistan, which is currently 15.46%. Increasing the female labor force participation rate would be productivity-enhancing. Some of the steps that may be taken to encourage female workers to participate more in the labor market could be gender-unbiased hiring policies, improved workplace harassment legislation, wage subsidies to encourage female employment and safe and dedicated transport. Improved digital connectivity will also encourage female workers to work remotely, which will help to increase female labor force participation and productivity more generally.

#### Incentives

People respond to incentives no matter where they are from and where they work. In Pakistan, workers do not share the benefits of new technology. Therefore, along with better technology that increases the capital–labor ratio and firms' profitability, a better structure of incentive sharing is needed. People respond to incentives no matter where they belong. Benefits need to be shared among workers and owners. Workers in Pakistan do not share in the benefits accruing to firms because their bargaining power is low. One way of increasing workers' bargaining power is more organized labor and stringent application of labor laws, without compromising firms' ability to conduct business freely. Firms can also share their profits with workers by providing them with different benefits, such as health insurance, performance bonuses, etc.

## CHAPTER 1: INTRODUCTION

The importance of productivity can be gauged from the following words of Paul Krugman: "Productivity isn't everything, but, in the long run, it's almost everything" [1]. This quote shows that productivity is one of the main drivers of economic growth and well-being. This, in turn, means that economies with efficient and productive workforces also have high economic growth and living standards. Increasing productivity, therefore, is usually at the heart of economic policies globally. However, productivity, both LP and TFP, ebbs and flows over time. Many factors affect productivity including public policies, technology, the macroeconomic environment, labor force skills, and economic and natural disasters, among other things.

Events like the COVID-19 pandemic can have devastating effects as other past health disasters have also demonstrated. There have been many pandemics that wreaked havoc on the global economy or vast geographical areas. In 1347, the bubonic plague pandemic, known as the Black Death, occurred in Western Eurasia and North Africa. It caused severe labor shortages and affected trade and industry. The Black Death changed the economic structure as innovation and technology spread fast and wide due to skilled workers' increased mobility. The New World smallpox outbreaks of the 1520s affected different segments of populations disproportionately. The most recent pandemic before COVID-19 was the Spanish Influenza pandemic, which started in 1918 and spread worldwide. Although there is little evidence that the Spanish Flu permanently affected economic activity, it caused severe socioeconomic imbalances [2].

There is little evidence or record available of economic measures taken to minimize the economic consequences of past pandemics. Nevertheless, according to some records, some of the potential negative economic impacts of the Spanish Influenza were mitigated by wartime spending [3]. In fact, in the US, the stock market recovered substantially in 1918 and 1919. Estimates show that the US economy actually grew by 1% in 1919 in real terms [4]. The spread of the infection, on the other hand, was dealt with by imposing social distancing, isolation, and other such measures.

Although measures taken to limit the spread of COVID-19 have been similar to those taken during the Spanish Influenza outbreak, there are many differences between the two. The latter occurred when health facilities and technology were not very advanced. For example, traveling in the early 20th century took much longer than now, which is one of the reasons that coronavirus spread fast across countries. Moreover, the Spanish Influenza broke out following an economic downturn in 1917 [3], whereas COVID-19 started to spread when most of the world economies were booming. The influenza vaccine was developed in the 1930s, i.e., more than a decade after the pandemic ended, while the COVID-19 vaccine was developed and administered in 2020 less than a year after the COVID-19 outbreak.

Economic policies and measures taken to minimize the socioeconomic effects varied across countries, but one universal measure taken by almost every economy was social distancing and lockdown, termed the Great Lockdown [5]. The scale of lockdowns implemented during the COVID-19 pandemic is unprecedented in history. Consequently, the world economies suffered

according to various estimates. Estimates show that global economic growth plunged by around -3.2% [6]. Economic growth in developing Asia also fell by 0.1% [7].

Naturally, the impact of the pandemic was felt by different segments differently. For instance, a majority of households could not sustain consumption for more than three months. Similarly, the average business could cover only 55 days of expenses with cash reserves. The crisis caused by the pandemic also aggravated poverty and inequality. The poor population increased globally after a long time. Evidence also shows that in 2020, temporary unemployment was higher in 70% of all countries among workers with only primary education adding to the vulnerable population's economic woes. Furthermore, smaller firms, informal businesses, and enterprises that had limited or no access to formal credit suffered even more [8].

As far as productivity is concerned, LP in the OECD, measured as GDP per hour worked, improved during the pandemic year. It grew at approximately 4% in 2020. However, the productivity growth was short-lived and during 2021, the productivity growth was negative. This implies that LP behaved counter-cyclically during and immediately after the pandemic. On the other hand, TFP growth, also called multifactor productivity growth, declined in many countries [9]. The productivity improvement during the pandemic was because of a decline in worked hours. In the following period, however, hours worked increased as lockdowns were eased and economic activity picked up, which resulted in a marginal decline in LP.

The ILO Monitor [10] explains this rapid increase in productivity based on the compositional effect. It is argued that during the pandemic, low-productive and low-paid workers were affected more, which led them out of the market. Resultantly, large firms that were more efficient and least affected by the pandemic remained operational. This shift in employment composition is the basic reason for the productivity increase during the pandemic. On the contrary, on average, productivity slowed down in APO economies in 2020 [9].

The situation in Pakistan was no different from other Asian economies, including the APO economies. The Pakistan Economic Survey (PES) data shows that in Pakistan, the real GDP growth, at 2015–16 constant prices, was –0.95% in 2020 [11]. Sectoral output growth rates, except for the agriculture sector, which increased by 3.84%, also declined. The trend of TFP was also similar, i.e., economy-wide TFP growth declined, the agriculture sector's TFP increased, while the industrial and services sectors' TFP growth declined. Apart from these impacts, the pandemic has also had other socioeconomic impacts in Pakistan. For example, the pandemic has affected the informal sector workers disproportionately more than the formal sector workers. Similarly, female workers have borne the brunt of the slowdown in economic activity due to the lockdown and social distancing. At the same time, however, digital platforms have increased, which has given an impetus to the ICT sector.

Given the background, the objective of the study is to assess the situation of productivity and other related indicators in the aftermath of the pandemic in Pakistan. The study attempts to analyze how the pandemic-related situation affected Pakistan's economy, the steps that the government took to mitigate the impact of the pandemic-induced lockdown and social distancing, and strategies that businesses adopted to insulate their businesses from the effects of the lockdown.

The study also looks at the long-term trends of key productivity and other economic indicators. The reason for choosing a longer period for analysis and not only the recent years to analyze the effects of the pandemic on the economy is to show that Pakistan's economic problems, especially productivity, though worsened due to the pandemic, are long-term. Therefore, any steps that the government or the private sector took to prevent productivity from falling, can only have a short-term impact. Thus, apart from analyzing the economic situation pre- and post-COVID-19, the study also addresses structural problems that have prevented productivity in Pakistan to grow steadily.

The study is divided into eight sections. After the introduction, a brief literature review on the topic is presented. Section 3 outlines the framework of analysis, methodology, and data description. Section 4 gives an overview and comparison of the situation of productivity and other economic indicators in selected APO countries, while Section 5 discusses the impact of the pandemic on Pakistan's economy. The next section, i.e., Section 6, analyzes policy response to the situation arising after the pandemic in selected countries as well as in Pakistan. The policy response in Pakistan is based on an analysis of official documents and KIIs. The seventh section gives an overview of best practices adopted globally and in Pakistan. Best practices in Pakistan are outlined based on a review of the government's policies during the pandemic and KIIs. The final section concludes the study and suggests a way forward for improving productivity in Pakistan. The concluding section is based on a literature review and KIIs.

## CHAPTER 2: LITERATURE REVIEW

The literature on productivity, both LP and TFP, can be categorized into its behavior over a business cycle. Until the mid-1980s, some theoretical as well as empirical studies documented productivity to be procyclical. However, other studies have shown that productivity now behaves countercyclically. For example, Fernald and Wang [12] show that after the mid-1980s, TFP turned much less procyclical, while LP showed strong countercyclical behavior. The study argues that structural changes in the economy, demand shocks, and increased flexibility play a role in this change. Bernanke and Parkinson [13] also showed that LP in the interwar period was procyclical. Basu and Fernald [14] examined the increase in productivity during the 1990s. The study found that the increase in productivity in the 1990s was due to technological change, both in manufacturing and other sectors, suggesting that productivity growth was procyclical. Thus, models based on the real business cycle (RBC) theory imply that productivity increases in booms and falls in recessions.

However, there are other studies that show that the procyclicality of productivity is no longer valid at least since the 1980s. Fernald and Wang [12] provide empirical evidence in the case of the US that after the 1980s the behavior of TFP has been acyclical while that of LP has been countercyclical. Gordon [15] showed that the procyclicality of productivity changed from the predictions of Okun's Law. The paper argues that the changing cyclical behavior of productivity makes the real RBC literature contentious with its unexplained exogenous procyclical productivity shocks. The reasons for the changes in the behavior of productivity cited in the paper are the rise of immigration, imports, medical care costs, the decline in the real minimum wage, and dwindling labor union power. Moreover, the paper argues that ICT has increased the flexibility of labor markets and provided firms with new tools to boost productivity during economic recoveries as they continue to cut labor costs.

Stiroh [16] showed that the US output's stability increased at the aggregate level, which reflects decreased volatility in LP growth, worked hours growth, and TFP growth. The potential explanations include that firms must improve efficiency to remain competitive, so they force the workers to be more productive and hire fewer workers. Another explanation is that the US labor market has become more flexible over time. Gali and Rens [17] emphasized the role of decreased labor turnover in the change of the procyclicality of LP. They show that the decreased turnover may also have been a cause of decreased output volatility. Similarly, Barnichon [18] showed that unemployment and LP changed cyclicality behavior in the mid-1980s due, perhaps, to the increased flexibility of the labor market.

As far as the COVID-19 pandemic is concerned, Lopez-Garcia and Szörfi [19] noted that the LP increased during the pandemic in the Euro area but it was short-lived. They estimated that during the last quarter of 2019 and the first quarter of 2021, the Euro area LP increased by 1.7%, which reversed in the second quarter of 2021. They explain this productivity growth episode based on within-firm productivity growth due to input quality, and resource reallocation due to the expansion and contraction of firms.

Fernald et al. [20] also documented a boost in productivity due to an increase in the quality of labor and capital deepening. They also observed that in most economies only those sectors were severely affected by the pandemic that employed less-educated workers, such as restaurants and hotels. Due to this contraction, the overall quality of labor working in the economy improved. Secondly, the plunge in employment also induced capital deepening since fewer workers had more capital to work with.

## CHAPTER 3: FRAMEWORK OF ANALYSIS, METHODOLOGY, AND DATA

This section discusses the framework of analysis employed to analyze the impact of the COVID-19 pandemic on Pakistan's economy, especially on productivity. The section also describes the data used to estimate productivity and other economic indicators and to compare productivity across selected Asian countries. Data sources are also discussed in this section.

## **Framework of Analysis**

This study first compares Pakistan and four other Asian countries' productivity growth and other economic indicators to see how the COVID-19 pandemic affected these economies. It is also done to put Pakistan's economic situation into a regional perspective. Second, an evaluation is done of how the pandemic may have changed the socioeconomic structure of Pakistan. Third, trends in preand post-COVID-19 productivity indicators are presented to see how productivity has evolved in the aftermath of the pandemic, and also in the long run. Fourth, the policies that the government implemented to meet the challenges of keeping the economy afloat and protect the vulnerable sections of society while limiting the spread of the virus are reviewed. Policies adopted by other countries are also reviewed. Fifth, how the experts, policymakers, and businessmen view the impact of the pandemic on productivity is seen. Finally, a way forward to improve long-run productivity and growth in Pakistan is discussed.

## Methodology

The study uses a mixed-method approach to analyze COVID-19's impact on Pakistan's economy, especially productivity. Using quantitative data, productivity indicators and other economic indicators were estimated using data from various sources. To identify bottlenecks and best practices, policy analysis and KIIs were conducted.

#### Labor Productivity

LP is estimated using both hours worked and the employed labor force. Specifically, it is estimated using the following equations:

$$LP_{i} = \frac{Y_{i}}{H_{i}}$$
 Equation 1  
$$LP_{i} = \frac{Y_{i}}{ELF_{i}}$$
 Equation 2

In Equation 1, Y and H denote output and hours worked, respectively, and i denotes the total economy, three main sectors of the economy (i.e., agriculture, industry, and services), or subsectors of three main sectors. In Equation 2, Y and ELF denote output and the employed labor force, respectively, and the explanation of i is the same as that for Equation 1.

Table 1 presents the subsectors of the three main sectors.

### TABLE 1.

## SUBSECTORS OF THREE MAIN SECTORS IN PAKISTAN

Agriculture	Industry	Services
Crops	Mining and quarrying	Wholesale and retail trade
Livestock	Manufacturing	Transport, storage, and communication
Forestry	Electricity generation and distribution, and gas distribution,	Finance and insurance
Fishing	Construction	Housing services
		General government services
		Education
		Human health and social work activities
		Other private services

Source: Classification based on sectors covered in PES [11] and Labor Force Survey (LFS) [21].

#### Hours Worked

Three rounds of the LFS of Pakistan, for the years 2014-15, 2017-18, and 2020-21, were used to calculate the average working hours of workers in each sector. The survey asks for all the jobs a person is employed in, and also the hours spent on these jobs, including both main and subsidiary jobs (if any). It also provides the classification of the sectors and nature of work they are employed in.

Using the LFS dataset, a categorical variable was constructed for the three main sectors of employment, i.e., agriculture, industry, and services. The agriculture sector included all works linked to crops, livestock, fishery, and forestry, and the industrial sector included all employed for mining and quarrying, manufacturing, electricity and gas, and construction. Finally, the services sector included those employed for wholesale and retail trade; transport, storage, and communication; finance and insurance; housing services; general government services; education; human health and social work activities; and other private services (see Table 1).

Total weekly working hours were then computed for each worker, in main and subsidiary jobs, and disaggregated by the sectors they were employed in. To convert weekly hours of work to annual work hours, the total hours worked in the economy in each sector were multiplied by the total work weeks in a year.

#### Total Factor Productivity

Siddique [22] explains the methodology for estimating TFP as follows. It is a standard practice in the growth literature to estimate TFP using the neoclassical production function:

$$Y = F(A, K, L)$$
 Equation 3

In Equation 3, Y, K, and L denote real output, capital stock, and the employed labor force, respectively. A denotes TFP.

We can write Equation 3 in the growth form as:

$$g^{\gamma} = \alpha g^{l} + (1 - \alpha)g^{k} + g^{\text{TFP}}$$
 Equation 4

In Equation 4,  $g^{Y}$ ,  $g^{L}$ , and  $g^{TFP}$  denote the growth rates of output, labor, and TFP, respectively.  $\alpha$  denotes labor share in output, while  $(1 - \alpha)$  denotes capital share. The equation shows that the output growth rate is a weighted average of the growth of the employed labor force, capital stock, and TFP. The weights are labor and capital shares.

Assuming that inputs can be observed, Equation 4 can be written as Equation 5 to estimate TFP:

$$g^{\text{TFP}} = g^{y} - \alpha g^{l} - (1 - \alpha)g^{k}$$
 Equation 5

Several methods can be used to estimate TFP including regression techniques and growth accounting framework. In this study, the growth accounting framework is used. It is assumed that output is approximated by constant returns to scale the Cobb–Douglas production function.

Following Romer [23], a human capital variable is also added to the model. The model, thus, becomes:

$$Y = AK^{\alpha}(LH)^{(1-\alpha)}$$
 Equation 6

In Equation 6, all the variables are the same as in Equation 6, except for LH, which is the human capital-augmented employed labor force. This variable captures increases in LP due to educational attainment. It is calculated by using average years of schooling. It is assumed that an additional year of education raises productivity by 7% following López-Cálix et al. [24].

Writing Equation 6 in the growth form, it becomes:

 $\Delta \ln (Y) = \alpha [\Delta \ln (K)] + (1 - \alpha) [\Delta \ln (LH)] + \Delta \ln(A) \qquad \text{Equation 7}$ 

Using Equation 7, TFP growth is estimated as:

$$\Delta \ln(A) = \Delta \ln(Y) - \alpha \left[\Delta \ln(K)\right] + (1 - \alpha) \left[\Delta \ln(LH)\right]$$
 Equation 8

Different studies assume different factor shares. For analysis in this study, using the estimates provided for Pakistan in the Asian Productivity Organization (APO) Productivity Database 2022

Source: Authors.

[25], the shares of capital and labor are assumed to be 0.51 and 0.49, respectively.

#### Capital Stock

The capital stock series is estimated using data on the gross fixed capital formation (GFCF) in constant prices and capital stock depreciation rate ( $\delta$ ). The data on the depreciation rate is obtained from Penn World Tables (PWT 10.0) [26]. One of the most widely used methods to estimate capital stock is the perpetual inventory method (PIM).

The net capital stock at the beginning of period can be written as a function of net capital stock at the beginning of period t-1,  $K_{t-1}$ , investment in the previous period,  $I_{t-1}$ , and consumption of fixed capital stock,  $D_{t-1}$ . It can be denoted by the following equation:

$$K_t = K_{t-1} + I_{t-1} + D_{t-1}$$
 Equation 9

Assuming that capital stock depreciates at the rate  $\delta$ , capital stock can be written as:

$$K_t = (1 - \delta)K_{t-1} + I_{t-1}$$
 Equation 10

Iteration of this equation backwards up to the initial period leads to the following equation:

$$K_t = \sum_{i=0}^{\infty} (1 - \delta)^i I_{t-(i+1)}$$
 Equation 11

PIM requires an estimate of initial capital stock to arrive at a series of capital stock for subsequent years. One way is to guess the initial value and then estimate capital stock for later years, using data on GFCF. However, it is highly arbitrary. Another method used in the literature to obtain the initial capital stock is to use the following equation:

$$K_{t-1} \approx \frac{I_t}{g_I + \delta}$$
 Equation 12

In Equation 12,  $K_{t-1}$  is initial capital stock in period t-1,  $I_t$  is GFCF in period t,  $g_1$  is the growth rate of GFCF for the entire period for which the capital stock period is to be estimated, and  $\delta$  is the capital stock depreciation rate. The rationale behind using the above equation to estimate the initial capital stock is that capital stock and investment grow at roughly the same rate and the growth rate of investment can be used to approximate initial capital stock. Following Berlemann and Weselhöft [27], GFCF was regressed on time to derive initial investment for the period t, using data from  $t_2$ to T. Specifically, the following equation was used to estimate initial investment, using the ordinary least squares method:

$$\ln \text{GFCF}_t = \alpha + \beta \cdot \text{Time} + \varepsilon_t$$
 Equation 13

Next, using the estimated parameters,  $\alpha$  and  $\beta$  from Equation 13, the fitted value of the investment for period was estimated:

$$\ln \widehat{GFCF}_{t1} \alpha + \beta \cdot \operatorname{Time}_1$$
 Equation 14

This gave a series of investment, using the exponential function. The first value of the fitted investment for t to calculate initial capital stock was used in Equation 12. Instead of calculating the growth rate of investment,  $g_I$  from the data,  $\beta$  was used as a measure of trend investment growth. Capital stock for subsequent years was then calculated using Equation 10.

#### Identifying Bottlenecks and Best Practices

To identify bottlenecks that the economy experienced during the pandemic and the measures that were adopted by the government to support businesses due to stalled economic activity and shield the vulnerable segment of the population, a policy analysis was carried out. On the other hand, to identify the problems the economy and businesses faced during the pandemic, KIIs were conducted. KIs included businessmen from different sectors of the economy, productivity experts, and policymakers.

### Data

#### Sources

For the comparison of Pakistan's economy with other Asian economies, namely, Bangladesh, the PR China, India, and Sri Lanka, data was obtained from APO Productivity Database [25] on various indicators, i.e., GDP growth, GFCF, LP growth, and TFP growth.

The analysis of Pakistan's economic indicators was carried out using indigenous data sources. Real GDP and real GFCF at 2015–16 constant prices data were obtained from the PES [11]. Data on the employed labor force was also obtained from the PES [11]. It is important to note that the employed labor force estimates are based on the LFS [21], which is not conducted every year. Therefore, to get the few missing observations, the data were interpolated. Hours worked were calculated using the LFS data [21], which contains information on how many hours the working population works per week.

Apart from GDP and GFCF, the estimation of TFP requires data on human capital (proxied by average years of schooling), labor and capital shares, and capital stock. Data on human capital was obtained from PWT [26], while data on factor shares was obtained from APO Productivity Database [25]. Data on the depreciation rate was also obtained from PWT [26] to estimate capital stock.

### Time Period

The comparison among Asian countries was done using data from 2011 to 2020. The year 2021 was excluded because comparative data for this year was not available.

LP based on hours worked was estimated for three years, i.e., 2014-15, 2017-18, and 2020-21 for the total economy, three main sectors, and subsectors of the three main sectors (see Table 1 for details). The reason for selecting the three rounds of the LFS [21] was that the survey is not conducted every year. Thus, time series data on hours worked is not available.

Similarly, data on GDP, GFCF, depreciation rate, and human capital covered the period from 1972 to 2021.

Data sources and time period are summarized in Table 2.

## TABLE 2

## DATA SOURCES AND TIME PERIOD

INTERNATIONAL COMPARISON		
Indicator	Source	Time Period
GDP growth	APO Productivity Database	2011–20
Investment share in GDP (GFCF/GDP)	Calculated using APO Productivity Database	2011–20
Labor productivity growth (based on hours worked)	APO Productivity Database	2011-20
Total factor productivity growth	APO Productivity Database	2011-20
PAKISTAN'S ECONOMY		
Indicator	Source	Time Period
GDP	PES (various issues)	1972–2022
GFCF	PES (various issues)	1972–2022
ELF	PES (various issues)	1972-2022
Hours worked	Calculated using the LFS Data	2014–15, 2017–18, and 2020–21
Human capital	PWT 10.0	1972–2022
Factor shares (labor and capital)	APO Productivity Database	1972–2022
Depreciation rate	PWT 10.0	1972–2022

Source: Author

Abbreviations: APO- Asian Productivity Organization; GFCF-Gross fixed capital formation; ELF-Employed labor force; PES-Pakistan Economic Survey; LFS-Labor Force Survey; PWT-Penn World Tables.

## CHAPTER 4: ECONOMIC PERFORMANCE OF PAKISTAN AND COMPARATOR ECONOMIES: AN OVERVIEW

In this section, a comparison of productivity measures, i.e., LP and TFP, GDP growth, and investment is presented. The measure of investment is GFCF. The purpose of this comparison is twofold. First, it will show how these countries' selected economic indicators evolved before and during the pandemic. Second, it will compare the performance of these economies from 2011 to 2020 to analyze how Pakistan's economy has fared in terms of productivity, growth, and investment.

Figure 1 shows the GDP growth in the selected economies from 2011 to 2020. The growth is estimated in real terms at constant prices in respective countries' local currency units (LCUs)



#### **GDP GROWTH IN SELECTED ASIAN COUNTRIES (%)**



Source: APO Productivity Database 2022 [25].

The figure shows that GDP growth declined in all five countries selected in 2020 when the global economy was hit by the pandemic. Except for Bangladesh, all other economies had negative growth. From Pakistan's perspective, what is important to note is that although Pakistan's GDP contracted by only -0.36% (according to the APO data), its GDP growth has lagged behind other economies since 2011. It indicates structural problems Pakistan has been facing for some time now.

The GFCF as a percentage of GDP of the comparator economies is shown in Figure 2. The estimations are made using constant prices in LCUs.

<sup>&</sup>lt;sup>1</sup> Due to the unavailability of comparative data, 2021 was not included in the comparative analysis. In other sections of the report where issues specific to the case of Pakistan are discussed, data for 2021 is included.

## FIGURE 2

#### **INVESTMENT IN SELECTED ASIAN COUNTRIES (% OF GDP)**



Source: APO Productivity Database 2022 [25].

Only PR China's investment as a percentage of its GDP increased in 2020, while other countries saw a decline, albeit marginal, in this ratio. One thing that stands out in Figure 2 is the dismal investment as a percentage of GDP in Pakistan compared to its comparators. Pakistan's investment–GDP ratio averaged 14.08% during 2011–20, whereas Sri Lanka's investment–GDP ratio averaged 27.37%. Since investment increases capital stock and brings in new technology, it has important implications for productivity.

As discussed in Introduction, LP behaved differently in different regions following the pandemic. The LP growth increased in OECD countries, while in Asian countries it declined [9] as shown in Figure 3. It implies that LP was countercyclical in OECD countries and procyclical in the Asian countries selected for comparison with Pakistan.

## FIGURE 3



### LABOR PRODUCTIVITY (HOURS WORKED) GROWTH IN SELECTED ASIAN COUNTRIES (%)

Figure 3 shows that although LP growth declined in all the selected countries, in Bangladesh, PR China, and Sri Lanka it remained positive, while it was negative in India and Pakistan. The decline was the most in India at -8.12%, whereas in Pakistan it declined by -2.75%. As is the case with other indicators of economic performance discussed earlier (Figures 1 and 2), Pakistan's performance in terms of LP growth is the worst among the comparator countries. Pakistan's average LP growth during 2011–20 was 1.83\%, whereas in Bangladesh, PR China, India, and Sri Lanka the average LP growth during the same period was 4.74\%, 6.08\%, 4.40\%, and 2.88\%, respectively.

A comparison of another indicator of productivity, i.e., TFP growth, among the selected countries is shown in Figure 4. TFP growth also declined in the selected economies. As is the case with LP growth, India's TFP growth decline was the steepest among the comparator countries. Somewhat surprisingly though, Pakistan's performance in terms of TFP growth is not as bad as it is in other indicators discussed earlier. In fact, Pakistan's average TFP growth during 2011–20 was 1.05%, which is the highest average TFP growth among the selected countries.

## FIGURE 4



TOTAL FACTOR PRODUCTIVITY GROWTH IN SELECTED ASIAN COUNTRIES (%)

The above analysis shows that the COVID-19 pandemic affected the selected Asian economies negatively (Bangladesh, PR China, India, Pakistan, and Sri Lanka). Only in the case of PR China, did the investment–GDP ratio increase, albeit marginally. Other indicators, especially productivity indicators, took a hit in the wake of the pandemic. This is in contrast to the OECD economies where LP growth increased. The reason could be varied. In Pakistan, the decrease in LP growth, e.g., could have been due to the demand shock, which decreased output. Data for Pakistan shows that hours worked and the employed labor force did not decline in 2020 due to the pandemic, which could be due to measures taken by the government to protect the workforce from economic hardships.

Source: APO Productivity Database 2022 [25].

## CHAPTER 5: AN ANALYSIS OF THE IMPACT OF THE COVID-19 PANDEMIC ON PAKISTAN'S ECONOMY

In this section, the impact of the pandemic on Pakistan's economy is discussed. First, a primer on the effect of the pandemic is given, which gives a broad-brush overview. Second, an analysis of productivity indicators is done. In addition, other economic indicators, such as GDP growth and investment share in GDP, are also discussed.

## **A Primer**

The pandemic has changed Pakistan's socioeconomic landscape. For example, in the aftermath of the lockdown the organization of labor, i.e., the shift to work from home, also changed. This also affected consumption patterns from services to goods. Moreover, the pandemic created macroeconomic instability due to supply chain disruptions, which increased production costs, fueling inflation. Rising inflation, especially food and energy inflation, compromised the purchasing power of households, especially poor households, exacerbating inequality.

Pakistan's female labor force participation rate is already low at 15.46%, which was marginally high in 2018–19 at 15.47% [21]. However, the figures perhaps mask the possibility that the pandemic might have worsened the gender disparity because of female workers pulling out of the labor force. In Pakistan, most female workers are concentrated in low-skilled and informal sector jobs and as economic activity stalled, their jobs disappeared. The recovery has been faster for males. Although Pakistan recovered quickly once the global economic activity picked up, possibly, fewer women returned to the labor force.

However, there is an upside to the situation as well. The pandemic has presented an opportunity for digitization and remote work opportunities, which are productivity-enhancing activities. For example, consumers have shifted to online platforms, which has the potential to help the ICT sector grow. This has enabled a shift to more knowledge-intensive services exports. Remote work also is suitable for those educated women who otherwise cannot go out of their homes physically for jobs. Looking ahead, productivity growth will depend heavily on the consolidation of widespread digital uptake and the design of exit strategies from policy support [28].

## **Effects of the Pandemic on Economic Indicators**

In this subsection, the economic effects of the pandemic are discussed. First, there is a discussion of the immediate impact of the lockdown on the working population. Then, an analysis of the pandemic's impact on GDP and investment (GFCF) is presented. Last, and most importantly, a

detailed analysis of productivity indicators, both LP and TFP, is presented.

#### **Employed Labor Force**

According to the survey on the socioeconomic impacts of COVID-19 on the well-being of Pakistan's population [29], 35% of the population aged 10 years and above, were employed before the pandemic-induced lockdown. But during the lockdown, the employed labor force declined to 22%. The employed labor force, however, increased quickly and returned approximately to pre-COVID-19 levels after the restrictions were lifted in July signaling a V-shaped recovery. The survey shows that, unsurprisingly, the most affected workers were in the informal sector of the economy, including daily wagers (mostly construction workers), casual workers, and own-account workers in non-agriculture sectors, such as shopkeepers, street vendors, and cab drivers. Annual figures, however, show that the working population increased in 2020. The reason probably is that as the economic activity picked up, due to an increase in demand, workers were rehired and those who went out of work because of the lockdown resumed work. The temporary decline, therefore, perhaps did not show in annual figures. The APO data [25] shows that Pakistan's working population increased in 2020 from 2019. The data also shows that working hours also increased [25].

#### GDP and Investment

Pakistan's GDP growth turned negative during the COVID-19 year. It is not surprising since output decreased globally due to the pandemic. Lockdown-induced travel and logistical restrictions imposed globally disrupted GVCs, which halted global economic activity. Later, as the restrictions eased gradually, Pakistan's economic growth bounced back sharply in 2021. However, Pakistan's

#### FIGURE 5





long-term GDP growth trend, shown in Figure 5, is downward. The GDP growth is calculated in real terms at constant prices of 2015–16.

Figure 5 shows that Pakistan's average GDP growth (shown by the horizontal red line in the figure) has been below 5% (4.75%) over the last five decades. Although the average growth rate is relatively respectable, it is well below 7%–8% growth, which Pakistan needs to absorb the growing

Source: Author's calculations based on PES data [11].

population and the youth bulge. The long-term trend is downward, and the GDP growth rate is characterized by boom and bust cycles, which reflect frequent macroeconomic imbalances and structural problems. As discussed in the Introduction, a longer time horizon is chosen to show that events like the pandemic have only magnified the precarious situation in which Pakistan's economy has been for some time now.

Figure 6 shows the trend of investment share in GDP, calculated as the GFCF to GDP ratio, for the same period. The investment (GFCF) is in constant 2015–16 prices. Investment declined in 2020 but unlike GDP, it did not recover in the following year, i.e., in 2021. The reason was perhaps that

### FIGURE 6

#### INVESTMENT IN PAKISTAN (% OF GDP): 1972-2021



Source: Author's calculations based on national accounts data [11]

As is the case with GDP growth, investment as a share of GDP is on the decline, which is evidenced by the downward trend (dotted green line) line in Figure 6. The average investment–GDP ratio is approximately 18% (the red horizontal line), which is very low relative not only to the region (see Figure 2) but also to the world. According to the World Development Indicators [30], the average world GFCF as a percentage of GDP from 1972 to 2021 is 24.75%. A low investment rate has implications for productivity because investment drives productivity growth by adding capital and introducing new technology.

### Productivity

*Labor Productivity*: As discussed in Section 3, in this study, LP is estimated using two measures. First, LP is estimated as output per hour worked. Second, is it estimated as output per unit of employed labor. The reason for using these two measures is that hours of work are not available as a long time series at sectoral (i.e., agriculture, industry, and services) and subsectoral (subsectors of three main sectors of the economy; see Table 1 for details) levels from indigenous sources. Therefore, we cannot observe a long trend in LP measured as output per hour worked. However, it allows observing how productivity changed at sectoral and subsectoral levels pre- and post-COVID-19. On the other hand, the output per employed labor allows observing a long-term trend of LP economy-wide at the sectoral level.

## **PRODUCTIVITY IN PAKISTAN:**

Table 3 shows the per-hour worked LP in the overall economy, at the sectoral level, and subsectoral level.

## TABLE 3.

## LABOR PRODUCTIVITY BASED ON HOURS WORKED (PKR/LABOR HOUR WORKED)

Sectors and Subsectors	2015	2018	2021
Agriculture	141.81	175.63	170.03
Crops	75.29	75.08	71.43
Livestock	366.10	574.20	591.65
Forestry	969.18	1,041.95	534.90
Fishing	260.90	353.45	347.26
Industry	199.19	240.07	224.00
Mining & Quarrying	2,281.90	1,668.49	974.64
Manufacturing	202.13	232.33	268.06
Electricity Generation & Distribution, and Gas Distribution	1,135.84	1,611.88	3,125.75
Construction	65.94	123.03	71.33
Services	316.01	388.21	413.57
Wholesale & Retail trade	236.98	290.44	285.27
Transport, Storage & Communication	435.25	416.73	384.91
Finance & Insurance	1,093.15	854.87	971.28
Housing Services	3,082.34	734.28	6,153.93
General Government Services	478.83	531.00	650.57
Education		492.57	615.49
Human Health & Social Work Activities		88.30	81.71
Other Private Services	646.55	706.30	700.32
Total Economy	221.68	277.10	277.62

Source: Author's estimations based on LFS [21] and PES [11] data.

**Abbreviation:** PKR - Pakistani Rupee. **Note:** – denotes not available. Table 3 shows that the LP of the total economy based on hours worked increased from 2015 to 2018, and also from 2018 to 2021, albeit only marginally. It is worth reiterating that since the LFS was not conducted in 2020, the data for hours worked is not available for that year. Nevertheless, the above table shows that although economic activity picked up in 2021, LP (hours worked) in the agricultural and industrial sectors decreased, while it increased in the services sector. The reason for a reduction in the agriculture sector could be that even though the output of the sector increased, the hours worked also increased, which resulted in a reduction in LP in the sector. It is possible that due to the lockdown in urban areas, the labor force shifted to the agriculture sector in rural areas. Quite possibly, this also increased unpaid workers in the sector.

Similarly, the LP in the industrial sector decreased. The subsectoral LP figures reveal interesting results. While manufacturing and electricity generation and gas distribution subsectors saw an increase in LP, mining and quarrying and construction subsectors' LP decreased. The results are consistent with PBS [29], which showed that most of the workers that were affected by the lockdown were in the construction sector. Moreover, the output of the construction sector also declined from 2018 to 2021, even though it increased in 2020 from 2019.

The services sector is the only main sector of the economy that registered an increase in LP from 2018 to 2021. Among subsectors of the services sector, finance and insurance, housing services, general government services, and education registered an increase in LP. These are the sectors that were probably the least affected by the lockdown because of the possibility of digitization and remote working. The education sector in Pakistan quickly adapted to online teaching methods. It is pertinent to note that the education sector, especially the private education sector, continued to operate in the remote classroom mode, which reduced their operating expenses while keeping revenues relatively stable.

Figure 7 shows LP growth in the total economy and three main sectors, i.e., agriculture, industry, and services, based on the employed labor force. The estimation at the subsector level was not possible because the subsectoral employed labor force is not available from 1972 to 2021. Similar to LP growth based on hours worked, the LP growth based on the employed labor force declined in 2020 and rose in 2021. The case is opposite to that of the OECD economies where LP growth increased in 2020 and declined in 2021 [9]. The reason could be that in Pakistan, as discussed earlier, the hours of work did not decline, whereas the hours of work in the OECD economies did decline.

## FIGURE 7

#### LABOR PRODUCTIVITY GROWTH BASED ON EMPLOYMENT (%)



Figure 7 shows that the employment-based LP growth is on a downward trend from 1972 to 2021 in the overall economy (Panel A) as well as in the industrial and services sectors (Panel C and Panel D). In the agriculture sector (Panel B), the trend is flat. However, average LP growth (employment-based) is the lowest in the agriculture sector during the period of analysis at 2%.

The analysis shows that in Pakistan LP took a hit not because of reduced work hours or a drop in employment, but because of reduced demand, which pushed GDP growth into the negative territory. Although employment, especially among daily wage earners and informal sector workers, reduced temporarily during the pandemic-induced lockdowns, it recovered quickly, showing a V-shaped recovery.

*Total Factor Productivity*: Figure 8 shows the TFP growth from 1972 to 2021. Theoretically, TFP affects GDP growth through LP growth [31]. In other words, as TFP growth increases, it affects LP growth positively, thereby increasing GDP growth. The figure shows that TFP growth in Pakistan is on a declining trend, which perhaps could be a reason for the declining LP growth trend in Pakistan. Declining TFP growth also is a reason for the downward GDP growth trend in Pakistan.

## FIGURE 8

#### **TOTAL FACTOR PRODUCTIVITY GROWTH (%)**



The behavior of the TFP growth is the same as that of LP growth (Figure 7). The trend of TFP growth in the total economy is downward and also in the industrial and services sectors, whereas the agricultural sector has a flat TFP growth trend. Similar to LP growth, TFP growth also declined in 2020, which is indicative of declining productivity and economic growth in Pakistan.

TFP embodies the effect of various activities in the economies but most importantly of R&D and innovation. Pakistan's expenditure on R&D as a percentage of GDP was 0.20% in 2019 according to the available data, whereas India spent 0.66% of its GDP in 2018 according to the available data. China, on the other hand, spent 2.4% of its GDP on R&D in 2020, whereas Sri Lanka spent 0.13%, in 2018 [30]. The data for Bangladesh is not available. This shows that apart from Sri Lanka, Pakistan spends the lowest on R&D among its comparator countries. Unsurprisingly, therefore, Pakistan's TFP growth has been low and declining. Similarly, according to the World Intellectual Property Organization's (WIPO) Global Innovation Report 2022 [32], Pakistan ranks 107th among 132 countries on the Global Innovation Index. Table 4 shows the comparison of the Global Innovation Index between Pakistan and the comparator countries.

### TABLE 4.

### **GLOBAL INNOVATION INDEX RANKINGS**

	2020	2021	2022
Bangladesh	116	116	102
PR China	14	12	11
India	48	46	40
Pakistan	107	99	87
Sri Lanka	101	95	85

#### Source: WIPO [32].

Table 4 shows that although Pakistan ranks above Bangladesh in innovation, its rank of 87 among 132 countries covered in the Global Innovation Index 2022 report [32] is poor. In comparison, India is ranked 40th and PR China is ranked even higher at 11, which is very impressive. Therefore, Pakistan's performance is not puzzling given that it spends very low on R&D and ranks quite low on a global innovation index. Both R&D and innovation are key to enhancing TFP and LP growth, and Pakistan is lagging in both.

*Capital Intensity:* Capital intensity, or capital deepening, is the ratio of the capital stock to employed labor, or the number of labor hours worked. Change in capital deepening is closely linked with LP, ceteris paribus. Capital deepening is important for productivity. Higher capital per worker or labor hours worked will increase LP. Historically, low capital deepening growth has contributed to low productivity growth [33].

Figure 9 shows capital intensity growth for Pakistan's total economy and three main sectors. Panel A of the figure clearly shows that capital intensity growth, like all other indicators of productivity, follows a downward trend. In the agriculture, industry, and services sectors as well, the trend of capital intensity growth is downward. It signifies a low investment rate in Pakistan not only in absolute terms (i.e., if seen in isolation from comparator countries) but also in relative terms (i.e., in comparison to comparator countries) (see Figures 2 and 6).

## FIGURE 9

## **CAPITAL INTENSITY GROWTH (%)**



In 2020, the capital intensity growth declined in the total economy and the industrial sector. Surprisingly, despite a slack in demand, lower investment, and an increased labor force in 2020, the capital intensity grow in the agriculture and services sectors. However, in 2021, the capital intensity growth in the total economy, the industrial sector, and the services sector again declined, whereas in 2021 both TFP growth and LP growth increased. The overall negative trend in capital intensity growth since 1973 shows that Pakistan has not been able to increase its capital stock in proportion to the employed labor force, which has hurt productivity and ultimately growth.

## CHAPTER 6: POLICY RESPONSE TO THE COVID-19 PANDEMIC

In this section, a review of policies adopted in response to the pandemic-induced social and economic situation is presented. In the first part of this section, the global situation is evaluated, while in the second part, the situation in Pakistan is discussed based on KIIs and the government's policy during the pandemic.

## **Global Policy Response**

Policy responses and best practices may be lumped into three broad categories, namely, social distancing and lockdowns, testing and quarantining, and economic stimuli. The policy response to the COVID-19 pandemic was swift in a majority of countries. Perhaps the most immediate response was putting travel restrictions in place and local lockdowns. Some countries, such as the PR China, resorted to lockdown before others. However, some countries, such as the ROK, the ROC, Singapore, and Sweden did not adopt the strategy of lockdown at all [34, 35]. Similarly, Bangladesh also imposed the lockdown, but it was not as strict as it was in many other countries. It allowed public and private offices and some industries to remain operational. Even when the cases surged in the country, Bangladesh allowed its industries to remain operational with health protocols in place [34].

Some countries, rather than closing down their economies to slow the virus from spreading, implemented track and trace policies, along with closing down borders. For example, the ROK used innovative methods and made the maximum use of technology to trace and track those who were infected with the coronavirus. The government used contact tracing and SIM-based tracking to identify and keep a vigil on those who were quarantined. The government also used mobile GPS, CCTV footage, and credit card records for the purpose. Similarly, the ROK conducted mass testing. The government bore all the mass testing costs (USD76 million) and conducted tests on both Korean nationals and foreigners [34].

To protect vulnerable groups, poor households were provided with support in the form of cash transfers. Bangladesh revised its budget to bolster the existing transfer programs for the benefit of the poor. Providing support to poor households and vulnerable groups in times of socioeconomic distress is important because it protects them from the shock and reduces consumption inequality while encouraging them to stay at home [35].

Similarly, to support low-wage workers and daily wage workers, who were the most affected by lockdowns, many governments provided wage support and employment to them. The ROK, for instance, provided employment insurance to vulnerable workers, casual workers, vulnerable sectors, and freelancers [34]. India also provided benefits to low-wage workers [37]. In a similar

vein, the New Zealand and Australian governments increased unemployment benefits and provided wage subsidies through economic stimulus packages [34, 36].

Many countries provided credit support to businesses to help them sustain during lockdowns and help them not to lay off workers. India provided credit support to businesses to the tune of 1.9% of the GDP [38]. Bangladesh also gave a stimulus package for exporting industries primarily for workers' salary support benefitting almost 4 million workers. The government provided working capital loans on subsidized interest payment terms [39].

The provision of relief and support to businesses is critical during times like the COVID-19 pandemic; the most important thing is to act swiftly and identify and protect the most vulnerable sectors immediately before the damage becomes irreparable. That is what the New Zealand government did – they supported the economy's vulnerable sector with a stimulus package. Since smaller firms are the most vulnerable during a financial crunch, the New Zealand government first provided loans to small and medium enterprises (SMEs) with fewer than five employees [34].

While such measures were not effective in preserving LP in the short run because the economic activity had reduced substantially in most economies, it did have a positive effect in some countries, such as Pakistan (see Table 3 and Figure 7), as the LP bounced back in the following year. Post-COVID-19 evidence suggests that such measures had a positive effect on economic activity, employment, and business and consumer confidence, though the effect differed according to measures and country characteristics [39].

The description of policy responses shows that global governments used a mix of economic and preventive policies to tackle the pandemic and protect the economy. The evidence also shows that economic policies did stimulate the economy and protect the vulnerable population [39]. However, providing economic incentives is difficult for developing countries such as Pakistan that have fiscal imbalances.

## **Policy Response in Pakistan**

In Pakistan, the first COVID-19 case was reported on February 26, 2020. As many other governments did, Pakistan imposed the first lockdown in mid-March 2020 when cases started to surge. Thus, Pakistan's first policy response, unsurprisingly, was imposing social distancing, introducing health protocols, and lockdowns. Naturally, amid halting economic activity, all the sectors started to face an economic crunch.

Pakistan also used contact tracing to identify people who were infected with the virus and investigate other people who had interacted with the infected ones. However, Pakistan did not use technology for contact tracing as much as other countries, such as ROK, did. Furthermore, Pakistan also used COVID-19 testing to identify the infected population. Pakistan was forced to carry out priority-based testing and rely on the enforcement of strict quarantine and isolation strategies to contain the pandemic. The reason for testing on a limited scale was that the government did not have enough resources to carry out mass testing as some of the other countries did.

However, the most important policy that the government used to slow down the spread of the virus and resume economic activity, albeit partially, was the smart lockdown. Smart lockdown is

essentially a partial lockdown, which is imposed in those areas or localities where there is a higher incidence of infection. Smart lockdowns in Pakistan did help in reducing the number of cases and the spread of the virus. Evidence suggests that the government's innovative smart lockdown policy and timely execution of smart lockdown achieved the policy's objectives to a large extent. An important aspect of the policy was that smart lockdowns were imposed by taking all stakeholders on board. Moreover, the policy was supplemented with observing COVID-19 standard operation procedures per the World Health Organization (WHO) guidelines. The smart lockdown policy allowed the government to divert scarce economic and healthcare resources to the areas that had a greater need for the resources. The policy also helped the government to assess the situation of healthcare facilities and improve the system. As a result, socioeconomic activities could be resumed [40].

To deal with the emergent socioeconomic situation, the government launched various social protection programs to support low-income families and vulnerable workers. Pakistan's largest social protection program, Ehsaas, was extended through Ehsaas Emergency Cash Fund, and various other social protection programs were brought under the umbrella of the Ehsaas program to provide support to 120 million low-income families [11]. Pakistan also provided cash transfers to approximately 6.2 million daily wage workers [11].

Moreover, the government took various measures for supporting businesses and economic activity. The government provided tax refunds to exporters on a priority basis. The SME and agriculture sectors were provided support by deferring electricity bills, tax incentives, subsidies in various forms, and lending easy bank lending. The construction sector was supported through the provision of tax incentives. The State Bank of Pakistan (SBP) cut the policy rate by 625 basis points. Moreover, the SBP revised refinancing's scope to stimulate investment in new manufacturing plants and machinery, modernize and expand existing projects, and incentivize businesses to avoid laying off their workers during the pandemic. The SBP also increased the regulatory limit on the extension of credit to SMEs by 44% [41].

## **Bottlenecks**

Pakistan's lockdowns were not extreme and firms were insulated from the shock. However, since the COVID-19 shock was a supply and demand shock, it resulted in a decrease in global demand, which hit outward-oriented sectors more than the inward-looking sectors, e.g., the services sector. As for the supply conditions, the supply shock in Pakistan was smaller. The smart lockdown worked, and firms were insulated from the shock through fiscal incentives and other measures [Varela G., KII, October 21, 2022].

As for labor availability and productivity, most of the KIs – which included a productivity expert, a policymaker, and entrepreneurs – argued that pre- and post-COVID-19, there was no discernable difference between labor market conditions and labor availability other than due to social distancing and the lockdown but that was mostly the case in urban areas [Nasir M., KII, October 24, 2022; Anjum A., KII, November 2, 2022; Jamil M., KII, November 7, 2022]

Most of the labor comes from rural areas, especially in the agriculture sector and some parts of the industrial sector, where the pandemic did not affect everyday life as much as it did in urban areas [Nasir M., KII, October 24, 2022; Anjum A., KII, November 2, 2022; Butt M.N., KII, November

2022; Saeed A. KII, November 16, 2022]. In rural areas, social distancing restrictions and lockdowns were not taken seriously by the rural residents. However, there was a shortage of labor in marketplaces in urban areas where social distancing and lockdowns were more stringently implemented. After the restrictions were lifted, labor increased and so has LP, presumably on the back of increased output after restrictions were lifted [Anjum A., KII, November 2, 2022; Jamil M., KII, November 7, 2022].

Different sectors, especially the agriculture sector, were hurt in terms of productivity because of disruptions in the value chain. The agriculture output in Pakistan went down because of the demand shock. In the provinces of Punjab and Khyber Pakhtunkhwa, agriculturists did not complain about any shortage of labor [Anjum A., KII, November 2, 2022], which is reflected in the analysis presented in Section 5 (at the national level).

Once the lockdown ended and restrictions were lifted after COVID-19, many challenges arose. After the gradual opening of the economy, timings were shortened and workdays were limited, SOPs had to be followed, and there were health concerns, which affected productivity because adapting to a changed environment is difficult [Farrukh A., KII, November 18 2022]. Also, it had an effect on workers' attitudes, which has affected productivity negatively. Some workers have developed a habit of staying away from work. During the peak pandemic days, the workers were paid without work. After the resumption of normal business activities, workers shirk and malinger for at least two days a week other than the weekend. This has added to the cost because extra workers need to be hired to replace absentee workers. This has increased the cost of doing business, making businesses uncompetitive [Pervez J., KII, November 25, 2022].

During KIIs, the following bottlenecks were identified by the KIs. As argued previously, low productivity, both LP and TFP, in Pakistan is a structural phenomenon. The pandemic did hurt the market conditions, especially the labor market, but the dip in the LP was temporary (shown in Section 5). Therefore, the bottlenecks identified address the issue from a general perspective and do not focus solely on the situation arising from the pandemic. The bottlenecks are divided into themes that came out of the KIIs.

#### Incentives

Most of the KIs were of the view that the incentive structure is not in favor of the workforce in Pakistan, which hampers productivity [Varela G., KII, October 21, 2022; Jamil M., KII, November 7, 2022; Amin J., KII, November 9, 2022]. In Pakistan, workers' compensation is not commensurate with their efforts and their rights are not protected. Daily wagers shirk but when they are offered lumpsum payment, their efficiency increases, which again shows how incentives induce higher LP [Jamil M., KII, November 7, 2022]. Incentives, or lack thereof, also affect technology adoption. Evidence suggests that workers resist technology because the benefits of the new technology do not trickle down to them; the lion's share of productivity increases goes to the firms. A study [42] on the football industry in Sialkot showed that workers resisted new technology, which reduced firms' waste significantly; those who were paid per piece feared that their income would go down as the new technology slowed them down initially because of time required to become familiar with it. The incentives were misaligned. There are a lot of distortions in the market [43–44] and most of the benefits go to owners, not to workers. Therefore, if benefits are passed on to workers, things will work.

Moreover, the productivity of contract workers is better than salaried workers because salaried workers know that they would get the salary irrespective of the amount of effort they put in [Varela G., KII, October 21, 2022; Jamil M., KII, November 7, 2022]. On the other hand, contracted workers are answerable to the contractor who must maintain a minimum level of productivity. There is a problem with the business owners' attitude as they do not remunerate workers commensurate with their work. Moreover, they do not pay heed to the problems faced by the workers, which results in low motivation [Amin J., KII, November 9, 2022].

Due to incentives, firms in Pakistan have bargaining power. If input tariffs are reduced, productivity will increase and wages will also increase, but that may not always be the case. Currently, there is no collective labor bargaining mechanism in Pakistan, barring a few firms. If workers negotiate collectively, there will be more access to information [Varela G., KII, October 21, 2022].

#### Policy<sup>2</sup>

In Pakistan, market frictions are by design. For example, there are firm-specific and industryspecific subsidies (such as preferential energy tariffs, etc.), and certain industries (such as automotive, textile and sugar) are protected in the form of higher tariffs on inputs and export subsidies (duty drawback scheme, export refinancing, etc.), and large exporters are being lent at 4% markup, which results in the government losing 11%–12%. Furthermore, the export-oriented industry in Pakistan has certain advantages over the domestic-oriented industry due to government policies. For example, exporters can get loans at concessional rates, whereas producers for the domestic market have to get loans at market rates [Farrukh A., KII, November 18, 2022]. These frictions create barriers to entry for new firms and create hurdles for them to become competitive. The result is that even low-productivity firms survive, and resources do not flow to highproductivity firms. Therefore, productivity is low in Pakistan [Varela G., KII, October 21, 2022].

Due to rules and regulations and other policy measures of the government, it takes time to import machinery and raw materials to Pakistan, which affects production and productivity. Importing raw materials in larger quantities and maintaining stock add to the cost. Comparing the situation of Pakistan with Vietnam, it was revealed that in Vietnam, the required machinery is readily available within six days, whereas in Pakistan there are long delays in importing machinery due to various issues, such as clearing at ports. Thus, in Pakistan, there are issues related to governance, regulatory quality, and bureaucratic delays. Another problem with technology adoption is that since the majority of sophisticated machinery is imported, the cost of technology is very high due to government tariffs. Moreover, port charges increase due to the time it takes for the import consignment to be cleared [Nasir M., KII, October 24, 2022; Pervez J., KII, November 25, 2022].

Another problem with importing machinery is related to rules and regulations. For example, harmonized system codes some of the machines required in the football industry are attached to luxury items, which makes importing machinery expensive and difficult. It must be kept in mind that machinery is a way of technology transfer, which ultimately benefits the economy by increasing productivity [Nasir M., KII, October 24, 2022].

Due to government policies, in the agriculture sector of Pakistan, hybrid seeds are rarely used because the policy environment for international companies specializing in hybrid seeds is not conducive. The main reason is that large farmers create hurdles because they are in the business of

<sup>&</sup>lt;sup>2</sup> Policy includes rules and regulations, regulatory framework, and bureaucratic quality.

selling seeds. An international seed company tried to establish farms in Pakistan to showcase the productivity of hybrid seeds, but big farmers blocked the initiative on the pretext that smaller farmers would be exploited [Anjum A., KII, November 2, 2022]. There are vested interests and pressure groups that continue to enjoy protection at the cost of increasing productivity in Pakistan. This is a failure of governance and bureaucratic quality.

Moreover, there is a heavy presence of government in sectors where it should not be and vice versa. For example, many firms provide transport services to their employees, which increases the employers' bargaining power. Transport should be provided by the public sector. The work environment is a crucial factor in enhancing LP. The way Pakistani cities are configured and the almost absence of public transport increases travel times, which hampers productivity [Saeed A. KII, November 16, 2022]. Moreover, it is baffling to note that there is a state-owned enterprise in the fishery sector [Varela G., KII, October 21, 2022]. According to an estimate, the government's footprint on Pakistan's economy is as high as 67% of the GDP [45].

Bureaucratic controls and the threat of the Federal Board of Revenue (FBR) have also held Pakistan's productivity back. Entrepreneurs are wary of investing in the industrial sector because procedural and regulatory issues are cumbersome and difficult to deal with. Therefore, real estate is attracting investment, which offers not only higher returns but also is an easy asset to invest in [Butt M.N., KII, November 2, 2022]. Other regulatory issues and unnecessary bureaucratic controls are rampant. For example, most businesses have to deal with 16, or in some cases more, departments regularly who purportedly visit to check compliance, which wastes time thereby hampering productivity [Amin J., KII, November 9, 2022]. In short, there is sludge in the economy [43].

#### Education, Skills, Training, and Attitudes

If skills are scarce in an economy, these will flow toward high-paying jobs and the productivity where unskilled workers continue working will suffer [Varela G., KII, October 21, 2022]. There is an incapacity of skill and training institutes such as the Technical and Vocational Training Authority (TEVTA). Such institutes do not offer courses per the current demand of different industries [Jamil M., KII, November 7, 2022; Amin J., KII, November 9, 2022]. For example, technical education and vocational training institutes do not offer courses for the agriculture sector to impart farming-related skills. Therefore, there is a shortage of skilled labor in agriculture [Anjum A., KII, November 2, 2022; Jamil M., KII, November 7, 2022]. The services sector's situation is the same. For example, in the ICT sector, technical institutes' graduates do not possess industry-relevant skills. One major factor stopping productivity from growing in the ICT sector is the education–job skill mismatch [Farooq H., KII, November 18, 2022]. Similarly, retail workers have to be trained internally as there are no training institutes or the practice of working in retail during school days, which prepares them for a career in retail if they are interested in it. Due to the retail brand revolution in Pakistan, the landscape has changed, which requires more skills [Farrukh A., KII, November 18, 2022].

Due to an uneducated workforce, attitudinal problems also arise. The attitudes of workers also differ depending on their education; for example, the attitude, behavior, and work ethic of the workers who have finished secondary school are better compared to those who have a lower level or no education. Workers with secondary education are better at understanding job descriptions and taking on their responsibilities. The lack of education and attitudinal problems necessitate continuously supervising them at work for the workers to work efficiently. The productivity of

unsupervised workers is 60% of the output of supervised workers. Even supervisors need to be pushed every second day [Pervez J., KII, November 25, 2022]. Moreover, unskilled labor, be it in the manufacturing sector or the agriculture sector, is not willing to learn even though the employers offer training courses [Butt M.N., KII, November 2, 2022; Jamil M., KII, November 7, 2022; Amin J., KII, November 9, 2022].

The attitude of female workers is better compared to male workers. Female workers tend to perform better compared to their male counterparts because of different reasons. First, in a society like Pakistan, females enter the job market primarily due to financial reasons. Second, female workers' turnover rate is lower compared to that of male workers. However, they have to be provided with pick-and-drop service, which is costly and cumbersome [Butt M.N., KII, November 2, 2022].

The issue of untrained and unskilled labor is hurting productivity in all sectors of the economy. For example, in the agriculture sector, due to unskilled labor, wastage increases. In this regard, the example of picking ripened mangoes is worth citing. There is a particular way of plucking mangoes, which keeps them from being spoiled, but the labor does not know this method. Moreover, they wet the earth and drop mangoes on the ground, which damages the fruit. It works in the domestic market, but it hurts exports [Anjum A., KII, November 2, 2022; Jamil M., KII, November 7, 2022]. In fact, farm owners also do not know the method, and it hurts overall production and productivity [Jamil M., KII, November 7, 2022].

Similarly, agriculture extension services provide no information or training on modern farming methods, for instance, tunnel farming. There is even no information provided by agriculture extension services on when to spray pesticides and other chemicals. In fact, in some cases, even public sector trainers do not possess the necessary knowledge. The farmers have no confidence in the agriculture department. There are no model farms that could educate farmers, especially small farmers, to adopt technology, etc. For example, National Agricultural Research Council (NARC) is only good at providing basic information, which the farmers already possess. Their website is outdated [Jamil M., KII, November 7, 2022].

Firms also provide in-house training to apprentices, but the problem with providing on-the-job training is that as soon as they become skilled, they leave the job and work at another enterprise for a higher wage. Therefore, a way out is that public sector training institutes should tailor the training program according to the needs of the industry and the industry is willing to share the cost [Nasir M., KII, October 24, 2022; Butt M.N., KII, November 2, 2022].

### Technology and Management Practices

Technology adoption and management practices are interlinked, which have an impact on productivity. For example, Nelson and Phelps [46] postulated that educated managers are more likely to introduce new technology and production techniques. Similarly, Criscuolo et al. [47] showed that different management practices, among other things, contribute to approximately 33% difference in productivity between top-performing and mid-level performing firms. However, Pakistan continues to use outdated technology in a majority of cases. In the manufacturing sector, which is the major user of technology, productivity is declining because the technology adoption rate is low due to management practices (and government policies as well, as discussed earlier). Countries such as Bangladesh, on the other hand, have adopted technology at a higher rate. For example, Bangladesh's textile sector, whose textile sector exports alone have exceeded Pakistan's

total exports, has invested in state-of-the-art machines [Butt M.N., KII, November 2, 2022]. The same is the case of Vietnam [Nasir M., KII, October 24, 2022].

In the agriculture sector, e.g., perhaps the major reason for low productivity is the low technology adoption rate. For example, seed quality is very low in Pakistan because imported seeds are not allowed. Maize production saw an impressive surge in productivity after the introduction of high-tech hybrid seeds. Maize in Pakistan is produced by using 100% imported seeds, resulting in very high maize yields. The participation of the private sector needs to be increased in Pakistan as the maize revolution is driven by the private sector. The introduction of high-yield maize seeds has had a positive spillover effect on the poultry industry as well. Similarly, the productivity of vegetable farming is high in Pakistan because vegetable seeds, e.g., cucumber seeds, are imported. On the flip side, the cotton crop requires extensive use of pesticides because the seeds used are not pest resistant. This has resulted in low cotton productivity and high cost. Certain lobbies have been resisting Bt cotton seeds in Pakistan [Anjum A., KII, November 2, 2022].

Similarly, in the retail sector, supply chain management is crucial, which requires skills, training, and technology. However, compared to developed markets where supply chain management and other systems are automated, more workers need to be hired, which slows down productivity [Farrukh A., KII, November 18, 2022]. Entrepreneurs also lack management skills, such as supply chain management and awareness of modern management practices. Pakistani businessmen are not data-driven, i.e., they do not use data to forecast demand, labor requirements, technology development, etc. [Butt M.N., KII, November 2, 2022].

#### R&D and Innovation

There are various reasons for low R&D expenditure and innovation in Pakistan. Perhaps the most significant bottleneck is almost nonexistent academia–industry linkage. Then there is a lack of specialized skills in Pakistan, due to brain drain, among other things. Weak enforcement of trademarks is another constraint. During a KII, it emerged that due to intellectual property rights issues, a football manufacturing firm relocated to Vietnam [Nasir M., KII, October 24, 2022]. Moreover, the patent approval process takes an inordinately long time, which also discourages new patent applications and innovation. Distortions created by policy also create barriers to innovation. For example, export subsidies reward traditional industries, which creates a barrier to entry for firms that are interested in product innovation. Import duties also act as a barrier to innovation. For example, import duties on final goods increase profits but reduce incentives for local R&D and innovation [29]. Whatever foreign direct investment (FDI) Pakistan receives is concentrated in inward-oriented sectors and does not transfer technology. Since FDI is low and unproductive, it does not contribute to innovation and also hinders innovation [29].

### Cost of Doing Business

There is also the problem of utility bills, which are exorbitant and eroding competitiveness. Similarly, raw materials are expensive [Amin J., KII, November 9, 2022]. The competitiveness of Pakistan's economy is consistently eroding due to high energy costs. Due to high energy costs, the cost of doing business also increases, which affects productivity not only of the firm but also of the economy. Research shows that Pakistan's energy sector is beset with poor governance which has made the current energy model in Pakistan unsustainable [48]. Other factors, such as high tariffs on raw materials and unstable exchange rate, are also adding to the cost of doing business in Pakistan.

## CHAPTER 7: BEST PRACTICES

In this section, best practices based on the global response to the pandemic are discussed. Based on the analysis of Pakistan's response to the pandemic and KIIs, best practices implemented in Pakistan are also shared.

## **An Overview of Best Practices**

### Quick Response

The experiences of the ROC, ROK, and New Zealand show that a quick and decisive response was the key to stopping the spread of the virus. This not only kept the virus positivity rate low but also allowed economies to return to normalcy quicker than the others. The resumption of economic activity is critical for the well-being of vulnerable groups, low-wage workers, and their productivity [35].

### Use of Technology in Contact Tracing

Perhaps one of the best responses to the pandemic was the use of technology in contact tracing as the experience of the ROC and ROK shows [35]. Contact tracing was used in other countries too but some countries did not use technology for contact tracing. Technology mixed with contact tracing allowed quick and precise tracing of the virus hotspots so that who were infected could be isolated. These measures kept the economy running while keeping workers productive [34].

### Mass Testing

Countries such as the ROC, ROK, and Singapore, among others, used mass testing to a good effect [36]. An advantage of mass testing is that it can also detect asymptomatic cases, which can transmit the virus to others. However, it must be noted that mass testing is costly and is more effective when used combined with other measures such as contact tracing, social distancing, and observing health protocols.

### Social Protection

Social protection was used in many countries during the pandemic. It ensured that those who lost their jobs or belonged to low-income families were protected from economic shock. Social protection measures help preserve vulnerable population's consumption of subsistence goods and necessities, which not only helps the economy but also preserves productivity. Protecting the disadvantaged population's consumption helps the economy by not letting the aggregate demand fall drastically. If this group is not unable to preserve the level of food and the consumption of other necessities (e.g., electricity), it may affect their health and the ability to work an optimal number of hours, which causes a drop not only in their productivity but also in the economy.

### Fiscal Stimulus and Other Economic Incentives

Fiscal packages and economic incentives were also announced by many governments around the world. The purpose of fiscal stimulus and other monetary incentives was to help businesses,

especially SMEs, stay afloat. Many businesses faced cash flow problems which forced them to lay off workers. However, fiscal incentives and economic incentives, e.g., loans at concessionary rates for wage payments, helped businesses retain their workers. It not only helped them to recover quickly after the easing of restrictions but also helped the workers to be productive. These measures proved to be useful in resuming economic activities and recovering productivity in the following period.

## **Best Practices in Pakistan**

Despite the surge in positivity rates at different times, economic activities were allowed to resume rather quickly, which helped the economy avert a deeper economic crisis. Pakistan's government also took some of the measures such as expanding the reach of social protection programs, wage subsidies, and other economic incentives. The following discussion is based on the KIIs conducted for this study and the measures that the government and the private sector both took to insulate businesses from the shock and preserve workers' interests and productivity.

#### Smart Lockdown

From mid-June 2020, Pakistan's government tweaked its COVID-19 containment plan by moving from nationwide lockdown to smart lockdown. In this approach, the government adopted a locality-wide approach rather than a nationwide approach to slow down the positivity rate. The smart lockdown policy, which was initially advocated by PIDE [49], eased the situation for workers and employees alike. Initially, the government, with the help of local authorities, targeted some confirmed hotspots across the country, which were updated daily based on daily data. The policy restricted residents of the affected areas as only one person from each household was allowed to go out and shop for essential items by showing their national identity cards to law enforcement agencies. The policy allowed only grocery shops and pharmacies to remain open, while industrial units were asked to close down when the smart lockdown was in force. The policy worked in curtailing the spread of the virus. The *Economist* noted that Pakistan returned to normalcy faster than many other countries and ranked Pakistan 4th in its Global Normalcy Index [50].

#### Government's Initiatives to Support the Private Sector

The government very quickly declared telecom services as essential. Telecom companies also played an important role by providing the required services for remote working and other functions. They strived to make telecom services widely available and accessible. The pandemic also highlighted the importance of equity and equality in the use of telecom services. During the pandemic, working from home reduced the impact of the pandemic, especially in the industries that were conducive to work-from-home mode. The government responded quickly and provided support to the private sector to enhance the availability of technology, e.g., internet speed and bandwidth, which supported remote working, and further eliminated the problem of long travel hours to places of work. As a result, back offices and middle offices performed better [Saeed A., KII, November 16, 2022]. Pakistan's higher education regulatory authority, Higher Education Commission, aided educational institutions in adapting to online teaching.

#### Micro-Management in the Private Sector

Several companies adjusted management practices to better cope with the social distancing rules and the lockdown policy. Businesses, especially in the ICT sector, shifted to micro-management practices to monitor the performance of employees. For example, tasks were allocated based on capabilities. Workers' habits changed during the work-from-home period, so the management arranged weekly meetings to monitor workers' performance and to discuss work logs. The company rationed visits to the workplace due to the government's restrictions on movement [Farooq H., KII, November 18, 2022].

#### Authorization of Travel to Work to Selected Employees

The government cooperated with businesses that required some of their employees to travel to work. The government asked companies to provide lists of employees who needed to be at the workplace during the lockdown. It was a positive step by the government, which was very cooperative and managed the system very well while systemizing travel to work for these employees based on lists provided to them [Farooq H., KII, November 18, 2022].

#### Hardship Allowances and Bonuses

Companies in the private sector provided hardship allowances to those employees who were required to visit the workplaces during the lockdown which helped in maintaining and increasing LP. Moreover, low-salaried employees were given bonuses to boost their morale and efficiency. Furthermore, with the help of the government, the staff was retained, and their salaries were not stopped due to forced leaves if anyone was infected with the coronavirus. This also helped them during times of distress. The workers were confident that they would not lose jobs or income, which helped boost productivity [Farrukh A., KII, November 18, 2022].

#### Fast Tracking the Vaccination Program

Initially, the government announced the vaccination program only for those aged 60 and above. However, the industry demanded the government allow vaccination for everyone to enable workers, especially those who had to leave their homes for work, to get vaccinated and come to work with relative peace of mind. The government complied with the demand of the industry, which helped to improve productivity post-COVID. Similarly, the government established vaccination booths at different places for easy access of the general public and workers to the vaccination and to avoid long queues. Because of these efforts of the industry and the government's timely support, the workers could come to work with the confidence that they were protected from the virus because not only they were inoculated in a timely fashion but also the general public, which decreased the chances of contracting the virus from others. [Farrukh A., KII, November 18, 2022].

## CHAPTER 8: CONCLUSION AND WAY FORWARD

The analysis above shows that in Pakistan productivity growth, both LP and TFP, declined in 2020 when the COVID-19 pandemic struck Pakistan. The government's response to the catastrophic situation was admirable helping the economy to recover rather quickly, which was also reflected in LP and TFP growth bouncing back. However, the long-term trend of GDP growth is downward, which is because of declining productivity indicators, i.e., LP and TFP. In the overall economy as well as in its three main sectors, LP and TFP growth is declining.

These trends indicate that there are deep-set structural problems in Pakistan's economy that need to be addressed to put GDP growth and productivity growth on an upward trajectory. The government responded to the situation arising from the pandemic, as almost every other government the world over did, which helped the economy to recover. Nevertheless, the measures taken by the government, such as fiscal stimulus and other economic incentives, are only short-term measures and do not address long-standing problems.

Therefore, Pakistan's economy needs to tackle deep-set structural problems to raise LP and TFP growth to increase its trend GDP growth. There are various problems with how Pakistan's economy is managed and structured. However, it would be remiss not to mention that the emphasis on digitalization both by the government and the private sector during the pandemic has offered an opportunity to increase digitalization which can affect economic activity through various channels. Moreover, evidence shows that episodes of market liberalization and deregulation resulted in higher productivity and GDP growth [22]. For example, the growth in the 2000s is attributed to structural reforms, financial sector restructuring, privatization, and deregulation to make Pakistan a market-led economy [51]. Evidence also shows that factors such as trade openness, R&D and innovation, better regulatory framework, and better institutions are positively correlated with productivity growth [52].

Productivity growth, in the long run, will depend on the regulatory framework, market development, removal of distortions, private sector dynamism, and the state of innovation and R&D in the economy, among other things. Moreover, digitalization will need to be economy-wide, i.e., across all sectors of the economy. The role of policy must be confined to supporting the private sector for digital uptake.

Following are some of the issues that need to be addressed to increase productivity in Pakistan.

## Policy

In Pakistan, policies have often created distortions, which have hampered productivity and GDP growth potential. There are various distortions, mostly policy-induced, that have hampered productivity and GDP growth potential in Pakistan for long now. Some examples include taxes,

subsidies, firm- and sector-specific industrial policies, and trade restrictions through tariffs and other policies. These distortions create incentives for economic actors to allocate resources socially suboptimally. For example, if subsidies are provided to an established industry or firms, it becomes difficult for another industry, which has the potential to be more productive, to enter the market and compete. Such policies discourage innovation and productivity growth because the sectors that enjoy subsidies and other incentives have little to no incentive to diversify or become more competitive. In terms of tax policy, capital is taxed more than land, which creates incentives to invest in real estate than in manufacturing and other socially beneficial activities [29].

Tariff policies, such as high import duties make it profitable for entrepreneurs to sell in the domestic market rather than export. Exporters face further discrimination in terms of export subsidies because these subsidies are mostly allocated for traditional and unsophisticated products, such as textiles. It is a disincentive to diversify exports into innovative and high-tech products. Distortions in Pakistan are often a result of pressure groups and rent-seekers who lobby for policies that benefit their businesses at the expense of the whole economy. For example, a few sectors receive energy at subsidized prices. Producers for the domestic market are also protected at very high effective protection rates [53], which put other sectors at a disadvantage eroding their competitiveness and productivity. For example, in the agriculture sector, large landowners benefit from subsidized inputs for very few crops, such as sugarcane and wheat. Similarly, large firms in export-oriented sectors receive disproportionately high export subsidies, such as duty drawbacks, export financing, and long-term financing facility. Thus, distortions created by such policies hurt those who are greater in number but are not either large enough or influential enough to benefit from these policies. Reform in such an environment is challenging but it is critical. It requires strong political will [29].

Removing distortions will allocate resources in a better way, which will enhance aggregate productivity. For example, tax policy needs to be changed to widen the tax net, rationalizing tax rates across sectors. Income tax should be universal and not segmented. The division of income based on agriculture, dividends, and so on must be abolished [54]. Similarly, the anti-export bias of trade policy can be removed or reduced by reducing import duties. Since exporting firms are shown to be more productive than non-exporting firms, reducing import duties will reallocate resources from production for domestic consumption to production for exports. Moreover, a gradual phasing out of agricultural subsidies will facilitate a market-based allocation of land based on comparative advantage.

Removing policy and other distortions creates competition among economic actors. Higher competition leads to higher productivity because when there is competition in the market, producers find ways to be more productive, which leads to higher productivity and an increase in wages, which is a reflection of the higher productivity of workers. Competition can also raise productivity through improvements in management practices [55].

Currently, the regulatory environment in Pakistan is very complex. There are 122 regulatory authorities under the federal government alone, and according to an estimate, regulations, NOCs, and permissions cost 39% of the GDP in only three sectors alone. One possible solution to reduce the regulatory burden is the regulatory guillotine strategy. The authorities should initiate a regulatory audit in collaboration with the relevant stakeholders. Regulations retained after the assessment must be rule-based. Moreover, authorities must present a plan to achieve automation in

the regulatory permission processes. Once the application along with the required documents is submitted to the authority and the authority has not taken any action within 15 days of submission, then the application must be considered approved, i.e., there should be a deemed approval after the passing of 15 days [54].

## Digitalization

The situation arising after the pandemic should not lead productivity to decline; rather it should be used as an opportunity to increase it, given proper strategies are devised for it. Even though the pandemic has strained the government and the private sector alike, it has enhanced digitalization and remote work opportunities, which are productivity-enhancing. Digitalization can be beneficial both for consumers and producers. For example, consumers can use digital platforms and internet services to access a wider range of goods and services. The ICT sector, on the other hand, can develop its software industry faster. The ongoing digitalization and remote working have helped to widen the export basket by incentivizing and expanding non-traditional tech-based and knowledge-intensive services [29].

Although the pandemic has shrunk some products' demand domestically and globally, digitalization can be used not only to sustain demand but also to create new demand and markets. Digitalization can speed up various procedures, such as registration and payments [34]. Data on digitalization in Pakistan is not available but it seems that it has also helped Pakistan regain productivity growth which had declined during the COVID-19 year.

Therefore, the way forward is digitalization and the use of digital technology. Crisis presents an opportunity to speed up digital transformation and e-commerce uptake. For example, since smartphone use has become widespread even in countries like Pakistan, it can be used to track and trace cases, as the experience of the ROC and ROK suggest, if and when the need arises again. Digitalization needs to be used to increase financial inclusion and more enterprises, especially SMEs, for integration into global trade. For example, in the Philippines, the use of fintech is spurring competition in the financial sector which has widened access to funds [34].

Remote work will decrease gradually as things normalize but in some sectors, such as the ICT sector, it is likely to continue, which will aid in employee well-being and productivity. Productivity growth in future will depend on the consolidation of digital penetration that started during the pandemic [19].

Some sectors will be highly in demand post-pandemic, including big data or artificial intelligence (AI), health care, fintech, medical technologies, start-ups, and e-commerce, among others. The focus will also be on remote health care and education. Therefore, Pakistan must learn from other countries' experiences and policies for the future. For example, to prepare itself for the post-pandemic scenario, the ROK government unveiled the Korean New Deal, which is a multi-billion USD policy package to transform the Korean economy by 2025. It envisages establishing a digital infrastructure and creating new jobs [56]. Similarly, digital technology, i.e., big data and AI must be used to inform the government about policies and actions. For example, the New Zealand government made use of big data to simulate the results of its proposed policy and fine-tuned the policy accordingly [35].

To increase digitalization, certain steps would need to be taken, such as the facilitation of education and skill acquisition. Similarly, the private sector's capability for digitalization development will have to be subsidized and financed through grants and concessionary loans. The grants will not only help sustenance and growth in fintech but they will also help to accelerate digitalization. Academic institutions and universities will play an important role in digitalization; they will have to help the government in promoting digitalization by redesigning their syllabi by including more digital materials [35].

It needs to be underscored that digital infrastructure would need to be treated as a public good because digital infrastructure at a national level is crucial to promote financial services for inclusion. Similarly, digital infrastructure at a regional level is important for facilitating remittances, among other things. Furthermore, governments must help businesses in digital transformation for them to serve those who are financially and digitally excluded. However, for the digitalization of an economy, a fast and stable internet is a necessary condition. Most importantly, equality must be at the forefront of policy. In developing countries, including Pakistan, there is a divide between rural and urban education systems. Therefore, digital technology will help the rural population to benefit from digitalization as they will be able to acquire new skills remotely [35]. Moreover, internet availability is a serious issue in Pakistan as in remote areas mobile internet is either nonexistent or slow and unreliable. The government must pursue the policy of the internet for all. Pakistan's government should treat the sale of the digital spectrum (i.e., frequency or bandwidth) as a means for increasing internet access rather than for revenue generation, which is the case at present [45].

## **Technical and Vocational Education**

One of the binding constraints on low LP growth in Pakistan is low skill level, lack of appropriate technical and vocational training programs, and education–industry demand mismatch. In Pakistan, only a few employees, either new or existing, get proper vocational and technical training. The problem is that even skills and training imparted to these workers are not relevant to job requirements and emerging work scenarios. The skill gap existing in Pakistan, especially in the manufacturing sector, cannot be filled by the existing technical vocational education and training (TVET) ecosystem in Pakistan. TVET institutions in Pakistan do not have skilled trainers, their infrastructure is weak, they lack in technology to impart proper skills and training, and most importantly, there is no coordination between the formal TVET sector and industry players [57]. Going forward, training and education are very important in enhancing long-term LP. Therefore, the technical and vocational sector needs to be improved by keeping in view industries' demand for skills, designing curricula in coordination with the industry players, and improving trainers' capacity. Moreover, the TVET policy needs to focus more on imparting smart skills that are transferable [Varela G., KII, October 21, 2022].

## **R&D** and Innovation

To remove disincentives for product diversification of exportable goods, subsidized working capital financing for exporters should be substituted with long-term financing facilities, which encourage R&D expenditures and innovation. The policy focus should be on investment in research, establishing academia–industry linkages, public and private sector research collaboration, and investment in education in all tiers of education with a clear focus on improving the quality of

education. An important step towards encouraging innovation and letting innovators reap the rewards of innovation, intellectual property rights enforcement is critical [29].

## **Management Practices**

Management practices are important for productivity growth. Better and quality management practices are found to be correlated with LP, among other things [58]. Similarly, evidence shows that management practices are important for low-income countries [59]. As noted above, during the KIIs as well, some KIs noted that Pakistani firms have poor management practices. One of the reasons, perhaps, is that firms tend to overestimate their managerial capacities. Similarly, firms face informational barriers in terms of the role of consulting firms in improving management practices. Firms, especially small firms, also lack resources to engage consulting service providers and they have no way to know the quality of these services. A possible solution could be subsidizing consultation services through a public–private partnership [29]. Moreover, competition in the economy tends to improve management practices by ousting firms that are not well-managed. Policy in this regard can help by funding within-firm training programs to keep managers abreast of best management practices. Similarly, business trade bodies, such as chambers of commerce, can send members of their chambers on study tours to other countries to learn from their experiences.

## **Female Labor Force Participation**

To increase the overall productivity in the economy, the female labor force participation rate needs to be increased in Pakistan, which is very low currently at 15.46% [21]. KIIs showed that female workers are better in terms of commitment and performance. But it also emerged from the KIIs that it is difficult to provide protection and transport to female workers. Similarly, in Pakistan, female labor force participation is high either among women with low education or with very high education. Therefore, increasing the female labor force participation rate would be productivity-enhancing. Some of the steps that may be taken to encourage female workers to participate more in the labor market could be gender-unbiased hiring policies, improved workplace harassment legislation, wage subsidies to encourage female employment, and safe and dedicated transport. Improved digital connectivity will also encourage female workers to work remotely, which will help to increase female labor force participation and productivity more generally [29].

## Incentives

People respond to incentives no matter where they are from and where they work. In Pakistan, as mentioned earlier, workers do not share the benefits of new technology [43]. Therefore, along with better technology that increases the capital–labor ratio and firms' profitability, a better structure of incentive sharing is needed [Varela G., KII, October 21, 2022]. Benefits need to be shared among workers and owners. Workers in Pakistan do not share in the benefits accruing to firms because their bargaining power is low. One way of increasing workers' bargaining power is more organized labor. Firms can also share their profits with workers by providing them with different benefits, such as health insurance and performance bonuses.

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# **ABBREVIATIONS**

AI	Artificial intelligence
APO	Asian Productivity Organization
COVID-19	Coronavirus disease 2019
ELF	Employed labor force
FDI	Foreign direct investment
GFCF	Gross fixed capital formation
GVCs	Global value chains
KIs	Key informants
KIIs	Key informant interviews
LCUs	Local currency units
LFS	Labor Force Survey
LP	Labor productivity
NOCs	No objection certificates
PES	Pakistan Economic Survey
PIM	Perpetual inventory method
PKR	Pakistani Rupee
PR China	People's Republic of China
PWT	Penn World Tables
RBC	Real business cycle
ROC	Republic of China
ROK	Republic of Korea
SBP	State Bank of Pakistan
SMEs	Small and medium enterprises
SOPs	Standard operating procedures
TFP	Total Factor Productivity
WIPO	World Intellectual Property Organization

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