

From Swimming in Sand to High and Sustainable Growth

A roadmap to reduce distortions in the allocation of resources and talent in the Pakistani economy



Pakistan's Country Economic Memorandum



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Abbreviations and Acronyms

AD	Aggregate demand
AOP	Association of Persons
APO	Asian Productivity Organization
AWD	Alternate Wetting and Drying
BBRI	Better Business Regulation Initiative
BBS	Bangladesh Bureau of Statistics
BOI	Board of Investment
BOP	Balance of Payments
CCP	Competition Commission of Pakistan
CEO	Chief Executive Officer
CMI	Census of Manufacturing Industries
CRA	Corporate Rehabilitation Act
DDT	Duty Drawback of Taxes
DLTL	Drawback of Local Taxes and Levies
DTRE	Duty Tax Remission for Exporters
EAP	East Asia and Pacific
EDD	Exporters Dynamics Database
EFF	Extended Fund Facility
EFS	Export Finance Scheme
EMDE	Emerging Markets and Developing Economies
EOBI	Employees Old Age Benefits
ETD	Economic Transformation Database
EWRF	Electronic Warehouse Receipt Financing
FBR	Federal Board of Revenue
FDI	Foreign Direct Investment
FETI	Female Exclusive Training Institute
FGCC	Faisalabad Garment City Company
FLFP	Female labor force participation
FP	Färe-Primont
FTA	Free Trade Agreement
GCI	Global Competitiveness Index
GDP	Gross Domestic Product
GGDC	Groningen Growth and Development Center
GHG	Greenhouse Gas
GSMA	Gender Survey of Mobile Access
GST	General Sales Tax
GVC	Global Value Chain
HBW	Home-Based Work
HGF	High-Growth Firms
HIES	Household Integrated Economic Survey
HS	Harmonized System
ICT	Information and Communications Technology

IFC	International Finance Corporation
ILO	International Labor Organization
IMF	International Monetary Fund
IO	Input-Output
IQR	Interquartile Range
IT	Information Technology
JDSC	Jobs Group JD Standard Code
KLEMS	Capital, Labor, Energy, Materials and Purchased Services
KP	Khyber Pakhtunkhwa
LFP	Labor Force Participation
LFS	Labor Force Survey
LMIC s	Low and Middle-Income Countries
LFP	Labor force participation
LSMS	Living Standard Measurement Survey
LTFE	Long-Term Financing Facility
MFN	Most-Favored Nation
MME	Multi-Model Ensemble
MOC	Ministry of Commerce
MOF	Ministry of Finance
MoIP	Ministry of Industries and Production
MoITT	Ministry of Information Technology and Telecommunication
MUB	Manufacturing Under Bond
NTM	Non-Tariff Measure
NTB	National Information Technology Board
NTD	Non-Traditional Destinations
OECD	Organisation for Economic Cooperation and Development
PBC	Pakistan Business Council
PBS	Pakistan Bureau of Statistics
PCT	Patent Cooperation Treaty
PKR	Pakistani Rupee
PLF	Publicly Listed Firms
PPF	Production Possibilities Frontier
PPML	Poisson Pseudo Maximum Likelihood
PPP	Purchasing Power Parity
PSC	Private Sector Credit
PSLM	Pakistan Social and Living Standards Measurement Survey
PWT	Penn World Table
R&D	Research and Development
RER	Real Exchange Rate
ROA	Return on Assets
ROE	Return on Equity
SAFTA	South Asian Free Trade Agreement
SAR	South Asia
SBP	State Bank of Pakistan
SCD	Systematic Country Diagnostic
SDP	Size-Dependent Policies
SECP	Securities and Exchange Commission of Pakistan

SOE	State-Owned Enterprise
SP	Sole Proprietorship
SRO	Statutory Regulatory Order
SSP	Shared Socioeconomic Pathways
T&D	Transmission and Distribution
TDAP	Trade Authority of Pakistan
TERF	Temporary Economic Refinance Facility
TEVTA	Technical Education & Vocational Training Authority
TFP	Total Factor Productivity
TFPQ	Total Quantity-based Productivity
TFPR	Total Revenue-based Productivity
UNCTAD	United Nations Conference on Trade and Development
WAP	Working Age Population
WDI	World Development Indicators (World Bank)
WEF	World Economic Forum
WGI	World Governance Indicators
WIPO	World Intellectual Property Organization
WITS	World Integrated Trade Solution
WTO	World Trade Organization
WVS	World Value Survey

Executive Summary

Over the past two decades, Pakistan's per capita GDP growth has been low. Periods of relatively fast growth have been interrupted by the accumulation of external vulnerabilities that tend to result in balance of payments crises, leading to abrupt halts to growth. A model of growth that is driven by consumption and government expenditure rather than by investment and exports is at the core of Pakistan's growth challenge. As identified in 2019 in *Pakistan@100: Shaping the Future (2019)* report, to become an upper middle-income country by its centenary in 2047, Pakistan needs to accelerate and sustain growth at 6 to 8 percent per year. Three years later and hit by the disruptive effects of the COVID-19 pandemic, Pakistan has diverged further from that outlined path. Thus, achieving the objective of reaching upper-middle-income status by 2047 will require returning to a path of sustained and focused structural reforms.

This report looks at how Pakistan can achieve this path of higher and sustained economic growth. It builds on the analysis and stakeholder discussions conducted as part of the *Pakistan@100: Shaping the Future (2019)*, the *Pakistan Systematic Country Diagnostic: Leveling the Playing Field (2020)*, and the *Creating Markets in Pakistan: Country Private Sector Diagnostic (2021)*, as well as on a wealth of local and international analysis.

The premise of this report is that Pakistan's growth is stunted by its inability to allocate all of its talent and resources to the most productive uses. Underlying that inability are various distortions, either introduced by policy decisions, or unaddressed by them. Distortions can take many forms. Some examples are taxes, subsidies, size dependent industrial policies, trade restrictions or gender norms (Figure E.1). Taken altogether, these distortions create powerful incentives for firms and households to allocate resources in ways that are socially suboptimal, while also discouraging innovation and productivity upgrading.

Distortions affect the way land and capital are allocated. For example, distortions in the form of differences in direct tax rates tend to make it more profitable to invest in real estate relative to manufacturing or tradable services. And because the size of the tradable sector tends to be associated with growth, this reduces growth potential. Within tradables, high import duties make it more profitable for firms to sell domestically rather than exporting. For example, in Pakistan, a 10 percent import duty on a given product increases profits of selling domestically relative to exporting by 40 percent on average. Firms that decide to embark upon export-oriented manufacturing despite these adverse incentives face a further distortion: if they want to innovate, they miss out on export subsidies. It is 80 percent more likely for a potential exporter that decides to export a traditional product (e.g., apparel) to be eligible for an export subsidy, than for one that decides to innovate and export a new product. This is because export subsidy schemes target mostly well-established, unsophisticated export products and can provide up to a 30 to 35 percent boost in profits.¹ In agriculture, for example, subsidies and support prices for specific crops coupled with additional subsidies on key inputs (e.g., water) induce farmers to allocate land to sugarcane rather than diversifying into other crops that would fetch better prices internationally, or that embed less water.

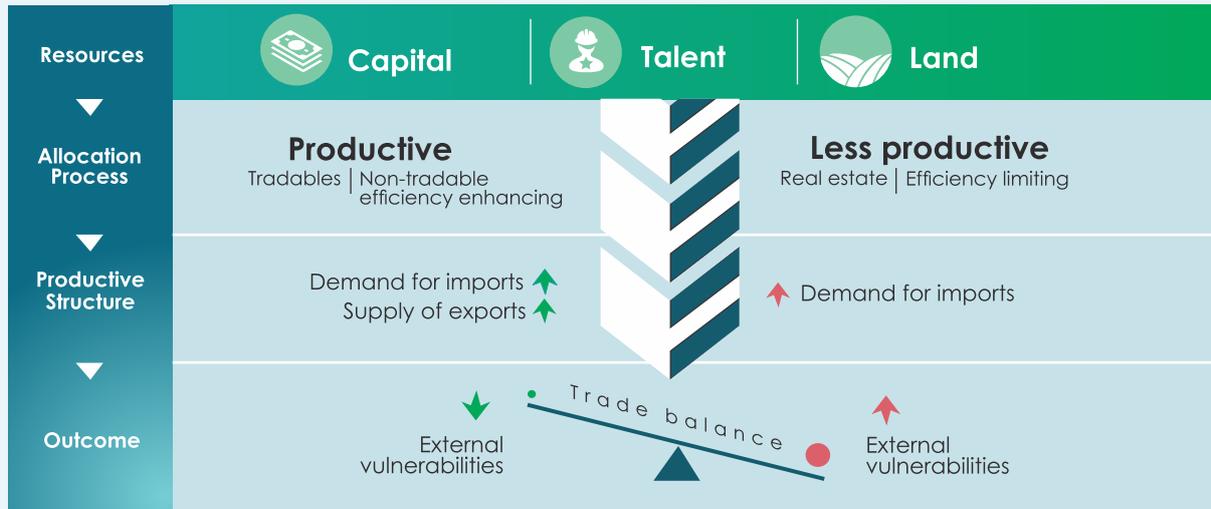
Talent is also misallocated because of distortions. While females in Pakistan have made strides in terms of educational attainment, gender norms often mean that this accumulated human capital is underused because females do not participate to their potential in the labor force. But those who are willing to participate face a coordination problem. Consider first the demand side, in the case of manufacturing. The share of females in total manufacturing employment is only about 4 percent. It therefore may not pay off for firms to make the necessary investments to accommodate female workers (e.g., dedicated spaces in plants, restrooms, transport, etc.) if female employment does not reach a certain level. From the supply side, females might not be willing to work in a factory without dedicated spaces for females (or where there is not a critical

¹ Export subsidies, known as DDT or DLT have rates of 1, 2, or 4 percent of export values, for a set of eligible products (mostly well-established, traditional, and low-sophistication products). As a share of value added, these incentives can reach up to 30-35 percent in some sectors. See Box 0.5

mass of women working), and then decide to not work at all. The distortion here is related to a market or coordination failure that is in turn associated with a gender norm, and unaddressed by policies (e.g., mandatory dedicated spaces for female workers).

Figure E.1:

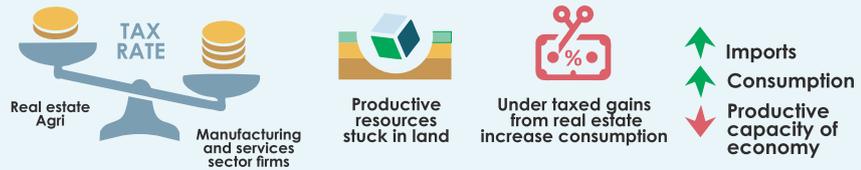
PAKISTAN'S GROWTH CHALLENGE: Swimming Out of Quicksand



Why is Pakistan stuck in a cycle of repeated external crises? Distortions have led to a misallocation of resources

Policy induced

1. Under taxation of real estate leads to productive resources being diverted toward a non-tradable sector



Policy induced

2. Cascading import duties result in 'export substitution'



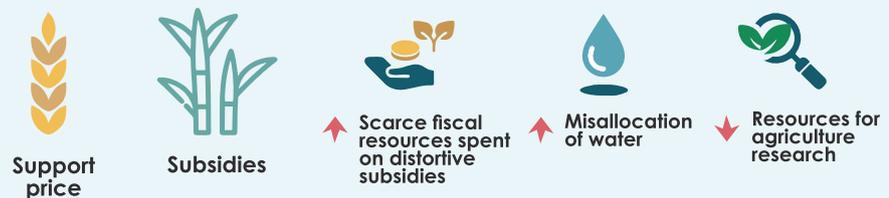
Norm induced

3. Gender norms limit female labor force participation



Policy induced

4. Subsidies and support prices for certain crops limit diversification in agriculture



This report looks at Pakistan's performance across



...and the impact of distortions on resource allocation in these three areas, and hence Pakistan's overall growth performance

This report focuses on how Pakistan has performed in three areas that are at the core of the growth process: productivity, growth of firms and investment, and female labor force participation. It presents new evidence on firms' productivity dynamics across different sectors of the economy, the patterns of firms' growth and investment, and the allocation of female talent. It focuses on how the decisions of firms-farms- or individuals are shaped by some crucial distortions that exist in Pakistan and proposes several policy reforms or interventions to eliminate or reduce the extent to which these distortions lead to resource and talent misallocation. It is structured into seven standalone chapters (or policy notes) that summarize analyses conducted in seven background papers. The main findings of these chapters are summarized below.

The first section focuses on productivity dynamics across sectors, and its main drivers.

Aggregate productivity in Pakistan has been stagnant or declining during the past decade, mostly driven by firms and farms becoming less productive over time. The COVID-19 pandemic exacerbated the decline in firms' productivity, with a contraction of 23 percent in 2020.² Productivity declines are seen across different types of firms located in different parts of the country, though stronger contractions can be identified for family-owned firms. In the agriculture sector, focusing on Pakistan's main crops, while yields have grown over the past decades, this has been due to a more intensive use of inputs. At the same time, total factor productivity has been falling for most crops, although, in this case, with provincial heterogeneity: Punjab and Sindh have been relatively good performers, compared with Khyber Pakhtunkhwa (KP) or Balochistan.

Allocative efficiency gains – visible in the reallocation of resources away from low productivity and into high productivity firms – have not been strong enough to compensate for declining within-firm productivity. Among studied firms, some allocative efficiency gains were observed, although these were modest. In agriculture, the analysis of farms in Punjab shows instead systematic allocative efficiency losses over the period, with resources flowing from high to low productivity farms. The empirical analysis in the report is complemented with a theoretically grounded quantification of distortions that shows that the aggregate productivity gains of eliminating distortions stand at 30 percent, with about 18 percent due to the improved allocation of resources and 12 percent due to the entry of more firms into productive activities.

A substantial portion of firms' productivity decline is related to Pakistan's inward turn.

On the export side, the report unveils a significant productivity premium for exporters that is linked both to the selection of better performers into export markets and to learning by exporting. However, during the period of analysis the share of exporting firms in the economy fell, as did the share of exports in the total sales of those firms that continued to export. The export-productivity link points to the importance of export promotion, but the results of an impact evaluation of one of the most important export promotion policies in Pakistan: the Duty Drawback of Taxes (an export enhancement, or subsidy scheme) show a small positive impact overall and a high cost/benefit ratio. It also shows that the scheme induced the reallocation of exports toward products that were eligible for high-subsidy rates, and that also happened to be well-established and low sophistication products. Thus, the scheme exacerbated the limited diversification that the export bundle has shown over the past two decades.

On the import side, high import duties, particularly on intermediates have negatively affected firms' productivity, as well as sales and wages. While much of the world embraced the global value chain (GVC) 'revolution', Pakistan increased its trade costs instead. Import duties, for example, increased from 15 percent on average in FY10 to a maximum of 21.3 percent in FY20, implying higher costs of importing intermediates and capital equipment. Between 2012 and 2020, all sectors in manufacturing experienced increases in import duties on their relevant intermediates. New evidence presented in Chapter 3 shows that increases in import duties in upstream sectors have reduced the productivity, sales, and wages of firms downstream. A 1 percent increase in upstream duties is associated with a 0.6 percent decline in productivity downstream, a 0.5 percent reduction in sales, and a 0.6 percent reduction in wages. Results also show that schemes that

² Available data do not allow to check whether there was a rebound in 2021. However, it is likely that this was the case.

provide exemptions on duties paid by exporters on imported intermediates have not been fully effective in insulating them from import duty distortions because they have not been accessed by all exporters. Smaller exporters find it cumbersome to file for duty exemptions because of administrative burdens and lengthy processes that act as a fixed cost and disproportionately affect small firms. Thus, the negative productivity effects of upstream import duties on firms downstream are the largest for small exporters, but negligible for large ones.

The last chapter in the section turns its attention to productivity in a key sector from the point of view of employment, poverty reduction and export orientation: agriculture.

The farm and district- level analyses for the agriculture sector show that climate change poses a threat to Pakistan's agricultural productivity.

Crop productivity in Pakistan is highly susceptible to elevated temperatures and rainfall variations, putting the crop segment at severe risk due to climate change. Crops tend to be negatively affected by higher maximum temperatures (wheat and sugarcane, in particular). On the other hand, higher minimum temperatures negatively affect wheat and rice, while they benefit sugarcane yields. More abundant precipitations and humidity tend to negatively affect yields across all crops (the link between precipitation and sugarcane being the only exception), and wind negatively affects rice and sugarcane yields. These estimates, coupled with the experience of the devastating impact of extreme climate events on agriculture output and yields, and the fact that climate change will make extreme temperatures more common, point to the importance of investing in technologies that contribute to adaptation to climate change.

The second section turns its attention to the challenge of private investment, the role of FDI, and the links between investment and firms' growth in Pakistan

Part of the decline in productivity is associated with low investment rates, particularly in tradable and productive sectors, which leads to limited growth of firms. Private investment rates in Pakistan declined from an average of 14 percent of GDP in the 2000s, to 11.1 percent in the 2010s. Foreign direct investment (FDI) did not contribute to boosting investment either, as it has remained below 1 percent of GDP over the past decade. In manufacturing, once depreciation of worn-out capital is netted out, investment rates as a share of value added were at 9 percent country-wide, according to the latest Census of Manufacturing Industries, but can be as low as 1 and 3 percent in Balochistan and KP, and 11 and 8 percent in Punjab and Sindh.

Pakistani firms are smaller in size than in most comparator countries, and struggle to grow. Large productive firms in low- and middle-income countries tend to be more innovative, export more, provide more training to their workers, and are more likely to use internationally competitive technologies and standards. However, Pakistan shows lower-than-average proportions of very large firms. In the export sector, this is especially apparent. International evidence shows that 'export superstars' are the ones driving export growth and diversification. However, on average, exporters in Pakistan are small. For example, an average Pakistani merchandise exporter ships US\$1.4 million worth of merchandise a year, while the average Bangladeshi merchandise exporter ships US\$3.8 million. For knowledge-intensive services, the typical Pakistani exporter is about two thirds the size of the typical merchandise exporter. However, economies of scale in knowledge intensive services are likely not to be as important for competitiveness as in merchandise. Relatedly, firms' growth patterns are less dynamic in Pakistan than elsewhere. In Pakistan firms struggle to grow large as they grow old. A young, formal firm in Pakistan that has been in operation for 10 to 15 years is about the same size as a firm that has been in operation for more than 40 years. Instead, in better functioning markets, evidence shows an 'up-or-out' dynamic. Firms either grow or exit. In Pakistan, and again focusing on exporting firms, the results show that the probability of a small exporter becoming large within a five-year period is lower than observed in comparators such as Egypt, Bangladesh, or China. Limited growth of firms is in part related to the fact that Pakistan relies extensively on size-dependent policies, which create incentives

for firms to stay small, de jure or de facto, and also because the Government of Pakistan actively borrows from the banking sector, crowding out private sector investment, and therefore firms' growth.³

Part of the borrowing of the Government that crowds out private investment is used to support firms that may be unviable without state support. Pakistan exhibits a relatively large share of firms known as 'zombies', that is, firms that are loss-making for at least three consecutive years (in 2016, Pakistan had the highest share of zombie firms among comparator countries). State-owned enterprises (SOEs) and family-owned domestic firms are more likely to be zombie firms, according to this definition, and to display low investment rates. Compared with non-family-owned domestic firms, state-owned and family-owned firms realize 6.7 and 3.9 percentage points lower profits than comparable non-family-owned private domestic firms. The fact that these zombie firms survive, rather than being liquidated and releasing resources to more productive and profitable firms, is indicative of distortions related to soft-budget constraints (e.g.: government assistance to SOEs), subsidies, weak competition, and inadequate insolvency regimes. In the case of SOEs, a large portion of them operate in upstream sectors such as transport, financial or energy, which implies that their inefficiencies spillover the rest of the economy through input-output linkages.

High profitability, however, is not necessarily associated with high productivity but instead with high protection. Firms in sectors protected from import competition realize higher financial returns than those operating in low protection environments, for a comparable level of productivity. Indeed, an increase in import duties by 1 percentage point increases profit margins by 4 percent on average.⁴ These firms operating in protected sectors also display lower export as a share of their revenues and employees, compared with those operating in more open sectors. This is consistent with the fact that import duties implicitly act as export taxes, by providing a relative profit boost to domestic sales.

To increase investment rates and bring in large firms that could add dynamism to markets, the country could leverage its untapped FDI potential – estimated at US\$2.8 billion annually. Pakistan's untapped FDI potential is estimated at around US\$2.8 billion per year. Tapping that potential would lead to more than doubling current inflow levels. This estimated untapped potential FDI does not imply a ceiling but rather what would be expected given Pakistan's characteristics, and average policies and implementation capacity. However, attracting export oriented, or efficiency enhancing FDI will require active policies to reduce trade costs, streamline the regulatory environment, and reduce policy uncertainty. Currently, the type of FDI in Pakistan is mostly inward oriented, with limited productivity spillovers to the rest of the economy. Evidence presented in Chapter 6 shows that in Pakistan there are positive but limited productivity spillovers from FDI in upstream sectors. These spillovers are associated to FDI in efficiency enhancing upstream services, and accrue disproportionately to less advanced firms, suggestive of a process of learning. There is no evidence of horizontal FDI spillovers.

The final section moves the focus away from firms and farms onto individuals and examines how talent is being allocated. It focuses specifically on female labor force participation.

Fast and sustained growth requires tapping into all of Pakistan's talent and allocating it to its best use. However, Pakistan displays far lower female labor force participation (FLFP) rates than expected for a country at its level of development. In 2019, there were only two countries in the lower-to-middle per capita GDP range and nine overall with lower FLFP rates than Pakistan. In addition, for those women who do participate in paid employment, constraints limit their set of employment options. Altogether, this leads to a misallocation of talent.

Pakistan can accrue GDP gains ranging between 5 and 23 percent by closing the female employment gap relative to its peers, depending on the extent of implementation of complementary labor market policies. Chapter 7 presents new analysis on female employment and GDP gains for Pakistan if the country were to close its female employment gap relative to Bangladesh and a hypothetical country representing an

³ Pakistan's banks' exposure to sovereign debt measured as the ratio of banks' sovereign debt holdings to total assets was above 40 percent in 2021, the highest across all countries analyzed (source: Fitch Connect, IMF Financial Soundness Indicators, Monetary and Financial Statistics, and World Economic Outlook databases).

⁴ This is consistent with the typical manufacturing sector's share of value added in output being one third, and the profit share of value added being in turn two thirds.

average for lower middle-income countries.⁵ About 7.3 million new jobs would be created if Pakistan were to close its female employment gap with Bangladesh, and the share of working age women in employment would increase from its 2018 level of 22 percent to 34 percent.

In Pakistan, educational attainment and FLFP show a U-shaped relationship, which largely disappears when soft connectivity improves. Working age women who lack formal education or who have very high levels of education are more likely to participate in the labor market, while medium levels of educational attainment are associated with lower FLFP. Poverty trumps gender norms associated with low FLFP (as poor households tend to also have low educational attainment), while these gender norms affect fewer households with higher incomes where women's educational attainment tends to be higher. For intermediate levels, supply and demand constraints are at play constraining FLFP. On the supply side, gender norms are likely more binding than at higher levels of educational attainment. On the demand side, jobs for women at these levels of education might not be available (not only because of possible biases in hiring, but also because of additional costs that employers face in the form of segregated spaces, restrooms, or provision of safe transport).⁶ Connectivity helps increase options for female employment because it reduces the costs of working remotely, helps expand certain services sectors, improves education tools at schools and in homes, and increases exposure to a more diverse set of views. Indeed, the results in Chapter 7 show that improved connectivity, in the form of high internet penetration at the district level is particularly beneficial for women with medium levels of education. Overall, FLFP in Pakistan is constrained by both demand and supply side factors and a multi-pronged policy approach that looks at both factors is needed to bring about change.

Based on these results, this report outlines a transformative reform agenda that could offer substantial payoffs to Pakistan, and that focuses on improving the way resources and talent are allocated. The reform agenda has been made even more relevant by the global conditions that Pakistan's economy currently faces. The aftermath of the COVID-19 pandemic has triggered supply chain disruptions that have increased costs of production and fueled inflation in developed and developing countries alike. Central Banks in advanced economies have responded by tightening monetary policies, thus tightening global financial conditions, and incentivizing a flight to quality that will likely increase the bar in terms of attracting investment. The war in Ukraine has added still more pressure through increased commodity prices that increase inflation and fiscal and external vulnerabilities. In this context, a reform agenda that reduces distortions to improve resource allocation and productivity upgrading is of paramount importance.

The proposed reform agenda needs to be implemented in a sequenced manner to internalize Pakistan's complex political economy.

The distortions in place in Pakistan are to a large extent the result of powerful 'insiders', albeit limited in number, who influence the policy-making process to maximize their own benefits.⁷ In agriculture, for example, these are large landowners that benefit from subsidy schemes or underpriced inputs for a narrow set of crops (e.g.: sugar or wheat). In domestic-oriented manufacturing, these are large businesses that secure import protection, often at effective rates above 100 percent. In export-oriented manufacturing, these are large exporters of well-established products, such as textiles and apparel, that receive a disproportionate share of export subsidies, including Drawback of Local Taxes and Levies (DLTL), Export Finance Scheme (EFS) and Long-Term Financing Facility (LTFF), and in some cases also subsidized energy. In services, these are financial institutions that finance large portions of relatively low-risk government debt, or real estate related sectors that face a reduced tax burden relative to other sectors of the economy.

Distortions are often at the expense of a larger group of outsiders, and fundamentally, at the expense of fast and sustained growth. 'Outsiders', in this context can be largely defined as those not benefiting from

⁵ Bangladesh was chosen for the analysis as both Pakistan and Bangladesh are at a similar level of development, display similarities in the employment patterns for men and share cultural preferences and norms that result in fewer women seeking employment in specific sectors, such as the services sector.

⁶ In manufacturing, for example, female employment is extremely low. The latest Census of Manufacturing Industries conducted in 2015/16 shows female employment was only 4 percent of total employment. Visits to manufacturing establishments during the preparation of this report revealed that it is the more sophisticated firms that have active interventions to increase FLFP, including the provision of safe and dedicated transport, dedicated space in the plant and in some cases even childcare

⁷ For a more detailed discussion on insider-outsider dynamics in the political economy of reforms in Pakistan, see World Bank, 2020: Pakistan Systematic Country Diagnostic.

preferential conditions that these distortions introduce for the insiders. These are, for example, consumers that pay higher prices due to high import protection, subsistence agriculture farmers that do not benefit from high procurement prices or subsidies on output or inputs, micro or small enterprises that are de facto excluded from subsidy schemes or tax exemptions because of the complexity of the schemes (e.g. the Duty and Tax Remission for Exporters, DTRE), those enterprises (existing or potential ones) that are de jure excluded because they export non-traditional products (e.g. in the cases of DDT and DLTTL that mainly focus on traditional export products), or females that face disproportionate costs to participate, inter alia, in the labor force.

These insider-outsider dynamics make reforms to level the playing field extremely challenging, requiring both strong political leadership and civil society. A three-step approach is proposed, that starts with reforms to level the playing field through the removal or reduction of distortions, followed by interventions to support growth in the context of a more level playing field. Finally, to ensure the sustainability of these changes, there is a need for increased evidence-based policy-making and greater transparency, so that the civil society has the elements needed to demand efficiency-enhancing reforms. This Executive Summary presents key recommendations while the full set of recommendations and their proposed prioritization can be found in the Overview as well as in each of the chapters.

First, remove distortions to improve aggregate productivity through a better allocation of resources, by focusing on:

- **Tax policy:** Widen the tax net, harmonizing tax rates across sectors, to ensure a level-playing field and facilitate the reallocation of resources from non-productive non-tradables (e.g. real estate) and into more productive sectors (tradable or efficiency enhancing non-tradables).
- **Trade policy:** Gradually reduce the anti-export bias of trade policy by reducing import duties, to facilitate the reallocation of resources, from domestic to outward oriented activities.
- **Export schemes:** Expand eligibility of export subsidies to favor export growth and diversification.
- **Size-dependent policies:** Re-consider size dependent industrial policies, to reduce incentives for firms to stay small de jure or de facto.
- **Agriculture subsidies:** Gradually phase out subsidies and price support in the agriculture sector, to facilitate a market-based allocation of land, labor and equipment based on comparative advantage, and re-allocate the created fiscal space toward investment in climate smart technologies and infrastructure for crops and livestock, and agriculture extension services and research.
- **Working conditions for women:** Enact gender unbiased hiring policies, enforce existing legislation on work-place harassment, and consider wage subsidies to boost female employment at intermediate skills levels, to improve the allocation of talent in Pakistan.
- **Female transport:** Invest in safe, dedicated transport and improved soft connectivity to facilitate remote work, to boost female labor force participation and productivity more generally.

Second, to ensure maximum positive impact of the alleviation of distortions, consider the following complementary reforms.

- **Fiscal space:** Crowd in, rather than crowd out private investment by increasing the tax base and the efficiency of spending (including SOE reform ranging from improved governance and management to privatization in areas in which firms are not viable and state involvement unrequired), to reduce the borrowing needs of the consolidated government thereby releasing resources for the private sector

to borrow and grow.

- **Credit:** Reallocate subsidized financing for exporters away from working capital (the Export Finance Scheme) and into investment and innovation focused financing (the Long-Term Financing Facility).
- **Managerial practices:** Re-allocate funds away from current unconditional subsidies to exporters, into support on a cost-share basis aiming at upgrading firms' managerial practices, with a focus on those with export potential, and subjecting interventions to impact evaluations, to assess impact and possibilities of their scaling up.
- **Business climate:** Reduce regulatory complexity, harmonize the general sales tax (GST) across provinces, and business licensing and registration processes to reduce costs of doing business.
- **Investment framework:** Harmonize investment laws to attract more foreign direct investment.
- **Insolvency regime:** Upgrade insolvency laws to reduce the costs of liquidating unviable firms.

Third, subject all interventions that entail the use of public funds to rigorous impact evaluations, and create a dynamic loop from evidence to policy making. Engage academia to link to the public sector and make data on direct support to firms or individuals as transparent as possible.

- **Costing of expenditures:** Mandate by law that all tax expenditure and subsidy proposals are properly costed before reaching decision-making stage and make the results of the costing public.
- **Feasibility Analysis in PSDP Process:** Encourage the participation of academia in the consideration of Public Sector Development Program (PSDP) from Central and Provincial Development Working Party (CDWP), to ensure a rigorous assessment of project feasibility.
- **Impact evaluations in large PSDP projects & Export Development Fund (EDF):** Mandate by law impact evaluations of PSDP projects as well as EDF allocations that incur in substantial expenditures of public funds and make the results public.
- **Academia-Public sector links:** To accomplish these recommendations, involve the Academia. Create linkages between academia and the public sector and invest in impact evaluation capabilities. Start by building capacity in this area within the Pakistan Institute of Development Economics, while expanding the network of linkages to other universities and think tanks across the country.

Chapter 0

Overview

Context

Over the past two decades, Pakistan's real GDP per capita growth rate has been slow, at an average of 1.7 percent per year—less than half the regional average. Real GDP grew at an average of 4.1 percent per year during this period. However, fast population growth, at around 2 percent per year, has resulted in a modest annual real GDP per capita growth of 1.7 percent. Regionally, Pakistan's performance is underwhelming. During the same period, average GDP per capita growth in South Asia stood at 4.0 percent per year, 2.3 percentage points higher than Pakistan. Similarly, Pakistan's growth is also below average when benchmarked against structural or aspirational comparators (Figure 0.1).⁸

Figure 0.1: Pakistan's real GDP per capita growth rate has been low compared with peers
(Real GDP per capita growth, average 2000–2020)



Source: World Development Indicators.

Figure 0.2: Real GDP growth and import growth are strongly linked
(Real GDP growth and import growth, FY00–FY21)



Source: Pakistan Bureau of Statistics and State Bank of Pakistan.

Periods of higher growth in Pakistan have been associated with large current account deficits. Over the past two decades, Pakistan has periodically experienced short periods of relatively fast growth followed by episodes of slower growth. This inability to sustain high growth for extended periods is linked to growth spurts coinciding with an increase in imports (Figure 0.2), systematically lower exports and, consequently, larger current account deficits and wider balance-of-payments (BOP) imbalances. Since the turn of the century, Pakistan has faced current account deficits in 18 out of 22 years. To correct these recurring imbalances, the external sectoral adjustment that would have taken place in the context of a market-based exchange rate regime—an exchange rate depreciation would have made imports more expensive and exports more competitive—was to some extent prevented by large inflows of foreign assistance that the country received,⁹ remittance inflows from Pakistan's large diaspora (particularly in the Gulf Cooperation Countries)(see Box 0.1 for a discussion on the existence of Dutch-disease¹⁰ effects in Pakistan), and sizeable

⁸ Two comparison groups are used for the analysis in this report. Structural comparators: Bangladesh, Egypt, Ethiopia, and India; and Aspirational comparators: Indonesia, Mexico, Turkey, and Vietnam. These comparator countries have been selected using the World Bank CEM2.0 Country Scan Tool and local country context.

⁹ Between 2000 and 2019, Pakistan received US\$43 billion in net official development assistance and official foreign aid. Average annual inflows over this period exceeded US\$2.0 billion. Source: World Development Indicators.

¹⁰ Remittance inflows to Pakistan have grown sharply over the past two decades, increasing from 1.1 percent of GDP (US\$1.0 billion in FY00), to 4.5 percent of GDP in FY10 (US\$8.9 billion), and further to 8.5 percent of GDP (US\$29.4 billion) in FY21.

interventions in the foreign exchange market that artificially kept the PKR/US\$ parity overvalued during much of the 2010s.¹¹ Recent research suggests that Pakistan's growth is in part BOP-constrained, whereby if growth exceeds 3.8 to 4.2 percent, external imbalances are likely to occur.¹²

Box 0.1: Does Pakistan's economy suffer from the Dutch disease?

Sudden and large inflows of foreign exchange into an economy can undermine the performance of other productive sectors as they appreciate the real exchange rate, affecting the profitability of other tradable sectors. This phenomenon is known as the “Dutch disease”. While the term originated in a situation in which extra wealth from an export boom due to a discovery of a large nature resource, it also applies more generally to situations in which large inflows of foreign exchange lead to a real exchange rate (RER) appreciation, and thus negatively affect the profitability of other tradables in the economy. These large inflows can be related to, for example, foreign aid or remittances (Gelb and Associates, 1988; Kojo, 2014; and Auty, 2001).

Pakistan too has witnessed periods of abundant inflows of foreign exchange in the form of external loans, grants and remittances. These are linked with two important developments: (i) migration of Pakistani workers to the Gulf Cooperation Countries (GCC) after the oil price boom in the 1970s, a trend that has persisted since then. As of December 2019, 96 percent of Pakistan's 11 million migrants were mostly concentrated in the GCC, with Saudi Arabia and the United Arab Emirates hosting most workers and the region contributing almost 70 percent of Pakistan's remittances, which reached US\$29.4 billion in FY21. In comparison, Pakistan's total exports of goods and services in FY21 amounted to US\$31.7 billion; and (ii) the country's participation in the War Against Terror as an important ally of the United States in the 2000s, during which it received significant military and economic assistance from the United States.¹³

Foreign aid and remittance inflows have been empirically linked with symptoms of the Dutch disease in Pakistan. The rapid increase in remittances to Pakistan during 1980–2010, caused a gradual shift in resource allocation through increased consumption of non-tradables and imported products. The relative profits of producing tradables declined instead. The net effect was a decline in the country's export competitiveness and an increase in imports, which is symptomatic of the Dutch disease (Makhlouf and Mughal, 2010). Similarly, aid inflows into Pakistan have been linked with Dutch-disease effects in Pakistan (Vos, 1998) and all categories of capital flows have been found to exert significant appreciating effects on the RER (Ahmed, 2009). These results are in line with Rajan and Subramanian (2011), who find in their analysis of aid-receiving countries that foreign aid negatively impacts growth in exportable sectors, and that the main channel through which this impact is felt is the exchange rate overvaluation induced by aid.

Current account deficits are not good or bad, per se. Current account deficits driven by fast investment expenditure, for example, expand future production capacity and signal future growth to investors willing to finance it. However, Pakistan's frequent current account deficits are linked to growth being primarily driven by private consumption and government spending. Private consumption constitutes 71.0 percent of total aggregate demand (AD) and contributes the most to AD growth, and this share has remained almost constant over the past two decades (Figure 0.3). Government consumption and investment have the next largest share in overall AD at 11.0 percent. This consumption-based growth (coupled with low domestic saving rates, see Box 0.3), enabled to some extent by growing remittances, has led to more imports and wider trade deficits. Similarly, higher spending by the Government has contributed to both larger current account deficits, as well as fiscal deficits. Since 2000, the consolidated fiscal deficit has averaged 4.7 percent of GDP, while public debt as a share of GDP stood at 76.0 percent at end-June 2021 (Figure 0.4).

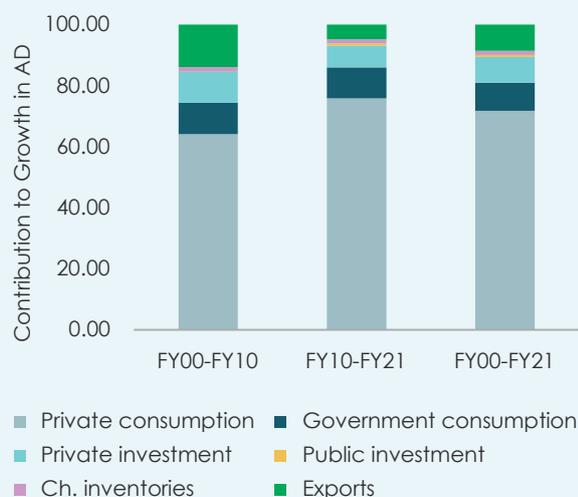
¹¹ In 2016, the IMF estimated that Pakistan's real effective exchange rate (REER) was overvalued by 10 to 20 percent. IMF Country Report No. 17/212. See also IMF Country Report No. 22/27.

¹² For more details, see Raza, 2021 and Rosbach and Aleksanyan, 2019.

¹³ During FY02 to FY10, Pakistan received an estimated US\$18.8 billion in aid from the United States. Of this, US\$12.6 billion was for security-related purposes whereas the remaining was for economic development. (Zaidi, 2011)

Figure 0.3: Growth in aggregate demand is mainly driven by growth in private and public consumption...

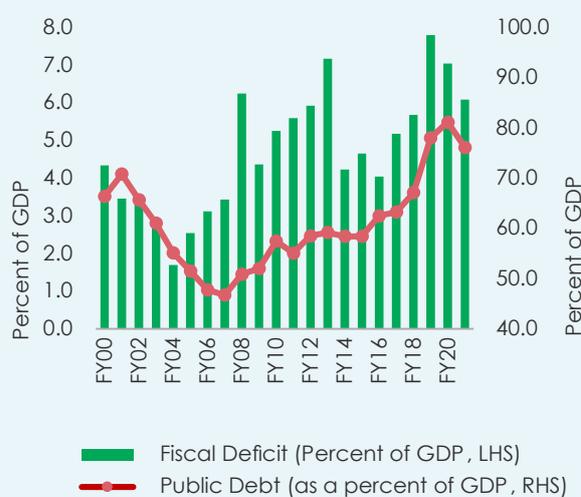
(Contributions to growth in aggregate demand (AD) as a share of total AD growth)



Source: Pakistan Bureau of Statistics.

Figure 0.4: ...with implications on an increasingly large fiscal deficit and, therefore, the level of public debt

(Fiscal deficit and public debt, FY00–FY21)



Source: Pakistan Bureau of Statistics. Note: Debt data for FY10–FY21 include guarantees to state-owned enterprises.

This consumption-based growth has affected the expansion of Pakistan's productive capacity, which limits growth expectations. Consumption-based growth (and low domestic savings rates) is the flipside of the coin of Pakistan's low investment rates, in turn the result of policy-induced or unaddressed distortions. Trends over the past decade reveal challenges in the external and productive sector. The contribution of exports and private investment to overall growth in AD fell from 24.1 percent during 1999/00–2009/10, to 11.9 percent during 2009/10–2019/20.¹⁴ During 1999/00–2009/10, exports and private investment added, on average, 1.2 percentage points to AD growth. This contribution *halved* to an average of 0.6 of a percentage point during 2009/10–2019/20. As a result, the economy became less export- and investment-oriented. Investment and exports are critical for future growth as they contribute to productivity growth and lead to job creation, whereas consumption increases growth in the near term but creates lower expectations for future growth.

The lack of productivity growth is also evident in the slow process of structural transformation. Close to 40 percent of workers continue to be locked in the agriculture sector, which contributes only about 20 percent of total value added (Figure 0.5 and Figure 0.6). The difference implies that labor productivity (measured as value added per worker) in agriculture is low. This is a typical feature of developing economies, where workers rely on the agriculture sector as a fallback option when better jobs in the manufacturing and services sectors are scarce. Improving the country's productive capacity is thus paramount to accelerating movement from low productivity agriculture into the more productive activities outside agriculture.

¹⁴ The decomposition of contributions to growth from the demand side focuses on aggregate demand rather than on GDP.

Figure 0.5: The employment share in agriculture has fallen but continues to be high...

(Sectoral employment shares, 2000–2018)

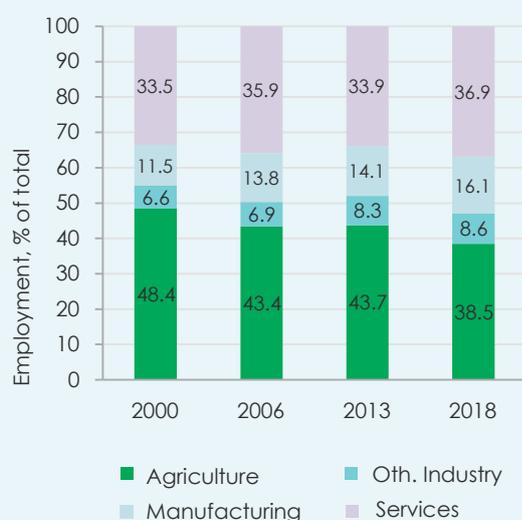
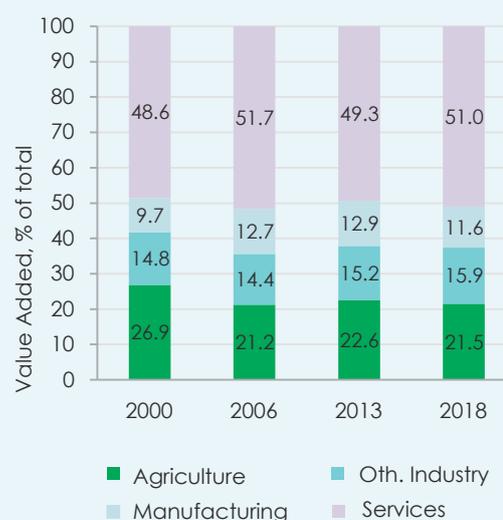


Figure 0.6: ...while the value-added share of agriculture is rather low

(Sectoral value-added shares, 2000–2018)



Source: GGDC/UnU-Wider Economic Transformation Database.

A key challenge is that Pakistan suffers from a structural productivity deficit in the non-agriculture sectors. This implies that labor reallocations out of the agriculture sector contribute less to productivity growth than in other developing economies. Between 2000 and 2018, the share of employment in the agriculture sector declined by 10 percentage points, while it increased by 5, 3, and 2 percentage points in the manufacturing, services, and non-manufacturing industry (mining, utilities, and construction) sectors, respectively (Figure 0.5). While this shift was slower than among comparator economies that grew fastest over this period (Bangladesh, Ethiopia, India), it was similar to the shifts observed in Turkey, Indonesia, and Egypt. What distinguishes Pakistan, however, is that the contribution of these labor shifts across sectors contributed only to limited productivity gains (Figure 0.7). The reason for this is that, in the early 2000s, productivity outside agriculture was low as well. Labor productivity in the manufacturing and services sectors was only 30 and 150 percent higher than in the agriculture sector—a much smaller gap than among all structural and aspirational peers (except for the services sector in Egypt) (Figure 0.8). This implies that Pakistan relies more on productivity growth within the non-agriculture sectors than other developing economies.

Figure 0.7: Aggregate productivity was affected by low sectoral contributions of within and across sector productivity gains

(Labor productivity contributions by sector and type, Pakistan and comparators)

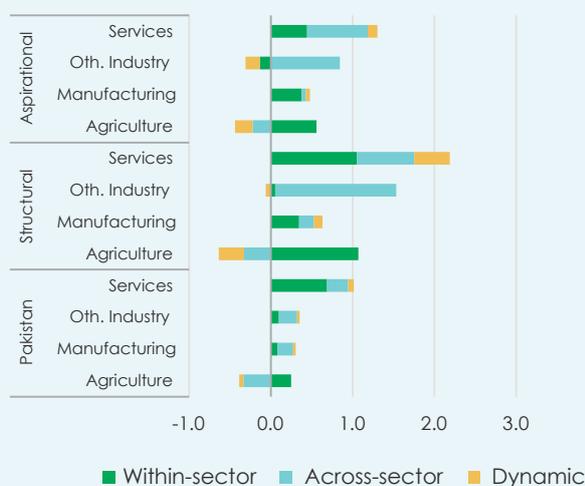
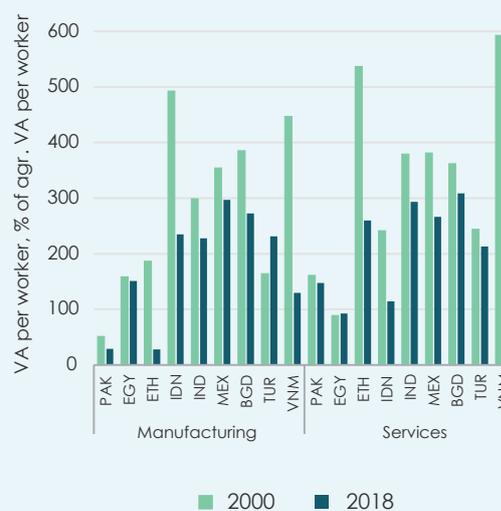


Figure 0.8: The labor productivity gap between the agriculture and non-agriculture sectors is small

(Value added per worker, percentage of agriculture)



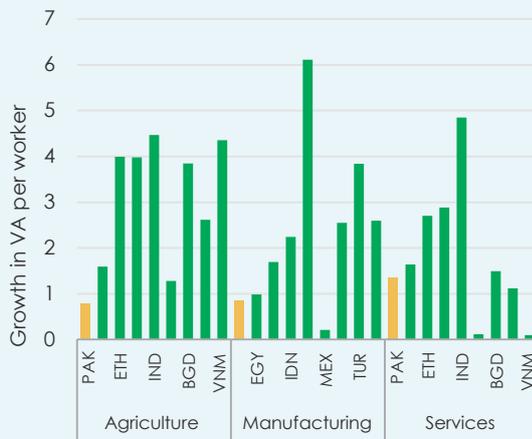
Source: DC/UnU-Wider Economic Transformation Database

However, productivity growth in the non-agriculture sectors was also very low. Between 2000 and 2018, growth in value added per worker grew by only 0.9 percent per year in the manufacturing sector and by 1.3 percent in the services sector (Figure 0.9). This is much lower than the respective averages within sector productivity growth rates of 2.5 and 1.9 percent, respectively, displayed by peers. Compounded with the structural productivity deficit in the non-agriculture sectors highlighted above, Pakistan's low within-sector productivity growth thus held back aggregate productivity growth in the economy.

The low productivity growth within agriculture presents a further challenge for Pakistan. Annual growth in agriculture value added per worker amounted to 0.8 percent, much lower than the average rate of 3.8 percent among Pakistan's structural and aspirational peers (Figure 0.9). Economic theory predicts that productivity growth in agriculture is a key driver of structural transformation when it contributes to an increased supply of agricultural produce and lower prices of food allowing households to spend more on non-agricultural items. In contrast, when productivity growth in agriculture stagnates (as results in Chapter 4 will reveal), this can slow down the process of structural transformation. Boosting productivity growth in agriculture is thus an important 'push' factor that accelerates structural transformation, facilitating the movement of labor across sectors.

Figure 0.9: Within-sector productivity growth has been low in Pakistan

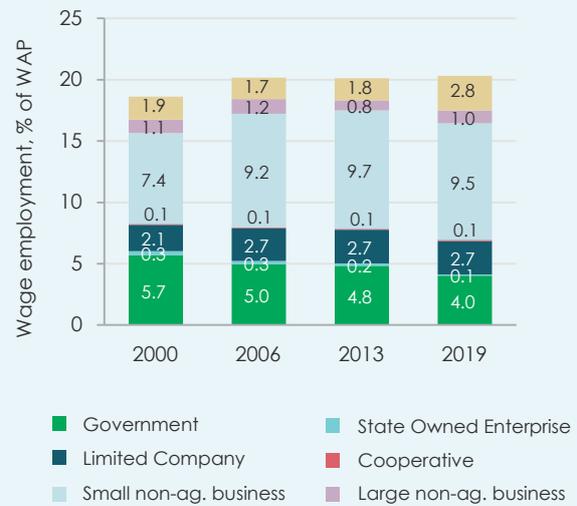
(Growth in value added per worker, Pakistan and comparators)



Source: GGDC/UnU-Wider Economic Transformation Database.

Figure 0.10: Jobs within firms continue to be scarce

(Wage employment as a share of working age population, 2000–2019)



Source: PBS Labor Force Survey for 1999/00, 2005/06, 2012/13, and 2018/19.

A corollary of the slow process of structural transformation is that very few jobs are generated in firms. Firms are key for the creation of better jobs as economies develop, as it is within firms that workers benefit most from economies of scale and scope. However, in Pakistan only 16 percent of the working age population works directly for a firm as a waged employee. An additional 4 percent are government (local and central) employees (Figure 0.10). At 20 percent of the working age population, the share of people with waged jobs is thus very low. Moreover, this figure has hardly changed over the past two decades. In fact, since the early 2000s, there has been a decline in the share of the population with government jobs. This decline has been offset by an increasing share of the population working in non-agricultural businesses of fewer than 10 employees, which tend to be less productive. However, the share of the population working in limited companies and businesses of 10 employees or more has not changed. In this context, it is crucial to examine the role that distortions have in preventing existing firms from investing and expanding, and upgrading productivity, as well as new firms from entering the market.

Pakistan's distortion-fueled growth model has been prone to frequent macroeconomic crises and has discouraged productivity-enhancing long-term private investment. Altogether, frequent twin deficits due to consumption-driven growth have led to elevated public debt levels, increased risks to Pakistan's macroeconomic stability, and greater vulnerability to external and domestic shocks.¹⁵ That Pakistan has availed 22 stabilization and budget support programs from the IMF since 1958 is indicative of economic uncertainty. Uncertainty has costs for growth as it deters long-term investments, particularly those with large sunken costs. For instance, several years of an overvalued real exchange rate (RER) contributed to increased uncertainty with respect to a key price in the economy.¹⁶ The overvaluation of the exchange rate discouraged investments in the tradable sector, with implications on productive capacity that outlasted the period of overvaluation itself. This shows, for example, in the asymmetric response of exports to RER appreciations and depreciations in Pakistan: exports fall fast when the RER appreciates but grow slowly when it depreciates, in part due to limited capacity of the productive sector to expand when conditions improve.¹⁷

¹⁵ Current account deficits build into the stock of net foreign liabilities of a country, generating a stream of debt servicing and amortization payments that will fall on future generations. Accumulated foreign liabilities lead directly to a worsening in future current account balances through larger income outflows, while increasing the perception of country risk. Catao and Milesi-Ferretti (2014) show that the risk of a balance of payments crisis is indeed linked to the stock of net foreign liabilities, and particularly, when it exceeds 50 percent of GDP or their historical average by more than 20 percent.

¹⁶ International Monetary Fund, Country Report No.17/212

¹⁷ See Brun et al., 2020.

The COVID-19 pandemic heightened risks for Pakistan's near-term economic stability, but also opened opportunities for future growth by accelerating the digitalization process. The COVID-19 pandemic had a severe impact on Pakistan for two reasons: first, developing economies such as Pakistan were more exposed to the socioeconomic shocks that the pandemic created; and, second, because Pakistan entered the crisis with weak macroeconomic fundamentals.¹⁸ For perspective, while in advanced economies GDP is expected to be only 0.2 of a percentage point below the pre-pandemic trend in 2024, for emerging markets and developing economies (EMDE) and EMDEs in Asia, it is expected to be 6.0 and 6.6 percentage points below pre-pandemic trends, respectively.¹⁹ In the aftermath of the pandemic, policy makers in EMDEs, including Pakistan, face heightened inflationary pressures and spillovers from advanced-economy monetary tightening, together with their already constrained fiscal spaces and elevated debt levels. Moreover, the pandemic is likely to have adversely impacted inequality, particularly gender inequality, in the country. On a positive note, the pandemic has accelerated the productivity enhancing process of digitalization, which offers growth opportunities and facilitates women's inclusion into the workforce (see Box 0.2).

Box 0.2 : Near- to long-term impacts of the COVID-19 pandemic on Pakistan's economy

Pakistan's economy is affected both by direct and indirect COVID-19 shocks. Direct COVID-19 shocks include, for example, the shock to tourism and international migration as a result of travel restrictions, the changes in the organization of labor associated with a higher adoption of work-at-home schemes by workers and firms, and the changes in consumption patterns (from services toward goods).²⁰ Indirect COVID-19 shocks are those that have modified the external conditions in which the Pakistani economy operates, including changes in international financial conditions, changes in commodity prices (particularly food and oil), and expected growth of its trade partners. The potential impact of some of these shocks is discussed below.

In the near term, the pandemic and its associated economic impacts have increased macroeconomic stability concerns for many countries, including Pakistan. The COVID-19 pandemic and the lockdowns that were implemented to mitigate the spread of infection triggered supply chain disruptions, which in turn increased production costs and fueled inflation—four-fifths of EMDEs experienced an uptick in inflation in 2021, with particularly high increases in food and energy prices. The US Federal Reserve's response to inflationary pressures has been to tighten monetary policy, creating tighter global financial conditions that will incentivize capital to flee emerging markets toward safer assets. The impact of heightened geopolitical risks due to the war in Ukraine might further increase financial market volatility in countries with high debt, while high inflation may force central banks to rapidly withdraw the monetary stimulus provided during the pandemic, thereby undermining the post-COVID economic recovery. This is where Pakistan stands: double-digit inflation over July 2021 to March 2022 led the central bank to increase the policy rate by 525 basis points, while the trade deficit over this period reached a record high, partly due to higher oil and commodity prices. Overall, growth in Pakistan is projected to slow down over the next two fiscal years as the Government undertakes adjustment measures to narrow the fiscal and current account deficits that have increased sharply in recent months.²¹

Moreover, the pandemic has raised global income inequality and potentially worsened within-country inequality in EMDEs. Preliminary evidence suggests that the pandemic has led to within-country income inequality rising in EMDEs because of particularly severe job and income losses among the lower-income population. Moreover, rising inflation, especially food price inflation, as well as pandemic-related disruptions to education, may further raise within-country inequality in the short and in the long run, respectively.²² In Pakistan too, rising food and energy inflation is expected to diminish the real

¹⁸ Global Economic Prospects, January 2022, World Bank.

¹⁹ Based on data from International Monetary Fund's World Economic Outlook Database, October 2019, and April 2022.

²⁰ See [World Tourism Organization for an outlook of recovery of international tourism](#). See [PEW Research Center Report for an analysis on recent work-from-home patterns in the United States](#). See [Reserve Bank of Australia Report on recent changes in consumption patterns in advanced economies](#).

²¹ Pakistan Development Update, April 2022. World Bank.

²² Global Economic Prospects, January 2022, World Bank.

power of households, disproportionately affecting poor and vulnerable households that spend a larger share of their budget on these items.

Female educational attainment and labor force participation may have been negatively impacted by the COVID-19 pandemic, exacerbating Pakistan's gender inequality concerns. Pakistan already has low female labor force participation (FLFP) compared with peers, and girls' education outcomes in the country lag those of boys. The pandemic might have accentuated this existing gender disparity in education and employment in the short run, as women undertook the bulk of the burden of unpaid home-care activities during this time and lasting job losses due to the pandemic were mostly concentrated among low-skilled and female workers.^{23, 24} In Pakistan, as businesses closed, jobs disappeared for both men and women. However, sectors where women are more likely to be employed, such as education and health, were more severely affected and the post-pandemic recovery was faster for males.²⁵ It is also likely that women who had to exit the workforce during the pandemic are less able than their male counterparts to re-join the labor market once the pandemic ends. Moreover, the longer the economic recovery takes, the fewer the number of women who may remain in or return to the labor force, resulting in larger post-pandemic gender gaps.²⁶

On the other hand, the pandemic has accelerated the productivity enhancing process of digitalization and remote work opportunities that can be particularly beneficial for women. The best example of a potentially positive and long-lasting transformation from the COVID-19 pandemic is the acceleration of digitalization, both from a consumer (e.g., more intensive use of IT solutions to access goods and services) and from a productive (development of local software industry) perspective. With respect to the latter, the pandemic and the measures taken to mitigate its impact have led to more employers and employees embracing remote work. This has sped up the ongoing transformation of Pakistan's services export basket, away from traditional and toward more knowledge-intensive services. Moreover, remote work may also enable educated women in Pakistan to engage in paid employment, especially in the context where social norms restrict their physical mobility otherwise.²⁷

In the first half of 2022, Pakistan faced another balance of payments crisis. This crisis heightened risks to debt sustainability and increased the value of implementing long-term structural reforms. The recent macroeconomic crisis, though exacerbated by higher global oil and commodity prices and post-COVID-19 monetary tightening in advanced economies, is to a large extent rooted in the structural issues that have affected Pakistan's economy for decades. After contracting by 0.9 percent in FY20 during the pandemic, GDP growth rebounded to 5.7 percent in FY21 and is estimated to have reached 6.0 percent in FY22. However, this rebound in growth was primarily driven by consumption, facilitated by an increase in remittances, and accommodative monetary and fiscal policies, and led to a sharp increase in imports and a widening of the current account balance. With structurally low exports and limited foreign direct investment (FDI) inflows, financing this imbalance has become a challenge, and foreign exchange shortages have led to a depreciation of the Pakistani rupee (PKR) by almost 24.0 percent against the US dollar since July 2021. Given elevated external financing requirements over the medium term, Pakistan is facing liquidity and debt sustainability challenges. The current macroeconomic crisis can either be addressed through structural reforms that address its root causes and are targeted toward increasing private investment, boosting export competitiveness, and promoting financial deepening, or its immediate impacts can be mitigated through a patchwork of reforms such as import restrictions and fuel subsidies that offer a short-term solution, but may introduce more productivity-limiting distortions and lead to a repeat of the crisis in a few years.

²³ Cheema et al., 2021.

²⁴ Mondragon and Tavares, 2021.

²⁵ See Tas et al., 2021.

²⁶ Ibid.

²⁷ However, telecommuting opportunities and remote education have not been equally accessible by low-income households during the pandemic. Global Economic Prospects, January 2022, World Bank.

The Framework

This report focuses on growth in Pakistan, and on key aspects of its proximate determinants: productivity, capital, and talent accumulation. Productivity is crucial in accounting for differences in standards of living across countries and time. In addition, and particularly at the level of development of Pakistan, factor accumulation—investment and human capital—also matters. Specific and policy relevant questions around these broad themes are this report's center of attention.

The underlying framework of analysis and orientation of public policy recommendations is what is known as the 'ABC' of growth. This 'ABC' implies improving allocative efficiency of resources and talent, encouraging business-to-business connections and spillovers, and strengthening firms' capabilities.²⁸ Public policies oriented to create an enabling environment around these three pillars will be powerful in boosting sustainable growth. However, the efficient allocation of talent and resources, and the business-to-business interactions leading to spillovers and the conditions to upgrade capabilities, are limited by economic distortions (or market failures) that inhibit the growth process, sometimes making it as difficult as swimming in sand.

Distortions and market failures are not the only factors affecting growth through productivity and factor accumulation. Infrastructure quality, for example, increases returns to investing in productive assets, or directly determines whether some projects are feasible or not.²⁹ Human capital development is another crucial element determining growth (as well as equity), which is examined in detail by the upcoming Human Capital Review of the World Bank. Climate smart investments determine the long-term sustainability of the growth model and are tackled in the upcoming Climate Change Development Report (CCDR) of the World Bank. A well-functioning financial sector is required to channel savings (national or foreign) into investments. This is tackled in the latest "Pakistan Development Update, Spring 2022". The additionality of *this* report lies on examining the patterns of Pakistan's growth in terms of productivity, investment, and (female) talent, through the lens of the ABC framework, and the interactions with distortions and market failures.

The role of distortions

The premise of this report is that Pakistan's growth is stunted by distortions. These distortions prevent the mobilization of all its talent and resources, and their allocation to the most productive uses. They also prevent the scaling-up and building of efficiency enhancing and job creating cross-border business-to-business links, and the upgrading of capabilities (of firms and individuals). These distortions that are either introduced or left unaddressed by policies, and that take various forms including, but not limited to, taxes, regulations, subsidies, or gender or social norms.

Distortions have important economic growth effects. Distortions can affect the level and the composition of growth. They affect the level of growth directly because they alter the incentives that firms face to upgrade capabilities, innovate, invest, and leverage talent. They affect the composition of growth, because they can alter the relative profitability of sectors, thus inducing investments into specific sectors (instead of into others). There is a feedback effect that goes from the composition to the level of growth. If, as it has been argued by development practitioners and academia, the size of the tradable sector matters for growth, and if distortions disproportionately affect the tradable sector (especially industry), then these distortions will have further effects on growth because they divert resources away from the tradable sector (Figure 0.11).³⁰

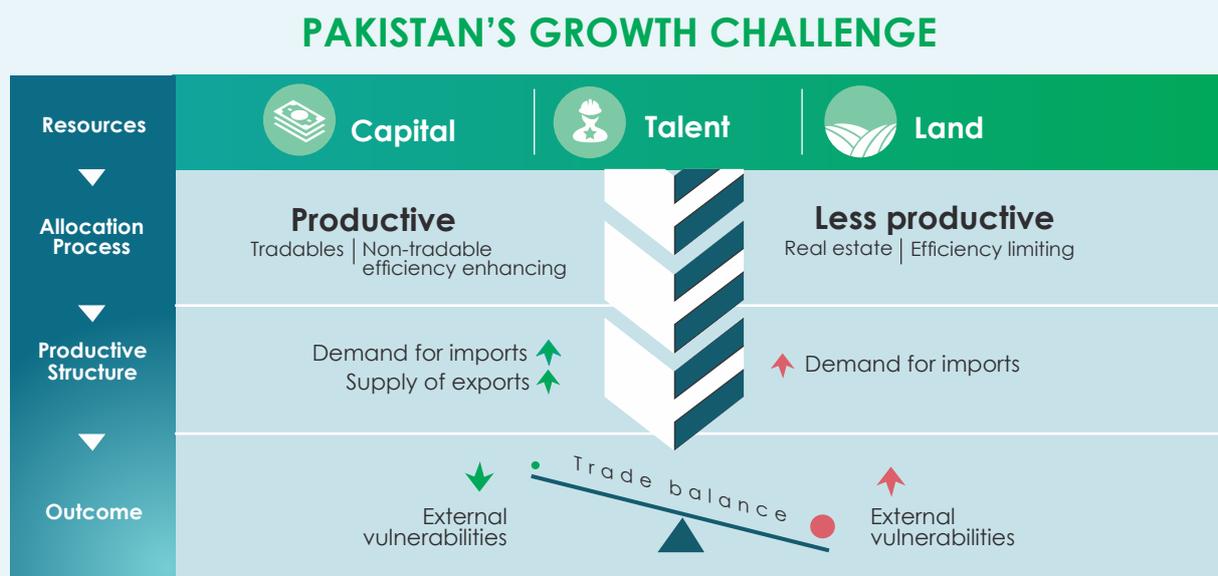
²⁸ The ABC framework is proposed in Grover, A., D. Medvedev and E. Olafsen (2019).

²⁹ Infrastructure Implementation Capacity Assessments (InfraSAPs) examine the question of infrastructure capacity and quality in detail.

³⁰ This is an argument that Rodrik (2008) puts forward. The author argues that the relative price of tradables to non-tradables plays a fundamental role in developing countries income convergence with developed countries because it affects the relative size of the tradable sector in the economy. Tradable sectors suffer disproportionately from institutional weaknesses and inability to completely specify contracts in lower middle-income contexts, such as Pakistan. Also, tradable sectors suffer disproportionately from market failures (information and coordination externalities) that limit the extent of structural transformation and diversification. Thus, increases in the prices of tradables versus non tradables (e.g., a depreciation of the real exchange rate) acts as a second-best to increase allocation of resources into tradables despite the distortions.

Sectoral differences in taxation can have powerful allocative effects. For example, when capital gains on investments in land or real estate are largely untaxed, as it is the case in Pakistan, but those on investments in manufacturing or services face corporate profit tax rates in the range of 20 to 39 percent, investors may choose to channel resources into real estate rather than into manufacturing or services-related projects.³¹ These differences have implications both from an external vulnerability angle and from a productivity angle. The former is relevant for Pakistan, given that its growth is said to be 'BOP-constrained', as mentioned above.³² Investments in real estate lead to an increased demand for goods and services, some of which are imported, thus adding to the current account deficit (Figure 0.14). Investments in manufacturing or services-related projects also create demand pressure but, in exchange, they expand the productive base, leading to an increased supply of exportable goods and services, which will at least partially offset the increase in imports. From a productivity perspective (relevant to explain systematic differences in standards of living across countries), investments in the tradable and productive sectors (such as efficiency enhancing non-tradables) are more likely to be associated with faster productivity growth, due to higher competition and to easier access to knowledge.

Figure 0.11: Pakistan's growth challenge is linked to how resources and talent are allocated



Authors' elaboration, based on Mian, A. (2022).

Within the tradable sector, cascading import duties are also crucial distortions affecting resource allocation. Cascading in the context of import duty structures consists of duties on raw materials and intermediates required to produce a final good being lower than those on the final good itself. For example, a bicycle manufacturer in Pakistan can import pedals, wheels, saddles, brakes, or frames paying a 26 percent import duty, while at the same time it is protected by a 51 percent import duty that applies on completely built imported bicycles. In a way, this cascading in the import duty structure aims at promoting industrialization, by giving effective protection to the entrepreneur who chooses to import the parts and add value in assembling the bike in Pakistan from the competition that imported bikes represents. It is an intervention aimed at increasing the size of the tradable sector in Pakistan, with potential positive effects

31 For example, the International Growth Center shows that property tax is significantly under-utilized as a tax source in Punjab, accounting for only 6 percent of total provincial tax collected. With a population of over 100 million, all of Punjab collects less urban property tax than the city of Chennai in India, with 10 million people.

32 Rosbach, K. and L. Aleksanyan, 2019.

on long-term growth.³³ However, that effective protection granted increases the profits of selling that bike domestically relative to those obtained when exporting. Thus, while cascading tariffs—a distinctive feature of Pakistan's tariff policy—intend to help industrialize and substitute imports, they end up substituting exports instead. This generates yet another distortion, with consequences on the external vulnerability (imports of parts and components but no exports, exacerbating the trade deficit) and the productivity (less exposure to competitive export markets) fronts. The result is fewer, and relatively smaller, less productive, and domestic oriented firms, instead of more, larger, and dynamic and outward-oriented ones.

Distortions also affect the way another key tradable sector—agriculture—uses valuable and scarce resources, such as water. Various subsidy schemes induce farmers into crops that are neither make the best use of the resources available, given global and domestic demand, nor the best use of the scarce natural resources that Pakistan is endowed with. For example, given that water in Pakistan is scarce and not adequately priced, subsidy schemes that incentivize the production (and export) of sugarcane constitute not only a misallocation of scarce resources, but also a gift to the rest of the world in the form of exports of cheap, 'virtual' water embedded in those goods. Reducing subsidies on water-intensive crops, and gradually moving away from distortive minimum price-setting and government procurement of specific grains, for example, could both improve the allocation of productive land, labor, and capital to more highly rewarded uses, as well as release substantial fiscal space to finance agricultural research and extension services needed to improve farms' productivity.

The dominant presence of state-owned enterprises in some markets, particularly upstream, is also a form of distortion. State-owned enterprises (SOEs) holding a dominant position in a market restrict competition and can reduce the efficiency with which the sector operates. When this happens in upstream markets, such as in the financial or energy sectors, in transport, or logistics that show substantially higher than average SOE presence (Figure 0.13), the inefficiencies spill over downstream, negatively affecting the profitability of investing in the entire value chain. Negative spillovers associated with SOE presence are also related to the fact that many of these SOEs are 'zombie' firms, incurring persistent losses and relying on financial assistance from the public sector, in turn reducing the available credit for the private sector.

Box 0.3: The role of saving

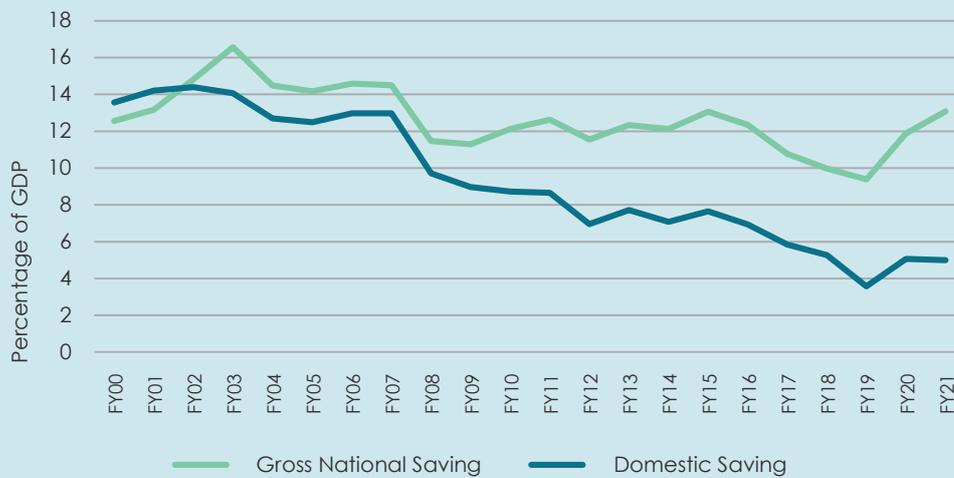
Pakistan's saving rate has been structurally low. According to SBP data, domestic saving have averaged 6.1 percent of GDP over the past decade, while displaying a declining trend (Figure 0.12). Low saving rates have been identified as a challenge for growth as they constitute a key financing source for investments.³⁴ This is because, while foreign saving can help, they may be more volatile, as the current global conditions attest. The agenda of boosting national and domestic saving is thus, a long term, important one.

National saving is substantially greater than domestic saving in Pakistan. Pakistan 'tops up' low domestic saving with net factor income, which adds to the national saving rates. The most prominent item within net factor income is remittances from Pakistani workers abroad, making (gross) national saving about 90 percent greater than domestic saving on average, during the past decade (though still low in a cross-country comparison), with the gap between the two having increased over time (Figure 0.12). The recent initiative for non-resident Pakistanis of 'Roshan Digital Accounts', set up in September 2020, constitutes an incentive for non-resident nationals to channel saving into the domestic economies through alternative financial instruments. Up until May 2022, more than 416,000 accounts had been opened, with accumulated funds reaching US\$4.4 billion, or more than 1.5 percent of GDP.

³³ See, for example, Rodrik, 2008

³⁴ See for example, SBP, 2016. Still, some theories challenge the direction of causality from savings to growth. For example, Carroll et al., 2000, argue that, if consumption patterns respond to habits, then the causation goes from growth to savings.

Figure 0.12: National and domestic saving have been declining as a share of GDP

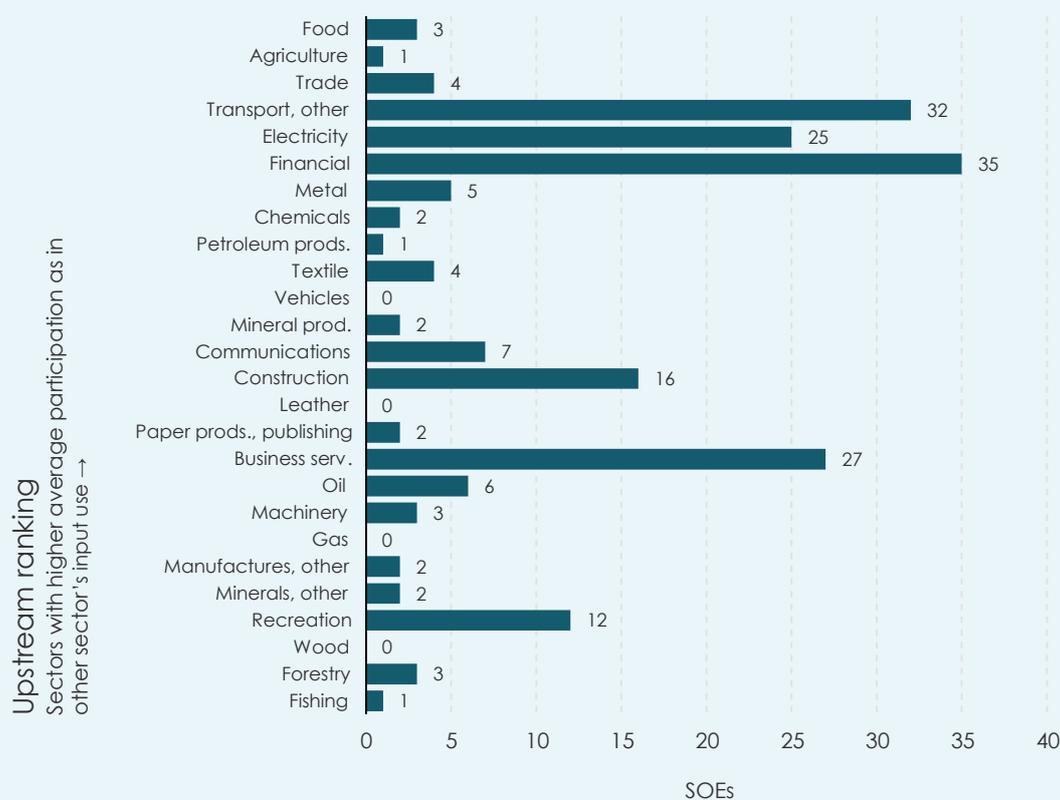


Source: State Bank of Pakistan

Increased saving, without addressing distortions and market failures, will not necessarily boost productive investments or productivity upgrading. Low saving rates are a constraint to productive investments and productivity upgrading, while not necessarily the most binding one. If distortions that induce resources to be allocated into low productivity uses (such as real estate) are not removed or alleviated, increased saving rates may not necessarily add to the productive capacity of the economy in the way needed to sustain growth. This is why, while recognizing the importance of saving for financing growth, this report focuses instead on the factors inhibiting a better allocation of talent and resources, b-2-b linkages and capabilities' upgrading.

Figure 0.13: Many SOEs are present in crucial upstream sectors

(SOE presence by sector, number of SOEs)



Source: Authors' calculations based on MoF SOE database

Some gender norms can also act as distortions, with important consequences on the allocation of talent. For example, if gender norms limit the ability of females to actively participate in the labor market, then the pool from which firms can recruit for productive undertakings is restricted. When the restriction applies to half of the population with growing levels of formal education, then these norms have important consequences for allocative efficiency.

The examples above show how distortions can tilt the relative profitability rates between and within sectors, contributing to external vulnerabilities. They have tilted them in favor of investing in unproductive rather than in productive, tradable sectors, and within tradable sectors in favor of domestic—rather than export-oriented activities. Thus, because relatively unproductive sectors create high demand for tradable goods and services that cannot be satisfied with the supply of a relatively stunted productive sector, the economy faces systematic trade deficits that are financed either with the proceeds of exporting labor (remittances), or with debt, as FDI is limited (and mostly focuses on the non-tradable sectors, exacerbating the trade deficit challenge).

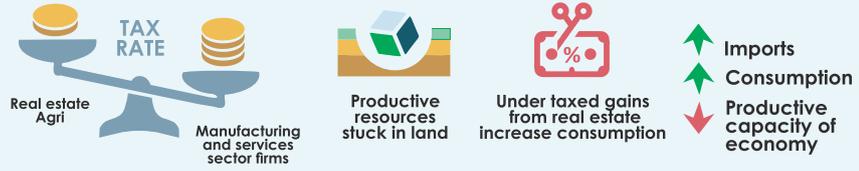
Understanding the specificities of these distortions and their cost in terms of growth is crucial. This is the central theme of this report.

Figure 0.14: Distortions and crises in Pakistan are closely linked

Why is Pakistan stuck in a cycle of repeated external crises? Distortions have led to a misallocation of resources

Policy induced

1. Under taxation of real estate leads to productive resources being diverted toward a non-tradable sector



Policy induced

2. Cascading import duties result in 'export substitution'



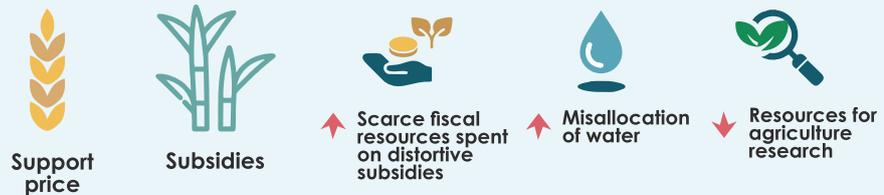
Norm induced

3. Gender norms limit female labor force participation



Policy induced

4. Subsidies and support prices for certain crops limit diversification in agriculture



Source: Authors' elaboration.

The Report

The central theme is how the decisions of economic agents in Pakistan are affected by distortions, and how these effects have shaped growth patterns. The self-standing chapters or notes that comprise this report dive into issues that can be largely grouped into three sections or topics: (i) productivity (four chapters consisting of an opening technical note and three policy notes); (ii) investment and growth of firms (two chapters or policy notes); and (iii) female labor force participation (one chapter consisting of a policy note).

The report is structured as a series of self-standing chapters or policy and technical notes. For example, the reader who is interested exclusively in agricultural productivity can proceed directly to Chapter 4, one interested in FDI potential and spillovers can proceed to Chapter 6, or a reader looking to learn more about challenges to female labor force participation can proceed to Chapter 7. An implication of the chapters being conceived as standalone is that, in some cases, there is an overlap in policy recommendations. For example, firms' capabilities upgrading interventions matter for firms' productivity (so, they feature as a recommendation in Chapter 2), and they also matter for firms' growth and investment (so, they also feature as a recommendation in Chapter 5).

Productivity

Differences in productivity across countries account for most of the differences in standards of living.

Long-term sustainable growth relies on sustained productivity upgrading. Macro-level evidence for Pakistan points to a secular decline in the contribution of productivity to GDP growth (Siddique, 2020). The first section of the report dives into detailed analysis of productivity trends for important sectors in Pakistan—agriculture, manufacturing, and services—to shed light on productivity dynamics at the firm level for the manufacturing and services sectors (with a focus on publicly listed firms and SOEs) and on productivity dynamics at the district and farm levels for the agriculture sector (with a focus on main crops, and Punjab in the case of farm-level analysis).

The analysis points to three main findings. First, aggregate productivity is declining across sectors and types of firms, driven by within-firm declines that are not fully offset by improvements in allocative efficiency. This points to the importance of investments in firms' capabilities and the removal of distortions that are preventing stronger allocative efficiency gains. Second, it highlights a strong relationship between exporting and importing and productivity that is linked both with selection (more productive firms have higher probability of being internationally trade integrated) and learning. This points to the need to re-consider integration policies and Pakistan's protectionist strategy via import tariffs, bans or other forms of restrictions. Third, the climate-crop productivity nexus raises some alarms on the prospects of the sector, given the reality of climate change. This highlights the importance of re-thinking Pakistan's main agriculture support interventions in crops.

Finding 1: Aggregate productivity has been declining, on the back of firms losing efficiency

In Pakistan, micro-level analysis shows aggregate productivity has been stagnant or declining, mostly driven by within-firm factors. Analysis of firm-level data for publicly listed firms (mostly manufacturing firms, services firms, and SOEs) in shows that aggregate total factor productivity (TFP) has been shrinking and that the decline is due to firms becoming less productive. The deceleration in activity due to the COVID-19 pandemic exacerbated the decline in within-firm productivity, which fell by 23 percent in 2020, the largest annual contraction since 2012 (Figure 2.4). The decline is systematic across types of firms and geographic locations, although it was more pronounced in family-owned firms. These family-owned firms, in turn, tend to show relatively lower managerial capabilities.³⁵ In agriculture, presents district-and farm-level analysis that shows that, while yields have grown, this is the result of a more intensive use of inputs. Instead, TFP has been falling for most crops, although with some heterogeneity by province (Punjab and Sindh being better performers than KP and Balochistan, Figure 0.21), and agro-climatic zones (Figure 0.22).

Improvements in the allocation of resources (away from low productivity and into high productivity uses) have not been strong enough to offset the decline in productivity observed at the firm or farm level in the manufacturing, services and agriculture crop sectors (Figure 0.19 and Figure 0.23). For the set of firms analyzed in the manufacturing and services sectors, there were improvements in productivity due to better allocative efficiency (the 'between firm' component). However, these improvements were relatively limited (except for 2015) among publicly listed firms. On the other hand, allocative efficiency in SOEs was volatile during the analyzed period, alternating between negative and large (2015–16), and positive and declining (2017–19).³⁶ In agriculture, the analysis for farms' productivity in Punjab shows systematic allocative efficiency losses over the period of analysis. That is, resources flowed away from higher productivity farms and into lower productivity ones, putting downward pressure on aggregate productivity.

³⁵ In part this is due to the presence of 'Carnegie effects': a reduction in human capital investment due to the expectation of a secure management position in the future.

³⁶ Typically, gains in allocative efficiency imply that more productive firms gain market shares, absorbing resources that less productive firms release, thus leading to an increase in aggregate productivity. For SOEs, gains would imply that less productive SOEs shrink, while more productive ones expand, while the reverse is true for losses.

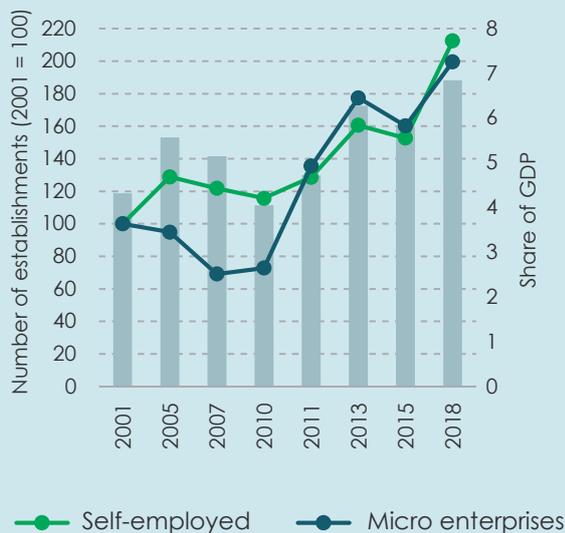
The empirical analysis in the *Productivity* section is complemented with a novel theoretical framework that helps quantify the extent to which distortions affect aggregate productivity in Pakistan, based on the analysis of the size distribution of firms in the manufacturing sector that is presented in Chapter 1 as a way of motivation for the subsequent empirical analysis.³⁷ The results show that eliminating distortions that affect the allocation of resources (and with that, growth of productive firms) would increase aggregate productivity by 18 percent, while eliminating distortions that act as barriers for new firms to enter the market, would increase productivity by 12 percent. Results also show that identified distortions in Pakistan explain the large size of its informal sector (see Box 0.4 for a discussion on recent productivity trends of the informal sector).

Box 0.4: Productivity of Pakistan's informal sector

The productivity analysis in this report that focuses on manufacturing and services looks only at formal firms (and within formal firms, at publicly listed firms and SOEs). This choice is driven by data availability. The data needed for an analysis of a wider set of firms are not available. However, Pakistan has regular and good-quality Household Survey (HIES) data that include information on businesses with fewer than 10 employees (micro-businesses) and the activities of the self-employed. While these data do not allow a comparative analysis of productivity in the formal and informal sectors, they still provide important insights into the dynamics of the latter. This box summarizes some of these insights, focusing on the period 2001–2018. Unfortunately, data availability prevents the analysis of the link between the performance of the informal sector and the shock introduced by the COVID-19 pandemic.

Figure 0.15: Micro businesses have grown substantially over the past decades...

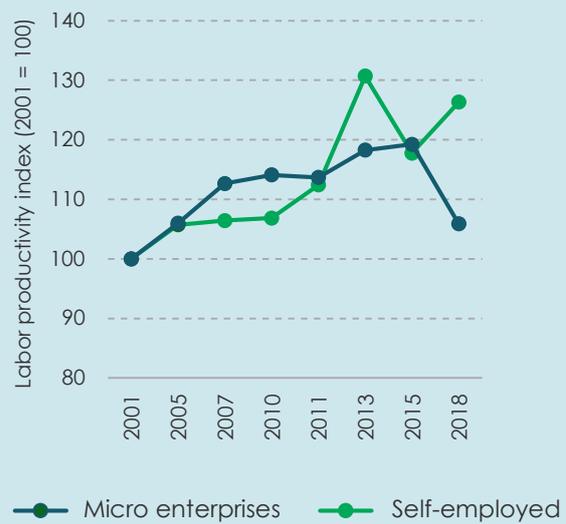
(Microbusinesses growth and contribution to GDP)



Note: Authors' calculations based on the Household Integrated Income and Consumption Surveys for the years 2001 and 2015, APO Productivity Database 2019 and World Development Indicator. Number of establishments include both self-employed (the vast majority) and micro-enterprises. In 2015, there were an estimated 271,000 micro-enterprises and about 5,500 thousand self-employed.

Figure 0.16: ...and their productivity has increased

(Average labor productivity, micro enterprises and self-employed)



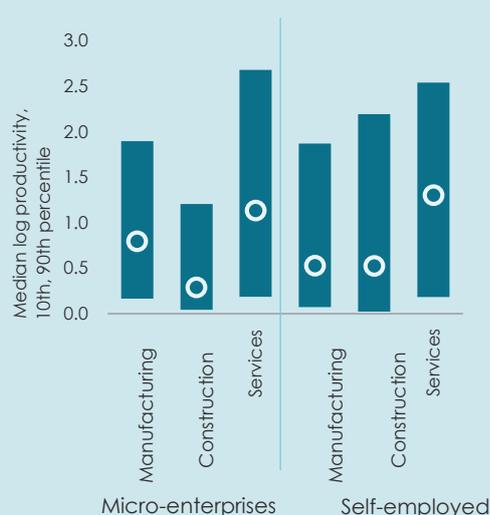
Note: Authors' calculations based on Household Integrated Income and Consumption Surveys for the years 2001, 2005, 2007, 2011, 2013, 2015 and 2018.

Informal establishments have grown both in number and in importance in the Pakistani economy over the past two decades. Between 2001 and 2015, the number of informal establishments (households engaged in self-employment and micro-enterprises with fewer than 10 employees) more than doubled. About four-fifths of informal establishments operate in the services sector. Informal sector growth is reflected in its increasing contribution to GDP, as measured by the informal sector's wage bill as a share of GDP (Figure 0.15).

The productivity of informal establishments, as measured by labor productivity, has been steadily increasing over time. The labor productivity of both the self-employed and micro-enterprises grew three-fold between 2001 and 2015 (Figure 0.16). Growth rates fell during the global financial crisis, in particular for microenterprises, but remained positive. After the crisis, labor productivity of micro-enterprises grew faster than that of the self-employed. While prima facie, this contrasts with what is observed in the formal sector (for publicly listed firms and SOEs) and in crop agriculture, it is worth mentioning that these numbers are not comparable, as they use different measures of performance: labor versus total factor productivity.

Figure 0.17: Large productivity differentials exist among microenterprises and those self-employed, within sectors...

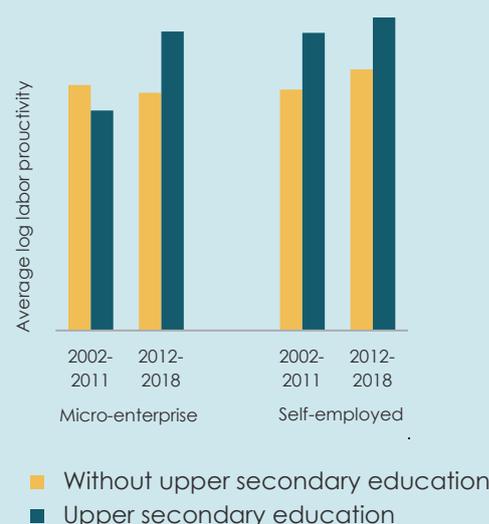
(Labor productivity dispersion, micro enterprises and selfemployed)



Note: Authors' calculations based on Household Integrated Income and Consumption Surveys for the years 2001, 2005, 2007, 2011, 2013 and 2015.

Figure 0.18: ...some of these differences are accounted for by differences in education of an establishment's managers

(Differences in productivity between owners with at least upper secondary education and those without)



Authors' calculations based on Household Integrated Income and Consumption Surveys for the years 2001, 2005, 2007, 2011, 2013 and 2015. The differences in productivity for micro enterprises during the period 2002-2011 are not statistically significant. All other differences are statistically significant at 1%.

There are sizable differences in productivity within the informal sector. Labor productivity for both micro-enterprises and the self-employed is higher in the services sector. Large productivity differentials also persist within sectors. For example, within the services sector, micro-enterprises in the top 10th percentile are 12 times larger than those in the bottom 10th percentile. A similar pattern is observed for the self-employed (Figure 0.17). Productivity differences among informal establishments are associated with the level of education of their owners. For instance, the productivity of establishments whose owners have at least upper-secondary education is about 1.3 times higher than those who do not (Figure 0.18). After considering differences in age, sector, location and income, differences in productivity persist and labor productivity is 10 percent higher for owners with upper-secondary education. Over time, an increase in education is associated with an increase in labor productivity: a 1-percentage-point increase in the share of educated owners over time is associated with a 0.5 percent increase in labor productivity.

Source: This box has been updated for this report and is based on work conducted for the Systematic Country Diagnostic.

Figure 0.19: Within-firm productivity declines dominate aggregate productivity trends among listed firms, while between-firm changes dominate trends among SOEs

Decomposition of productivity growth, listed firms and SOEs)



Source: Authors' calculations based on financial statements analysis of companies (non-banking) listed on the Pakistan Stock Exchange.

Figure 0.21: In agriculture, crop productivity fell in KPK and Balochistan, but increased mildly in Punjab and Sindh...

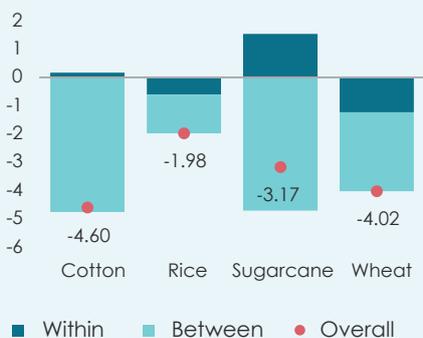
(Crop TFP annual average growth rate by province, 1993–2019, in percent)



Source: Burki et al. (2022a).

Figure 0.23 :...in agriculture in Punjab, between-farm productivity declines drove aggregate productivity trends

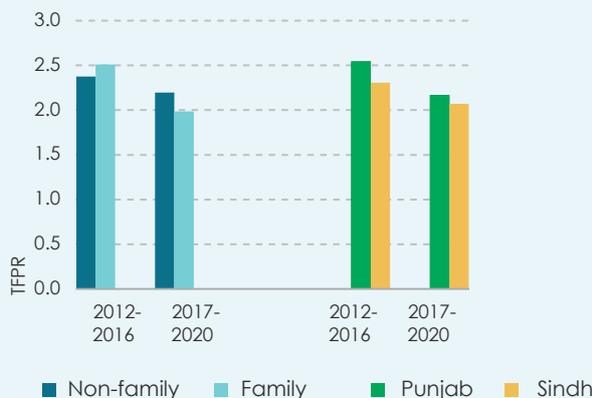
Aggregate TFP growth decomposition, annual average, in percent)



Source: Burki et al. (2022b). Note: The period for cotton and wheat corresponds to 2014–2019, for rice it corresponds to 2015–2019, and for sugarcane it corresponds to 2014–2020.

Figure 0.20: Declines in productivity among listed firms were more pronounced among family-owned firms, and equally likely in Punjab and Sindh

(Average firm-level productivity by location and ownership type)



Source: Authors' calculations based on financial statements analysis of companies (non-banking) listed on the Pakistan Stock Exchange.

Figure 0.22: ...while productivity stagnation or declines are observed across agro-climatic zones...

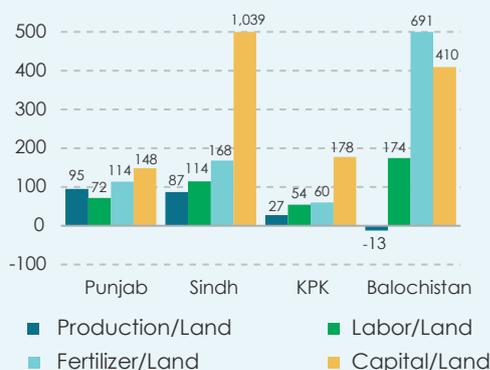
(Crop TFP annual average growth rate by agro-climatic zone, 1993–2019, in percent)



Source: Burki et al. (2022a).

Figure 0.24: The observed increases in yields are linked to more inputs used rather than increased productivity

(Growth in output and input per hectare of used land, 1993–2019, by province, in percent)



Source: Burki et al. (2022a). Note: capital corresponds to the average of tractors, tube wells and threshers.

Finding 2: Declining productivity can be traced back to increasing trade policy distortions

There is a strong link between integration into the global marketplace—both through exporting and importing—and productivity. This new evidence for Pakistan is unveiled in Chapter 3, which shows that a substantial portion of the productivity performance of Pakistan's largest firms—those that are publicly listed—can be accounted for by their patterns of integration.

Exporting and productivity linkages underscore the need for effective export promotion policies.

Analysis shows that Pakistani exporters are systematically more productive than comparable, non-exporting firms, and that the productivity premium that exporters exhibit can be traced to both selection (more productive firms become exporters in the first place) and learning (firms become more productive as they export more systematically). The decline in the export orientation of firms during the period accounts for a portion of the aggregate productivity decline. Indeed, the share of exporting firms in the sample declined, while the share of exports in total sales of those that export also fell, in line with the macro-level decline in exports to GDP from 16 percent in 2000 to less than 10 percent in 2020. The export-productivity link, coupled with the decline in export orientation, points to the importance of export promotion policies to reverse the inward orientation of firms.

However, export promotion policies in Pakistan have been costly to taxpayers, but not necessarily highly effective.

Chapter 3 presents new evidence on an impact evaluation of a specific export promotion policy. It evaluates the Duty Drawback of Taxes that applies to the textile and apparel sector, and that effectively works as an export subsidy. The results show that the policy had only relatively low impact and at a high cost: it boosted aggregate textile exports by 1.8 percent over the period analyzed, while costing the taxpayer between 46 and 76 cents for each additional US dollar exported due to the policy. In addition, because the policy targets specific products for export subsidies, and within those targeted products some receive higher rates than others, the policy induced substantial reallocation of exports away from non-eligible or low subsidy rate products, and into high subsidy rate products. This is challenging, given that high subsidy rate products tended to be predominantly traditional, low sophistication products.

High import duties, particularly on intermediates, have negatively affected firms' productivity, as well as sales and wages.

Over the past decade, rather than embracing the global value chain (GVC) 'revolution', Pakistan has become more inward-oriented, not only because of the lower export orientation of its firms but also, and relatedly, because of the marked increases in import duties in various forms (customs duties, regulatory and additional customs duties). These increased from 15 percent on average in FY10 to a maximum of 21.3 percent in FY20 (with mild decreases in FY21 and FY22). These increases also implied higher costs of importing intermediates and capital equipment. Between 2012 and 2020, all sectors in manufacturing experienced increases in import duties on their relevant intermediates.³⁸ New evidence presented in Chapter 3, and consistent with international experience, shows that increases in import duties in upstream sectors have reduced the productivity, sales, and wages of firms that operate downstream. A 1-percent increase in upstream duties is associated with a 0.6-percent decline in productivity downstream, a 0.5-percent reduction in sales, and a 0.6-percent reduction in wages paid to workers in downstream sectors.

Insulating exporters from import duties on intermediates is crucial to ensuring their competitiveness, but existing mechanisms have not been effective.

Given the importance of exports—both because of productivity and foreign exchange considerations, and the fact that import duties on intermediates have increased in Pakistan over the past decade—insulating exporters from these import duties is crucial to ensuring that they can compete in demanding international markets. This is what the intermediate input duty exemption schemes for exporters intend to achieve. Exporters in Pakistan, as in many other countries, are granted exemptions (or rebates) on duties paid on intermediates (and capital equipment). However, exemption schemes have not been effective because they have not been universally accessed by all exporters. Evidence presented in Chapter 3, relying on a pilot survey among exporters, shows that smaller exporters

³⁸ This is at odds with global trends. Indeed, a robust finding from international evidence points to substantially greater gains from trade when there are strong international linkages in terms of intermediate input trade, which is crucial for participation in GVCs. See for example, Antras and Chor (2021) for a discussion.

find it cumbersome to file for intermediate input duty exemptions. This is because of administrative burdens and lengthy processes that act as a fixed cost, and disproportionately affect small firms. This is consistent with another finding presented in Chapter 3: the effects of import tariffs on upstream sectors on productivity downstream are the largest for small exporters and negligible for large ones, suggesting that drawback schemes in place are only playing their role for large firms.

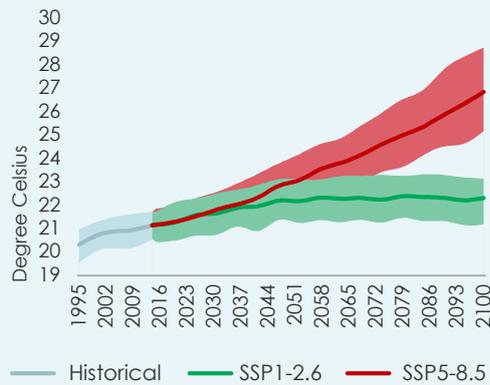
Finding 3: Productivity in agriculture is strongly affected by climate variations

Crop productivity in Pakistan is highly susceptible to elevated temperatures and rainfall variations, putting the sector at severe risk due to climate change. The results presented in Chapter 4, relying on farm-level data for Punjab, show that crops tend to be negatively affected by higher maximum temperatures (wheat and sugarcane, in particular). On the other hand, higher minimum temperatures negatively affect wheat and rice, while they benefit sugarcane yields. More abundant precipitation and humidity tend to negatively affect yields in all crops (the link between precipitation and sugarcane being the only exception), while wind negatively affects rice and sugarcane yields. These estimates, coupled with the experience of the devastating impact of extreme climate events on agriculture output and yields, and the fact that climate change will make extreme temperatures more common, point to the importance of investing in technologies that contribute to adaptation to climate change.

The productivity-climate nexus in agriculture points to the need to invest in climate smart technologies, and reconsider existing government interventions in agricultural markets. Climate smart technologies can help address chronic challenges that the agriculture sector faces and that are expected to intensify, such as droughts, floods, and intense heat. Given water scarcity, water management and storage strategies, including alternate wet drying or laser leveling, have been identified as productivity-enhancing. At the same time, existing government interventions, particularly in wheat (e.g., procurement programs) and in sugar (e.g., subsidies, minimum prices) alter the efficient allocation of scarce resources, including land and, most importantly, water. Moreover, these programs require substantial public resources that could be reallocated into climate smart technology adoption.

Figure 0.25: Temperatures are expected to rise in Pakistan...

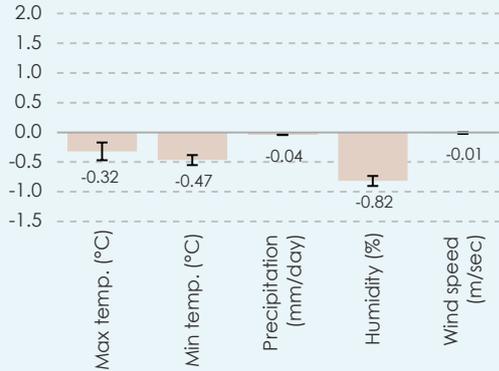
Projected mean temperatures in Pakistan, reference period 1995–2014, multi-model ensemble 39)



Source: World Bank's Climate Change Knowledge Portal
 Note: Shared Socioeconomic Pathways (SSP).⁴⁰

Figure 0.26: ...with sizable and negative effects on agriculture yields

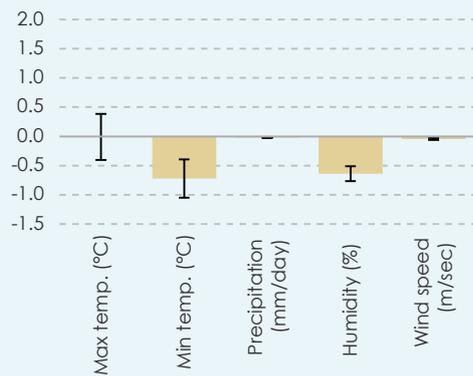
(Effects of weather on wheat crop yield in Punjab, 2013–2020)



Source: Burki et al. (2022b).

Figure 0.27: Humidity and minimum temperature changes substantially affect rice yields...

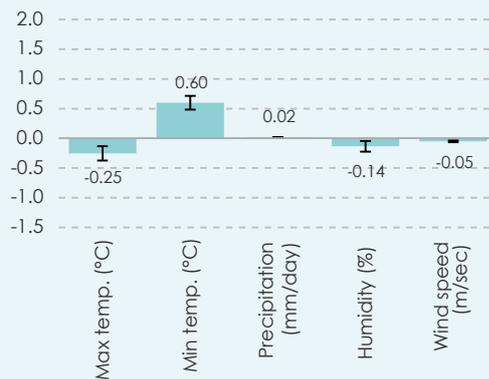
(Effects of weather on rice crop yield in Punjab, 2013–2020)



Source: Burki et al. (2022b).

Figure 0.28: ...while changes in minimum and maximum temperatures affect sugarcane yields...

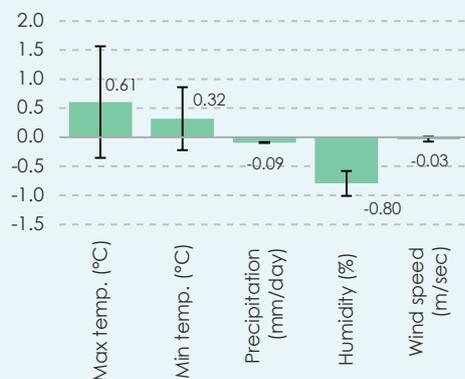
(Effects of weather on sugarcane crop yield in Punjab, 2013–2020)



Source: Burki et al. (2022b).

Figure 0.29: ...and humidity and minimum and maximum temperature affect cotton yields

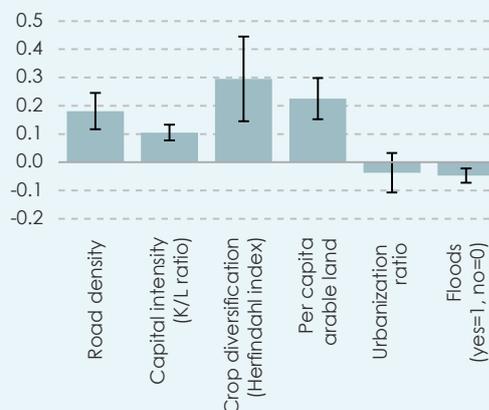
(Effects of weather on cotton crop yield in Punjab, 2013–2020)



Source: Burki et al. (2022b).

Figure 0.30: Road infrastructure, extent of diversification, capital intensity and availability of land matter for productivity growth in agriculture

(Crop agriculture TFP determinants)



Source: Burki et al. (2022a).

39 A multi-model ensemble (MME) is a large number of climate model simulations.

40 SSPs represent possible societal development and policy paths for meeting designated radiative forcing by the end of the century. SSP1-2.6 represents a scenario where GHG emissions (and indirectly emissions of air pollutants) are reduced substantially over time, while SSPs-8.5 is a scenario with very high GHG emissions.

Investment and firms' growth

Investment is critical to growth. Investment expands the productive capacity and leads to increased value added and job creation. By increasing the stock of technologies, it also facilitates productivity upgrading. However, private investment rates in Pakistan declined from an average of 14.0 percent of GDP in the 2000s to 11.1 percent during the 2010s. At the same time, Pakistan has also struggled to attract significant FDI. FDI inflows have averaged below 1 percent of GDP over the past decade. As a result, the rate at which the stock of capital per worker grows—capital deepening—is lower in Pakistan than in structural comparators, and its rate of growth has been falling over time. This is in part why firms in Pakistan struggle to grow large as they grow old. For example, a young, formal firm in Pakistan that has been in operation for 10 to 15 years is about the same size as a firm that has been in operation for more than 40 years. Chapter 5 looks at how Pakistan's firms compare in terms of size and growth with those in structural or aspirational peers. It examines the relationship between profitability and investment at the firm level, and how certain distortions, such as soft budget constraints to SOEs, or trade protection, play a role in firms' survival and their growth dynamics. Then, Chapter 6 dives into how Pakistan fares in attracting one type of investment: FDI. It presents new estimates for Pakistan's untapped FDI potential or 'missing FDI', as well as measuring how beneficial existing FDI has been in terms of productivity spillovers to other firms in the economy.

The analysis points to four main findings. First, using internationally comparable data on the 500 largest firms in Pakistan and comparator countries, analysis shows that firms in Pakistan tend to be smaller in size with few large firms. A complementary dataset focusing on exporters' dynamics in Pakistan and comparators further illustrates that Pakistani exporters are also relatively small, and these firms struggle to grow. Second, the share of loss-making and “zombie” firms (firms that are loss-making for at least three years) in Pakistan is high. Such firms tend to be family or state-owned. Third, import protection discourages exporting, as firms in protected sectors face higher incentives to sell in domestic markets than exporting (see Box 5.5). This is confirmed by the fact that they tend to realize larger financial returns but export less on average. Fourth, Pakistan's untapped FDI potential is around US\$2.8 billion in net inflows per year, and tapping into this would more than double current FDI inflows.

Finding 1: Pakistani firms are small, struggle to grow, and show limited 'up-or-out' dynamics

Pakistani firms are smaller in size than in most comparator countries. Large firms are rare, particularly in the knowledge-intensive services sector. Large productive firms in low- and middle-income countries tend to be more innovative, export more, provide more training to their workers, and are more likely to use internationally competitive technologies and standards.⁴¹ As discussed in Chapter 5, despite their benefits, within the top 500 firms, 51.6 percent of Pakistani firms reported annual revenues of less than US\$50 million in 2017, compared with 25 percent for Pakistan's aspirational comparator countries. However, the size distribution of the largest 500 firms in Pakistan is similar to that in the structural comparator countries. Similarly, the limited number of large exporting firms is revealed by the fact that the share of the top 1 percent of exporters in Pakistan's total export value is also small, indicating that even the largest exporters ('superstars') account for less of total exports than in aspirational countries, while aligned with or slightly higher than structural comparators (Figure 0.33). This might be impeding growth and diversification of exports, as export 'superstars' tend to drive export growth and diversification.⁴² Moreover, Pakistan's largest firms (with revenues above US\$1 billion) are primarily concentrated in industries related to extraction, whereas manufacturing (especially low-tech manufacturing) is under-represented among these large firms despite having a large share in Pakistan's overall industry composition (Figure 0.34). Pakistan also has no “knowledge-intensive services” firm in this revenue category (these are often telecom and IT-related firms in the comparator countries).

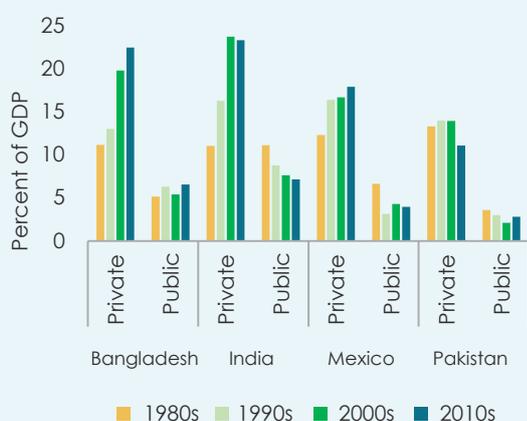
⁴¹ See, for example, Ciani et al., 2020.

⁴² This is also likely related to Pakistan's challenge in attracting export-oriented FDI, as superstars in developing countries tend to be primarily foreign-owned (which is, in turn, consistent with Bangladesh's similar lack of export superstars). Freund and Pierola, 2020.

Pakistani exporters also struggle to grow. Pakistani exporters growth patterns are slower than observed in Egypt, Bangladesh, and China. Fifty-three percent of Pakistani exporters that were in the lowest quintile (Q1) of the size distribution in a given year and were still exporting five years later, climbed up to a higher size class (quintile) in the fifth year, whereas the remaining 47 percent stayed in the same lowest quintile. Upward mobility, when considering firms that exit exporting status, was similar across countries, except for China. The difference between the two figures is explained by the lower exit rate of Pakistani exporters. The slower growth and lower rates of exit among exporting firms in Pakistan suggest high entry and exit costs, which in turn lead to less experimentation and reallocation among exporters, and consequently low overall export growth.

Figure 0.31: Pakistan’s investment rates are lower than in comparator countries...

(Public and private investment, percent of GDP)



Source: WDI.

Figure 0.32: ...and, therefore, firms do not grow large as they grow old

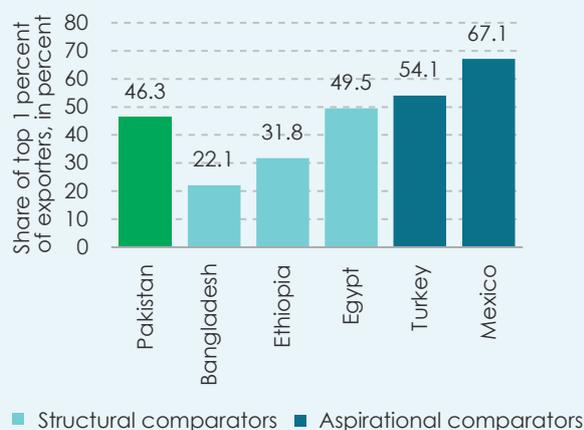
(Firms’ growth over their lifecycle, publicly listed firms)



Source: Authors’ calculations and Hsieh and Klenow, 2014.

Figure 0.33: There are fewer large exporters in Pakistan than in comparator countries...

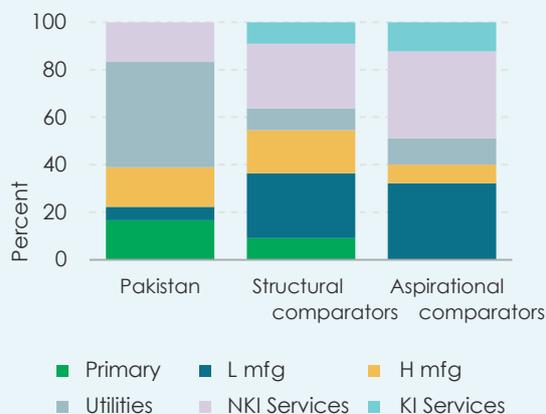
Share of the top 1 percent of exporters in each country’s export value, 2017)



Source: Exporters Dynamics Database, authors’ calculations.

Figure 0.34: ...and a limited share of very large firms in knowledge-intensive services and in the manufacturing sector

(Industry composition of firms with revenues higher than US\$1 billion)



Source: Orbis, Authors’ calculations. Note: Technology-type definition follows the Eurostat categorization.⁴³

43 “L mfg” stands for “Low and low-medium tech manufacturing”, “H mfg” stands for “Medium-high and high-tech manufacturing”, “KI serv” stands for “Knowledge-intensive services” and “NKI serv.” for “Not knowledge-intensive services”.

Finding 2: There are many systematically loss-making, or 'zombie' firms.

The share of 'zombie firms' in Pakistan is higher than in comparator countries. Profitability is a key variable for firms' growth. It indicates how lucrative a firm's activities and investment opportunities are, i.e., whether the firm has strong incentives to expand. Moreover, current, rather than expected, profits are an important predictor of investments, when firms face limited access to credit, such as in Pakistan, where heavy government borrowing from the commercial banks tends to crowd out feasible private investments (indeed, Pakistani banks are substantially exposed to public debt compared with other countries with similar levels of debt to GDP, Figure 0.35 and Figure 0.36). The results indicate that the median return on assets (ROA) in Pakistan is similar to that observed in other countries. However, in 2016, Pakistan had the highest share of 'zombie firms' among all comparator countries, with more than 11 percent of the largest 500 firms falling into this category. The share of loss-making firms was around 30 percent each year between 2014 and 2020.

Figure 0.35: Pakistani banks stand out as holders of sovereign debt, given their capital structure...

(Tier 1 Capital-to-total assets ratio and banks' holdings of sovereign debt, 2021)

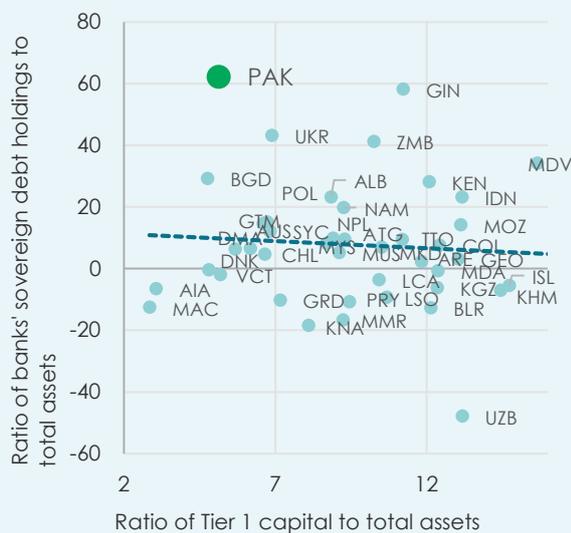
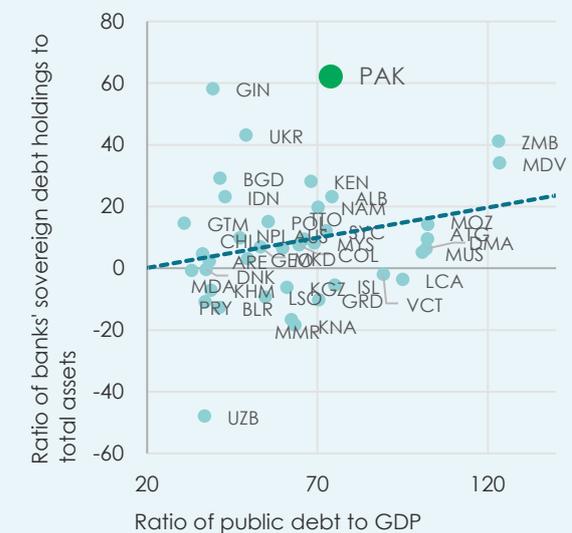


Figure 0.36: ...and given the overall level of countries' debt-to-GDP ratios

(Sovereign debt and banks' holdings of public debt, 2021)



Source: IMF International Financial Statistics database, IMF Financial Soundness Indicators database.

State-owned and family-owned domestic firms are more likely to be zombie firms, with lower rates of investment and profitability. Investment and profitability are substantially lower in family- and state-owned firms (which account for a large portion of firms in Pakistan) compared with non-family domestic and foreign-owned firms in Pakistan, even when controlling for industry composition and firms' size.⁴⁴ Compared with non-family-owned domestic firms, state-owned firms realize 6.7 percentage points and family-owned firms 3.9 percentage points lower profits, while foreign-owned firms realize 3.2 percentage points higher profits. This also leads to a large share of state- and family- owned firms being loss-making. Specifically, more than one-fifth of state-owned firms and two-fifths of family-owned firms were loss-making at any given point of time, while loss-making is rather rare among non-family-owned domestic firms. Low profitability can indeed be a long-lasting problem for family- and state-owned firms, with the share of zombie firms exceeding 20 percent in each year for these two ownership groups, compared with less than 5–10 percent for the other two ownership groups (Figure 0.37). The different productivity of firms under different ownership structures, as discussed in Chapter 2, can help explain these differences. State-owned

⁴⁴ The higher profitability of foreign firms is in part due to foreign owners acquiring more productive firms (although there is also evidence for learning, see Chapter 6).

and family-owned firms, especially if they are managed by a family member, tend to be run less effectively than other privately-owned firms and have lower productivity (Figure 0.20).⁴⁵ State-owned firms, while often large, tend to be less productive because of soft budget constraints and non-profit-maximizing behavior.⁴⁶ On the other hand, foreign-owned firms generally have better management and access to credit.⁴⁷

The survival of zombie firms points toward distortions, such as weak competition, preferential access to subsidized bank credit, and underdeveloped insolvency regimes. Weak competition, substantial barriers to entry, and inflexible labor markets can help inefficient firms to survive. Moreover, banks in less-developed financial systems may lend to firms even if they are permanently loss-making, especially if the firms are politically important or connected by ownership links to the banks themselves.⁴⁸ Estimates suggest that US\$3 billion in short-term bank credit flows to zombie firms in Pakistan on an annual basis. If the firms are state-owned or have strong lobbying power, the Government itself can provide support in various ways. In Pakistan too, state-owned firms enjoy favorable treatment from regulators, and preferential access to finance and government contracts.⁴⁹ Lastly, poorly working insolvency regimes can prevent creditors from taking effective action to restructure or liquidate these firms.

Finding 3: Trade protection increases firms' profits and reduces their export orientation

Protection from import competition creates a distortion, as firms in protected sectors tend to realize larger financial returns but are less competitive, leading to a misallocation of resources. Firms in protected sectors show returns on equity that are 5.0 percentage points higher than those observed for comparable firms in other sectors. The lower competitiveness of firms in protected industries is reflected by the fact that they export less on average, which is consistent with the anti-export bias of trade protection (see Box 5.5). In 2017, the mean export value of firms in less protected industries was 20 percent higher than that of firms in more protected industries.⁵⁰ Moreover, firms with more than 1,000 employees export less than 3 percent of their revenue in protected sectors compared with 27 percent of revenue in non-protected industries (Figure 0.38). These results suggest that the largest firms in protected industries underperform the smallest ones in non-protected industries. Reducing tariff rates in some of these protected industries has the potential to increase export orientation and productivity, making resource allocation more efficient.

Finding 4: Pakistan's untapped FDI inflow potential stands at US\$2.8 billion per year

Pakistan has the potential to more than double its FDI inflows. Pakistan's untapped FDI potential is estimated at around US\$2.8 billion per year. Tapping into this potential would lead to more than doubling current inflow levels.⁵¹ This gap between actual and potential FDI places Pakistan among the top half of countries in terms of missing FDI (Figure 0.39). This estimated untapped potential FDI does not imply a ceiling but rather what would be expected with Pakistan's characteristics, and average policies and implementation capacity. The regions with the greatest potential for FDI into Pakistan are North America and the Europe Union, with US\$2.5 billion of missing FDI, which also currently account for the bulk of inward FDI in Pakistan. Realizing Pakistan's full FDI potential is important because FDI can be a useful source of financing for developing countries, not only because it is linked to better export performance, job creation and productivity growth, but also because as a non-debt-creating source of external financing it can contribute to increased macroeconomic stability.

FDI in Pakistan has led to some productivity spillovers into other firms, but these spillovers have not been generalized. Chapter 6 presents new evidence on productivity spillovers from FDI in upstream

45 See, for example, Bloom et al., 2015.

46 See, for example, Boycko et al., 1996.

47 See, for example, Hijzen et al., 2013, Bloom et al., 2012, and Girma et al., 2015.

48 See Faraz, 2020.

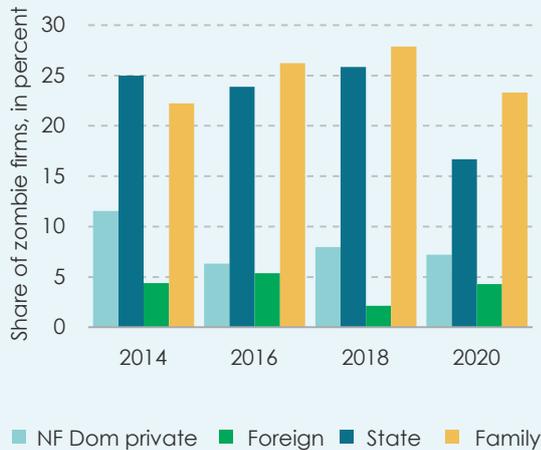
49 See, for example, Boycko et al., 1996.

50 A firm is considered to operate in more protected markets if the average import tariff rate in its host country for the product it exports is above 20 percent.

51 These estimates are obtained from a gravity model that considers country's observable characteristics in terms of economic size, level of development, remoteness, and factor endowments. See Chapter 6 for a detailed description of the methodology.

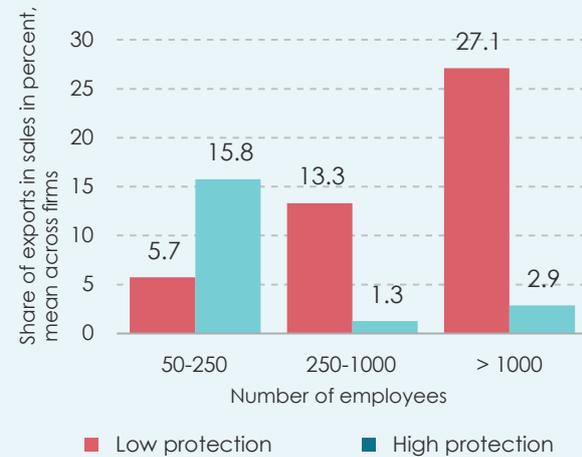
services sector on downstream manufacturing firms. These spillovers are estimated to be small and accrued disproportionately to less technologically advanced firms, i.e., those further away from the technological frontier, suggesting some learning process at play (Figure 0.40). However, there is no evidence of spillovers from FDI in other sectors (neither vertical nor horizontal). On the other hand, foreign companies help boost aggregate productivity because they are themselves more productive than other comparable firms. Publicly listed, foreign-owned firms are 46 percent more productive than domestic-owned firms of comparable size operating in the same sector in Pakistan. Part of this productivity premium is because multinationals 'cherry-pick' more productive domestic firms when making acquisition decisions. Nonetheless, even after being acquired, these formerly domestic firms gain productivity by about 12 percent (possibly through learning, technology transfers, and exposure to better managerial practices).

Figure 0.37: State- and family-owned firms are more likely to be 'zombie' firms...
(Zombie firms, by ownership structure)



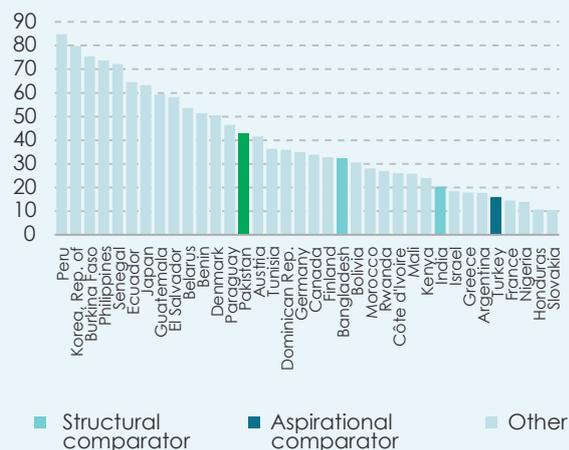
Source: Orbis, Securities and Exchange Commission of Pakistan, authors' calculations.

Figure 0.38: ...while firms in protected sectors are likely to show lower export orientation
(Pakistani firms' size and share of exports in revenue, by level of protection, 2012–2020 average)



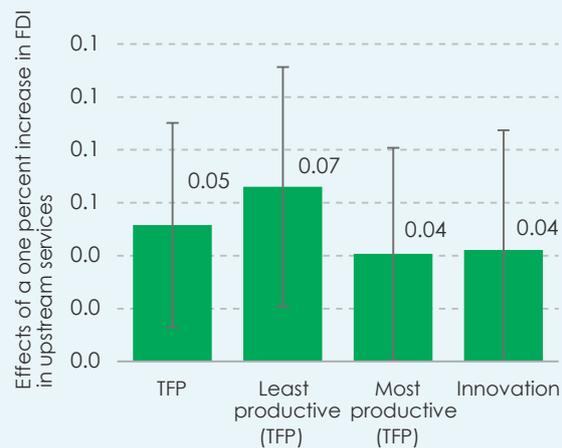
Source: Securities and Exchange Commission of Pakistan, Federal Bureau of Revenue, International Food Policy Research Institute, authors' calculations. Notes: High protection sectors are defined as industries with more than 100 percent effective protection rates.

Figure 0.39: Untapped FDI inflows are estimated at US\$2.8 billion per year
(Index of untapped FDI, Pakistan and comparators, 2015–2020)



Source: Authors' calculations.

Figure 0.40: Tapping into some of this potential, particularly if from the services sector, will lead to increased productivity in downstream sectors
(Effects of increased FDI upstream in services by type of firm, 2012–2019)



Source: Authors' calculations. Note: Based on regression estimates. Lowest productivity firms are those in the two bottom quintiles of the distribution of productivity. The graph on the right considers innovators those investing in intangible assets. The effect for intangible assets refers to a 1% increase in FDI in upstream service sectors. The error bars indicate 95% confidence intervals

Female labor force participation

Achieving fast and sustained economic growth in Pakistan requires tapping into all its talent and ensuring that this talent is allocated to its best uses. However, Pakistan displays far lower female labor force participation (FLFP) rates than would be expected for a country at its level of development, indicating a misallocation of talent. More specifically, in 2019, there were only two countries in the lower-to-middle per capita GDP range (US\$4,000 to US\$8,000 per capita GDP at 2017 PPP prices) and nine overall that had lower FLFP rates than Pakistan. Suppressed female labor supply carries real costs to the economy, and for Pakistan to achieve higher growth it must mobilize and productively allocate the talent and resources of its female population. In this context, Chapter 7 analyzes the opportunity cost from Pakistan's forgone female talent and presents an estimate of GDP gains that the country could achieve by closing the female employment gap relative to its peers. It analyzes factors that constrain FLFP in Pakistan and proposes policy interventions that can alleviate these. To a large extent, Pakistan's limited FLFP is due to prevailing gender norms that create barriers for female employment. Nonetheless, while gender norms will take time to change, the opportunity cost of misallocated talent is too high for Pakistan to afford.

The analysis points to four main findings. First, low levels of FLFP are a constraint to Pakistan's growth prospects and, by closing the female employment gap with its peers, an estimated 7 to 19 million new jobs could be created for women in Pakistan, with GDP gains ranging from 5 to 23 percent. Second, FLFP responds differently to the availability of physical and digital infrastructure: (i) there is a U-shaped pattern observed between educational attainment and FLFP in Pakistan that largely disappears with higher internet penetration; and (ii) better access to roads at the district level is positively associated with FLFP but the relationship between better public transport access and FLFP is more ambiguous. Third, FLFP declines with rising household income—only in the richest 25 percent of households does FLFP rise as incomes rise, leading to a skewed U-shaped relationship between income and FLFP. Fourth, a reduction in the agricultural employment share at the district level is always associated with a decline in the likelihood of female participation, with most of the decline in FLFP driven by a reduction in family business jobs. Overall, given that FLFP in Pakistan is constrained by demand and supply side factors, a multi-pronged policy approach that looks at both these aspects is needed to bring about change.

Finding 1: Increasing FLFP can boost Pakistan's GDP by up to 23 percent

Pakistan can accrue GDP gains ranging between 5 and 23 percent by closing the female employment gap relative to its peers, depending on complementary efforts to address labor demand. Chapter 7 presents new analysis on female employment and GDP gains for Pakistan if the country were to close its female employment gap relative to Bangladesh and a hypothetical country representing an average for lower middle-income countries.^{52,53} Specifically, about 7.3 million new jobs would be created if Pakistan were to close its female employment gap with Bangladesh, and the share of working age women in employment would increase from its 2018 level of 22 to 34 percent (Figure 0.41). Most of the newly created jobs for women would be created in the agriculture sector (5.2 percent of the WAP), followed by the government and personal services sectors (4.2 percent of the WAP) and the manufacturing sector (2.6 percent of the WAP). This would in turn lead to GDP gains ranging between 4.6 and 10.3 percent, depending on whether the new jobs are waged jobs or not (Figure 0.42). On the other hand, if Pakistan were to close the female employment gap relative to the low and middle-income country (LMIC) average, employment effects are estimated at 19.3 million jobs. In this case, most of the new jobs would come from the services sector (particularly in trade and hospitality), while agricultural jobs would decline, as LMICs have on average a much larger female employment share in services than both Bangladesh and Pakistan.⁵⁴ The corresponding increases in GDP are

⁵² It builds on the occupational choice model developed by Hsieh et al., 2019. For a more detailed description of the methodology, see Chapter 7.

⁵³ Bangladesh was chosen for the analysis as both Pakistan and Bangladesh are at a similar level of development, display similarities in the employment patterns for men and share cultural preferences and norms that result in fewer women seeking employment in specific sectors, such as the services sector.

⁵⁴ Closing the gap with LMICs will require significant changes to social norms, particularly regarding perceptions regarding women working in the trade and hospitality sectors. Such changes are likely to take longer to materialize and be accompanied by a broader modernization of the economy. Thus, results from the ambitious scenario provide an upper limit for the analysis.

higher, estimated at between 8.6 and 22.7 percent. The wide range of potential gains is related to the fact that complementary efforts to boost labor demand are needed to ensure maximum gains from higher FLFP.

Finding 2: Higher educational attainment is not linearly associated to FLFP, but connectivity helps

In Pakistan, educational attainment and FLFP shows a U-shaped relationship, which largely disappears when soft connectivity improves. Evidence presented in Chapter 7 shows that working age women who lack formal education altogether or who have very high levels of education are more likely to participate in the labor market. Meanwhile, medium levels of educational attainment are associated with lower FLFP (Figure 0.43). Education is only associated with higher FLFP for women with tertiary education, whose probability of participation is 34 percent, or about 11 percentage points higher than women without any formal education.⁵⁵ This suggests that poverty trumps gender norms associated with FLFP (poor households tend to have also low educational attainment), while these gender norms affect less those households with higher income where women's educational attainment tends to be higher. For intermediate levels, there is a combination of supply and demand factors at play. On the supply side, gender norms are likely more binding. On the demand side, jobs for women at these levels of education might not be available (not only because of possible biases in hiring, but also because of additional costs that employers face in the form of segregated spaces, restrooms, or the provision of safe transport).⁵⁶ Connectivity might help increasing FLFP if it reduces the costs of working remotely. Indeed, results in Chapter 7 show that improved connectivity, in the form of high internet penetration at the district level, is particularly beneficial for women with medium levels of education. When allowing for interaction effects between women's schooling level and internet penetration in each district, results indicate that the interaction is strongest for women with completed primary and completed secondary education (Figure 0.44). In fact, the U-shaped pattern almost disappears in the district with the highest level of internet penetration. In contrast, in the district with the lowest level of internet penetration, the U-shaped pattern is even stronger than the average.

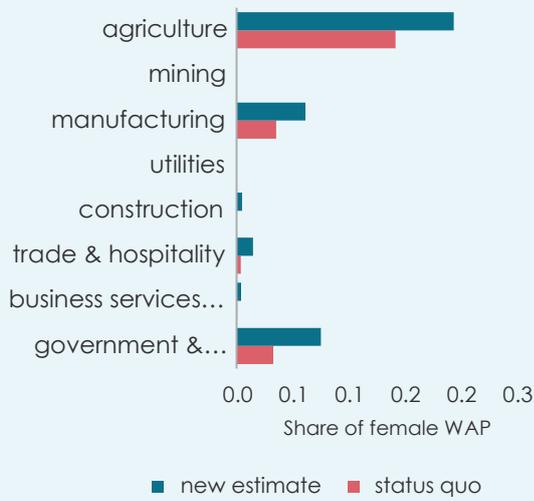
And while better access to roads at the district level is positively associated with FLFP, the relationship between better public transport access and FLFP is more ambiguous. Access to roads correlates positively with FLFP.⁵⁷ In a district where 81 to 97 percent of households have good road access, the expected probability of a woman participating in the labor market is between 20 to 22 percent. However, in districts with less than 50 percent of households less than 2 kilometers away from public transport, an improvement in transport access is associated with rising FLFP. In contrast, in districts with more than 50 percent of households less than 2 kilometers away from public transport, an improvement in transport access is associated with declining FLFP. A possible explanation is that the higher availability of transport is also a proxy for population density, which in turn might intertwine with safety concerns and cultural norms that reduce the likelihood of FLFP. The link between transport access, density and FLFP requires further analysis.

⁵⁵ Moreover, a decomposition of the effect of education on FLFP by employment type shows that the increase in FLFP for women with tertiary education is driven by an increase in wage employment.

⁵⁶ In manufacturing, for example, female employment is extremely low. The latest Census of Manufacturing Industries conducted in 2015/16 shows female employment was only 4 percent of total employment. Visits to manufacturing establishments during the preparation of this report revealed that it is more sophisticated firms that have active interventions to increase FLFP, including the provision of safe and dedicated transport, dedicated space in the plant and in some cases even childcare.

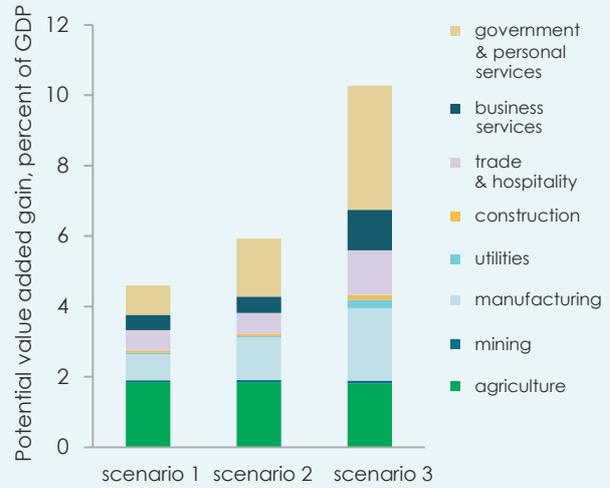
⁵⁷ To proxy physical connectivity, two measures are used: the proportion of households in the district that reported having a road at less than 2 kilometers away, and the proportion of households in the district that declared being less than 2 kilometers from the nearest public transport. Second, the share of households reporting to have accessed internet services over the previous three months was used to measure differences in digital connectivity.

Figure 0.41: There are substantial employment gains from narrowing the FLFP gap with Bangladesh....
(Estimated increase in employment relative to the working age population, using BGD as a benchmark)



Source: Authors' calculations based on PBS Labor Force Survey for 2017/18, PBS Labor Force Survey for 2016/17.

Figure 0.42: ...as well as substantial GDP gains
Projected increases in value added by sector using Bangladesh as a benchmark)



Note: Scenario 1 assumes that no waged jobs are created as female employment expands, Scenario 2 assumes that the proportion of waged jobs in each sector remains the same as female employment expands, and Scenario 3 assumes that all new jobs constitute waged jobs.

Figure 0.43: There is a U-shaped relationship between FLFP and schooling in Pakistan...
(Estimated FLFP probability by schooling)

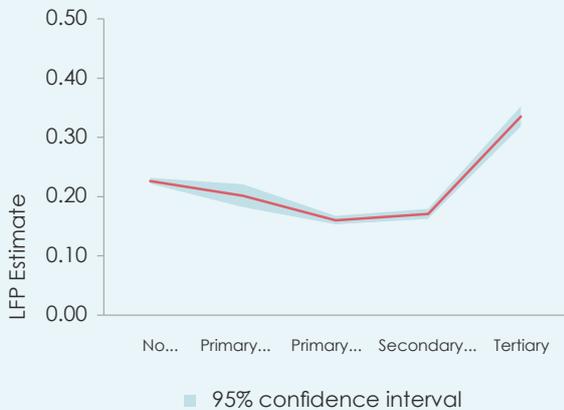
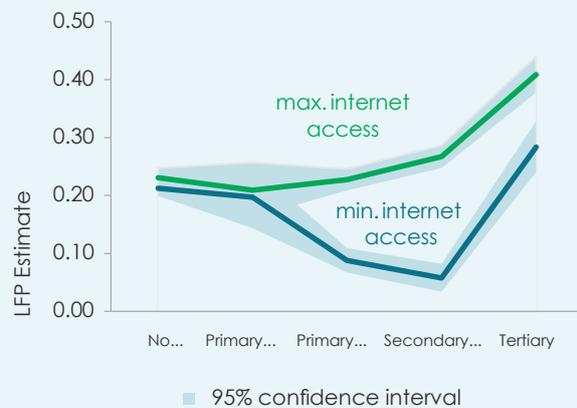


Figure 0.44: ...which shifts upward in districts with better internet access
(Estimated FLFP probability by schooling and by district level internet penetration)



Source: Authors' elaborating using data from 2018 HIES.

Finding 3: FLFP declines with rising household income at lower levels of income

For women in most households, labor force participation declines with rising household income—only in the richest 25 percent of households does FLFP rise as incomes rise. In the poorest 10 percent of households, the probability of FLFP is about 30 percent. As households become richer, the probability declines steadily up the point where the household income reaches the 75th percentile, where women participate in the labor force with a probability of only 15 percent. Beyond the 75th percentile, participation starts to increase again, reaching 18 percent in the 5 percent richest households, leading to a

skewed U-shaped relationship between income and FLFP (Figure 0.25). The declining FLFP rates across most of Pakistan's income distribution suggest that FLFP is largely driven by necessity rather than choice. Once households become richer, there are strong societal norms that result in women not seeking employment. The uptick in participation at very high levels of income could suggest that these social norms may become less stringent as households become richer. Or, alternatively, it could suggest that richer households are better able to afford technologies (such as the internet) or safer transport (or socially accepted forms of transport), allowing women to better integrate in the labor market, despite the existence of such norms.

Finding 4: Districts with lower agricultural employment display lower FLFP

A reduction in the agricultural employment share at the district level is always associated with a decline in the likelihood of FLFP due to fewer family business jobs. Outside agriculture, results show that, even after controlling for individual- and household-specific characteristics, certain sectors are associated with higher FLFP than others, but these are still lower than in the agriculture sector (Figure 4.06). In a scenario where the manufacturing sector has a 10-percentage-point higher employment share and the agriculture sector has a 10-percentage-point lower share, women participate in 21 percent of cases compared with 22 percent in the base case. In the case where the services sector has a 10-percentage-point higher employment share, women participate in 17 percent of cases.⁵⁸ This suggests that there are indeed sector-specific cultural norms that make it harder for women to work in some sectors than in others. Furthermore, most of the decline in FLFP is driven by a reduction in family business jobs, which characterizes employment in the rural agriculture sector. Intuitively, women occupied as contributing family workers in the family farm need to circumvent social norms much less than women seeking to participate in a salaried job in a factory.

Overall, FLFP in Pakistan is constrained by both demand and supply side factors, and a multi-pronged policy approach that looks at both these factors is needed to bring about change. Given that drivers of FLFP are manifold, and both economically and culturally related, identifying policy reforms leading to increases in FLFP with a relatively high degree of confidence is a challenging task. Rather, a policy approach involving substantial experimentation, trials, and learning from errors is likely required to address this important agenda of increased FLFP. Potential interventions from the supply side can be aimed at shifting norms among families to support women to gain more education and expand their horizon of job options. Involving men and other women in the household in these interventions can help reduce family objections to female employment in this regard. Affordable transport for women, specifically female-only transport, can help address safety concerns that restrict female physical mobility. Moreover, access to affordable internet, together with training on cyber safety and skills needed for digitally enabled jobs, can help women benefit from new opportunities of employment in this sector. From the demand side, policy options such as wage-subsidies programs could be considered to boost wage employment opportunities for women.^{59, 60} Strategies and policies to help women enter new sectors or traditionally male-dominated sectors should be developed and employers should implement bias-free hiring policies and existing laws regarding harassment, including the Protection Against Harassment of Women at the Workplace Act of 2010, to provide women with a level playing field and safe working conditions.

⁵⁸ As these results account for a wide range of individual- and household-specific characteristics, the observed effects do not compound for differences in educational attainment or a household's income level.

⁵⁹ Wage subsidies have been used to support employment levels during economic crises with positive results. See, for example, Levinsohn et al., 2014, for a successful implementation of wage subsidies in South Africa, Bruhn, 2015, for an application in Mexico, and Katz, 1996, for a broader study of wage subsidies in developed countries.

⁶⁰ In Pakistan, an experimental trial is being implemented in Punjab that focuses on a temporary wage subsidy targeted to women for technical/professional roles. The Government may consider the possibility of scaling up an intervention of this sort once conclusive evidence is obtained.

Figure 0.45: Necessity trumps norms when it comes to FLFP

(Estimated FLFP probability by household income)

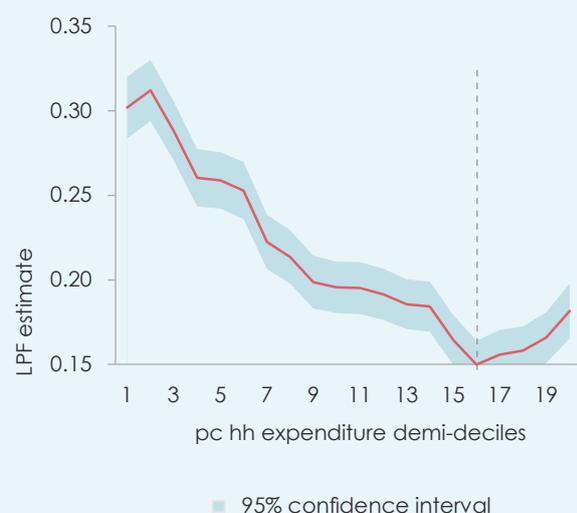
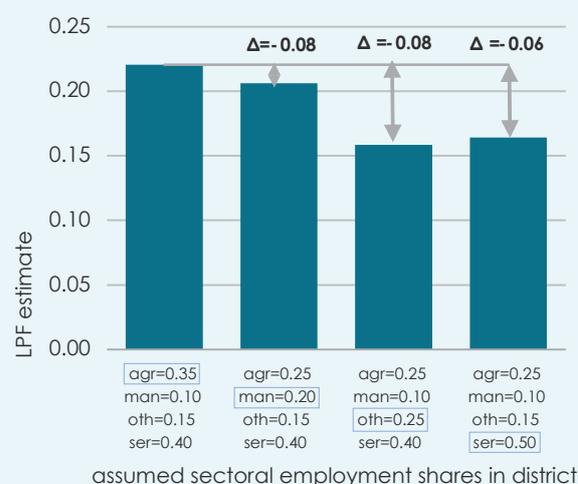


Figure 0.46: FLFP is higher in agriculture

(Estimated probability of FLFP by sectoral composition of employment)



Source: Authors' elaboration using data from 2018 HIES and 2019 district PSLMS.

Approach and Data

This report relies on various datasets to address policy relevant questions underlying Pakistan's development challenges. The approach taken considers three elements. First, *additionality*. It identifies specific development challenges for Pakistan, for which *new* evidence could be produced. Second, *rigor*. It identifies areas in which rigorous analysis can be performed, with solid identification strategies to link determinants with outcomes. Third, *policy relevance*. It identifies clear links with policy levers, proposing policy reforms or interventions that, based on the evidence presented, could help alleviate the challenge. Take Section 1 as an example. Chapter 1 undertakes a theoretically grounded approach to quantify the effect of distortions on aggregate productivity in Pakistan, thus providing rigorous evidence on the large costs that these distortions generate in the economy. Then Chapter 2 relies on a largely unexplored firm-level dataset to unveil evidence on a relevant challenge for Pakistan: the striking decline in firm-level productivity. Chapter 3 focuses on the drivers of that decline, and links it to Pakistan's inward turn that the economy has taken and presents results of a new impact evaluation of one of the most important export promotion policies that Pakistan has in place: the Duty Drawback of Taxes (DDT). Based on this analysis, recommendations on how to improve export promotion interventions are then presented.

The analysis is based on several micro-level datasets used in a complementary way, to ensure the right balance between in-depth analysis and wider representativity of results. The analysis in Sections 1 and 2, for example, are heavily intensive in firm-level data. However, systematic firm-level data with universal coverage are unavailable in Pakistan. The analysis in Chapter 2, Chapter 3, and Chapter 5 mostly relies on firm-level data from publicly listed firms for the period 2012–2020, as well as on the exporters' transactions dataset. These firms are 'special'. To ensure results are interpreted with informed caution, it is important to see how 'special' these firms (publicly listed, exporters) are. To this end, the main features of publicly listed firms are compared with those of other firms in Pakistan, relying on three different sources of firm-level data that have 'universal' coverage in their domain: (i) the Census of Manufacturing Industries (2015/16) that reports information on all manufacturing firms with more than 10 workers (regardless

of whether they are registered (formal) or unregistered); (ii) the registries from the Securities and Exchange Commission of Pakistan that hold information of all registered firms (incorporated or LLCs, regardless of their size); and (iii) the exporters transactions database from Customs that has information on all the merchandise exporters out of Pakistan (Figure 0.47).

Figure 0.47: Publicly listed firms (PLFs) in Pakistan in perspective: A comparison with three 'universal' datasets

<p>CMI (2015-16) 42,578 firms with 10+ employees</p> <p>Firms' distribution by # of employees:</p> <ul style="list-style-type: none"> • Between 10 and 20: 50% (small) • Between 20 and 100: 38% (medium) • Over 100: 12% (large) 	<p>SECP (2020) 43,784 firms registered as 'companies'</p> <p>Firms' distribution by paid-up capital (in Million PKR):</p> <ul style="list-style-type: none"> • Less than 10M: 95% • Between 10M and 100M: 3.7% • Over 100M: 1.3% 	<p>Exporter's dataset (2017) 14,000 firms</p> <p>Firms' distribution by exports (in Million USD):</p> <ul style="list-style-type: none"> • Less than 100 thousand: 50% • Between 100 thousand and 2M: 40% • Over 2M: 10%
<p>PLF Dataset</p> <p>90% of firms have over 15 employees, median firm employs 234.</p>	<p>PLF Dataset</p> <p>90% of firms have over 44.6M PKR in paid-up capital, median firm has 222.2M.</p>	<p>PLF Dataset</p> <p>90% of firms have over 13.4K USD exports, median firm exports 0.7M USD/year [1/2 exporters]</p>

Source: Authors' calculations based on CMI, SECP, Exporters' Transactions and PLFs datasets.

Publicly listed firms are larger, more capital intensive, and relatively more export-oriented than the typical firm in Pakistan. The CMI of 2015/16 surveyed 42,578 firms in manufacturing with more than 10 workers, of which 50 percent employed between 10 and 20 workers, 38 percent between 10 and 100, and 12 percent employed more than 100. Ninety percent of publicly listed firms instead employ more than 15 workers, with the median employment among these firms being 234. The SECP data show 43,784 firms as being registered in Pakistan (in 2020). Of those, 95 percent have less than PKR10 million in paid-up capital, while among publicly listed firms, 90 percent of firms have over PKR44 million in paid-up capital, and the median is PKR222 million. This is why the analysis based on publicly listed firms is complemented with a thorough analysis of the universe of merchandise exporters, with sector-level analysis based on the CMI 2015/16 (see analysis in Box 0.5), and with Household Surveys to extract as much information as possible on micro-enterprises (see Box 0.4).⁶¹

For agriculture and for FDI, the analysis also relies on micro-level data. The productivity dynamics analysis in Chapter 4 relies on farm-level data from Punjab, as well as country-wide district-level data. The analysis conducted in Section 2, in Chapter 6, combines firm-level data of publicly listed firms to analyze vertical spillovers from FDI in upstream services, with announcement-level data from *FDIMarkets* to analyze the motivations of foreign direct investors announcing investments in Pakistan.

Household and labor force surveys are also leveraged. In addition to helping provide insights into the performance of the informal sector, HIES surveys, combined with information from Labor Force Surveys, are leveraged for the novel analysis of Section 3. This identifies the talent misallocation cost for the economy of low female labor force participation and shows how some public policy interventions can help reduce that misallocation.

⁶¹ Firm-level data from the CMI 2015/16 were not made available, which constrained some of the comparative analysis.

Box 0.5: The Census of Manufacturing Industries 2015/16: A look at a broader set of firms in Pakistan

Early in 2022, the Pakistan Bureau of Statistics released the main results of its latest census of manufacturing industries: the CMI 2015/16. The CMI provides valuable information on the characteristics of 42,578 manufacturing firms in Pakistan with more than 10 employees and regardless of their formal/informal status. It also provides an update to the already dated information that the previous Census conducted in 2005/06 offered. However, comparisons between the 'old' and the 'new' census results are not possible because of substantial differences in methodology and coverage.⁶² Also, the unavailability of firm-level data for the CMI 2015/16 limits the type of analysis that can be conducted. This box uses sectoral-level data from the CMI and presents some stylized facts for the *average* firm.

The average firm. The data cover 42,578 firms across Pakistan. The average manufacturing firm in 2015/16 employed 54 workers, out of which only 4.1 percent were female. It added value for about PKR69.2 million, reporting fixed assets per worker at PKR1.6 million, and employment costs per worker at PKR354,700.⁶³ Out of all production costs (excluding wages), 8 percent corresponded to energy. Investment rates, measured as gross fixed capital formation as a share of value added, are low, at 16 percent (although higher than observed at the economy-wide level). These are higher in firms in Punjab and Sindh (17 and 15 percent, respectively), while lowest in firms in Balochistan and KP (8 and 10 percent, respectively). Once depreciation is netted out, net investment rates average 9 percent country-wide, but register lows of 1 and 3 percent in Balochistan and KP, respectively, and highs of 11 and 8 percent in Punjab and Sindh, respectively.

Value added in output, and employment costs in value added. The value of output in a sector can be decomposed into a portion of production costs (materials, energy) and a portion of value added. On average, the value added in one Pakistani rupee worth of output produced is 27 paisa. This varies substantially by sector. For example, for non-metallic mineral products, value added accounts for almost half of output, while for other transport equipment or electrical machinery, it accounts for about 20 percent (Figure 0.48). Value added can be further decomposed into wages and other workers' benefits (employment costs), net operating margins (profits or mark-ups) and indirect taxes net of subsidies. CMI data only allow to decompose value added into employment costs and 'other value added'. The most noticeable feature revealed by the data is that the labor share in value added is low, averaging 26.5 percent (this is comparable to labor shares in value added in Mexico [at around 30 percent], but substantially below labor shares in value added in countries such as India [at 69 percent]).⁶⁴ In leather and in textiles, employment costs in Pakistan account for more than 35 percent of value added, while in motor vehicles they account for slightly more than 20 percent of value added.

Value-added shares in output, and employment shares in value added help illustrate how powerful certain subsidies or protection schemes can be in shaping firms' behaviors. Take, for example, the export subsidies under DLT schemes that give a rebate of up to 4 percent of exports fob to exporters of a certain products. While a 4 percent subsidy appears low, *prima facie*, these incentives can be very high when measured relative to profit rates. Take other transport equipment: value added in output in the sector is at 17.5 percent, of which 28 percent is labor costs. That means that about 12.6 percent of the export value (output) corresponds to profits. A subsidy rate of 4 percent on export value increases profits by about one-third. Similarly, an import duty of, say, 10 percent, that is completely passed through to consumer prices will increase profit rates in the sector of other transport equipment by about 80 percent (the ratio of 10 to 12.6 percent).

⁶² For details on methodological changes, see PBS (2022) available here: <https://www.pbs.gov.pk/content/census-manufacturing-industries-2015-16>. On coverage, it has been reported that in 2005/06, many establishments had not been surveyed. In 2015/16, instead, there were substantial non-responses from firms operating in Sindh, for example.

⁶³ All PKR values are expressed in constant prices of 2015.

⁶⁴ These shares for Mexico or India are at economy-wide levels, not for manufacturing only. See Guerriero, M., 2019.

Figure 0.48: Value-added shares in output are relatively low across sectors...

(Share of value added in gross output, by sector, CMI 2015/16)

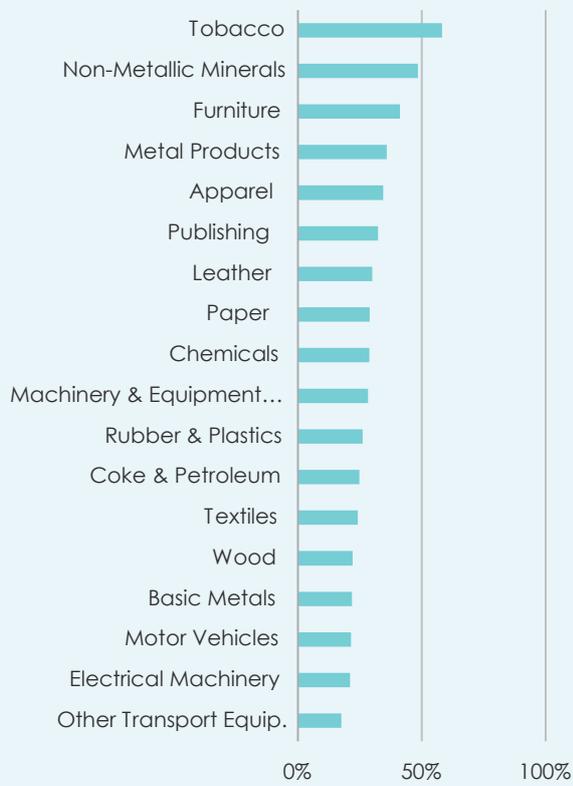
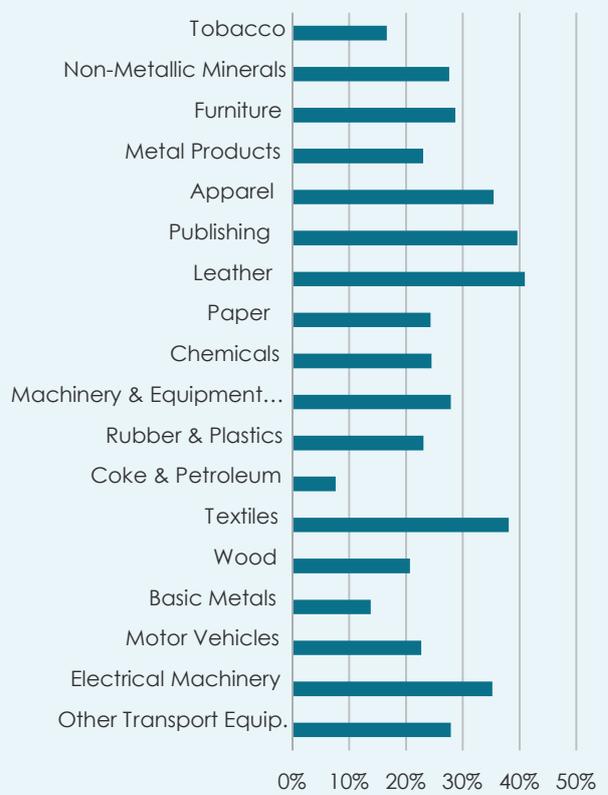


Figure 0.49: ...while the share of employment costs in value added is also low and in some cases half of what is observed in comparable countries

(Share of employment costs in value added, by sector, CMI 2015/16)



Source: Authors' calculations based on CMI 2015/16, Pakistan Bureau of Statistics.

Conclusions and Key Recommendations

This report has presented new evidence on the growth-related costs that Pakistan faces from distortions that impede an efficient allocation of its resources and talent. Put differently, the report shows the large payoffs that a transformative agenda that focuses on unleashing productivity, and investment, as well as boosting female labor force participation, could have. The set of recommendations identified in this report consider the complex political economy and governance challenges that Pakistan faces, with a model of development in which 'insiders' tend to capture institutions to preserve rents and prevent 'outsiders' from eroding them (see Box 0.6). Thus, recommendations centrally focus on leveling the playing field.

Box 0.6: Political economy and governance challenges

Underlying Pakistan's growth and productivity performance are political economy and governance challenges that hinder sound policymaking and implementation. As discussed in the Pakistan Systematic Country Diagnostic: Leveling the Playing Field (2020), elite capture has stunted the development of key markets that regulate the allocation of productive factors (markets for land, capital, and labor) in Pakistan. Over the course of the country's history, these elite groups that, for reasons of historical legacy, controlled higher endowments of land, physical and human capital, have not supported policies that could have addressed factor market failures, as this would have diluted their own economic power and their grip over state resources. This has led to an "insider-outsider" model of development in which weak and captured institutions serve the narrow interests of the few (insiders), as opposed to the many (outsiders), and undermined the legitimacy and effectiveness of Pakistan's formal institutions. Overall, the constraints that have inhibited Pakistan's sustained growth—namely, low investment, weak macroeconomic management, limited global integration and a slow and unequal process of growth-enhancing structural transformation—can be ascribed to the lack of support for reforms that could have addressed inefficiencies in the factor markets. Thus, the effectiveness of reforms crucially depends on alleviating public governance environment constraints and ensuring incentive compatibility.

The reform agenda is proposed in a sequenced manner to internalize Pakistan's complex political economy. A three-step approach is proposed, that starts with reforms to level the playing field through the removal or reduction of distortions, followed by interventions to support growth in the context of a more level playing field. Finally, to ensure the sustainability of these changes, there is a need for increased evidence-based policymaking and greater transparency, so that the civil society has the elements needed to demand productivity-based growth-enhancing reforms. Key recommendations are presented below, while the full set of recommendations and their proposed prioritization can be found in each of the chapters, as well as in Annex 1.

First, remove distortions to improve aggregate productivity through a better allocation of resources, by focusing on:

- **Tax policy:** Harmonize tax rates across sectors, to ensure a level playing field and facilitate the reallocation of resources from non-productive non-tradables and into more productive sectors.
- **Trade policy:** Gradually reduce the anti-export bias of trade policy by reducing import duties, to facilitate the reallocation of resources, from domestic to outward-oriented activities.

- **Export schemes:** Expand eligibility of export subsidies to favor export growth and diversification.
- **Size-dependent policies:** Re-consider size-dependent industrial policies to reduce incentives for firms to stay small de jure or de facto.
- **Agriculture subsidies:** Gradually phase out subsidies and price support in the agriculture sector, to facilitate a market-based allocation of land, labor and equipment based on comparative advantage, and re-allocate the created fiscal space toward investment in climate smart technologies and infrastructure, and agriculture extension services and research.
- **Working conditions for women:** Enact gender unbiased hiring policies, enforce existing legislation on work-place harassment, and consider wage subsidies to boost female employment at intermediate skills levels, to improve the allocation of talent in Pakistan.
- **Female transport:** Invest in safe, dedicated transport and improved soft connectivity to facilitate remote work to boost female labor force participation and productivity more generally.

Second, to ensure maximum positive impact of the alleviation of distortions, consider the following complementary reforms.

- **Fiscal space:** Crowd in, rather than crowd out, private investment by increasing the tax base and the efficiency of spending (including SOE reform ranging from improved governance and management to privatization in areas in which firms are not viable and state involvement unrequired), to reduce the borrowing needs of the consolidated government, thereby releasing resources for the private sector to borrow and grow.
- **Credit:** Reallocate subsidized financing for exporters away from working capital (the Export Finance Scheme) and into investment and innovation-focused financing (the Long-Term Financing Facility).
- **Managerial practices:** Reallocate funds away from unconditional subsidies to firms into programs on managerial practices upgrading, on a cost-share basis with the private sector and with a focus on those with export potential.
- **Business climate:** Reduce regulatory complexity, harmonize the general sales tax (GST) across provinces, and business licensing and registration processes to reduce the costs of doing business.
- **Investment framework:** Harmonize investment laws to attract more foreign direct investment.
- **Insolvency regime:** Upgrade insolvency laws to reduce the costs of liquidating unviable firms.

Third, subject all interventions that entail the use of public funds to rigorous impact evaluations, and create a dynamic loop from evidence to policymaking. Engage academia to link to the public sector and make data on direct support to firms or individuals as transparent as possible.

- **Costing of expenditures:** Mandate by law that all tax expenditure and subsidy proposals are properly costed before reaching decision-making stage and make the results of the costing public.
- **Feasibility analysis in the PSDP process:** Encourage the participation of academia in the consideration of the Public Sector Development Program (PSDP) from the Central and Provincial Development Working Party (CDWP), to ensure a rigorous assessment of project feasibility.
- **Impact evaluations in large PSDP projects and the Export Development Fund (EDF):** Mandate by law impact evaluations of PSDP projects, as well as EDF allocations, that incur in substantial

expenditures of public funds and make the results public.

- **Academia-public sector links:** To accomplish these recommendations, involve academia. Create linkages between academia and the public sector, and invest in impact evaluation capabilities. Start by building capacity in this area within the Pakistan Institute of Development Economics, while expanding the network of linkages to other universities and think tanks across the country.

A more comprehensive list of recommendations, along with the indicative timeframe and responsible agencies is presented in Table 0.1.

Table 0.1: Key recommendations, indicative timeframe, and responsible agencies

	Policy Recommendation	Timeframe	Responsible Agencies
Productivity Upgrading			
Improve Allocative Efficiency			
Trade Policy	Reform export subsidy schemes (DDT and DLT), by: (i) increasing eligibility; (ii) reducing the average subsidy rate and their dispersion; and (iii) conditioning subsidies on export growth at the firm level.	Short run	MoC
	Digitize and automate import duty remission schemes for exporters	Short run	FBR
	Gradually reduce import duties and the extent of cascading, strengthening institutions in the process	Short to medium run	MoC, NTB
SOE Reform	Ensure full compliance with corporate governance rules to improve the performance of SOEs, reduce anti-competitive pressures on markets in which they operate (including e.g.: regulatory advantages and soft-budget constraints).	Short run	MoF and SECP
	Consider privatization for unviable SOEs operating in areas in which state intervention is not advisable.	Short-to medium term	MoF
	Approve a new SOE law that establishes an ownership framework.	Short run	MoF and SECP
Competition	Empower the Competition Commission of Pakistan by granting it financial autonomy.	Short run	MoF
	Build capacity in courts on competition-related rulings.	Medium to long run	Ministry of Law and Justice
Agriculture reforms	Price water right, adjusting the irrigation tariff structure to cover operation and maintenance costs.	Medium to long run	Provincial water departments
	Reduce government intervention in agriculture markets, to promote competition and market-based allocation of resources, including reconsidering food procurement programs, and eliminating trade restrictions and licensing requirements in sugar	Medium to long run	Provincial agriculture departments

Enabling within-firm productivity growth			
Technology adoption	Re-orient subsidized credit away from working capital schemes (such as the Export Finance Scheme) and into long-term financing facilities (such as the Long-Term Financing Facility, LTFF).	Short to medium run	SBP
	Facilitate the adoption of climate smart technologies by removing distortions through import duties and facilitating the development of financial instruments for farmers.	Short to medium run	SBP (financial instruments), MOC (import duties)
Innovation	Increase R&D investment in agriculture.	Medium to long run	Pakistan agriculture research council (PARC)
	Strengthen the Intellectual Property Organization of Pakistan (IPO) and enforce the protection of trademarks at the export stage	Short to medium run	Intellectual Property Organization of Pakistan and MoC
Improve Allocative Efficiency			
Facilitating Investment and Firm Growth			
Credit	Create fiscal space to free up credit for the private sector by considering taxing investments in less productive assets and increasing the tax base.	Short to medium run	MoF, FBR
Regulatory Environment	Harmonize the General Sales Tax (GST) across provinces.	Short run	MoF, FBR and provincial revenue boards
	Streamline and digitize business licensing and registration processes.	Short to medium run	Bol and provincial boards of investment and trade.
	Update the legal framework for investment through a new Investment Law that harmonizes and modernizes existing laws and policies.	Short run	Bol
Insolvency system	Strengthen legal procedures for restructuring and liquidation to facilitate loss-making firms to exit and eliminate barriers to entry to the insolvency system.	Short to medium run	SECP
Policy stability	Negotiate trade agreements, moving toward full scope and deep agreements that include investment protection and competition provisions.	Medium to long run	MoC, Bol
	Commit to policy stability (e.g., on tax, trade, and investment policies) by strengthening institutions to encourage firms' long-term investment and innovation.	Medium to long run	Federal and provincial governments
Enabling within-firm growth			
Managerial Practices	Re-allocate funds from unconditional subsidies to firms into support to managerial capabilities, seeking public-private partnerships in all sectors (including agriculture), with focus on exporters, and subject to impact evaluations.	Short to medium run	MoP, Provincial governments

Increasing Female Labor Force Participation			
Supply-side factors			
Connectivity	Invest in safe and affordable transport, with a focus on women-only transport.	Short to medium run	Provincial governments' transport departments
	Increase access to affordable internet and support women by providing training on cyber safety.	Short to medium run	MoITT
SkillDevelopment	Invest in skill-development and training programs for women, including for digitally enabled jobs to address coordination failures.	Medium to long run	Provincial skills development departments, TEVTA
Home-based workers	Provide home-based workers with good working conditions and opportunities for learning and networking.	Medium run	Provincial labor departments
Enabling within-firm growth			
Wage subsidies	Consider, based on evidence, wage subsidies to boost employment opportunities for women.	Short run	Provincial labor departments
Gender-bias	Enact gender bias-free hiring policies to reduce gender-bias in recruitment	Short to medium run	Provincial labor departments
Work-place environment	Consider public-private partnerships for investments in childcare support facilities to address coordination failures.	Medium run	Provincial women's development departments
	Enforce existing laws on workplace harassment.	Short run	Provincial labor departments

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Section 1

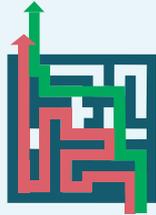
Productivity

Differences in productivity explain a large portion of the differences in standards of living across countries. As such, rapid productivity growth is crucial for Pakistan's aspirations of reaching upper middle-income status by 2047—when the country will celebrate its centenary. However, evidence from various growth-accounting exercises suggest a decline in the contribution of productivity to real GDP growth. This section relies on alternative micro-founded methodologies to assess how productivity has evolved across different sectors of the economy, what role distortions play and, more specifically, which policy-malleable factors have impacted on productivity trends.

Section 1 consists of four complementary chapters or policy notes. Chapter 1 presents striking findings that act as a motivation for the rest of the section. It uses a novel micro-founded theoretical framework that relies on Pakistan's manufacturing sector's firms' size distribution to infer the links between allocative and entry distortions, and aggregate productivity in Pakistan. It shows that allocative distortions explain about 18 percent of productivity, while entry distortions explain about 12 percent. The rest of the chapters use econometric techniques, relying on firm-level panel data (for manufacturing and services) and farm- and district-level data (for agriculture) to examine productivity dynamics and determinants. Chapter 2 focuses on the manufacturing and services sectors, and shows a generalized decline in total factor productivity over the past decade that is consistent across types and location of firms. Most of the decline for privately owned firms is accounted for by declines in their average productivity, rather than by declines in allocative efficiency. Chapter 3 examines how trade policy and productivity in manufacturing and services interact. It shows that, while firms' internationalization (both exporting and importing) is a powerful force for productivity growth, export promotion policies have not been effective in facilitating export growth, and have been biased in favor of well-established sectors, while tariff policy has been a deterrent for productivity upgrading, particularly because high tariffs on intermediates restrict firms' technological choices. Chapter 4 presents new evidence on agricultural productivity trends for key crops, relying both on district-level data country-wide and farm-level data for Punjab. It shows productivity stagnation, and in some cases declines. It also identifies the links between changes in climate and agricultural productivity. The four chapters end with actionable policy recommendations to upgrade productivity.

Distortions, Resource Allocation and Productivity in Pakistan

Productivity limiting distortions are **high** in Pakistan



These include **allocation distortions** - that prevent an allocation of resources to their most productive resources

Examples include:

- (i) size-dependent policies, such as certain labor market regulations and their enforcement that kicks in after a specific firm-size;
- (iii) high import duties that are heterogeneous by sector;
- (iii) social norms that make it difficult for females to join the labor force.



As well as **entry level distortions** - that generate barriers equivalent to an entry tax rate of **400%**

Examples include:

- (i) export subsidies that target only incumbents,
- (iii) implicit and explicit business registration and licensing costs,
- (iii) complex access to crucial inputs, such as a stable source of electricity.



Eliminating them would increase firms' productivity by about **18%**



Eliminating them would increase firms' productivity by about **12%**

Chapter 1

Distortions, Resource Allocation and Productivity in Pakistan

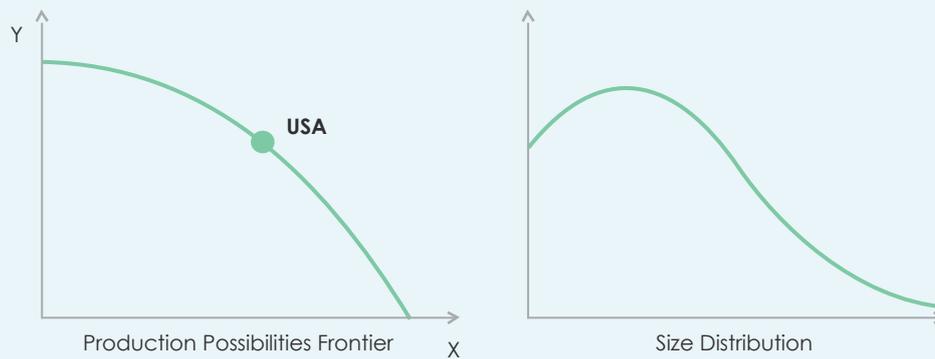
Productivity growth is central to achieving increases in standards of living. However, in Pakistan, productivity has been shrinking. In part, this is because firms have experienced reduced efficiency, and in part it is because the way resources are allocated across firms is far from optimal. This chapter uses a novel framework to analyze the latter channel, linking the efficiency with which resources are allocated and aggregate productivity, and how it interplays with market distortions in Pakistan. The chapter argues that: (i) eliminating allocative distortions would increase productivity by about 18 percent; (ii) eliminating barriers to entry that firms face in markets would increase productivity by about 12 percent; and (iii) identified distortions in Pakistan explain the relatively large size of its informal sector.

Background

Differences in productivity account for a large portion of differences in standards of living. While differences in capital, labor or land play a role in explaining differences in income per capita, productivity differences explain most of these differences. Understanding what determines productivity differences across countries is then crucial. An important factor is how efficient individual firms are, and how that within-firm efficiency evolves over time. Another factor is how efficient is the allocation of resources across firms: do more productive firms grow larger, and do less productive firms shrink? This chapter focuses on the way distortions affect allocative efficiency (and firms' entry) in Pakistan. (Then, Chapter 2 will present empirical evidence on trends on within-firm productivity and its determinants in Pakistan to show that allocative efficiency gains have not been large enough to offset the declines in within-firm productivity, leading to an aggregate contraction of productivity in the manufacturing sector during the past decade).

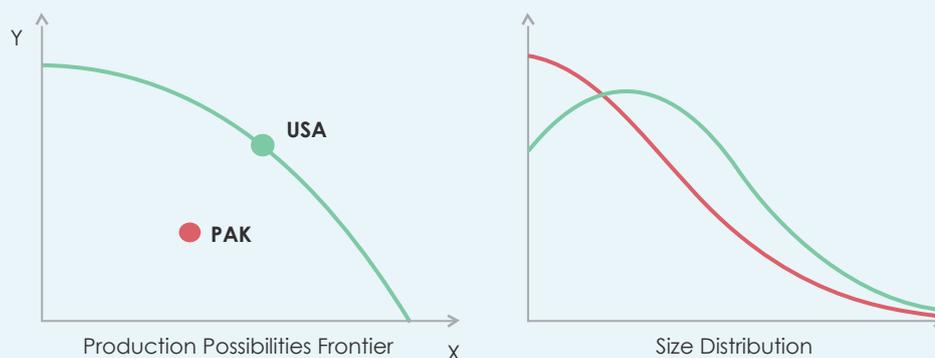
In an economy without distortions, resource allocation would be efficient. This implies that, in equilibrium, the additional return or benefit of using one more resource (the firms' 'marginal revenue product') would equalize across firms. If that were not the case, then resources would be better allocated by taking one unit of resources (e.g., a worker, or a machine) away from the firm with a lower return and allocating it instead to the firm with a higher return (until returns were equalized). That would lead to the economy operating at the frontier of the possibilities of production (PPF), and it would lead to a given distribution of firms' sizes (Figure 1.1).

Figure 1.1: In the absence of distortions, resources are allocated efficiently, leading to a firms' size distribution



Some distortions in a market (policy induced or otherwise) interfere with the efficient allocation of resources, and therefore limit firms' growth and aggregate productivity growth. Some distortions lead to resources being misallocated. In Pakistan, for example, export credit subsidies that target specific sectors will lead to firms in these sectors being able to grow beyond the level that their 'true' productivity (i.e., their productivity in the absence of the distortion) would have suggested. Another relevant example for Pakistan is that of size-dependent policies or their implementation, which are pervasive around labor market regulations. Firms only need to make social security contributions for their workers once they have employed at least 10 workers. Similarly, minimum wages apply on firms of certain size, and labor inspections become more regular as firms grow larger (see Box 1.1 for a detailed discussion of size-dependent policies in Pakistan, mostly pertaining to labor market regulations). This misallocates resources from the large (and potentially more productive) firms, to the small (and less productive) ones, leading to the economy operating below the PPF, and also leading to a distribution of firms' size that displays a larger share of small firms than what would be expected in a distortion-free economy (Figure 1.2).

Figure 1.2: When there are allocative distortions, inefficiencies are introduced, impacting firms' sizes



Box 1.1: Size-dependent policies in Pakistan and their potential impact

Policies that treat small firms preferentially are common, particularly in developing countries. For example, in Pakistan, firms that hire more than 10 workers face additional regulatory costs. However, size-dependent policies (SDP) induce 'bunching': firms rationally choose to stay small (just below the threshold) to save regulatory costs. Bunching behavior is associated with misallocation. Because larger firms are typically more productive (including in Pakistan, as shown in Chapter 2), SDPs act as a tax on the most productive firms. Evidence shows that due to this 'implicit tax', the removal of SDPs can lead to output gains of 0.02 to 4 percent.⁶⁵ It has also been argued that, if becoming an entrepreneur is a risky activity and there is no insurance for that risk (market failure), SDPs provide incentives for firms' creation beyond what would be observed in the absence of interventions.⁶⁶ The desirability of SDPs then depends on the tradeoff between the misallocation created through 'bunching' and the benefit created through stimulating firms' creation.

What are the SDPs in Pakistan? These tend to be mostly related to labor market regulations. Some policies and provisions are discussed below.

1. **Employers with 10 or more employees must contribute toward the Employees Old Age Benefits (EOBI) fund for their employees (Employees Old Age Benefits Act, 1976).** The financial costs of having to contribute to the EOBI fund can have two potential impacts: (i) employers are either less likely to hire a tenth employee; or (ii) where they must hire a tenth employee, they may underreport the total number of employees to avoid paying their EOBI contribution.
2. **Payment of an education cess.** As per the Punjab Workers Children (Education) Ordinance 1972, employers (as defined under this Act) with 10 or more employees are liable to pay an education cess at the rate of PKR 100/per employee every year.
3. **Factories with more than 10 employees are subject to inspections and more official regulations.** If a company, or part thereof, is considered as a factory under the Factories Act of 1934, then it is subject to inspections and must follow health and safety standards, as well as officially prescribed working hours and holidays, etc. There is no equivalent law for factories employing fewer than 10 persons.
4. **Establishment and contribution to a Workers Participation Fund.** As per the Companies' Profits (Workers Participation) Act 1968, industrial entities with 50 or more workers or paid-up capital exceeding PKR 2 million or fixed assets above PKR 4 million in value, must establish a "Workers Participation Fund", and every year pay 5 percent of profits during that year into this fund no later than nine months from the close of that year.
5. **Contribution to a Workers Welfare Fund (Punjab Workers Welfare Fund Act, 2019).** Any establishment, or a part thereof, with a total annual income above PKR 0.5 million, is liable to pay 2 percent of its total income in a year to the Workers Welfare Fund. The contribution to the Workers Welfare Fund is independent of any contributions required to be made to the Workers Participation Fund under the Companies' Profits (Workers Participation) Act 1968.
6. **Payments to the provincial social security institution.** As per the Provincial Social Security Ordinance 1965, employers with more than five employees are required to pay 6 percent (of the employee's wage) to the provincial social security institution for each employee employed directly or indirectly by the said employer.
7. **Industrial and/or commercial establishments with 20 or more workers are subject to more rules, with additional financial requirements for establishments with 49 or more workers.** As per the Industrial and Commercial Employment (Standing Orders) Ordinance 1968, applicable to industrial or commercial establishments with more than 20 workers, such establishments are

⁶⁵ See, for example, Bachas, P. et al., 2019, or Garicano, L. et al., 2016.

⁶⁶ See, for example, Ando, S., 2021.

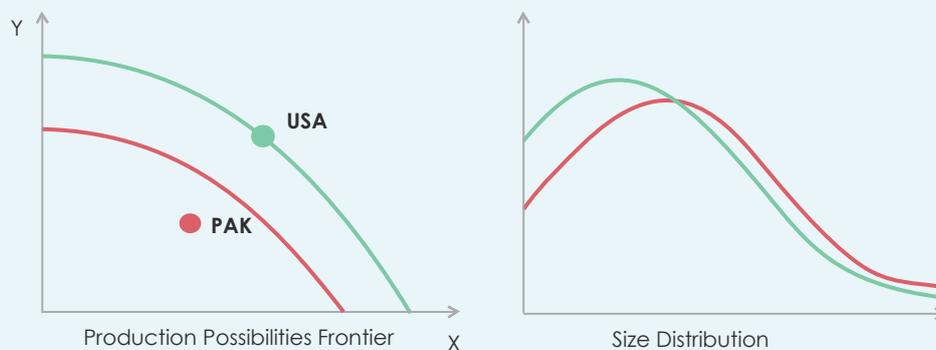
required to follow standard rules regarding work time, leave rules, and wage rates, among others. Additional requirements are imposed on employers with 49 or more workers, including the setting-up of a compulsory group insurance and the payment of a gratuity to workers who resign or who are terminated for reasons other than misconduct.

- 8. Minimum wage laws.** While all employees are subject to the minimum wage notified by the Government, small enterprises that employ up to nine people in Khyber Pakhtunkhwa (KP) province, public sector employees, agricultural workers, coal miners and workers in charitable institutions, are exempt from this provision.

Note: This is not an exhaustive review of all firm-related regulations in Pakistan, but briefly covers certain national and sub-national labor laws and their provisions.

Some other distortions introduce barriers to entry, reducing the number of firms in the market and limiting innovation. For example, in Pakistan, the targeting of export subsidies has been such that they reward traditional, instead of new, products. This reduces the scope of entry of exporters aiming at export product innovation. Also, registration cost, or difficulties in accessing key inputs—for example, a stable supply of electricity—can also act as a barrier to entry, reducing the number of new firms in the market, concentrating production into fewer and larger firms, and motivating the survival of less productive businesses. This would lead to a frontier of production possibilities that shrinks inward, and the prevalence of a higher share of relatively larger firms (Figure 1.3).

Figure 1.3: Barriers to entry also affect efficiency and firms' size distribution



Quantifying Distortions in Pakistan

Distortions in Pakistan are large in a cross-country comparison, both those that affect resource allocation and those that affect firms' entry. To identify and measure the extent of the distortions, the chapter follows the framework of Hsieh and Klenow (2009) and Fattal Jaef (2019), and relies on cross-country manufacturing census data. Allocative distortions can be measured from the data, and at the firm level are proxied by the gap between the marginal revenue product of the industry and that of the firm (when these are equal, resources cannot be better allocated). Distortions associated with entry barriers

are inferred from the firms' size distribution, given no allocative distortion, by comparing it with a 'baseline' distribution from a relatively distortion-free context. In this case, that baseline is the United States' economy. To get a sense of the methodology at work, the average formal firm (in the manufacturing census that covers firms with 10 or more employees) in Pakistan's manufacturing sector employs 106 workers. This is close to the average manufacturing firm in the United States (assumed to be an efficient, relatively distortion-free economy), which employs 118 workers. Allocative distortions, estimated from the data, are high in Pakistan and, if they were the only type of distortion in the economy, they would have implied an average size of 32 workers (as allocative distortions lead to smaller firms), below the observed value of 106. This suggests that entry barriers (that have a countervailing effect on the size distribution of firms) are such that they push the average firm size to the observed level. This is equivalent to an entry tax rate of 400 percent.

Allocative and Entry Distortions

Allocative and entry distortions are strongly correlated with a country's level of development. This is both expected and reassuring. There are virtually no allocative or entry distortions observed in Spain, Finland, or France, while distortions are high in the case of Pakistan. High allocative distortions are consistent with the pervasive size-dependent policies in place that act as an implicit tax on the production of the more productive firms (or as a subsidy on the production of the less productive ones).

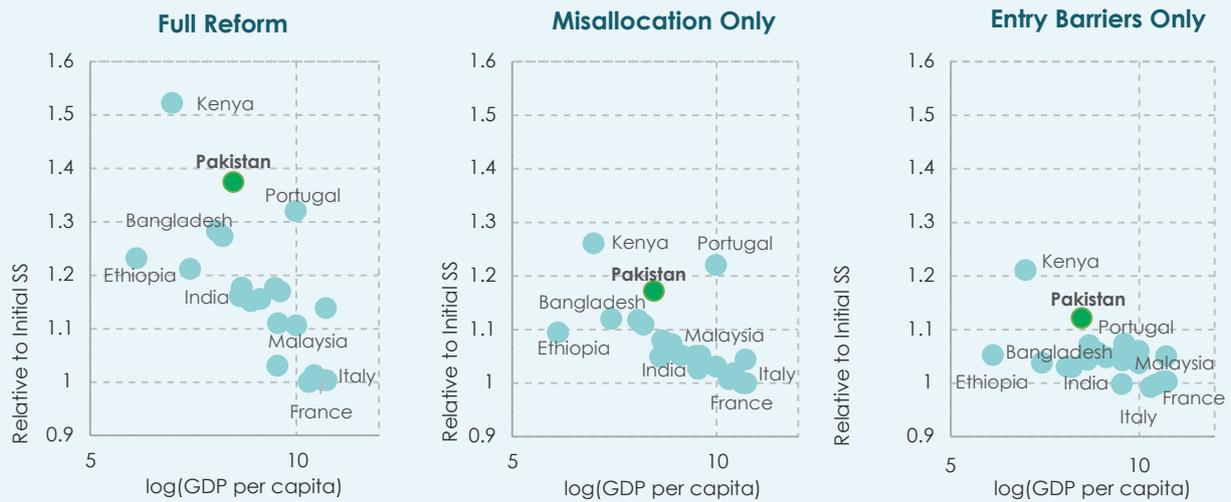
Figure 1.4: Both allocative and entry distortions are high in Pakistan when comparing across countries



Source: Authors' calculations. Note: the vertical axis of Panel A "Slope TFPR-TFPQ" measures allocative distortions. The vertical axis of Panel B "log(1+TauE)" measures distortions related to barriers to entry.

The aggregate effects of removing the allocative and entry distortions add a potential 40 percent increase in aggregate productivity. The gains from reversing allocative distortions are about 5 percentage points greater than those from reversing barriers to entry, yet both are substantial and add to an almost 40 percent boost to aggregate productivity (Figure 1.5).

Figure 1.5: Pakistan would accrue substantial TFP gains from eliminating allocative and entry distortions



Source: Authors' calculations. Note: TFP gains are identified relative to the initial steady state with distortions. Panel A shows the gains if all distortions were to be removed. Panel B shows the gains if only allocative distortions were to be removed, while Panel C shows the gains if only distortions related to entry barriers were to be removed.

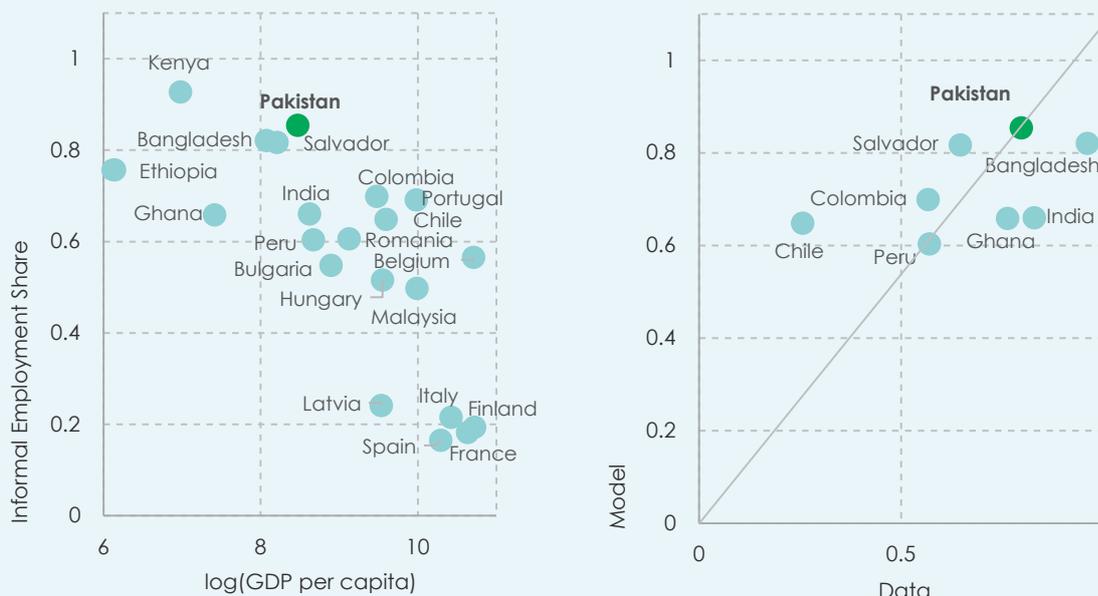
Distortions and Informality

Distortions in the formal sector can stimulate growth of the informal sector. If goods traded in the formal and informal sectors are similar in nature (in the extreme, completely substitutable), then formal entrepreneurship would be an occupational choice. An entrepreneur would choose formality if the prospect of unconstrained profitability offsets the costs of facing entry-related and other distortions. When the formal and informal goods are not fully substitutable, then an additional dimension that the entrepreneur needs to consider comes from the demand side: the willingness of households to substitute expenditure between formal and informal goods. Distortions that inflate the cost of entry into formal production, and idiosyncratic distortions that reduce the relative profitability of formal firms relative to informal ones, trigger a reallocation of entry toward the informal sector. The extent of this reallocation is limited by households' elasticity of substitution between formal and informal goods. Thus, given the estimated allocative and entry distortions, and under reasonable assumptions on the elasticity of substitution between formal and informal goods, it is possible to estimate the size of the informal sector as predicted by the extent of distortions.

Informal employment in Pakistan is consistent with the extent of estimated allocative and entry distortions. Informal employment shares decrease with income per capita, as expected (Figure 1.6). Identified distortions for Pakistan predict the country's informal employment shares. It is worth mentioning

that there are other drivers of informality in lower middle-income countries similar to Pakistan that are not necessarily related to distortions.

Figure 1.6: The distortions captured by the model explain the level of informality in Pakistan



Source: Authors' calculations. Informal employment shares from ILOStat

Pakistan has introduced many distortions that prevent markets from allocating resources efficiently or that reduce firms' entry rates. Among the distortions that impede better allocation of resources, the most salient are: (i) labor regulations, such as social security contributions, minimum wages, or size-specific inspection frequency (along with the implementation of these regulations that are dependent on the size of the firm); (ii) export-subsidized credit that is sector-targeted; (iii) high import duties that are heterogeneous by sector; and (iv) 'no-objections' certificate requirements for the expansion of firms, or social norms that make it difficult for females to join the labor force. Among the distortions that impede firms' entry, these include export subsidies that target only incumbents, implicit and explicit business registration and licensing costs, or complex access to crucial inputs, such as a stable source of electricity.

This chapter has shown that these distortions are costly for the economy: they reduce aggregate productivity, impede firms' growth, and stimulate informality (in turn with associated productivity costs). While many of these policy-induced distortions may have a valid objective (supporting small firms or stimulating a particular sector that may have been identified as a priority at a given point in time), the unintended consequences are costly for the economy. Taking stock of these distortions and reducing their economic footprint should be a policy priority. The chapters that follow identify some of these distortions and propose an agenda of reforms to reduce their economic cost.

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Pakistan's Productivity Challenges

Publicly listed firms recorded a steady decline in aggregate total factor productivity over the period 2012–2020

The decline in aggregate productivity is driven by **within-firm declines** that are **not fully offset by improvements in allocative efficiency**



+4% Improvements in allocative efficiency

Resources flowing from low-productivity to high-productivity firms



-10% Within-firm decline

Firms are becoming worse at what they do

-7.5%

The decline has been sharper for family-owned firms



-4.5%

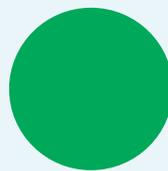
than for non-family-owned firms



Innovation and productivity are strongly linked



52% of the most productive firms have invested in innovation



compared to only **13%** of the least productive firms

Innovation, however, is relatively **low** in Pakistan



Patent applications have fallen from an average of **1,288 per year** in the period 2000–2010, to **899** in 2010–2020



Chapter 2

Pakistan's Productivity Challenges

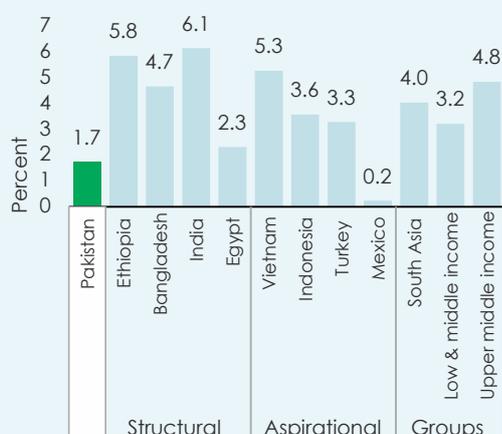
Over the past two decades, Pakistan's real GDP per capita growth has been modest, at 1.7 percent per year—less than half the regional average. Productivity stagnation and declining rates of capital-deepening are at the heart of the low growth challenge. This chapter presents new evidence on the evolution of Pakistani firms' total factor productivity over the past decade. It focuses on two types of firms: publicly listed firms, mostly in manufacturing and services, and state-owned enterprises. The chapter argues that: (i) aggregate productivity has been shrinking; (ii) the decline is due to firms becoming less productive at what they do over time, and that it is systematic across types of firms and their location; and (iii) allocative efficiency has offset to some extent the decline of within-firm productivity. The chapter then provides policy recommendations in the areas of: (i) innovation and technology adoption; (ii) firms' capabilities upgrading; and (iii) competition, to boost Pakistan's productivity growth.

Background

Pakistan's real GDP per capita growth has been slow, at 1.7 percent per year over the past two decades—less than half the regional average. Real GDP grew at an average of 4.1 percent per year during this period. However, fast population growth, at around 2 percent per year, resulted in a modest annual real GDP per capita growth of 1.7 percent. Pakistan's performance is underwhelming in a regional perspective. During the same period, average GDP per capita growth in South Asia stood at 4.0 percent per year, 2.3 percentage points higher than Pakistan. Similarly, Pakistan's growth is also below average when benchmarked against structural or aspirational comparators (Figure 2.1).

Figure 2.1: Pakistan's real GDP per capita growth rate has been low compared to peers...

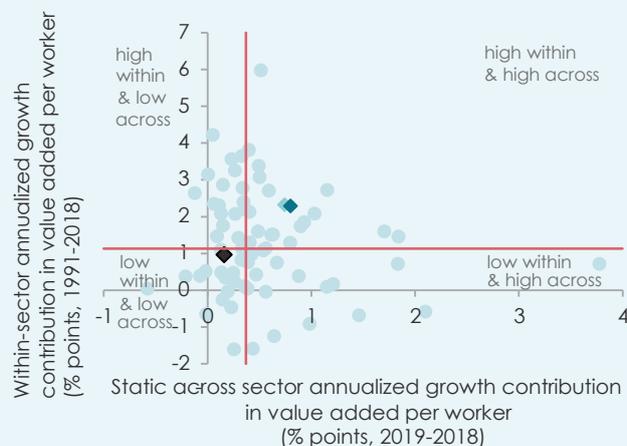
(Real GDP per capita growth, average 2000–2020)



Source: World Development Indicators.

Figure 2.2: ...partly related to slow increases in within-sector and across-sector productivity growth

(Across and within-sector contribution to labor productivity growth, in percent)



◆ PAK ◆ Structural (mean) ◆ Aspirational (mean)

Source: Jobs Group JD Standard Code (JDSC) based on WDI.

A long-term examination of Pakistan's structural transformation process reveals some of the typical features of a country 'trapped' in a low-level equilibrium, where resources are underutilized. In a growing economy, people and firms improve their earnings as they become more productive in the work they do, or by moving to a better job or activity.⁶⁷ This movement happens across locations, sectors, or occupations, and from self-employment to waged employment. However, in Pakistan, for the period 1991–2018, there is evidence of slow increases in within-sector and across-sector productivity growth (Figure 2.2). The latter means that the structural transformation needed to move resources from low- to high-productivity activities has not delivered to its full potential. (Chapter 1 on Distortions, Resource Allocation and Productivity in Pakistan quantifies existing distortions and identifies the productivity costs of these distortions slowing down the structural transformation process.) Moreover, a long-term growth-accounting exercise reveals a secular decline in aggregate productivity growth at the macro level and across sectors, including the agriculture, manufacturing, and services sectors (Siddique, 2020).

Firms' Productivity Dynamics

Focusing on firm-level dynamics over the past decade reveals a more worrying picture. Analysis based on data on publicly listed firms for the period 2012–2020 shows a slow decline in total factor productivity (TFP) over time (Figure 2.3, left). For state-owned enterprises (SOEs), evidence suggests there are some small improvements in productivity in the least-productive firms. Nonetheless, overall, there are no substantial improvements in average productivity. This is observed across all sectors.

Figure 2.3: Total factor productivity has stagnated over the past decade
(Productivity over time, listed firms (left) and SOEs (right))



Note: Authors' calculations based on financial statements analysis of companies (non-banking) listed on the Pakistan Stock Exchange. Note that due to data constraints, the two measures of productivity are estimated using different techniques and thus are not directly comparable (see Box 2.1 for a description of the methodologies). Nonetheless, both distributions reveal small variations over time. The difference in means for listed firms is statistically significant, while for SOEs, the difference in means is not statistically significant.

⁶⁷ See World Development Report, 2013

Box 2.1: Estimating firm-level productivity

Following Lovo and Varela (2022), we estimate total factor revenue-based productivity (TFPR) using the methodology proposed by Levinsohn and Petrin (2003). Given the lack of available data, we use total wages instead of the number of employees, which is normally used in productivity estimates. The cost of materials is used as a proxy to control for unobserved productivity shocks, while real sales are used to measure output. The lack of firm-level prices and employment data prevents us from estimating total factor quantity-based productivity (TFPQ). Foster, Haltiwanger and Syverson (2008) indicate that, when using sector-level deflators, differences in plant-specific prices show up in TFP measures. In particular, they distinguish between physical productivity (TFPQ) and revenue-based total factor productivity (TFPR). TFPR tends to overestimate the productivity of firms producing higher-price products while underestimating that of firms producing lower-price (quality) products, since real sales are obtained by using the same deflator at the sector level. The authors, however, show that traditional measures of TFPR and TFPQ are highly correlated. In our analysis, we adopt the approach of Hsieh and Klenow (2009) and interpret TFPR differences within narrowly defined activities as an indication of capital or output distortions. In the absence of distortions, more capital and labor should be allocated to plants with higher TFPQ, the higher output should result in a lower output price leading to similar TFPR across firms. Hence, TFPR dispersion indicates distortions in the form of barriers to the optimal allocation of resources. We compute labor productivity by dividing sales over total wages.

Because of limited data on SOEs, specifically the lack of information on material or other costs that can be used as a proxy in the Levinsohn and Petrin (2003) methodology, TFPR is computed using the Solow residual method (as in Bloom et al., 2016). Here, the output elasticity of labor and capital is calculated as the average share of each input value in total revenues. TFPR is then estimated by dividing revenues by the weighted geometric average of labor and capital input, using shares as weights. In what follows, TFP and TFPR are used interchangeably.

The overall decline in aggregate TFP is explained by declines in within-firm productivity that have been only partially offset by improvements in allocative efficiency (i.e., resources flowing away from low-productivity and into high-productivity firms). Changes in TFP over time can be decomposed into: (i) a within-firm component (average productivity gains from existing firms); and (ii) a between-firm component (reallocation of market shares toward more productive firms).⁶⁸ For listed firms, the decline in aggregate productivity is explained by a decline in firm-level productivity throughout the period (Figure 2.4, left panel). On the other hand, the reallocation of resources between firms has made a positive, albeit smaller, contribution to aggregate TFP, as resources are allocated away from low-productivity firms toward high-productivity firms.

⁶⁸ TFP can be further decomposed to account for firm entry (gains obtained through the entrance of more productive firms) and firm exit (gains obtained through the exit of unproductive firms). However, our data are not suitable for investigating the role of entry and exit, hence these two components have been omitted.

Figure 2.4: Within-firm productivity declines dominate aggregate productivity trends among listed firms, while between-firm changes dominate trends among SOEs
(Decomposition of productivity growth, listed firms (left) and SOEs (right))



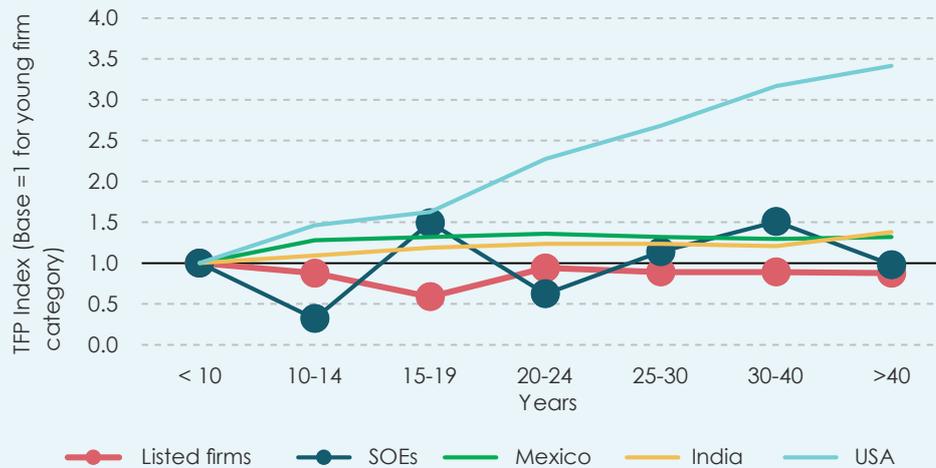
Note: Authors' calculations based on financial statements analysis of companies (non-banking) listed on the Pakistan Stock Exchange.

The picture for SOEs' aggregate TFP growth trend is mixed. A first period, during 2015–2016, of negative performance for both the within and between components of TFP growth, is followed by a second period during 2017–2019, which shows a pattern similar to that experienced by publicly listed firms (Figure 2.4, right panel). In the case of SOEs, however, improvements in allocative efficiency (the between-firm reallocation of resources) in this second period were large enough to offset the decline in firm-level productivity.

The deceleration in economic activity due to the COVID-19 pandemic led to a sharp contraction in within-firm productivity. Within-firm productivity fell by 23 percent in 2020 compared with 2019 levels, the largest contraction in the period under analysis, and only partially offset by a 3 percent increase in allocative efficiency (between-firm productivity growth) (Figure 2.4).⁶⁹ This contraction is likely linked to the sharp deceleration in economic activity due to the restrictions imposed to control the spread of the COVID-19 virus, which led to a deceleration of output without a corresponding decline in employment or capital. This was because firms tended to choose to preserve employment, as well as tangible and intangible productive assets, during the COVID-19 shock, given that it was initially perceived as being temporary rather than permanent (Figure 2.4, left panel).

⁶⁹ It has been argued that crises may have a silver lining by improving resource reallocation. Low productivity firms may be the first ones to exit, releasing resources to more productive ones, thus leading to an increase in allocative efficiency. In Pakistan this does not seem to be the case. While within-firm productivity declined substantially, between-firm productivity growth was positive but not different from the average of previous years, suggesting that the COVID-19 crisis was not a catalyst for the acceleration of a process of creative destruction in Pakistan.

Figure 2.5: Firms in Pakistan do not grow 'wise' as they grow old
(Productivity growth over the lifecycle of a firm)



Note: Mexico, India and the United States data come from Hsieh and Klenow (2014), data for Pakistan are based on financial statements analysis of companies (non-banking) listed on the Pakistan Stock Exchange. Initial TFP index for age class below 10 is normalized to 1 for all countries.

Firms' productivity remains relatively flat over their lifecycle in Pakistan, similarly to the patterns observed in other developing countries. Pakistani firms do not become more productive as they grow older (Figure 2.5). In Pakistan, a 40-year-old firm, either listed or an SOE, is as productive as a young firm of less than 10 years in age. Instead, in India or Mexico, the older firm is between 30 and 40 percent more productive than the younger one. In the United States, it is over three times more productive, on average. This pattern is symptomatic of a lack of growth (which would normally lead to productivity gains through economies of scale), in turn related to a lack of technology adoption and investment.

Box 2.2: Firm-level data availability in Pakistan

There are no systematic, publicly available, longitudinal firm-level data with universal coverage for Pakistan. The firm-level analysis presented in this chapter that relies on longitudinal data (panel) is based on two categories of firms: publicly listed firms and state-owned enterprises (SOEs).

Data on publicly listed firms are obtained from the financial statements analysis of companies (non-financial) listed on the Pakistan Stock Exchange. Data contain balance sheet, income statement, and export flow data for 432 publicly listed firms in Pakistan over the period 2012–2020. The analysis of publicly listed firms excludes 10 SOEs, which are instead investigated separately using a different dataset that focuses on SOEs (below), and nine firms in the coke and refined petroleum sectors. Of the remaining 413 privately owned companies, 312 companies are observed throughout the period, while 64 companies exited at various points during the period and 30 entered the sample after 2012. Finally, we lose 84 firms due to missing information to compute productivity. Firm-level data are matched to the Orbis dataset from Bureau van Dijk (BvD) to obtain information on foreign ownership. Foreign ownership is defined as the presence of at least one direct foreign shareholder. Nominal variables are deflated using sectoral deflators provided by the Pakistan Bureau of Statistics.

Some benchmarks are useful. To get a sense of how 'special' these publicly listed firms are, some benchmarks across different categories are useful, and can be computed by examining the main features of three alternative datasets available in Pakistan: (i) the Census of Manufacturing Industries with data for manufacturing firms, both formal and informal, that have more than 10 employees; (ii) the registry of the Securities and Exchange Commission of Pakistan (SECP), with data on registered firms of any size; and (iii) the exporters' dynamics database from Customs, with universal coverage of exporters of merchandise in Pakistan.

Publicly listed firms in Pakistan account for about 13 percent of Pakistan's value-added. In terms of size, the median publicly listed firm had, in 2017, annual sales of about PKR 4 billion, while the upper threshold for a medium firm, as indicated by the State Bank of Pakistan, was of PKR 600 million. This is also confirmed when considering data from the 2015–2016 CMI (Figure 2.6). Of the 42,000 Pakistani formal and informal firms with more than 10 employees, only 12 percent had more than 100 employees. The median listed firm instead has about 230 employees. A comparison with the universe of registered (formal) companies in 2020 (SECP), also reveals that listed firms are substantially more capital intensive. Only 1.3 percent of registered companies have a paid-up capital of more than PKR 100 million, and the median listed firm has a paid-up capital of PKR 222 million. On the other hand, when compared with the universe of exporters, publicly listed firms are more similar to the typical exporter.

Figure 2.6: Comparison between listed firm data and other non-publicly available or incomplete datasets

<p style="text-align: center;">CMI (2015-16) 42,578 firms with 10+ employees</p> <p>Firms' distribution by # of employees:</p> <ul style="list-style-type: none"> • Between 10 and 20: 50% (small) • Between 20 and 100: 38% (medium) • Over 100: 12% (large) 	<p style="text-align: center;">SECP (2020) 43,784 firms registered as 'companies'</p> <p>Firms' distribution by paid-up capital (in Million PKR):</p> <ul style="list-style-type: none"> • Less than 10M: 95% • Between 10M and 100M: 3.7% • Over 100M: 1.3% 	<p style="text-align: center;">Exporter's dataset (2017) 14,000 firms</p> <p>Firms' distribution by exports (in Million USD):</p> <ul style="list-style-type: none"> • Less than 100 thousand: 50% • Between 100 thousand and 2M: 40% • Over 2M: 10%
<p>PLF Dataset</p> <p>90% of firms have over 15 employees, median firm employs 234.</p>	<p>PLF Dataset</p> <p>90% of firms have over 44.6M PKR in paid-up capital, median firm has 222.2M.</p>	<p>PLF Dataset</p> <p>90% of firms have over 13.4K USD exports, median firm exports 0.7M USD/year [1/2 exporters]</p>

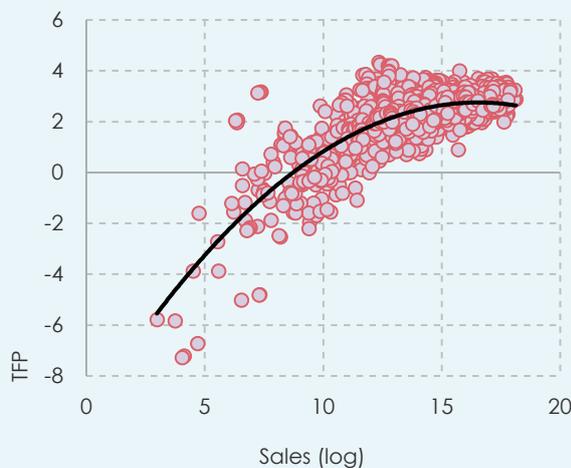
Source: Authors' calculations based on CMI, SECP, Exporters' Transactions and PLFs datasets.

Data on SOEs are from the Ministry of Finance's SOE database. The dataset covers 139 firms created between 1961 up to 2015. Financial and human resources information are available for the period 2013–2014 to 2016–2017. Information on employment is only available in the form of employees, while no wage data are available. Information on employees or revenues is not available for six firms, which reduces the sample for the analysis to 133 firms. Sectors are broadly defined based on the main activities of SOEs, with many firms concentrated into three main sectors: power generation and distribution (25); transportation and storage (22); and professional and scientific services (19).

Larger firms tend to be more productive, and this is particularly evident in the case of SOEs. However, firms struggle to grow large. There is a positive relationship between size, measured by firms' sales and productivity (Figure 2.7 and Figure 2.8). This pattern is reflective of economies of scale. The relationship is particularly steep in the case of SOEs, which could be partly explained high capital-intensive production, as is the case in the mining and power sectors—sectors in which many SOEs operate. In the case of publicly listed firms, the relationship between size and productivity becomes almost flat for very large firms. At this level, there seem to be no further gains from economies of scale. And yet, firms in Pakistan struggle to grow large as they grow older (see Chapter 5).

Figure 2.7: There is some evidence of economies of scale among listed firm...

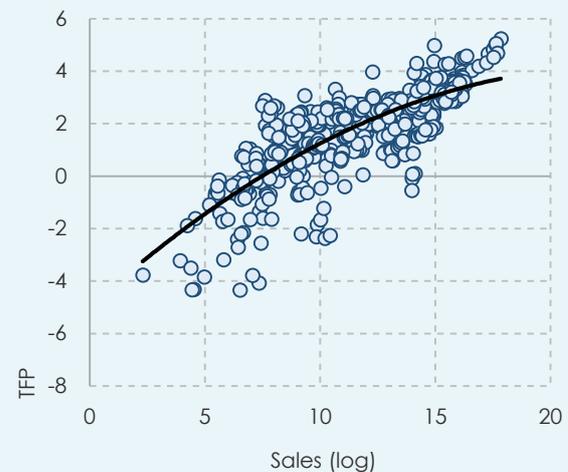
(Productivity and size relationship (listed firms))



Note: Authors' calculations based on financial statements analysis of companies (non-banking) listed on the Pakistan Stock Exchange.

Figure 2.8: ...which is more marked for SOEs.

(Productivity and size relationship (SOEs))

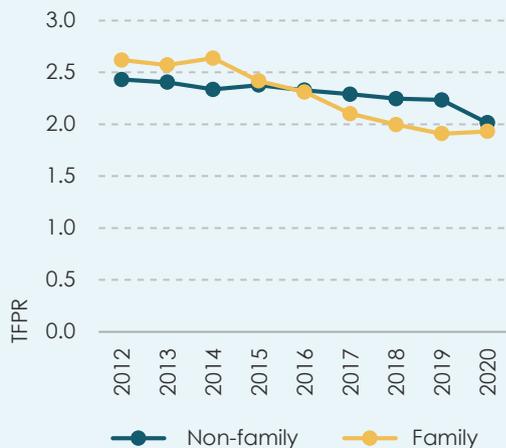


Note: Authors' calculations based on Pakistan's Ministry of Finance's SOE Database.

The decline in productivity has been more marked for family-owned firms. International evidence shows that firms in low-income countries tend to rely more heavily on family members to fill managerial roles. Excessive reliance on family ownership has been found to have detrimental effects on income per capita and on firm size (Akcigit et al., 2021). For example, Bloom and Van Reenen (2007) find negative effects on productivity when the CEO is the eldest son of the firm's founder. They suggest the presence of a "Carnegie effect": a reduction in human capital investment based on the expectation of a secure management position in the future. In Pakistan, while publicly listed family-owned firms show similar productivity levels as non-family-owned firms, their productivity has declined faster. Family-owned firms have experienced an average decline in productivity of 7.5 percent compared with just 4.5 percent for non-family-owned firms (Figure 2.9).

Figure 2.9: The decline in productivity is more marked for family-owned firms...

(Productivity by ownership structure and year)



Note: Authors' calculations based on financial statements analysis of companies (non-banking) listed on the Pakistan Stock Exchange. Family-owned firms are defined broadly as those having a family an individual or a family among the shareholders.

Figure 2.10: ...and for firms located in Punjab

(Productivity by location and year)



Note: Authors' calculations based on financial statements analysis of companies (non-banking) listed on the Pakistan Stock Exchange.

Box 2.3: Within-firm productivity and management practices

The sharp contractions in within-firm productivity levels in Pakistan, together with the high prevalence of family-owned firms, call for a discussion on how managerial practices affect productivity. This box provides a review of the existing literature.

Managerial practices have been found to be key determinants of firm-level productivity. For example, Bloom et al. (2019) claim that management practices account for more than 20 percent of the variation in observed firm-level productivity, in line with what is attributed to R&D, ICT, or human capital. Bloom and Van Reenen (2007) document that higher-quality management practices are correlated with several measures of productivity and firm performance, including labor productivity, TFP, return on capital, Tobin's Q, sales growth, and the probability of survival. Schweiger et al. (2018) note that management practices are important for low-income countries. For example, Bloom et al. (2010) find that the poor performance in terms of average management practice in emerging economies such as China, India and Brazil is due to the size of the "long tail" of very badly managed firms. In Pakistan, poor managerial practices have led to limited technology adoption. Atkin et al. (2016) find that the lack of adoption of waste-saving technology among Pakistani football producers can be attributed to the misalignment of incentives within firms, as employees' contracts lack incentives to reduce waste.

But if improving managerial practices were to lead to increases in productivity, and with that to greater profits, why do firms not introduce the necessary changes? Why leave 'money on the table'?

Informational Barriers. Poor managerial practices have been attributed to informational barriers. Firms do not know what they do not know (in this case, that their management quality is subpar). Consulting services have been shown to reduce these 'informational' barriers and to have positive effects on managerial practices and productivity. Bloom et al. (2013) investigate the effects of a program that offers free consulting

services to randomly chosen firms. The authors find that the program raised firm productivity by 17 percent due to fewer defective units and reduced machine downtime. Other studies, summarized in Table 2.1, tend to find positive effects for interventions that provide alternative forms of management consulting. Between-firm communication and networks are also important. Cai and Szeidl (2018) find that Chinese managers who were chosen to meet regularly among themselves show improvements in managerial practices, revenues and profits. While more largely focused on the agriculture sector, the networks literature also finds that networks facilitate information diffusion and technology adoption, leading to improved managerial practices (Conley and Udry, 2010).

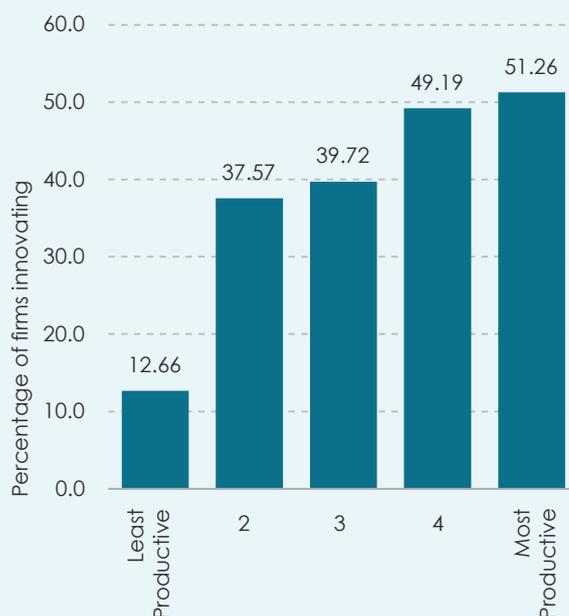
Table 2.1 – Managerial practices interventions – summary of results

Paper	Country	Intervention	Date	Result
Anderson and McKenzie (2022)	Nigeria	Small-firm RCT, insourcing, outsourcing, and consulting	2016	Insourcing and outsourcing works at least as well for profits and sales as business consulting, at half the cost.
Iacovone et al. (2022)	Colombia	Small-firm RCT, one-to-one and group consulting	2012	Both interventions cause similar increases in sales, profits, and labor productivity; the latter is much cheaper.
Bruhn, Karlan, and Schoar (2018)	Mexico	Small-and medium-firm RCT, 1 year of management consulting	2008	Persistent, large positive effects over TFP and return on assets for treated firms.
McKenzie (2017)	Nigeria	Small-firm RCT, business plan competition (money grants)	2011	Treatment leads to more survival, higher profits, sales and employment.

Competition and learning. Managerial practices and openness to trade are interrelated. Bloom et al. (2012) find that exposure to foreign competitors can promote better management practices. This is indicative of a learning-by-exporting process (De Loecker, 2007), or competition driving innovation (in this case, in management). Similarly, foreign-acquired firms have been found to benefit from accessing better management practices (Chen, 2011; Javorcik and Poelhekke, 2016). On the other hand, Bloom et al. (2012) also find that better-managed firms are more likely to export, sell more products to more destinations, and earn higher export revenues and profits. In the Pakistani context, Choudhary et al. (2018) find that firms that are more export-oriented have more structured management practices, which are positively associated to productivity.

The decline in productivity is independent of firms' location. Both firms located in the provinces of Punjab and Sindh experienced a decline in productivity, although those located in Punjab experienced a larger productivity contraction compared with those in Sindh. About 46 percent of publicly listed firms are found in Sindh, 43 percent are in Punjab, and the remaining 10 percent are distributed across the other provinces. While firms in Punjab displayed higher levels of productivity at the beginning of the period, they experienced a faster decline. Firms in Punjab experienced an average decline in productivity of 8 percent compared with 4 percent for firms in Sindh (Figure 2.10).

Figure 2.11 : Innovation and productivity are closely related
 Innovation [investment in intangible assets] and firms' productivity by quintiles, 2012–2020



Source: Authors' calculations.

Innovation and productivity are strongly linked. The relationship between productivity and innovation goes in both directions. Innovation is crucial for productivity growth, but more productive firms are likely better positioned to innovate. Considering investments in intangible assets as a proxy for innovation, evidence for publicly listed firms in Pakistan shows the association clearly. Firms in the least productive quintile display the lowest shares of innovative firms (12.7 percent), while the shares increase systematically as one moves up in the productivity ladder. More than one in two firms in the most productive quintile innovate (51.3 percent of firms) (Figure 2.11).⁷⁰ However, innovation is relatively low in Pakistan, with challenges that include weak university-industry linkages, unavailability of specialized skills, and weak enforcement of trademarks.

Productivity enhancing innovation takes various forms in Pakistan. A recent study based on a unique innovation survey of firms in Pakistan, for example, finds that the largest productivity effects are related to organizational and process innovation, consistent with the importance of management and capabilities for productivity upgrading.⁷¹

⁷⁰ Data limitations do not allow for identifying the direction of causation between innovation and productivity in this case.

⁷¹ Wadho, W. and A. Chaudhry, 2022.

Box 2.4: Cutting-edge innovation out of Pakistan

Innovation is a key determinant of productivity growth. However, there are several ways of 'innovating'. On the one hand, there is 'technological imitation', which makes it possible to adapt best practices in each sector, trying to replicate what is happening at the frontier of technology. In developing countries such as Pakistan, this is the primary form of innovation: firms adapt existing technologies developed by others to their own contexts. On the other hand, innovation at the frontier enables a firm that is at the technological frontier to innovate relative to itself, as it has no other firms to imitate. While this form is less frequent in Pakistan, there are some firms in highly competitive sectors, namely sports equipment, garments, and fertilizers, that have managed to do frontier innovation and patent it to secure temporary monopoly rents. This box presents three examples, and some patterns on frontier innovation, economic size, and R&D investments at a cross-country level.

There are pockets of frontier innovation in Pakistan. Khawaja Industries, a Sialkot-based world leader in manufacturing of sports balls, including the world-famous Telstar used in the football World Cup of 2018, patented a technology to bind specifically configured panels together along their edges, and bonded with a carcass on the inner surface of the panels by an adhesive. The innovation adds strength and softness to the ball, and was granted a patent in the United States and Europe. Doverfield exports, the offshore company in the United Arab Emirates (UAE) of Jaffer Brothers, patented a fortified fertilizer that promotes bacteria composition and plant growth. Jaffer Brothers chose to patent to its offshore company in the UAE, since the UAE is a signatory to the Patent Cooperation Treaty (PCT). The patent has been filed and granted in seven countries and is pending in 10. Finally, Soorty Group, a world leader in denim manufacturing, patented a waterless dyeing process for denim in the name of its product development facility, Nasda Solutions, in Turkey. The invention reduces the consumption of water and chemicals in the process of dyeing fabrics and includes enzymatic washing to provide the desired feeling to the product. But how generalized is frontier innovation and patenting in Pakistan?

Table 2.2: Patents and R&D expenditure across regions and in Pakistan, 2000–2020

Region	Period	Patent Applications	Patent Grants	R&D (% of GDP)	GDP (constant US\$ million, 2015)
East Asia & Pacific	2000–2010	36,765	14,781	0.77	379,093
	2010–2020	76,133	33,193	1.03	612,924
Europe & Central Asia	2000–2010	4,102	3,865	1.06	328,563
	2010–2020	3,919	5,982	1.25	366,986
Latin America & Caribbean	2000–2010	1,562	52	0.25	101,539
	2010–2020	1,816	144	0.31	128,913
Middle East & North Africa	2000–2010	940	336	0.65	108,257
	2010–2020	1,608	675	0.70	146,582
North America	2000–2010	216,513	79,514	1.59	5,502,280
	2010–2020	304,305	135,925	1.56	6,561,760
South Asia	2000–2010	4,271	398	0.37	185,934
	2010–2020	8,015	1,100	0.35	339,307
Sub-Saharan Africa	2000–2010	240	36	0.29	22,833
	2010–2020	297	68	0.30	34,193
Pakistan	2000–2010	1,288	16	0.32	186,001
	2010–2020	899	48	0.28	273,709

Source: Authors' calculations based on WIPO and WDI.

In Pakistan, patent applications have declined in the past decade, and so has investment in R&D. Patent applications have fallen from an average of 1,288 per year in the period 2000–2010, to 899 in 2010–2020. Aligned with this decline is a decline in investment in R&D—both private and public—falling from 0.32 to 0.28 percent of GDP. While R&D investment is relatively low, it is more than double the average of the SAR region, and slightly lower than in EAP (while patent applications are significantly lower than the SAR average, this is driven up by high patenting in India). Granted patents, instead, increased during the period.

There is a strong association between patents—both granted and applied—economic size and R&D investments. Regression analysis results for the period 2000–2020 for a set of 130 countries over two periods (2000–2010 and 2010–2020) reveal that the responsiveness of patents with respect to R&D expenditure as a share of GDP is robust. If Pakistan was to increase its R&D expenditure by 0.1 percent of GDP (from 0.28 to 0.38 percent), patents granted would be expected to increase by 10 percent, from 48 to about 52, while patent applications would be expected to increase by 4.4 percent, from 899 to 939. The results from these regression results also show that, given Pakistan's size and R&D investments, it has performed as expected in terms of patent applications, and slightly below average in terms of patents granted (Figure 2.12 and Figure 2.13).

Figure 2.12: Actual and predicted patent applications, Pakistan, aspirational comparators, structural comparators and others (2000–2020)

(Actual and predicted patent applications, Pakistan, aspirational comparators, structural comparators and others [2000–2020])

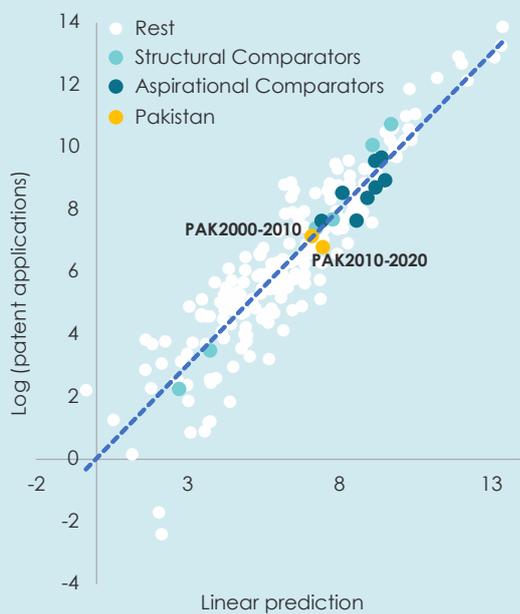
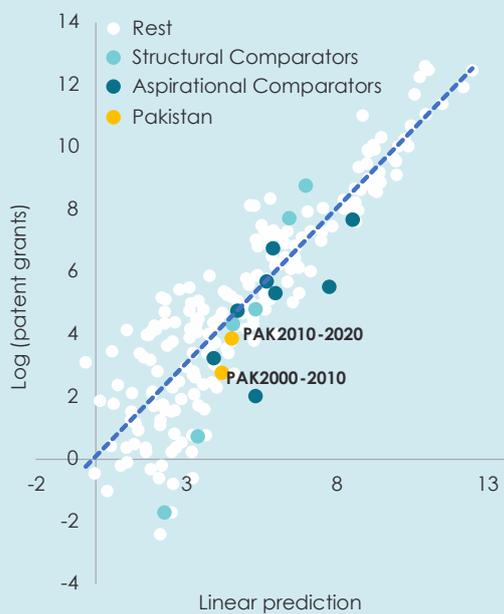


Figure 2.13: Actual and predicted patent grants, Pakistan, aspirational comparators, structural comparators and others (2000–2020)

(Actual and predicted patent grants, Pakistan, aspirational comparators, structural comparators and others [2000–2020])



Source: Authors' calculations based on WIPO.

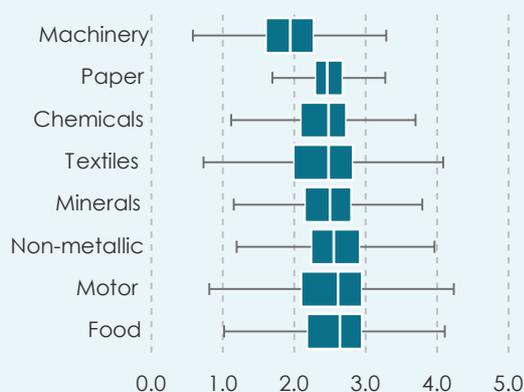
For a country at Pakistan's level of development, innovation through imitation and adaptation of technologies is the most common form of innovation. However, it is important that cutting-edge innovation is supported. This will require continuous investment in basic research, strong linkages between the research institutions in the public sector, academia and the private sector, and strong investments in education at all stages.

Productivity Dispersion

The dispersion of productivity within narrowly defined sectors can be indicative of distortions. In the absence of distortions, and with a perfectly competitive market, market mechanisms would make less productive firms either release resources (labor and capital) to more productive firms, or to upgrade their productivity to be able to compete. In equilibrium, one would expect productivity levels to equalize across firms within a given sector (that is, assuming common technology in a narrowly defined sector). Departures from homogeneous levels of productivity within a sector are indicative of distortions that prevent these forces from being at play.⁷² Market imperfections or distortive policies, such as firm-specific protection through subsidized access to financing, controlled prices, or some form of market power that prevents competition from having a Darwinian effect on firms, may explain the high dispersion of firms' productivity in narrowly defined sectors.⁷³ For example, if domestic-oriented firms cannot access inputs at world prices, while exporters can, then domestic-oriented firms will face technological constraints to upgrading productivity, and productivity gaps between exporters and non-exporters will be observed. Similarly, if credit is restricted or biased against specific types of firms, or firms in specific sectors, the productivity threshold to remain operational for firms that are non-eligible to receive subsidies will be higher than for eligible firms. In Pakistan there are examples of such subsidy schemes. It is therefore no surprise that productivity dispersion is marked.

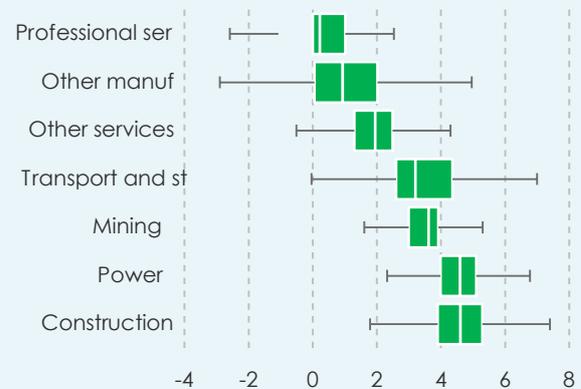
There are sizable differences in productivity among publicly listed firms, both between and within sectors. Listed firms in the top decile of the distribution of sales are more than twice as productive as those in the bottom decile. A similar pattern is observed within sectors (Figure 2.14). Dispersion is highest in the motor vehicles sector, where firms in the top 10th percentile are 3.6 times more productive than those in the bottom 10th percentile. In the textile sector—the largest sector—firms in the top 10th percentile are three times more productive than those in the bottom 10th percentile. Between sectors, productivity is lowest in the machinery sector. This dispersion notwithstanding, there is evidence of market forces operating in a productivity-enhancing direction, given the fact that the between-firm productivity growth component (allocative efficiency) has been a mostly positive force for aggregate productivity growth between 2012 and 2020 (Figure 2.4).

Figure 2.14: Marked productivity dispersion within sectors is a sign of distortions, both for listed...
(Productivity dispersion within sectors [listed firms])



Note: Authors' calculations based on financial statements analysis of companies (non-banking) listed on the Pakistan Stock Exchange. The graph shows the median, the bottom and top quartile. Whiskers refer to 1.5 of the IQR.

Figure 2.15: ...and SOEs
(Productivity dispersion within sectors [SOEs])



Note: Authors' calculations based on Pakistan's Ministry of Finance's SOE database. The graph shows the median, the bottom and top quartile. Whiskers refer to 1.5 of the IQR.

⁷² In practice, there are various reasons why productivity may not equalize within a narrowly defined sector. One is that the reallocation of resources across firms takes time to adjust, particularly that of capital.

⁷³ Hsieh and Klenow, 2009.

Policy Recommendations

Reversing the downward trend in Pakistan's aggregate productivity requires a coordinated public and private effort. Increased trade and increased FDI are powerful conduits both for increasing within-firm productivity and improving allocative efficiency. Chapter 3 and Chapter 6 discuss these links at length and provide policy recommendations. This section focuses on interventions related to: (i) innovation and technology adoption; (ii) managerial practices upgrading; and (iii) SOE governance and competition, and provides a prioritization for these recommended actions.

Top Priority

Reversing the downward trend in Pakistan's aggregate productivity requires a coordinated public and private effort. Increased trade and increased FDI are powerful conduits both for increasing within-firm productivity and improving allocative efficiency. Chapter 3 and Chapter 6 discuss these links at length and provide policy recommendations. This section focuses on interventions related to: (i) innovation and technology adoption; (ii) managerial practices upgrading; and (iii) SOE governance and competition, and provides a prioritization for these recommended actions.

Better allocate credit to exporters

Recommendation 1: Re-orient subsidized credit away from those schemes focusing on financing working capital (such as the Export Finance Scheme, EFS) and into long-term financing for investment expansions and innovation (such as the Long-Term Financing Facility, LTFF).

Credit availability is crucial to boost technology adoption, which in turn is crucial for productivity growth. The Government of Pakistan supports the private sector through subsidized credit. There are substantial gains to be achieved by re-allocating some of these subsidies away from schemes that do not boost technology adoption (EFS) into other schemes that do (LTFF). These latter schemes are also more cost-effective from the point of view of the trade-off between the cost of subsidies and their impact.⁷⁴

SOE governance

Recommendation 2: Ensure full compliance with corporate governance rules to improve the performance of SOEs and approve the new SOE Law. Consider privatization of SOEs operating in spaces in which public sector presence is not required.

Because many SOEs operate in upstream sectors, their inefficiencies are amplified through input-output linkages. Inefficient SOEs are a drain on aggregate productivity (when they are loss-making, they are a drain on the Government's fiscal resources). Competition gains could be achieved by improving their governance and ensuring full compliance with existing rules. A triage was undertaken in 2020 to examine the functions and performance of individual SOEs. A new SOE Law has been drafted that aims to improve governance and transparency in the sector. However, this draft law has not yet been approved by Parliament. Consider liquidating or privatizing unviable SOEs operating in spaces in which public sector presence is not required.

⁷⁴ See Defever, F., A. Riano and G. Varela (2020).

Medium Priority

Innovation

Recommendation 3: Improve the innovation ecosystem. Start by enforcing the protection of trademarks at the export stage and by considering joining the Patent Cooperation Treaty (PCT).

Pakistan has gone to great lengths in strengthening the fight against counterfeit products at the import stage. This is a positive development and contributes to improving the country's branding, in turn helping it to attract investment. However, enforcement of trademarks at the *export* stage is also crucial to protect the rights (and innovation returns) of those firms that invest in creating brands in Pakistan. For example, Pakistan has much to gain from the recognition of the 'Hamza' brand of rice. Ensuring that exported rice under the 'Hamza' brand is genuine will increase the perception of quality of the 'Pakistan' brand, with substantial social gains. This will require building capacity and infrastructure for Customs to check for counterfeiting at the export stage and introducing risk-based methods.

Strengthening the Intellectual Property Organization will gradually help increase investment in innovation in Pakistan. Pakistani firms innovate, but not all of them innovate in Pakistan. The Jaffer Group, for example, has innovated in fertilizers, but innovations are undertaken in the United Arab Emirates (UAE). There are many factors that determine the decision to move R&D investments out of Pakistan, including the availability of the specialized skills, and a fertile innovation environment that cannot be easily imported. Another factor is that the UAE is a signatory to the PCT, while Pakistan is not. The PCT unifies procedures for filing patents to protect inventions in signatory states, reducing filing costs for inventors. It allows for better management of patent portfolios and the deferral of patenting in other markets after filing with PCT from one year to three years, which is crucial for innovators.⁷⁵

Managerial Practices Upgrading

Recommendation 4: Seek public-private partnerships to invest in management extension services.

Demonstration effects are crucial to reduce the informational failures around managerial upgrading investments. While recent studies find that management extension services generate very high rates of return, firms remain reluctant to invest in managerial consulting services to become better at what they do. One of the reasons that firms do not invest in upgrading managerial practices is that firms systematically overestimate their managerial capacity. Partially subsidizing initial consultations on managerial upgrading services could help provide a benchmark of managerial quality and areas of improvement for firms. Another possibility is that small firms may lack the scale to assess the value of the services or the quality of the providers. Thus, the emergence of a support industry, even if firms know they need to improve, would be a challenge. There is, thus, both an information asymmetry, and a coordination failure in the market for management and extension services.⁷⁶ One potential solution is for a shared public-private intervention that partially subsidizes these extension services in coordination with business associations, and that would also play a role in screening services providers. These support schemes should be subject to impact evaluations, and their continuation should be conditional on positive results.

Competition

Recommendation 5: Empower the Competition Commission of Pakistan by granting financial autonomy and build capacity in courts on competition-related rulings.

⁷⁵ When an inventor patents in a given country (including Pakistan), she has one year to patent in other markets of interest, beyond which the invention becomes 'public knowledge'. For inventors in countries that are signatories to the PCT, that period is lengthened to three years. However, some countries choose not to join the PCT because of this streamlined process for patenting, as it makes it easier for foreign inventors to obtain a monopoly over their invention through the patent.

⁷⁶ See Cirera, X. and W. Maloney. 2019.

Financial autonomy for the Competition Commission of Pakistan (CCP) would allow internal organizational strengthening. Because of financial constraints, the CCP has not been able to scale up its workforce since it first began operations in 2007, making it challenging for the CCP to address competition concerns in Pakistan's economy. By law, all regulators are meant to contribute 3 percent of their revenues to the CCP, but this is not currently being implemented. Capacity building for courts to improve the judicial review process is also crucial. A critical factor affecting competition is the time it takes for a competition agency to enforce its decisions through the courts. Currently, there are almost PKR 30 billion in fines imposed by the CCP that are still pending in the various courts in Pakistan.

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Making Trade Policy Work for Productivity

Economic integration has been a powerful platform for productivity growth. There are various channels and mechanisms at play that point to learning by importing and by exporting. International country experience has shown that, in modern times, no country has developed successfully without harnessing economic openness to trade.⁷⁷ This chapter presents evidence on how integration into the global marketplace can explain the performance of Pakistan's productivity over the past decade. The chapter argues that: (i) integration constitutes an opportunity for Pakistani firms to become more productive, and that the productivity decline is associated with the inward-turn that Pakistan has taken since the turn of the century; (ii) export promotion policies have not been efficient in translating public resources into export impact; (iii) trade policies in the form of high import tariffs have negatively affected firms' productivity, sales and wages, and have increased incumbent firms' markups, thus reducing competition; and (iv) duty drawback schemes for exporters have not delivered on their objectives, particularly for small or new firms. It then provides recommendations in three areas: (i) the modernization of export promotion; (ii) the reduction of the anti-export bias of tariff policy; and (iii) the upgrading of import duty exemption schemes on intermediates for exporters.

Background

Growth of international trade and the expansion of global value chains (GVCs) over the past decades have had significant effects on development, and particularly on productivity. The specialization and fragmentation of production processes and knowledge transfers inherent in trade and, in particular, in trade through GVCs (which increases interactions between buyers and sellers), have facilitated the convergence of productivity levels of less-developed countries with those of advanced ones. The cases of China and Vietnam are the most paradigmatic. However, not all countries have embraced global integration as a development strategy.

Rather than embracing the GVC 'revolution', Pakistan has become more inward-oriented since the turn of the century. From the point of view of trade outcomes, as a share of GDP, Pakistan's exports fell from 16 percent in 1999 to 10 percent in 2020 (Figure 3.1). This increasing inward orientation is not the consequence of a structural lack of export potential. Considering its characteristics (size, level of development, location, and factor endowments), Pakistan should be exporting around US\$88.1 billion worth of merchandise—almost four times its current level.⁷⁸ From the point of view of trade policy, import duties in Pakistan are high, they have been increasing, and they follow a cascading structure (Figure 3.2, Figure 3.3 and Figure 3.4). These three features have resulted in a marked and increasing strong anti-export bias. The country's average import duties are among the world's highest.

The COVID-19 pandemic has introduced changes in the global trade ecosystem that will exacerbate, although not change, Pakistan's integration challenges. These changes can be grouped in three categories. First, changes in the structure of demand. For example, an increase in demand for remote work will likely affect growth and the composition of demand for garments. This points to the importance of export promotion schemes being flexible and product-agnostic, rather than targeting specific products instead of others. Second, there will be an acceleration of mechanization and digitalization ('Industry 4.0'), although it is still unclear whether this will lead to increased or reduced trade, as the new evidence on industry 4.0

⁷⁷ See Commission on Growth and Development, 2008.

⁷⁸ The analysis relies on the estimation of a gravity model of trade, focusing on countries with at least 5 million inhabitants and covering 80 percent of international trade flows. For a detailed description of the methodology, see Mulabdic, A. and P. Yasar, 2021.



Pakistani exporters are **20%** more productive than domestic-oriented firms



In the textile sector, the export premium reaches **31%**

Export promotion policies - are they effective?



Export promotion policies are **not cost-effective**, have a **small impact** on export growth, and **favor established products**

Traditional products, which contribute to about **50%** of total exports, are eligible for **80%** of export subsidies



1.8% boost in **textile exports that cost tax payers 46-76 cents** for each additional US\$ exported

Import duties - how much do they hurt productivity?

Import duties have been on the rise over the past decade



50% increase in import duties on intermediates in the **manufacturing sector**



2x increase in sectors such as **food and ferrous metals**

Import duties hurt innovation and productivity

When imposed on intermediates, they restrict technological choices, affecting productivity

10% ↑ Increase in upstream duties



6% ↓ decline in productivity downstream

The effect is lower (**-3.4%**) for large exporters than for small exporters (**-9.4%**) who cannot access duty exemptions because of the high costs involved

When imposed on final goods, they increase profits, reducing incentives for innovation

10% ↑ Increase in import duties on the products the firm produces



40% ↑ Profit margins



The average increase in upstream import duties over the period 2012–2020

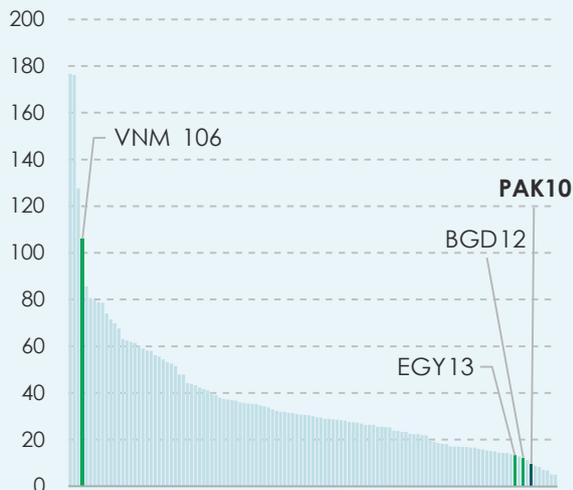


explains more than **85%** of the period's average **productivity decline**

on trade is inconclusive. Third, there are increases in protectionism under the rationale of 'national security'. If these increased protectionist measures are on a Most-Favored Nation (MFN) basis, they will present challenges for Pakistan to integrate. If instead they target specific countries (and not Pakistan), they may create opportunities. In this case, the Trade Authority of Pakistan (TDAP) needs to be ready to provide export intelligence to tap into these opportunities. That being said, most of Pakistan's integration challenges precede the COVID-19 pandemic and its implications on the global trade ecosystem.

Figure 3.1: Pakistan is increasingly, an inward-oriented economy with a low export-to-GDP ratio...

(Exports of goods and services as a percentage of GDP, 2020)



Source: World Development Indicators.

Figure 3.2: ...and increasing import duties...

(Average import duties in Pakistan, FY20–FY21 (in percent))

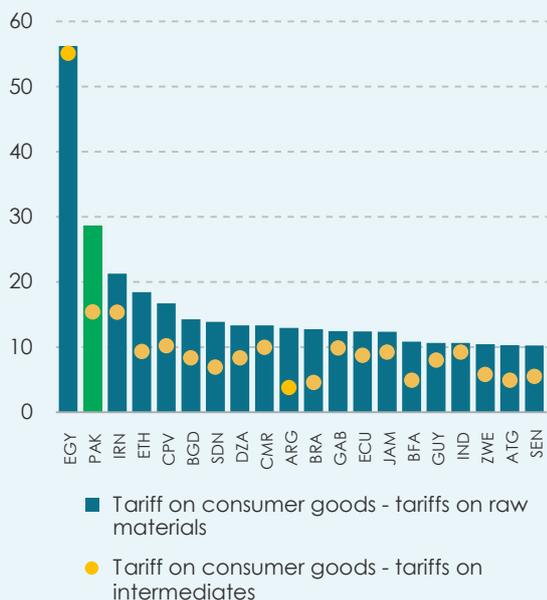


Source: Pakistan Customs data, World Bank staff calculations.

High import duties in Pakistan discourage firms from exporting, acting as export taxes. Domestic firms have a natural advantage in their home markets because of low transport costs and deep knowledge about consumer preferences relative to suppliers. Furthermore, the fact that the Government of Pakistan has introduced high import duties with marked cascading (leading to high effective rates of protection) implies that the Government is actively encouraging firms to sell domestically at the expense of exports. Thus, import duties, intended to incentivize import substitution, instead incentivize export substitution.

Figure 3.3: ...that are structured in cascading, providing high effective protection to domestic firms...

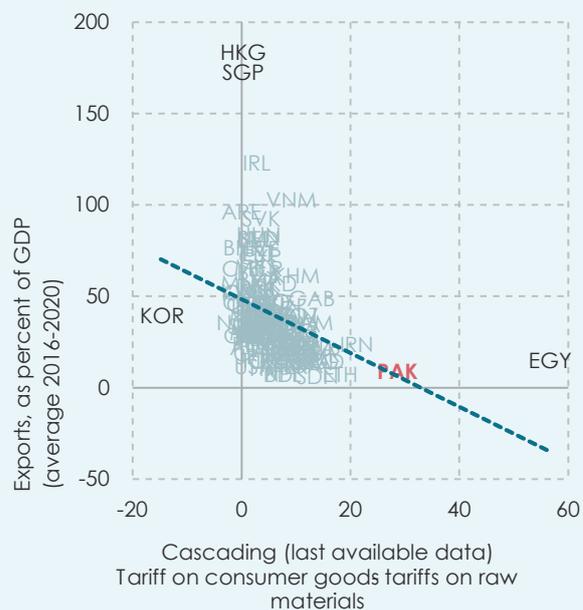
(Tariff cascading, top 20 in the world, difference between tariffs on consumer goods and intermediates, or raw materials)



Source: Pakistan Customs and UN Comtrade.

Figure 3.4: ...and that tends to be associated with lower export orientation

(Tariff cascading and export orientation)



Source: Pakistan Customs, UN Comtrade and World Development Indicators. Note: The negative correlation between cascading and export orientation is statistically significant at 5 percent.

Pakistan's increasing inward orientation poses a challenge because of the close links between integration and productivity. The opportunity cost of inward-oriented policies such as high import duties, in terms of productivity, is very high for a country such as Pakistan, with low GDP per capita growth, and where the associated contribution of productivity has been declining (see Chapter 2). The remainder of this chapter is structured as follows. The next section focuses on the links between productivity and exporting. Because exporting and productivity form a virtuous cycle, the Government promotes exporting through different interventions. The chapter then summarizes the findings from an impact evaluation of one of the most prominent export promotion interventions managed by the Ministry of Commerce: the Duty Drawback of Taxes. The chapter then goes on to present findings from an analysis of tariff policy changes and productivity in Pakistan. It also presents evidence on whether the import duty exemptions on intermediates for exporters have achieved their goal of insulating exporters from import duties. It then presents a series of policy recommendations designed to escape the vicious cycle of low productivity and low integration.

Export Participation and Productivity

International evidence shows that firms exposed to the global marketplace are often exceptional performers. Exporters are generally found to be more productive and more innovative, pay higher wages, and make use of more skills and capital.⁷⁹ Causality works in both directions.⁸⁰ On the one hand, firms that participate in the international market are better at facing the high fixed costs associated with searching

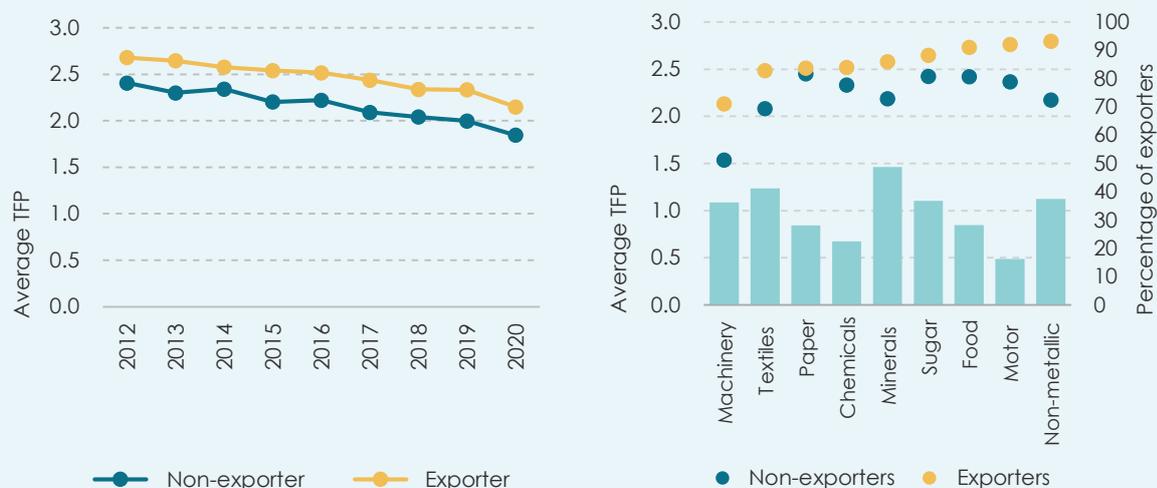
⁷⁹ See Wagner, 2005 on productivity, Aghion et al., 2018 on innovation, and Munch and Skaksen, 2008 on skills and capital premia.
⁸⁰ Greenaway and Kneller, 2007.

for clients abroad, learning about new markets and adapting their products to match them, suggesting a process of selection into the export market. On the other hand, productivity gains have been associated with exposure to more demanding clients or highly productive competitors, suggesting a process of learning by exporting.⁸¹

The existing evidence for Pakistan, while limited, also suggests positive linkages between trade and productivity. Data availability has been a major constraint in conducting research on productivity in Pakistan. Wadho et al. (2019) find that exporting is positively associated with innovation, in particular for firms exporting to Europe and the United States, which is linked to productivity. Choudhary et al. (2018), using data on management quality, find that firms that are more export-oriented have more structured management practices, a proxy for productivity (see Box 2.3). On a related aspect, Kinda (2012) finds that firms that sell more of their production to multinationals tend to be more efficient. Other studies at the macro level also identify positive linkages between integration and productivity (Siddique, 2020; Chaudhry and Haseeb, 2014).

Pakistani publicly listed exporting firms are more productive than domestic-oriented firms. Data on Pakistani publicly listed firms show that export participation varies across sectors, with the highest export shares found in the non-metallic minerals, sugar, minerals, and textile sectors (Figure 3.5, right panel). Overall, exporters are, on average, 20 percent more productive than domestic-oriented firms (Figure 3.5). The productivity premium for exporters holds across sectors and is particularly visible in the machinery sector. In the textile sector—the largest of the economy—exporters are 31 percent more productive than domestic-oriented firms. Despite this, the export orientation of publicly listed firms has been declining. This is similar to what has been happening at the level of the economy, which experienced a decline in the export-to-GDP ratio, from 16 to 12.4 percent, and then to 10 percent between 2000, 2012 and 2020, respectively. Indeed, the ratio of exporters among publicly listed firms declined from 60 to 51 percent between 2012 and 2020, while the average share of exports in sales for those that export declined from 31 to 27 percent in the same period.

Figure 3.5: Low export orientation is challenging, because productivity and exporting are strongly linked
(Productivity by export participation, year, and sector)



Source: Authors' calculations based on financial statements analysis of companies (non-banking) listed on the Pakistan Stock Exchange. Note: The graph on the left shows the average distribution over the period 2012–2020. The difference in the means between the two distributions is statistically significant. The graph on the right shows export participation by sector and differences in average TFP by export status.

81 Atkin et al., 2017; De Loecker, 2013.

Among Pakistani publicly listed firms, the productivity premium between exporters and non-exporters is explained both by selection into the export market and by learning from exporting.

Publicly listed firms can be categorized into 'never exporters', those serving exclusively the domestic market, 'future or latent exporters', those observed in the period preceding the entry in the export market, and 'always exporters', those that exported in every year. Comparing the average productivity of these three types of firms (Table 3.1), we observe that the productivity premium between exporters and non-exporters is partly driven by the difference between the productivity of the 'future exporters' and that of the 'always exporters' (column 6). Systematic exporters are, on average, 23 percent more productive than new exporters. In addition, the productivity gap between future exporters and domestic-oriented firms (i.e., never exporters) is overall positive and statistically significant (column 4). Firms entering the export market are, on average, 30 percent more productive than domestic-oriented firms. Taken together, these results are suggestive of a virtuous circle where productivity drives export participation, and exposure to the export market further improves productivity.

Table 3.1: Average productivity by export status

Year	Did not export over entire period	Export in the following year	Export over the entire period	Gap (2) - (1)	Gap (3) - (1)	Gap (3) - (2)
	(1)	(2)	(3)	(4)	(5)	(6)
2012	2.27	2.34	2.78	0.07	0.51***	0.44***
2013	2.18	2.33	2.72	0.15	0.54***	0.39**
2014	2.21	2.53	2.66	0.32*	0.45***	0.12
2015	2.03	2.55	2.65	0.52***	0.62***	0.10
2016	2.15	2.62	2.58	0.47***	0.44***	-0.03
2017	2.11	2.25	2.43	0.14	0.32***	0.18
2018	1.96	2.14	2.34	0.18	0.38***	0.20*
2019	1.95	2.21	2.36	0.26*	0.41***	0.15*
2020	1.63		2.18		0.55***	
Whole period	2.05	2.31	2.52	0.26***	0.47***	0.21***

Note: Average TFPs are in logs. The differences in means tests are reported with significance at *10%, **5%, ***1%. We tested differences in means, also controlling for sector-fixed effects, and the results are qualitatively similar.

If exporting is associated with productivity upgrading, then an effective strategy to promote exports might offer a sustainable growth strategy.

Export promotion policies have the potential to boost productivity and firm performance if they effectively promote export participation and growth. International evidence shows that effective export promotion policies—those that have successfully boosted and sustained export participation—have had a positive impact on firms' sales, value added, and employment, especially for smaller firms (Munch and Schaur, 2018). Pakistan, as many countries, has adopted a set of export promotion policies. These include interventions that aim at reducing entry costs by providing export intelligence or financing a portion of their participation in international trade fairs or exhibitions. There are also interventions that aim at reducing variable costs by exempting the payment of import duties on intermediates (e.g., through the schemes of Manufacturing Under Bond [MUB], Duty Tax Remission for Exporters [DTRE] or the Export Oriented Unit status), or schemes that provide export incentives (in some cases based on performance), such as the Duty Drawback of Taxes (DDT, for textiles) or the Drawback of Local Taxes and Levies (DLTL, for other sectors). The section that follows presents a summary of the evidence on an evaluation of the design and impact of the DDT.

Evaluation of an Export Promotion Scheme in Pakistan: The Duty Drawback of Taxes (DDT)

The DDT is an active export promotion policy of Pakistan's Ministry of Commerce. The DDT targets specific products within the textile and apparel sector with ad-valorem export subsidies. The scheme, in its current form, provides rebates to exporters for a set of 'eligible' products, with rates that vary between 2 and 7 percent, depending on the year and the product, and with additional rates of up to 2 percentage points for exports reaching non-traditional destinations.

Under the DDT scheme, only certain products are eligible for rebates and the rates vary by product, with premia for non-traditional destinations having also been recently introduced. Specifically, the scheme applies to 54 percent of textile products, accounting for 78 percent of textile exports in terms of value. The scheme falls within the broad category of export subsidies subject to specific conditions and targeted to specific products. Hence, while the scheme aims to increase exports, it also alters resource allocation to favor some products and destinations rather than others.

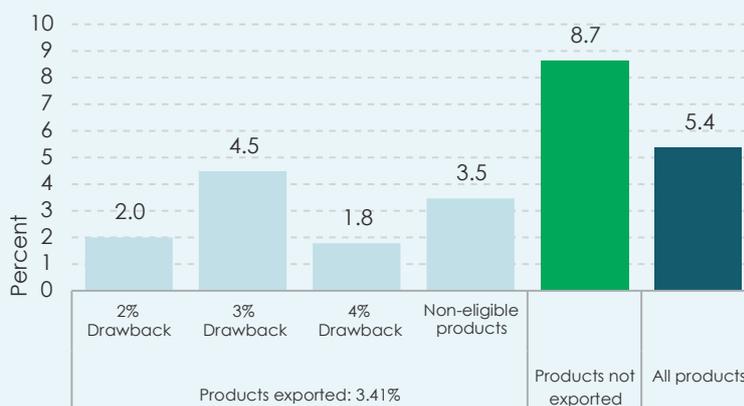
Table 3.2: Timeline, product coverage and program characteristics of DDT schemes

	#	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Product lines	120	-	-	-	-	-	-	-	-	-	-	-
	229	-	-	-	-	-	-	-	✓	✓	-	-
	121	-	-	-	-	-	✓	✓	✓	✓	✓	✓
	420	✓	✓	-	-	-	✓	✓	✓	✓	✓	✓
Conditions	No						Yes	No	Yes, 50%	Yes, 50%		
Rates	1%, 2%, 3%						1%, 2%, 4%	4%, 5%, 6%, 7%	4%, 5%, 6%, 7%	2%, 3%, 4%		
Premium	1% if exports grew by 15%								2% NTD		2% NTD	

Source: Authors' summary from various SROs. Note: The above are reduced to 105, 284, 116 and 418 once sectors with zero exports for the entire period are removed. Conditions are based on export growth and require achieving a 10% growth in export in previous fiscal year, for a specific product line. In 2017 and 2018, a 50% rebate was given unconditionally, and 50% subject to a 10% growth in the previous year. NTD stands for non-traditional destinations

The DDT scheme is reviewed regularly, leading to changes over time in terms of product coverage, conditionally, rebate rates and budget allocation. Table 3.2 shows eligibility for the DDT over time across the 840 product lines in the textile sector. In particular, 120 product lines have never been eligible for DDTs over the entire period. These include, for example, cotton that accounts for 1 percent of total textile exports and cotton waste that accounts for 0.25 percent of total textile exports. The remaining products have been eligible for differing periods of time. In particular, 299 products lines were eligible for the DDT in 2017 and 2018 only. In this category we find single cotton yarn that accounts for 6 percent of total textile exports. Since 2015, 121 products, such as carpets that account for 1 percent of total textile exports, have been eligible for the DDT. Finally, 420 products have been eligible since 2015, but were also initially targeted by the DDT (although the budget was limited) in 2010 and 2011. These latter products are mostly garments (260 out of 420 products), which are also subject to the highest rebate rates.

Figure 3.6: Export subsidies target products with relatively low global demand
(Global demand growth (2015–2019) by export incentive eligibility)



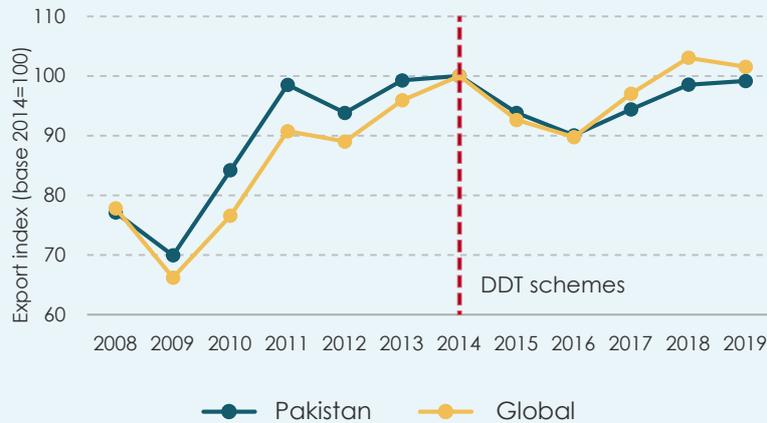
Source: Pakistan Customs data and World Integrated Trade Solution; World Bank staff calculations.

Product eligibility criteria are not consistent with the objectives of export growth or diversification.

This is because those products eligible for rebates and those entitled to higher rebate rates tend to face relatively less dynamic global demand. For example, for the period 2019–2020, there is no correlation between past export growth performance and product eligibility. On the contrary, products eligible for rebates or entitled to higher rebate rates face less dynamic global demand than non-eligible ones (Figure 3.6). In addition, eligible products tend to have low sophistication or complexity. Within eligible ones, higher rebate rates tend to be applied on less-sophisticated products. Finally, higher rates tend to target well-established products, defined as products for which Pakistan has a global presence and that are exported by many firms, discouraging entry into new export markets.

Past and present DDT schemes have had limited impact on growth of textile exports. Despite the introduction of DDT schemes in 2015, textile exports have remained closely aligned with global trends as in the pre-2015 period (Figure 3.7). This overall trend in textile exports, however, masks significant heterogeneity across products.

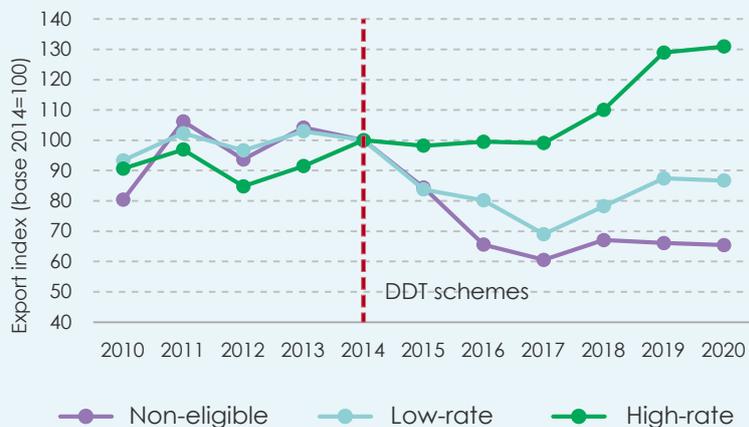
Figure 3.7: Pakistan's textile and garment export trends have been aligned with global exports on aggregate...
(Comparison between Pakistani exports and global exports, textile exports)



Source: Authors' calculations based on UN Comtrade data at the 6-digit level. Note: The export index is obtained by dividing exports in any given period by 2014 exports.

Duty drawbacks have induced substantial reallocation across textile products toward high-rate established products. A more thorough inspection of export data at the product level reveals that DDT schemes have induced an increase in exports of products eligible for the highest rebate rates, at the expense of non-eligible or lower-rate products (Figure 3.8). While exports across different textile products were roughly aligned before 2015, paths started to diverge afterwards, with high-rate products, mostly garments, growing faster, especially from 2017. This pattern was counterweighted by a decrease in exports of low-rate and non-eligible products. This descriptive evidence is supported by more rigorous estimates in Lovo and Varela (2022). Overall, results suggest that duty drawbacks incentivized strategic product choices, as opposed to encouraging overall exports.

Figure 3.8: ...but within textile & garments, there has been a substantive reallocation of exports into subsidy-eligible products
(Export growth by DDT eligibility and rates)



Source: Authors' calculations based on 8-digit level data from the Ministry of Commerce. Note: The export index is obtained by dividing exports in any given period with 2014 exports.

Box 3.1: Insiders and outsiders in the export subsidy space

The premise of this report is that distortions contribute to the misallocation of resources, and that, in turn, those distortions that are policy-induced are often the outcome of a political economy dynamic that is characterized by the insider-outsider model of development. A limited but powerful number of 'insiders' lobby for more favorable conditions for operations that come at the expense of a larger number of 'outsiders' or excluded parties.

The design and take up of export subsidies illustrate these insider-outsider dynamics. DDT and DLTL are in effect export subsidy schemes that target a subset of export products (defined at the HS8 digit level). Since 2019, the targeting has covered less than one-third of exportable products, and about half of products that are exported by Pakistani firms. The targeting changes over time, as new products are added and excluded, through Statutory Regulatory Orders (SROs). A systematic analysis of the determinants of a product being eligible provides evidence of lobbying playing an important role in the design of the schemes.

First, the likelihood of a product being eligible for the subsidy is 80 percent higher for incumbent products (that is, those that are already being exported) than for new products (those not yet being exported). This discourages diversification but is also a first indicator of the role of existing exporters (insiders) in lobbying for subsidies, keeping out potential exporters (outsiders).

Second, the likelihood of a product being eligible increases with the number of *large* exporters that export it. Conditional on the total export value and number of exporters, products in which there is one additional 'large/top exporter' (defined as the count of top 20 exporters based on total yearly exports) show a 0.9 percent higher probability of being eligible for subsidies. The result is robust (although smaller in magnitude) when controlling for the structural characteristics of the sector corresponding to the product and to alternative definitions of 'large exporters', such as the 'top 50' exporters based on total yearly exports. Similar results are obtained when considering the share of exports accounted by the top 20 or 50 (instead of the top exporters' count).

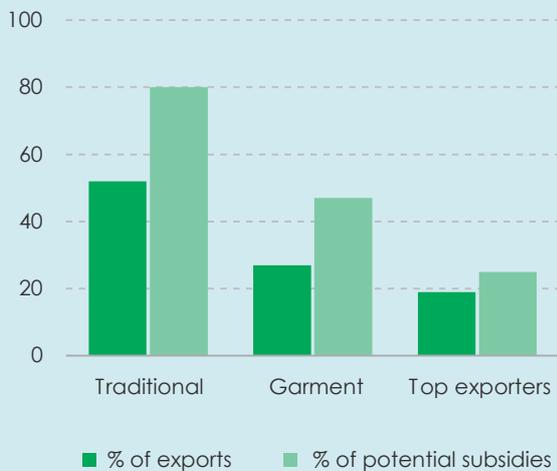
Figure 3.9: Traditional products receive most of the subsidies
(Linear Probability Model, 2017–2020, HS8 level dummy)

Dep Var: Eligible HS8 Dummy	(1) Eligible	(2) Eligible	(3) Eligible	(4) Eligible
Count of top Exporters	0.086*** (0.008)	0.012** (0.005)		
Count of Exporters (in logs)	0.064*** (0.006)	0.011*** (0.004)	0.081*** (0.006)	0.014*** (0.004)
Export Value (in logs)	0.005* (0.002)	0.005*** (0.002)	0.004* (0.002)	0.004*** (0.002)
Share of exports of top exporters			0.454*** (0.036)	0.116*** (0.027)
Year FE	Yes	Yes	Yes	Yes
Chapter FE (2 digit)	No	Yes	No	Yes
Number of Observations	12064	12064	12064	12064

Third, traditional products, mostly garments, enjoy higher subsidy rates on average and secure a larger portion of the subsidies. Garment exporters, for example, account for about 27 percent of exports, but are eligible for 47 percent of these export subsidies, that is, 70 percent more than what would be expected with a random allocation of subsidies across products (in that case products accounting for 27 percent of exports, would be eligible for 27 percent of subsidies). Similarly, the top 20 largest exporters account for 19 percent of exports, and are eligible for 26 percent of subsidies.

Figure 3.9: Traditional products receive most of the subsidies

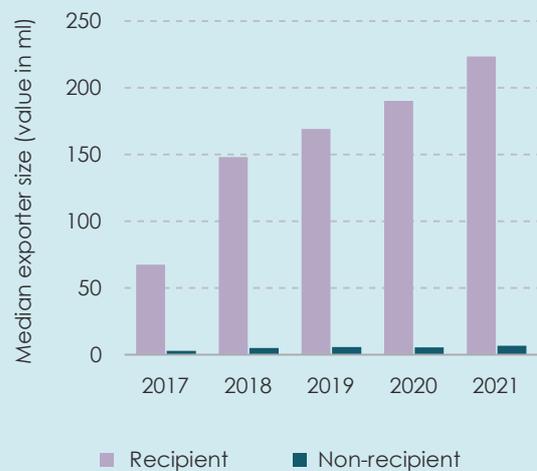
(Share of total exports and share of exports eligible for subsidies, by traditional/non-traditional, garments, and size of exporters)



Note: Traditional products include garments and other high-rate textile products. Top exporters indicate the top 20 exporters in terms of total exports in a year.

Figure 3.10: Recipients are on average 20 times larger than non-recipients

Median exporter size of subsidy recipients and nonrecipients, given eligibility



Note: exporter size is computed as the total export of eligible products.

Finally, the take-up, given eligibility, also suggests that benefits accrue disproportionately to *some* large insiders at the expense of *most* small outsiders. This is evidenced by the fact that, for the set of products that are eligible for these subsidies, not all exporters avail to the subsidy. Firm-level data on DDT and DLTTL take-up show that the median exporter size of those firms eligible for the subsidy and that do receive it is 30 times greater than the median exporter size of those firms eligible but that do not receive it (Figure 3.10).

Source: Authors' elaboration

Trade Policy and Productivity

Pakistan is one of the most protected economies in the world. Import duties are high across different types of goods, and are particularly high for consumer goods, but also high for intermediates and capital equipment. High import duties make profits from domestic sales artificially large by deterring import competition. In this setting, exporting is only a residual option. High import duties on intermediates or capital equipment make domestic value addition more costly and reduce the scope for the transfer of technology embedded in imported intermediates or machinery.

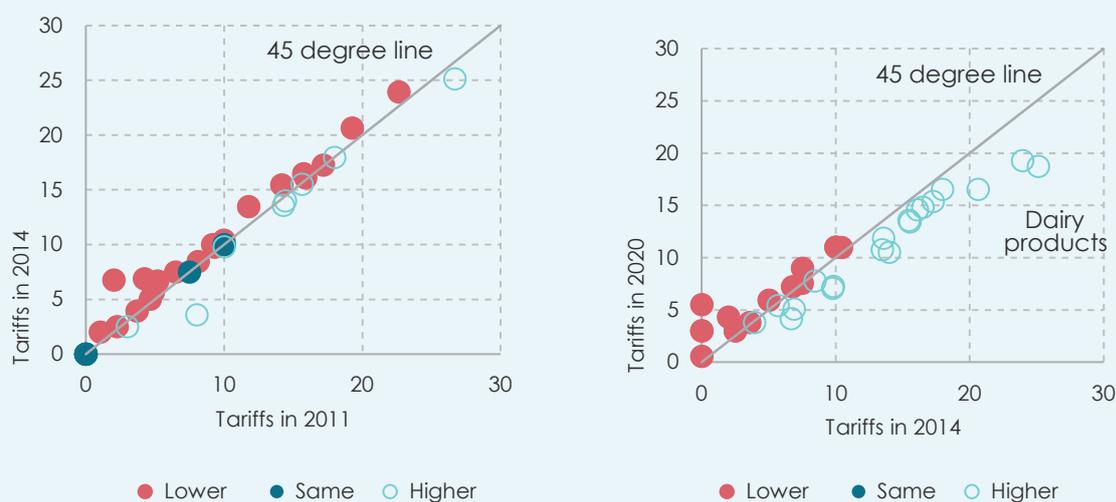
Import duties

Custom duties were stable in the first half of the past decade but have started to decrease since 2015.

The first half of the past decade saw minor changes in tariffs across most products (Figure 3.11, left panel), while the following period was characterized by reductions in custom duties for most products. While a few sectors with relative lower average tariffs experienced further small increases (bottom left corner of Figure 3.11, right panel), sectors with higher average tariffs in 2014 experienced some reductions. For example, average customs duties on dairy products decreased from about 25 percent in 2014 to 18.7 percent in 2020. This is evidence of a process of dispersion reduction driven by the Extended Fund Facility (EFF) agreed with the IMF in August 2013, in which the Government committed to the simplification of tariff rates, moving to four slabs.⁸²

Figure 3.11: The first half of the past decade saw minor changes in tariffs across most products, while these intensified during the second half...

(Product-level customs duty changes: 2011–2014 and 2014–2020)



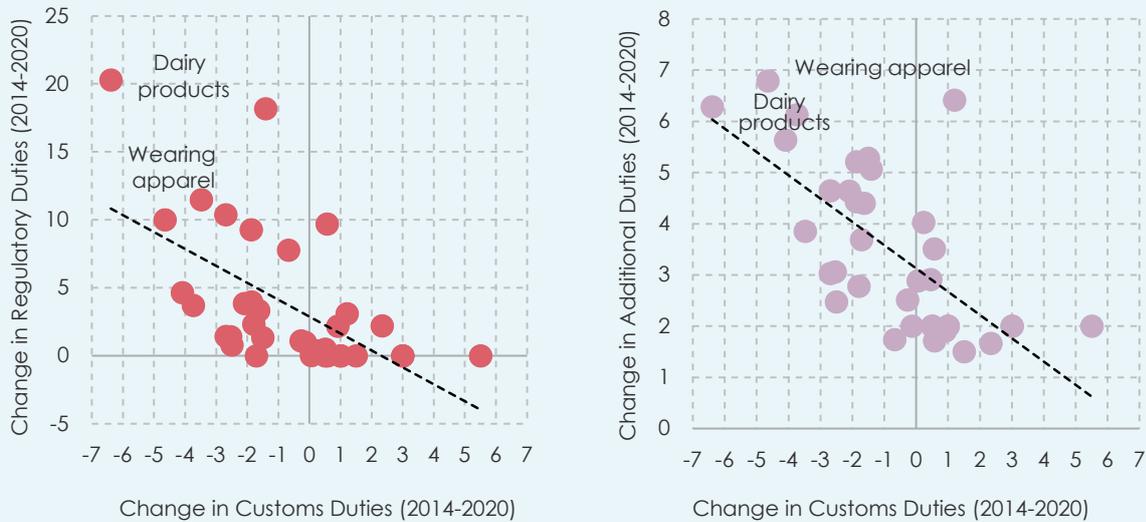
Source: Calculations based on data from the Federal Board of Revenue. Note: We excluded from the graph the motor vehicles, beverages, and tobacco products sectors that have an average tariff of 38.5 and 60.5 percent, respectively. Changes in tariffs between the two periods are indicated by the vertical distance from the 45-degree line. Dots represent increases, while hollow circles represent decreases.

The reductions in customs duties have been outweighed by increases in regulatory and additional customs duties.

With only a few exceptions, products experiencing a larger reduction in customs duties have seen larger increases in both regulatory and additional duties. This is indicated by a negative correlation between changes in customs duties and changes in additional and regulatory duties over the period 2014–2020 (Figure 3.12). For example, in the wearing apparel sector customs duties were decreased by 4.6 percentage points, on average, while the sector experienced an increase of 6.8 percentage points in additional duties and 10 percentage points in regulatory duties. Overall, this suggests that the use of regulatory and additional duties was, at least in part, aimed at maintaining existing differentiated levels of protection across products.

⁸² See Pakistan 2013 Article IV Consultation, and August 2013 Letter of Intent (IMF 2013).

Figure 3.12: ...but the reductions in tariffs were compensated by increases in RDs and ACDs...
 (Customs duty reductions and increases in regulatory [left] and additional customs duties [right] between 2014 and 2020)



Source: Calculations based on data from the Federal Board of Revenue. Note: The line represents the linear fit.

Box 3.2 How to measure upstream tariffs

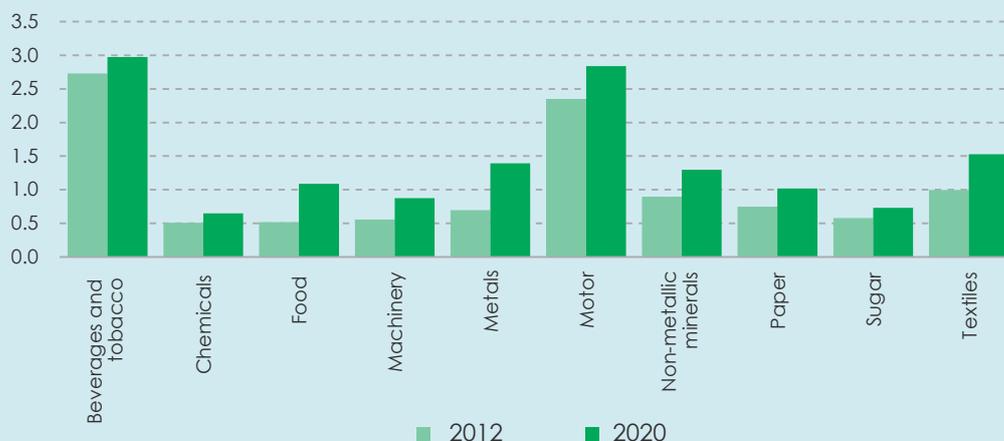
Measures of upstream tariffs (or protection) (P^{UP}), also referred to as input tariffs, can be obtained by computing weighted averages of cumulative duties (D), i.e., customs, regulatory, and additional duties, in upstream sectors. More specifically, upstream protection for each sector, s , is obtained using the following formula:

$$P_{st}^{UP} = \sum_j w_{sj} D_{jt} \quad (1)$$

where weights, w , are fixed over time and are based on input shares of input j used by sector s and obtained from -input-output (IO) tables. Weights capture the importance of each upstream sector in terms of input costs, reflecting the fact that customs duties on imported inputs matter more to sectors making greater use of such inputs. In the case of Pakistan, input shares are obtained from the 2013 GTAP IO table. The aim is to provide plausibly exogenous variations in import protection for empirical analyses, rather than providing an accurate and detailed representation of upstream protection.⁸³ For example, inputs are aggregated at the 2-digit level to limit input substitutability, which could confound the results. For example, firms might substitute inputs to avoid higher tariffs. More disaggregated weights would capture these reallocations, possibly biasing the effect of tariff changes. In addition, shares are fixed based on the 2013 IO table, and on both imported and domestic inputs, to ensure that weights reflect actual sector-level input requirements rather than tariff-induced input choices, which could bias results. Similarly, firms could substitute imported for domestic inputs, or reduce the overall input consumption, to avoid tariffs. Again, if weights were to capture these strategic choices, the effect of tariffs on productivity would be biased.

⁸³ Upstream tariffs can be calculated using the Upstream Tariff Simulator. See a description of the tool in Eberhard-Ruiz, A.; Varela, G.; Casal, L. and Ganz, F. 2020.

Figure 3.13: Upstream tariffs increased across most sectors over the past decade
(Upstream tariffs by sector and year)



Source: Calculations based on data from the Federal Board of Revenue and GTAP IO table 2013.

All sectors experienced an increase in upstream cumulative duties over the period of analysis, in line with the observed increase in regulatory and additional duties. But because different sectors rely on different inputs, some sectors experienced larger increases in upstream tariffs than others. This is the case of the metal product sector, which saw upstream tariffs doubling from 2012 to 2020. This is explained by the large increase in cumulative duties (14 percentage points) for ferrous metals, which are key inputs in the production process. Similarly, for the food sector, the large increase in upstream duties is due to the increase in overall protection for other food products that are inputs in the production process, as for example dairy products.

Upstream tariffs and productivity downstream

The increase in import duties in upstream sectors has reduced the productivity, sales and wages of firms operating downstream. Results show that a 1 percent increase in upstream protection (the sum of customs, regulatory and additional duties in upstream sectors) is associated with a 0.6 percent decrease in productivity downstream (Figure 3.14, left panel). A similar negative effect is found when considering labor productivity as a measure of firm performance. Put another way, based on the distribution of outcomes, if input tariffs were to be increased by 10 percent, productivity would decrease by at least 2.5 percent, with 95 percent probability.⁸⁴

Box 3.3: Estimating the effect of upstream tariffs on productivity downstream

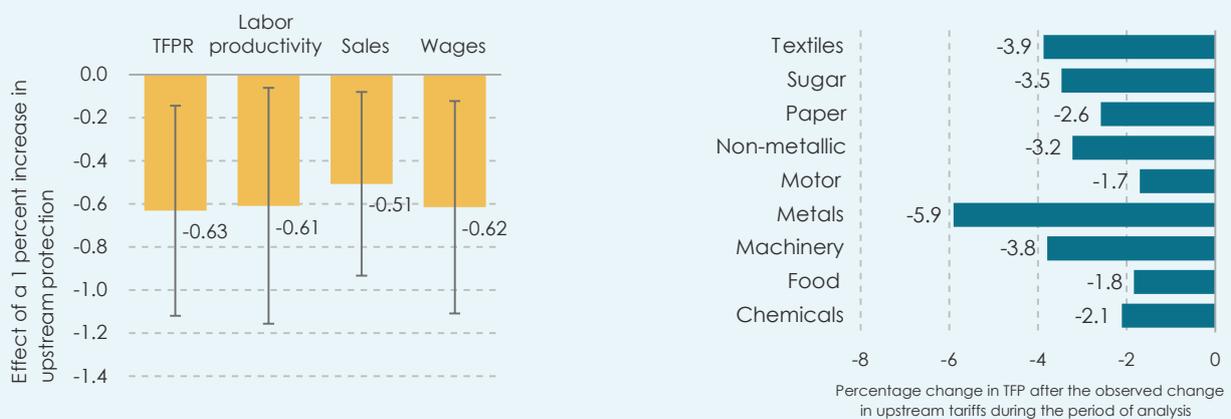
To establish whether there exists a causal relationship between firm performance and a reduction in trade costs in upstream sectors, we follow Amiti and Konings (2007) and regress a measure of total factor productivity of Pakistani firms on a constructed measure of input tariffs. Formally, we estimate the following equation:

$$TFPR_{ist} = \beta P_{st}^{UP} + \gamma X_{it} + v_t + u_i + \varepsilon_{ist}. \quad (1)$$

where TFPR is the measure of revenue-based productivity described in Box 2.1 and P^{UP} are input tariffs constructed as described above. All specifications include firm- and time-fixed effects. We also include some additional controls such as the output tariff in the specific sector, sector-level FDI, upstream FDI in both service and manufacturing sectors, and sector-level time trends. The model is estimated using a linear fixed-effects estimator with standard errors clustered at the sector level. In this specification, the main identification assumption is that the input shares used to construct upstream protections, which reflect the differential exposure of downstream sectors to common shocks in upstream sectors, are exogenous to changes in TFPR, not to its level. We estimate a similar model also considering sales and wages as outcome variables.

Increased upstream import duties have an estimated productivity cost varying from 0.7 percent in the beverages and tobacco sector to 6.18 percent in the metals sector. Considering changes in upstream duties across sectors, the average productivity cost is estimated at 3 percent, but with substantial variations across sectors (Figure 3.14, right panel). Overall, the average increase in upstream import duties explains more than 85 percent of the average decline in productivity over the period 2012–2020.

Figure 3.12: Effect of increased protection upstream on downstream productivity, overall and by sector
(Effect of increased protection upstream on downstream productivity, overall and by sector)



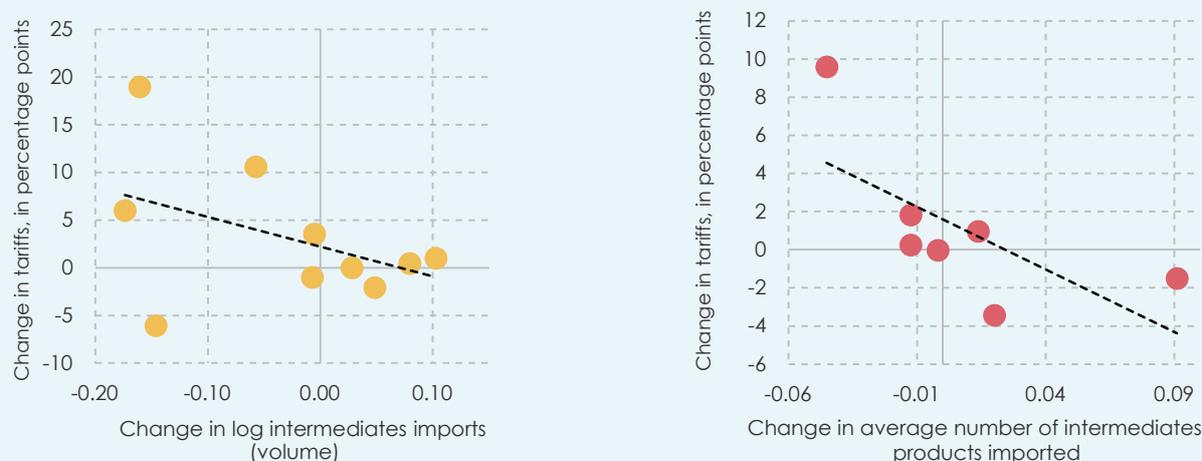
Note: The graph on the left is obtained from regression estimates. The bars indicate the percentage change in total factor productivity, TFP, due to a 1 percent increase in upstream protection, which represents custom, regulatory and additional duties on intermediate inputs. The error bars indicate 95% confidence intervals. On the right, the bar indicates the estimated effect on TFP based on the average annual change in upstream tariffs experienced by the sector over the period of analysis

Tariff reductions are positively associated with wage and sales growth. Focus is placed on the effects of upstream import duties on downstream sales (a proxy for output) and wages.⁸⁵ An increase in upstream import duties reduces downstream sales and wages, and the effects are also large (-0.5 and -0.6 percent, respectively). These results are in line with Khalid (2019), who shows that the fall in input tariffs in Pakistan from 1994 to 2015 was associated with wage growth in the manufacturing sector:

⁸⁵ Although it is important to understand the effects of upstream import duties on downstream productivity, it is also important to understand how these import duties upstream also affect the ability of downstream firms to grow large. Studies on the effects of trade policy on earnings tend to focus on the effects of output tariffs and have found effects to be heterogenous across sectors and locations (Goldberg and Pavnik, 2016). Regarding the effect of input tariffs, studies tend to focus on skill premia and here the evidence is mixed. Data from Indonesia show that reducing input tariffs reduces the wage skill premium within firms that import intermediates (Amiti and Cameron, 2012). On the other hand, a reduction in input tariffs in China is associated with a higher skill premium at firms with more skilled workforces (Chen et al., 2017).

The decrease in productivity is consistent with declining access to imported intermediate inputs following an increase in tariffs. Although Pakistan's tariffs tend to be higher for final goods than for intermediate inputs, input tariffs (inclusive of regulatory and additional duties) have increased across all sectors during the period of analysis (Figure 3.13). An increase in input tariffs increases the cost of accessing intermediates of potentially higher quality. Data on intermediate imports for Pakistan show that higher tariffs resulted in a decrease in the volume of imported intermediate inputs (Figure 3.15). To give a sense of the magnitude of these effects, the average decrease in import tariffs experienced over the period 2014–2017 is associated with a 3.7 percent decrease in intermediate imports.

Figure 3.15: ...because higher tariffs upstream reduce the imports of intermediates, and therefore their availability
(Tariffs and the imports of intermediates)



Note: The graphs show binned scatter plots. The graph on the right shows the relationship between the change in the volume of trade in intermediate inputs and changes in input tariffs. The graph on the right uses the change in the number of imported inputs, at 6-digit, within each 4-digit category. The negative relationship is corroborated by regressions of volume (number of imported intermediates) and tariffs, controlling for product (sector) and year fixed effects, and time trends.

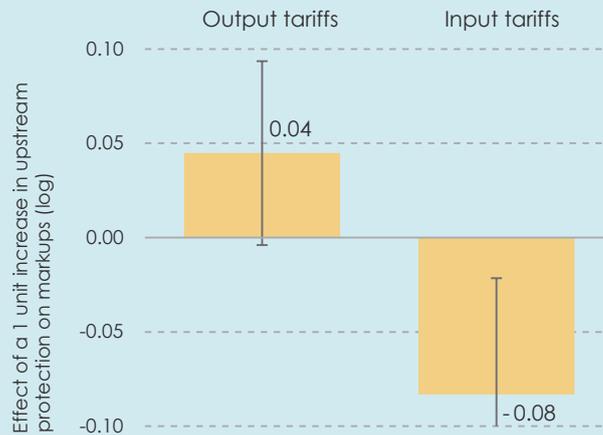
Box 3.4: Import duties and competition: the effects of import-duty increases on firms' markups

The relationship between tariffs and markups is often investigated in the context of trade liberalization. Reducing trade barriers reduces the costs of imported intermediates, and also exposes these firms to greater competition, forcing them to lower their markups and ultimately their prices. Ultimately, the presence of market power can affect the degree to which consumers benefit from opening markets to international trade (De Loecker et al., 2012). As for productivity, markups are subject to “pro-competitive” (output tariffs) and “cost-reduction” (input tariffs) effects. While, in the first instance, markups are expected to decline as competition intensifies, in the second, the effects are ambiguous and depend on market structure. In a context where firms have market power, it is likely for there to be an incomplete transmission, or pass-through, of lower costs due to trade liberalization into prices.

In Pakistan, overall import duties have been on the rise over the past decade. We estimate markups using the approach in De Loecker and Warzynski (2012), and then the impact of import duty changes on,

these markups. Markups are obtained by computing the ratio of the estimated elasticity of a variable input labor, to its (corrected) input share in revenue. We relate markups to both input and output tariffs, controlling for possible confounders, as previously done in equation 1.

Figure 3.16: Increased import protection substantially increase firms' markups (profits)
Effect of increased protection on markups



Note: The bars indicate the percentage change markups due to a one unit increase in output and input tariffs, which are comprehensive of customs, regulatory and additional duties. The error bars indicate 95% confidence intervals.

The results indicate that the increase in output tariffs led to higher markups. A one unit increase in output tariffs increased markups by 4 percent. This is consistent with a decrease in competition in the domestic market. On the other hand, higher input tariffs increased the cost of imported intermediates and suppressed markups by a larger 8 percent. Overall, these findings are consistent with the conceptual assertion that higher output tariffs reduce competition, and therefore lead to increased rents of the protected manufacturers.

Evaluation of *Another* Export Promotion Scheme: The Duty Exemptions on Intermediates for Exporters

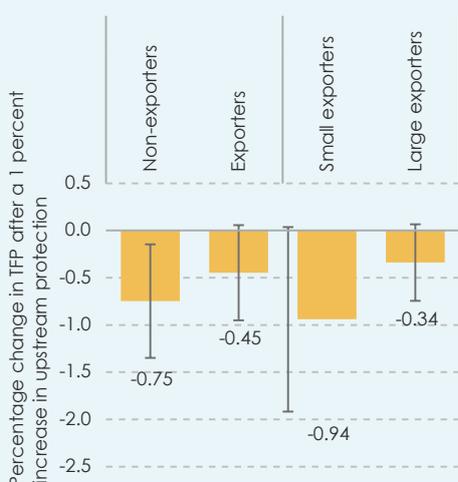
Import duty exemptions on intermediates are commonly used for exporters so that they have access to imported inputs at world prices, while maintaining protection in the rest of the economy. As in many other countries, exporters in Pakistan are granted exemptions on duties paid on imported intermediates and capital equipment. Over the period 2013–2018, the use of customs duty exemptions became even more prevalent. In 2012, for example, 34 percent of imports claimed some form of exemptions (World Bank, 2020) and, in 2016/17, the exemptions reached 50 percent of imports.

Import duty exemptions for exporters can help mitigate the negative effects of upstream tariffs. However, these are not universally accessed by all exporters. While, in principle, import duty exemptions are available for exporters of any size, in practice, securing them is costly (World Bank, 2020).

Given the complexity of the process, which is long and cumbersome, and the fact that smaller firms usually do not import their inputs directly, these schemes favor larger exporters, which can devote resources for this purpose or, in general, firms with greater expertise and capacity.⁸⁶ For example, the largest 10 exporting firms accounted for 38 percent of the total exempted duties (World Bank, 2020).

Figure 3.17: Domestic-oriented and small exporting firms are the most affected by increases in upstream tariffs

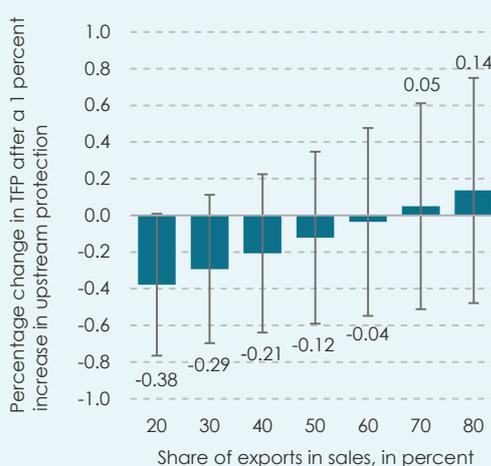
(Effect of increased protection upstream on downstream productivity, by type of firm)



Note: The graph on the left is based on regression estimates. Bars indicate the percentage change in TFP due to a 1 percent increase in upstream protection, which represents customs, regulatory and additional duties on intermediate inputs. The error bars indicate 95% confidence intervals.

Figure 3.18: The higher the export intensity, the lower the effect of increased upstream tariffs on their productivity

(Effect of increased upstream protection on exporters, by export intensity)



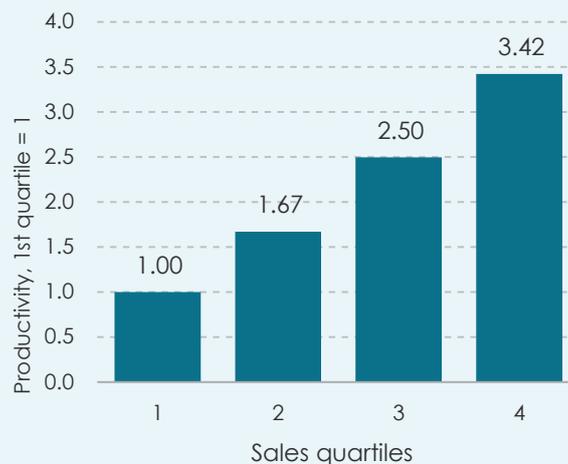
Domestic-oriented firms that cannot access duty exemptions are the most affected by upstream tariffs. The results show that the negative effect of upstream tariffs on downstream productivity is mostly driven by its effect on non-exporters. A 1 percent increase in upstream protection is associated with a 0.75 percent decrease in productivity for domestic-oriented firms (Figure 3.17). The overall effect for exporters is smaller and insignificant. Nonetheless, results by export intensity (Figure 3.18) also show that those exporting only a small fraction of total sales (below 30 percent) are also negatively affected, since exemptions can only be applied on inputs used for exported products. Overall, this confirms that greater upstream protection affects input availability and affordability for firms that cannot access duty exemptions.

Small exporters that are more likely to opt out of claiming import duty exemptions for their intermediates are also negatively affected by upstream protection. While duty exemptions are available to all exporters, securing them is costly for firms due to administrative burdens and lengthy procedures. This implies that firms that can devote resources for this purpose and have greater expertise and capacity are more likely to secure exemptions. Indeed, results show that smaller and domestically-owned exporters are also negatively affected by upstream protection. The effects are large for smaller exporters with productivity costs similar in magnitude to those experienced by non-exporters (Figure 3.17).

Imperfectly functioning import duty exemptions penalize small firms that are typically those that could benefit the most from greater global integration. Small and domestically-owned exporters show,

on average, lower productivity levels than large or foreign-owned exporters (Figure 3.19). Large exporters are more than three times more productive than small exporters. In the presence of rising regulatory and additional duties, the inability to access import duty exemptions can deny these exporters the potential productivity gains that would result from access to better quality inputs and superior technology embedded in imported intermediates.

Figure 3.19: The firms that are hurt the most by high import duties upstream are those that stand most to gain from greater integration
(Average TFP by firms' size)



Source: Authors' calculations based on financial statements analysis of companies (non-banking) listed on the Pakistan Stock Exchange. Note: the first two quartiles form the category "small" used to obtain the results in Figure 3.15. Results are rescaled so that Q1 = 1.

Policy Recommendations

Integration into the global marketplace is a powerful conduit for productivity growth. For Pakistan to break free from the vicious cycle of low productivity and low integration, several reforms need to be introduced in a coordinated manner. This section focuses on interventions related to: (i) modernizing export promotion; (ii) reducing the anti-export bias of tariff policy; and (iii) upgrading the import duty exemption schemes for intermediates used by exporters. It also provides a prioritization for these recommended actions.

Top Priority

Reforming export subsidies

Recommendation 1: Reform export subsidy schemes, namely the DDT and DLTL. First, broaden eligibility; second, reduce the average subsidy rate and their dispersion; and, third, condition subsidies on export growth at the firm level. Under the current structure, export subsidies target traditional, well-

established, and low-sophisticated products, and are biased in favor of larger firms that are more likely to obtain the subsidy than smaller firms that are also eligible. This creates a disincentive to diversify the export bundle, or increase product sophistication, while it creates an incentive instead to misreport export consignments to secure high rates. The schemes would have greater impact if the incentive was 100-percent conditioned on export growth relative to the previous period, automatically making new exporters eligible, irrespective of which product they exported. This flexibility will also help exporters in light of the constant changes in global demand they face. If differential rates are to be applied, consider the following to target products for higher rates: (i) new export products (to boost diversification); (ii) new exporters (to boost entry of new firms); (iii) more sophisticated products (to boost quality upgrading); and (iv) products that are not water-intensive (to reduce the country's water stress). Finally, regularly evaluate the impact of the DDT and DLT schemes, and make data on disbursements public.

Reducing import duties and the anti-export bias of tariff policy

Recommendation 2: Gradually reduce import duties and the extent of cascading, strengthening institutions in the process. Credibly commit to a phased tariff rationalization strategy, gradually reducing import duties and the extent of cascading (implying that duties on final goods need to fall as well, to improve competition and increase incentives to export). Ensure the timing of the tariff rationalization strategy is aligned with a relatively competitive exchange rate, and with an impactful strategy of export promotion in place. Moreover, equip the National Tariff Board to make informed policy decisions, building capacity in the National Tariff Commission, and strengthening the link between academia and the Government, to ensure a strong feedback loop from evidence to policy.

Upgrading import duty exemptions on intermediates

Recommendation 3: Digitize and automate import duty remission schemes for exporters. Introduce trust-based systems, risk-based audits, and time-bound approval processes. Phase out the role of the Input-Output Coefficient Organization in validating input-output ratios, trusting firms instead. Ensure that both new and small firms can benefit from the exemption schemes by leveling the playing field.

Medium-Term Priority

Reducing trade costs linked to trade facilitation, logistics and information for exporters

Recommendation 4: Fully implement the Pakistan Single Window (PSW) and harmonize export intelligence provision. Steps taken to set up PSW are in the right direction. International experience shows that its successful implementation crucially depends on a clear unambiguous mandate from government backed by high-level political will, and a practical work program with key milestones, necessary resources, and a monitoring and evaluation plan.

Recommendation 5: Harmonize export intelligence provision. Consolidate all export intelligence provision into one agency and consolidate trade portals and keep them under the National Single Window Authority in compliance with the WTO Trade Facilitation Agreement. Digitize market intelligence provision support by relying on available international platforms and increase transparency in the use of the Export Development Fund, monitoring and evaluating expenses. Also consider phasing out support to firms in participation of trade fairs or exhibitions or evaluate the impact of that expenditure. In the interim, narrow the focus of this support on new exporting firms.

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Chapter 4

Agricultural Productivity and the Challenge of Climate Change

Agriculture remains a key sector in Pakistan from a value-added, export, employment, and poverty reduction perspective. And while the sector's productivity is low and has been stagnant, resources have not moved into other more dynamic activities, in part because agriculture provides social norms-conforming employment to females. In addition, climate change poses various challenges to the prospects of the sector. This chapter presents new evidence on productivity dynamics in crop agriculture in Pakistan. It argues that: (i) there has been a process of capital deepening and intensification in the use of inputs in agriculture, but total factor productivity has been falling for most crops; (ii) productivity convergence across farms and districts has been modest, and misallocation—which is seen through less-productive farms growing relative to more-productive farms—has pushed aggregate productivity changes down; and (iii) yields are highly susceptible to elevated temperatures and rainfall variations, putting the sector at severe risk due to climate change. Based on the evidence unveiled in this chapter and the stock of knowledge on the agricultural challenges facing Pakistan, the chapter provides recommendations to: (i) reduce distortions that lead to an inefficient allocation of resources in agriculture; and (ii) boost technology adoption and innovation, including in areas relevant for mitigation of, and adaptation to, climate change.

Background

Agriculture continues to be an important sector in terms of Pakistan's GDP, exports, and employment, particularly employment for women. Pakistan is a rare case in that the country shows a stable share of agriculture in GDP over the past three decades (ranging from 22.8 to 23.8 percent), while for both peers and aspirational comparators, the share of agriculture has systematically fallen (Figure 4.1). Pakistan's agricultural exports roughly match the contribution of the sector to GDP, oscillating between 20 and 22 percent, while agriculture employment shares are substantially higher, at 37 percent in 2019 (although declining since the 1990s). Indeed, agriculture accounts for almost the same portion of overall employment as the services sector (38 percent), although the services sector accounts for a substantially larger share of overall value added (53 percent). Moreover, agriculture is a particularly important source of income for women: almost two out of three employed women work in the agriculture sector.

A large share of the population, particularly of the poor, lives in rural areas, making agriculture a potential platform for poverty reduction. Two-thirds of Pakistanis live in rural areas, where the incidence of poverty is higher and where access to basic services is limited.⁸⁷ Out of these two-thirds, at least half do not have access to either basic sanitation services or electricity.⁸⁸ Furthermore, the incidence of poverty is higher in rural areas than in urban areas: in 2018/19, the rural headcount poverty rate was at 28.2 percent, while the urban poverty rate was at 10.9 percent.⁸⁹

⁸⁷ The COVID-19 pandemic and its persistent effects on income and gender inequality have increased the importance of revitalizing the agriculture sector that provides income to a disproportionately large portion of Pakistan's poor and women.

⁸⁸ Based on data from World Development Indicators.

⁸⁹ Based on the World Bank's Poverty & Equity Brief (April 2022) reporting on official national poverty rates that are produced by the Planning Commission using the Household Income and Expenditure Survey (HIES).

Agricultural Productivity and the Challenge of Climate Change

A g r i c u l t u r e



24% of Pakistan's GDP
37% of Employment
22% of Exports



Agricultural output per worker grew at an annual rate of **0.7%** between 1991 and 2019 in Pakistan

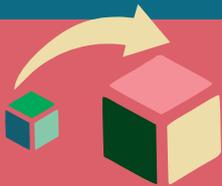


while the **South Asia** average expanded by **2.8%** over the same period

Crop TFP has been contracting, but performance has been geographically heterogeneous

0.4% ↑ Punjab | Sindh **0.3%** ↑
 annual increases in crop TFP

1% ↓ KP | Balochistan **1%** ↓
 annual declines in crop TFP



Over 69% of the aggregate crop productivity decline is explained by a reallocation of resources from more productive to less productive farms



In Punjab, **large crop farms** are at least **9x** more productive than small farms

Climate change can be an additional risk factor for Pakistan's agriculture sector



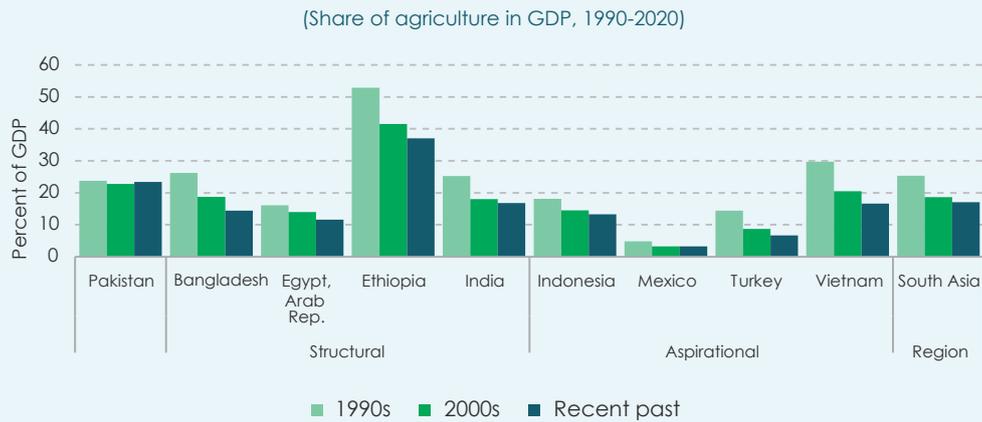
0.5°C – 2°C
 Temperature rise



8 – 10%
 Loss in yield



Figure 4.1: Pakistan shows a stable share of agriculture in GDP over the past three decades, in contrast with comparators



Source: Based on data from World Development Indicators.

But Pakistan's agricultural output per worker has been stagnant for three decades. Pakistan's agricultural output per worker is the median among its peers (Figure 4.2). However, the increase in output per worker has lagged all comparator countries. It has expanded at an annual rate of less than 0.7 percent, while the South Asia average has expanded at four times that rate. The sector's sluggish productivity performance can be linked to distortions—created in part by state interventions—that have led to a concentration of resources on four major crops (cotton, sugarcane, wheat and rice), increased the advantage of big landowners and banks (insiders) at the expense of small farmers, consumers, and future generations (outsiders), and contributed to environmentally unsustainable practices (see Box 4.1 for a discussion on the prevalence of insider-outsider dynamics in the agriculture sector).

Box 4.1: Insider-outsider dynamics in the agriculture sector

Pakistan's agriculture sector is both heavily subsidized and regulated. While the policy concerns that originally inspired public interventions in the sector are important, the policy design and de facto implementation of those policies have benefited large landowners (insiders) at the expense of small farmers (outsiders). For example, the Government has a wheat procurement system whereby it procures a proportion of the total crop output at a fixed procurement price (or “support price”). But this program introduces an allocative distortion that reduces productivity, resulting in a structural oversupply of wheat (as support prices have been above import parity) that benefits large farmers (and banks), crowds out credit to the private sector (as wheat procurement is financed with bank loans that could be directed to private sector financing), at the expense of the consumers and taxpayers, and generates fiscal costs for the Government.^{90,91} Similarly, sugarcane—a water-intensive crop—benefits disproportionately from the underpricing of water, and other subsidy inputs (such as fertilizers, credit for equipment/machinery), but requires minimum support prices to make its cultivation financially viable. As with wheat, the certainty of a guaranteed price has increased production and created a surplus in the domestic market that then requires export subsidies to become competitive on international markets. Over time, regressive input subsidies and support price regimes have incentivized the use of underpriced water, affecting future generations,

⁹⁰ For details on the consequences of the current wheat procurement program in Pakistan, see Rana, A.W., 2020.

⁹¹ Every year, federal SOEs and provincial governments borrow from commercial banks (under a federal guarantee) to finance the purchase of commodities. They are required to subsequently retire these loans from the proceeds generated from the sale of crops (whose stock is used as a collateral in these transactions). However, with delays in subsidy payments, losses in stock during storage, release to flour mills at low rates and transportation and storage costs, these liabilities have been accumulating over the years. These outstanding liabilities against commodity operations carried out by federal and provincial entities stood at PKR904 billion or 1.6 percent of GDP at end-June 2021.

prevented diversification toward higher-value crops, distorted public resources away from investments in support of technological change (R&D, extension), and benefited the land-owning elite. These elites have in turn resisted the implementation of reforms to liberalize agricultural markets, reform water-pricing and increase the agricultural taxations that they benefit disproportionately from in the status quo.⁹²

Figure 4.2: Agricultural value added per worker is low and stagnant in Pakistan relative to comparators

(Agricultural value added per worker in constant 2010 US\$, 1991–2019)



Source: Based on data from World Development Indicators.

Crops are key to Pakistan's economy, while livestock production has been gaining ground.⁹³ The five most important crops in the country—wheat, rice, cotton, sugarcane, and maize—are grown predominantly by subsistence farmers who work on degraded land.^{94, 95} Damage to key cash crop yields such as cotton is a particular concern. Pakistan is the fifth-largest producer of cotton in the world, contributing to 4.5 percent of agricultural GDP, and 0.8 percent of aggregate GDP. When considering direct and indirect value added (value added created by cotton-related industries), the industry contributes about 10 percent of the country's GDP and 55 percent of exports.⁹⁶ Rice also plays a key role in Pakistan's economy. Pakistan is the tenth-largest global producer of rice, and its exports make up to 8 percent of the world's rice exports (see Box 4.2).⁹⁷ More recently, livestock output has been gaining ground, with rapid growth at 3.7 percent per year, while crop output has grown more modestly, at 2.3 percent per year (Figure 4.3). Livestock accounted for 63 percent of agricultural GDP in FY21.⁹⁸

⁹² For details see, Spielman et al., 2016; Lieven, 2011; Nasim, 2012; and World Bank, 2019.

⁹³ Livestock accounted for 63 percent of agricultural GDP in FY21, up from 51 percent in FY20. The sector provides inputs to industries downstream, such as leather (for the leather garment industry and for the soccer ball cluster).

⁹⁴ Climate Risk Country Profile: Pakistan (2021).

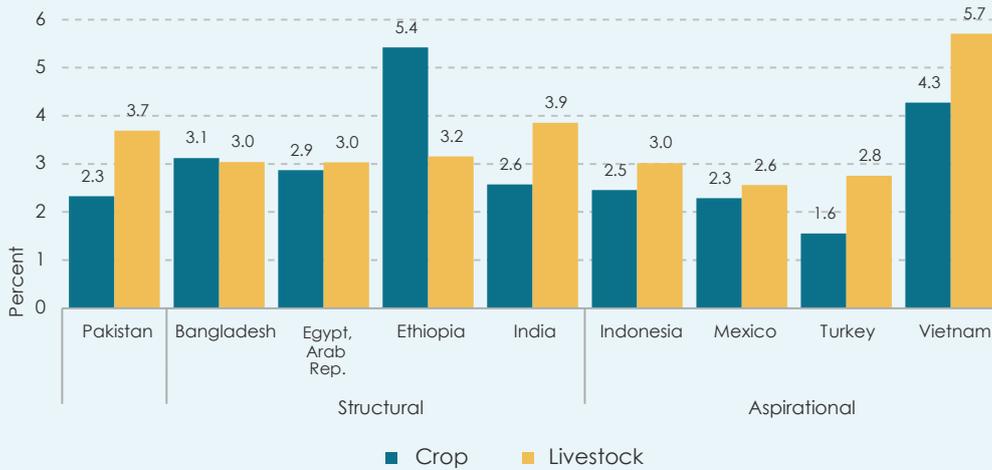
⁹⁵ Land degradation in Pakistan encompasses deforestation, desertification, salinity and sodicity, soil erosion, water logging, depletion of soil fertility and negative nutrient balances.

⁹⁶ Rana, A.W. et al. "Cotton Crop: A Situational Analysis of Pakistan".

⁹⁷ Based on data from the Observatory of Economic Complexity, 2020.

⁹⁸ Data on relative size of livestock are obtained from National Accounts (Pakistan Bureau of Statistics)

Figure 4.3: Livestock growth has outpaced that of crops in Pakistan and some comparators
(Output growth in agriculture by sector, 1990–2018)



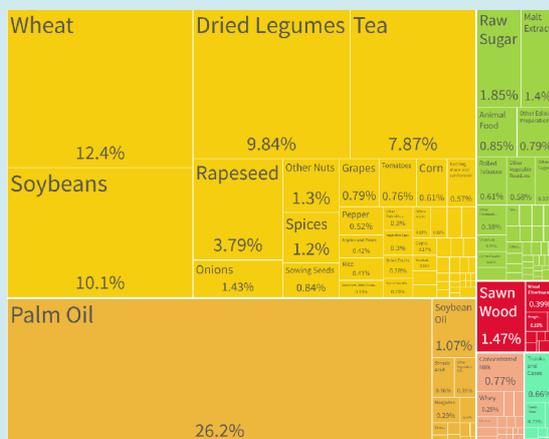
Source: Based on data from World Development Indicators. Note: Data for Ethiopia correspond to 1993 to 2018.

Box 4.2: The role of agriculture in Pakistan's trade

What agricultural products does Pakistan trade?

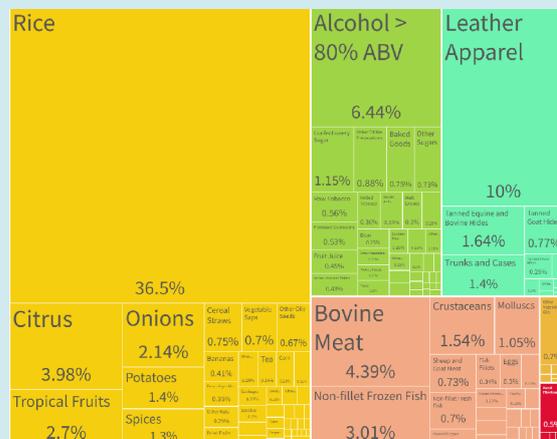
Agricultural products represent 16 and 23 percent of Pakistan's goods imports and exports, respectively.⁹⁹ Within agricultural imports, palm oil accounts for 25 percent of agricultural imports (Figure 4.4). In terms of exports, cereals account for 37 percent of agricultural exports, with semi- or wholly-milled rice products accounting for 25 percent of agricultural exports (Figure 4.5).

Figure 4.4. Palm oil, soybeans, wheat and tea dominate Pakistan's agri imports
(Pakistan's agricultural import structure, 2020)



Source: Observatory of Economic Complexity. Note: In 2020, imports of selected products accounted for US\$8.2 billion.

Figure 4.5. Rice in different forms dominate Pakistan's agri exports
(Pakistan's agricultural export structure, 2020)



Source: Observatory of Economic Complexity. Note: In 2020, exports of selected products accounted for US\$5.9 billion.

⁹⁹ We consider as agricultural products all vegetable products, foodstuffs, animal hides, animal products, animal and vegetable bi-products, and wood products.

Which countries are Pakistan's main trading partners of the most-traded agricultural products?

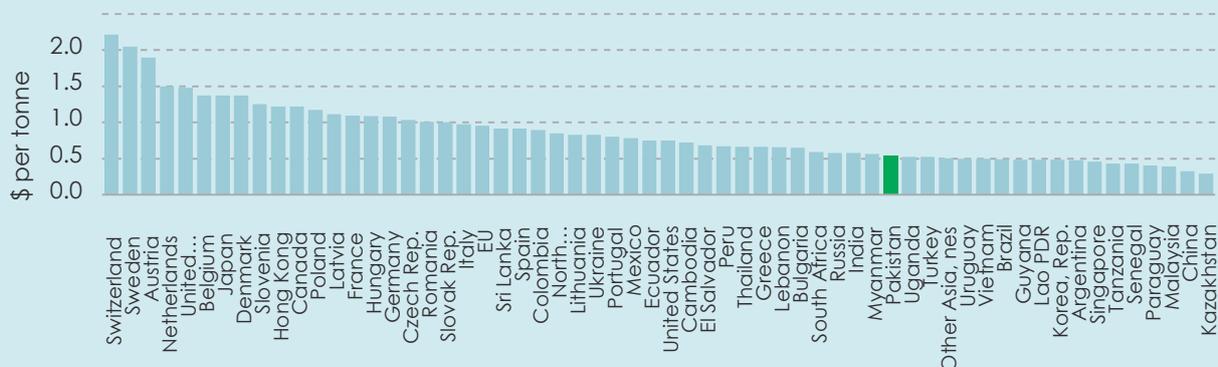
All of Pakistan's palm oil imports come from Indonesia (77 percent) and Malaysia (22.6 percent), while exports of cereals are more diversified by destination. The three largest buyers are China (11 percent), Afghanistan (6.8 percent), and Kenya (6.1 percent).

What is the quality of Pakistan's agricultural export products?

Pakistan main agricultural export product fetches relatively low prices in international markets. Pakistan ranks 43rd among 60 countries with rice exports over US\$1 million in terms of price per kg of rice exported (Figure 4.6).

Figure 4.6: Pakistan's exported rice is mid-level quality

(Rice quality ladder, latest available data)



Source: Based on data from WITS. Note: Only countries with exports over US\$1 million. Latest available data since 2018. HS code: 100630.

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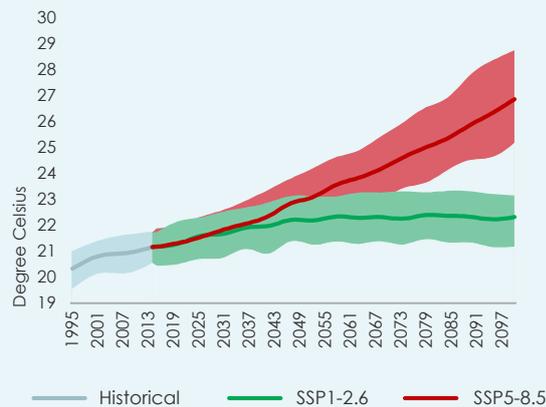
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Pakistan's Vulnerability to Climate Change

Climate change comes as an additional risk factor for Pakistan and especially to its agriculture sector. Pakistan's climate has been changing over recent decades and the country faces rates of warming that are considerably above the global average.¹⁰⁰ Extreme temperatures (heat waves) have become more common. Even under the optimistic scenario (SSP1–1.9), the annual mean temperature and number of days with heat index greater than 35°C are likely to increase compared with the baseline (Figure 4.7, panels A and B). Heat waves will become more common. While overall precipitation trends show a small increase, periodic extreme precipitation events that lead to floods, droughts, and sub-daily extreme rainfall events are likely to increase, with the risks much greater under the highest emissions pathway by the end of the century. Weather and climate-related disasters have affected over 75 million Pakistanis in the past three decades, with estimated economic losses of above US\$29 billion (or roughly US\$1 billion a year).¹⁰¹ The projected temperature extremes will progressively amplify the negative impacts on human health, livelihoods, and ecosystems that Pakistan is already experiencing.

Figure 4.7: Extreme temperatures have become more common

Panel A: Projected mean temperatures in Pakistan, reference period 1995–2014, multi-model ensemble¹⁰²



Source: The World Bank's Climate Change Knowledge Portal. Note: Shared Socioeconomic Pathways (SSP).¹⁰³

Panel B: Projected mean temperature anomalies in Pakistan, SSP1–2.6, multi-model ensemble

Jan	-0.7	-0.8	-0.8	-0.7	-0.4	0.0	0.4	0.8	1.1	1.3	1.7	1.6	1.5	1.7	1.4	
Feb	-0.8	-0.9	-0.7	-0.6	-0.5	0.2	0.1	0.7	1.2	1.3	1.7	1.5	1.4	1.6	1.6	
Mar	-0.7	-1.0	-0.8	-0.6	-0.6	0.1	0.3	0.8	1.0	1.3	1.3	1.4	1.5	1.7	1.5	
Apr	-0.7	-0.8	-0.8	-0.7	-0.4	0.1	0.3	0.8	0.9	1.2	1.2	1.3	1.5	1.6	1.4	
May	-0.8	-0.8	-0.8	-0.7	-0.4	0.0	0.3	0.5	0.9	1.1	1.2	1.4	1.4	1.2	1.3	
Jun	-0.7	-0.8	-0.7	-0.7	-0.5	0.0	0.4	0.7	1.0	1.1	1.2	1.3	1.4	1.3	1.3	
Jul	-0.5	-0.6	-0.6	-0.4	-0.4	0.0	0.3	0.7	0.9	1.1	1.1	1.3	1.4	1.3	1.3	
Aug	-0.5	-0.7	-0.5	-0.4	-0.4	0.0	0.3	0.6	0.9	1.1	1.1	1.2	1.3	1.3	1.1	
Sep	-0.8	-0.9	-0.8	-0.6	-0.4	0.1	0.3	0.7	1.0	1.3	1.3	1.5	1.4	1.5	1.3	
Oct	-0.9	-1.1	-1.0	-0.7	-0.5	0.1	0.3	0.7	1.0	1.4	1.5	1.5	1.5	1.5	1.4	
Nov	-0.6	-0.9	-0.8	-0.4	-0.7	0.1	0.4	0.6	1.1	1.6	1.6	1.5	1.5	1.5	1.4	
Dec	-0.6	-0.8	-0.7	-0.7	-0.5	0.0	0.5	0.7	1.1	1.4	1.4	1.6	1.6	1.6	1.4	
	1951-1960	1961-1970	1971-1980	1981-1990	1991-2000	2001-2010	2011-2020		2021-2030	2031-2040	2041-2050	2051-2060	2061-2070	2071-2080	2081-2090	2091-2100
	Projection															

Source: The World Bank's Climate Change Knowledge Portal. Note: Shared Socioeconomic Pathways (SSP).¹⁰⁴

Climate change will affect food production. Direct effects include alterations to CO₂ availability, precipitation, and temperatures. Indirect effects include impacts on water availability and seasonality, soil organic matter transformation, soil erosion, changes in pest and disease profiles, the arrival of invasive species, and a decline in arable areas due to the submergence of coastal lands and desertification. A further, and perhaps lesser appreciated, influence of climate change on agricultural production is through its impact on the health and productivity of the labor force.¹⁰⁵

¹⁰⁰ World Bank (2021). Climate Risk Country Profile. https://climateknowledgeportal.worldbank.org/sites/default/files/2021-05/15078-WB_Pakistan%20Country%20Profile-WEB.pdf
¹⁰¹ EM-DAT, The International Disaster Database. CRED. www.emdat.be Data extracted on April 22, 2022
¹⁰² A multi-model ensemble (MME) is a large number of climate model simulations.
¹⁰³ SSPs represent possible societal development and policy paths for meeting designated radiative forcing by the end of the century. SSP1–2.6 represents a scenario where GHG emissions (and indirectly emissions of air pollutants) are reduced substantially over time, while SSP5–8.5 is a scenario with very high GHG emissions.
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Past examples of extreme climate events show the devastating impact these may have on agricultural output. Floods inundate fertile land, kill livestock, destroy standing crops, and reduce yields. This was evident during the major flood of 2010, during which an estimated 2.4 million hectares of unharvested crops were lost, worth about US\$5.1 billion. Droughts can be equally devastating to rural livelihoods. From 1999 to 2002, droughts in Sindh and Balochistan provinces killed 2 million livestock and required emergency relief to provide drinking water and food to farming communities. Even minimal changes in precipitation patterns over prolonged periods can alter Pakistan's food production by placing greater pressure on the water resources that the country's irrigation network depends on.

Temperature rises in the region of 0.5°C–2°C could lead to an 8–10 percent loss in yield.¹⁰⁶ Except for the northern mountainous region, projected yield declines are widespread, particularly for crops such as cotton, wheat, sugarcane, maize, and rice.^{107,108} Yu et al. (2013) suggest rice and sugarcane are worst affected under a high emissions scenario, experiencing between 20 and 25 percent yield reductions. The impact of climate change on livestock is less well understood and further study is required.¹⁰⁹

Insights on Crop Agricultural Productivity in Pakistan

This chapter presents the results of two new papers that provide insights into productivity trends and their determinants in the crop sub-sector in Pakistan. The selection of the crop sub-sector is based on data availability.¹¹⁰ Agricultural productivity has been stagnant in Pakistan over the past decades, particularly in the crop sub-sector. This section summarizes evidence presented by two papers with novel datasets that estimate crop productivity and shed light on its determinants: Burki et al. (2022a) and Burki et al. (2022b).

Box 4.3: Estimating crop productivity

Estimating productivity at the district level

Burki et al. (2022a) computed the Färe-Primont (FP) total factor productivity (TFP) index and its components for Pakistan's crop agriculture by assuming variable returns to scale production technology.¹¹¹ One advantage of the FP index with respect to other indices is that it does not require any price information and can be constructed only using data on quantities. Moreover, the FP index allows multi-temporal and multi-lateral comparisons of TFP across different districts.

The authors used district-level data from 1993 to 2019 to estimate a separate production frontier for each of the four provinces: Punjab, Sindh, Khyber Pakhtunkhwa (KP), and Balochistan.¹¹² Due to the creation of several new districts and changes in their administrative boundaries, 1993 classifications were retained to generate a consistent panel dataset. As a result, 90 districts were considered: 34 of Punjab, 15 of Sindh, 21 of Khyber Pakhtunkhwa (KP) and 20 of Balochistan.

To compute TFP, the authors used several output and input data. All crop outputs were aggregated into a crop

¹⁰⁶ Dehlavi, A., Gorst, A., Groom, B., Zaman, F., 2015.

¹⁰⁷ ADB (2017). Climate Change Profile of Pakistan. Asian Development Bank.

URL: <https://www.adb.org/publications/climate-change-profile-pakistan>

¹⁰⁸ Yu, W., Yang, Y.-C., Savitsky, A., Alford, D., Brown, C., Wescoat, J., Debowicz, D., Robinson, S., 2013.

¹⁰⁹ The impact of the extended drought period between 2015 and 2017 that reduced livestock output by 48 percent in the worst-affected districts highlighted the potential threat of future increases in drought frequency.

¹¹⁰ Future work should also examine productivity dynamics in livestock, an increasingly relevant sector for Pakistan's agriculture.

¹¹¹ For details on the Färe-Primont index, see Appendix B in Burki et al., 2022a.

¹¹² See Appendix C, Table C1 in Burki et al. (2022a) for sources of district level crops and agricultural inputs.

output index using the Lowe output aggregates based on a vector of 47 crops produced in 90 districts using an average price of each crop for the period between 1993 and 2019. Crop data were measured in million tonnes and classified into grains, vegetables, fruits, pulses, other field crops and condiments. Input categories included land, labor, fertilizer off-take, tractors, tube-wells and threshers. The land input variable measured total cropped area in thousand hectares sown during the Kharif and Rabi seasons in a given year in a district. The labor variable measured yearly man days in thousands in each district dedicated to performing agricultural tasks. Fertilizer off-take measured the sale of fertilizer in each district in nutrient tonnes by aggregating its individual nutrient sources, for example, nitrogen, phosphorous and potassium. Finally, the total stock of farm machinery was measured by the number of tractors, tube-wells and threshers used for agricultural purposes in each district.

Estimating productivity at the farm level

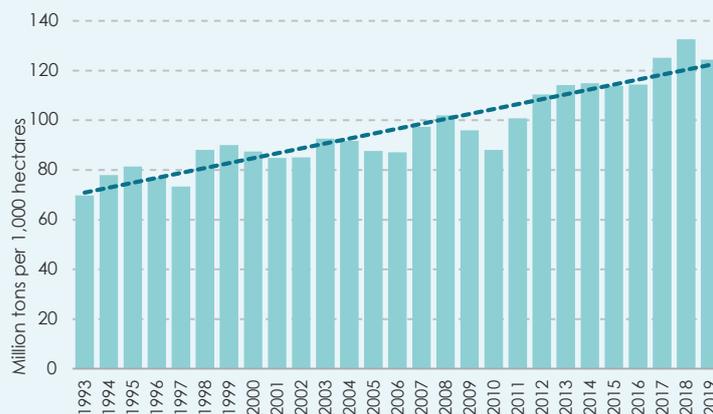
Burki et al. (2022b) estimated farm-level TFP by using a two-step semi-parametric estimation. The authors applied regression models that consider unique plant phenology of each crop by which they grow and mature to reveal how temperature and precipitation affect farm level TFP and yields.

The authors merged annual unbalanced panel data of wheat, rice, sugarcane and cotton farms from Punjab for the period 2013–2020 with regional weather data. Moreover, the high frequency of the data allowed for the phenological stages of the crop development to be included in the model.

The annual farm level data consisted of wheat farms from 2013 to 2019 ($N = 39,288$, $T = 7$), of rice farms (basmati rice) from 2014 to 2019 ($N = 21,675$, $T = 6$), of sugarcane farms from 2013 to 2020 ($N = 21,085$, $T = 8$) and of cotton farms from 2013 to 2019 ($N = 18,621$, $T = 7$). Crop output was measured in constant prices using the Lowe aggregates based on average price of each crop for the study period. The land input corresponded to cropped area in acres. The labor input corresponded to the cost of labor in constant 2015–16 prices. Finally, materials input was measured in constant prices of 2015–16, consisting of seed, fertilizer, and irrigation water cost.

Crop yields in Pakistan have increased over the past few decades. Since 1993, crop yields in Pakistan have increased 78 percent (Figure 4.8). From a geographical point of view, this increase in yields was driven by increases in Punjab and Sindh, which increased their yields by 95 and 87 percent, respectively. Conversely, yields in KP only increased by 27 percent, while those in Balochistan fell by 13 percent (Figure 4.9).

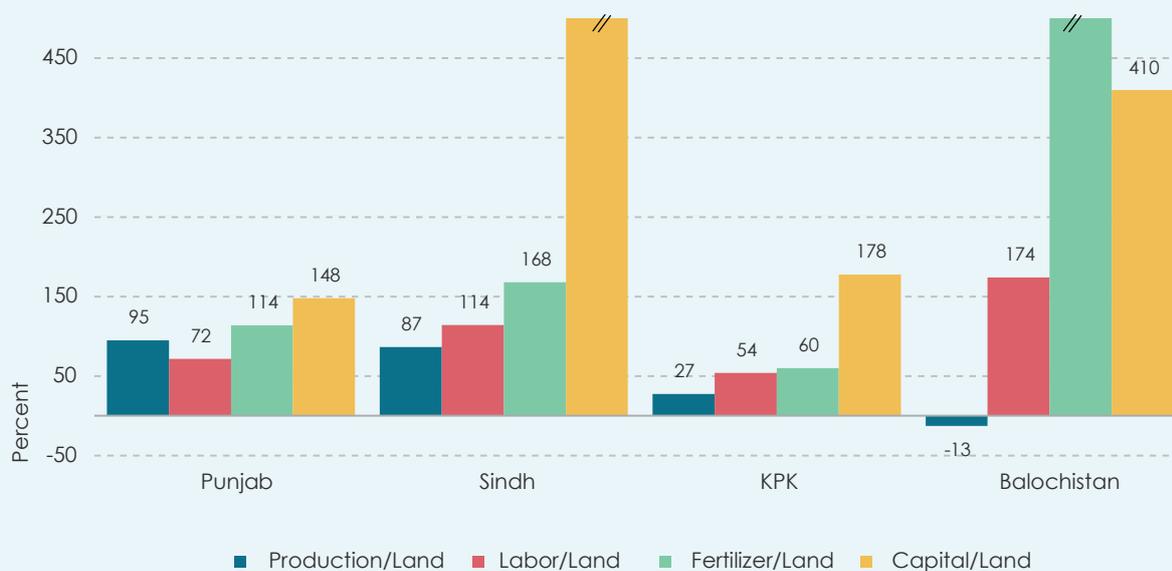
Figure 4.8: Crop yields in Pakistan have increased substantially
(Crop yields, million tons per 1,000 hectares, 1993–2019)



Source: Burki et al. (2022a)

The increase in yields is explained by increases in input use rather than by increases in productivity. All provinces heavily increased the use of capital (tractors, tube wells, threshers) and fertilizer per hectare, while all provinces apart from Punjab also increased the amount of labor used per land at a rate higher than yield growth (Figure 4.9). This implies that the increase in yields by hectare was mainly driven by more intensive use of productive inputs, rather than by an increase in productivity.

Figure 4.9: Increases in yields have been driven by increases in input use, rather than by increases in productivity
(Growth in output and input per hectare of used land, 1993–2019, by province)



Source: Burki et al. (2022a). Note: capital corresponds to the average of tractors, tube wells and threshers.

Crop district-level analysis of total factor productivity (TFP) reveals a generalized contraction in agriculture TFP in Pakistan, accentuated since the turn of the century. Aggregating the crop district-level results at the national level shows that TFP declined at an annual average rate of -1.2 percent (Figure 4.10). The decline in TFP is explained by performance deterioration since the turn of the century. Between 1993 and 1998, the TFP for crops grew by 21 percent, or an average 3.9 percent per year. Since then, TFP has been contracting at an average rate of 2.3 percent per year. Also, TFP has fallen in nine of the 26 years with data and has dropped consecutively in the past five years under analysis. Most of the TFP decline can be attributed to the decline in the rate of technical change.

Figure 4.10: TFP in crop agriculture has contracted, particularly since the turn of the century
(Aggregate TFP growth in Pakistan's crop sector, 1994–2019)



Source: Burki et al. (2022a)

National aggregates hide heterogeneous performances at the provincial and agro-climatic zones level. Highly diverse regional performance indicates that Punjab and Sindh experienced increases in TFP, but KP and Balochistan experienced large TFP declines (Figure 4.11). Within Punjab, all agro-climatic zones increased TFP except for the Barani zone, while in Sindh, growth was driven by the cotton-wheat growing areas (Figure 4.12). The TFP contraction in KP is explained by the underperformance of the southern area. Also, in Punjab, technological change has been the main driver of TFP growth (although there is still scope for further improvements in technical and scale mix efficiencies). In the other provinces, the rate of technical change has not grown.

Figure 4.11: There's heterogeneity in TFP performance across provinces...

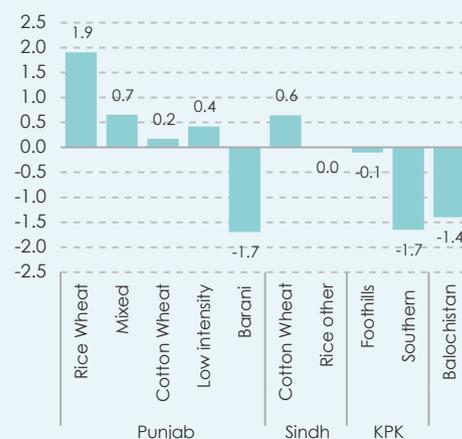
(TFP annual average growth rate by province, 1993–2019, in percent)



Source: Burki et al. (2022a)

Figure 4.12: ...and across agro-climatic zones

(TFP annual average growth rate by agro-climatic zone, 1993–2019, in percent)



Source: Burki et al. (2022a)

Farm-level Analysis of Productivity

Farm-level analysis of productivity in Punjab also reveals a contraction in the average productivity in wheat, rice and cotton farms, while it shows an increase in sugarcane farms (Figure 4.13). The results obtained from a systematic analysis of farm-level data in Punjab between 2013 and 2019 show that the simple average TFP across farms declined in wheat, rice, and cotton farms, but increased in the case of sugarcane farms.^{113, 114} Moreover, productivity dispersion at the farm level decreased for all four crops: the standard deviation of TFP fell by 14 percent for cotton, 3 percent for wheat, 0.9 percent for rice and 0.8 percent for sugarcane.

The drivers of aggregate productivity growth can shed some light on the extent of misallocation of resources in crop agriculture in Punjab. Aggregate productivity by crop is calculated as an average of the productivity of all farms, weighted by the importance of each farm in total crop output. Thus, changes in aggregate productivity can be driven by two factors. First, changes in the productivity of the farms themselves (within-farm component) and, second, by changes in the output shares of each farm (between-farm component). If more productive farms increase their share, then these more productive farms carry more 'weight' in the average and push aggregate productivity up. If resources are well allocated, then it would be expected that better-performing farms would grow larger and worse-performing farms would shrink in importance. However, distortions in the market can be such that they prevent the efficient allocation of resources. This tends to be the general finding in Punjab's crop agriculture sector.

¹¹³ Burki et al. (2022b) investigate the impact of spatial variations in extreme weather patterns on crop yield and total factor productivity (TFP) in Punjab province of Pakistan. They examine the link by merging annual unbalanced panel data of wheat, rice, sugarcane, and cotton farms for the period 2013–2020 with regional weather data. They estimate TFP by using a two-step semi-parametric estimation and apply regression models that consider unique plant phenology of each crop by which they grow and mature to reveal how temperature and precipitation affect farm-level TFP and yield.

¹¹⁴ Although aggregate TFP for sugarcane (with output weights) also fell during the analyzed period.

Figure 4.13. Misallocation drives the decline in aggregate crop productivity in Punjab
(Aggregate TFP growth decomposition, annual average, Punjab, in percent)



Source: Burki et al. (2022b). Note: The period for cotton and wheat corresponds to 2014–2019, for rice it corresponds to 2015–2019, and for sugarcane it corresponds to 2014–2020.

For all four crops analyzed, aggregate productivity fell on average during the period of analysis. In all four cases, the contribution of the between-farm component was negative. This implies that more resources flowed to less-productive farms, leading them to accumulate a larger share of output (Figure 4.13). This means that distortions in the market were preventing a 'creative destruction' mechanism by which more efficient farms grow larger. With respect to the within-farm variation, there was heterogeneity between the crops. In sugarcane, farms increased their productivity on average (positively contributing to aggregate productivity growth). For rice and wheat, farm productivity declined, on average, thus negatively contributing to aggregate productivity growth. For cotton farms, farm productivity remained virtually unchanged. While the data do not allow us to identify why between-farm variation had a negative contribution to TFP growth, it is likely that many distortions both in input and output markets relevant for these crops (e.g., government procurement, lack of markets for credit and insurance) played a role in enabling unproductive farms to expand.

Productivity and Farm Size

Farm-level data reveal that in Pakistan larger farms tend to be more productive than smaller farms (Figure 4.14). Taking landholding (acres) and crop output (in quantities) as indicators of farm size, and breaking the distribution in three categories—large, medium, and small—average TFP of large wheat, rice, sugarcane, and cotton farms were 12-, 9-, 9-, and 11-times greater, respectively, than that of small farms. Moreover, average TFP of large farms was at least 4-times higher than medium farms. The relatively low productivity of small farms is particularly important given that small and medium farms constitute 60 percent of total farm area in Punjab. This result does not mean that, inevitably, small farms are destined to have lower productivity levels. Indeed, the international evidence on this issue is mixed (Box 4.4). A reason why larger farms may show large productivity differences than small ones is related to a distorted access to credit, or a restricted definition of valid credit collateral. For example, if technology adoption or innovation requires substantial investments, and credit is limited, larger farmers will have an advantage in incorporating productivity-enhancing technology because they can use retained earnings to invest.

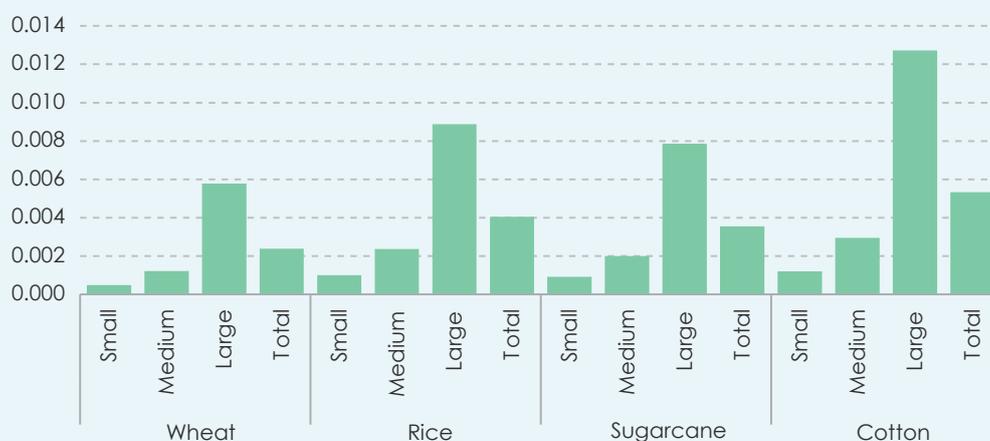
Ensuring that small farmers can access credit to secure, for example, good quality seeds or other forms of agriculture innovation, will be crucial in helping narrow these productivity differences.

Box 4.4: Farm size and productivity

There is an active debate regarding the relationship between farm size and productivity. Much previous work has focused on a single factor productivity finding an inverse relationship between farm size and yields. When TFP is considered, evidence is more ambiguous. In the early 1960s, Sen noted that small farms used more family labor per hectare, and that their labor productivity was lower than in large farms. In the mid-1980s, further research showed that imperfections in factor markets could lead to higher crop yields in small farms, because of incentive problems: more supervisors are needed in larger farms with hired rather than family labor (Feder, 1985; Eswaran and Kotwal, 1986). If larger farms substitute machinery for labor and keep using family labor rather than hired labor, then economies of scale could be achieved (Kislev and Peterson, 1982). More recent work that combines imperfect factor markets and economies of scale in the use of machinery shows a U-shaped land productivity pattern. Small and large firms are most productive, with farms in the middle that are too large to rely only on family labor, but too small to adopt labor-saving machinery.

Some recent evidence on farm size and total factor productivity show that there is no optimal farm size: both large and small farms can be equally efficient, although some farm sizes may face productivity disadvantages depending on their country's level of development and circumstances.

Figure 4.14: Large farms as substantially more productive than small ones in Punjab
(Average weighted TFP levels by landholding size, Punjab)



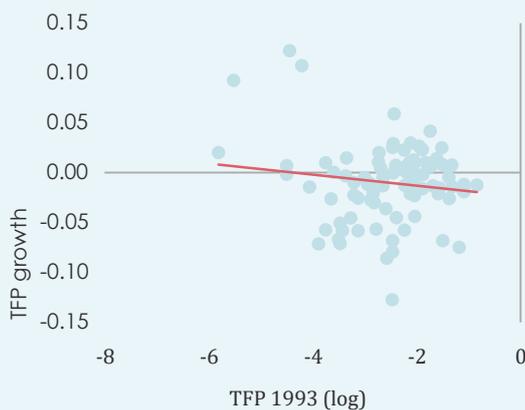
Source: Burki et al. (2022b). Note: Farm size is determined using landholding (acres) and crop output.

Productivity Convergence: District and Farm Levels

There is some evidence of productivity convergence across districts within provinces. If some districts are more productive than others due to the better use of inputs, faster technology adoption or better management, it would be expected that a process of imitation would facilitate productivity convergence across districts, namely faster productivity growth in initially lagging districts and lower productivity growth in initially more advanced ones.¹¹⁵ At the national level, evidence of convergence is weak, as the correlation between initial productivity levels and productivity growth is negative, but statistically insignificant (Figure 4.15).¹¹⁶ However, there is evidence of productivity convergence within provinces, with the exception of Sindh (Figure 4.16).

Figure 4.15: There is some evidence of TFP convergence across districts...

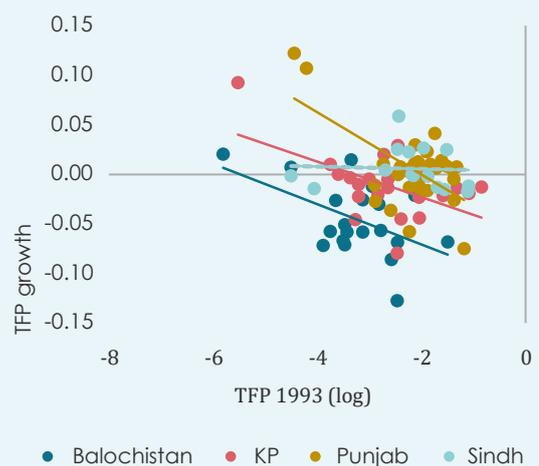
(Convergence in TFP, district level, 1993–2019)



Source: Burki et al. (2022a). Note: The p-value of the slope coefficient is 0.193.

Figure 4.16: ...and across districts within provinces.

(Convergence in TFP, district level, 1993–2019), by province)

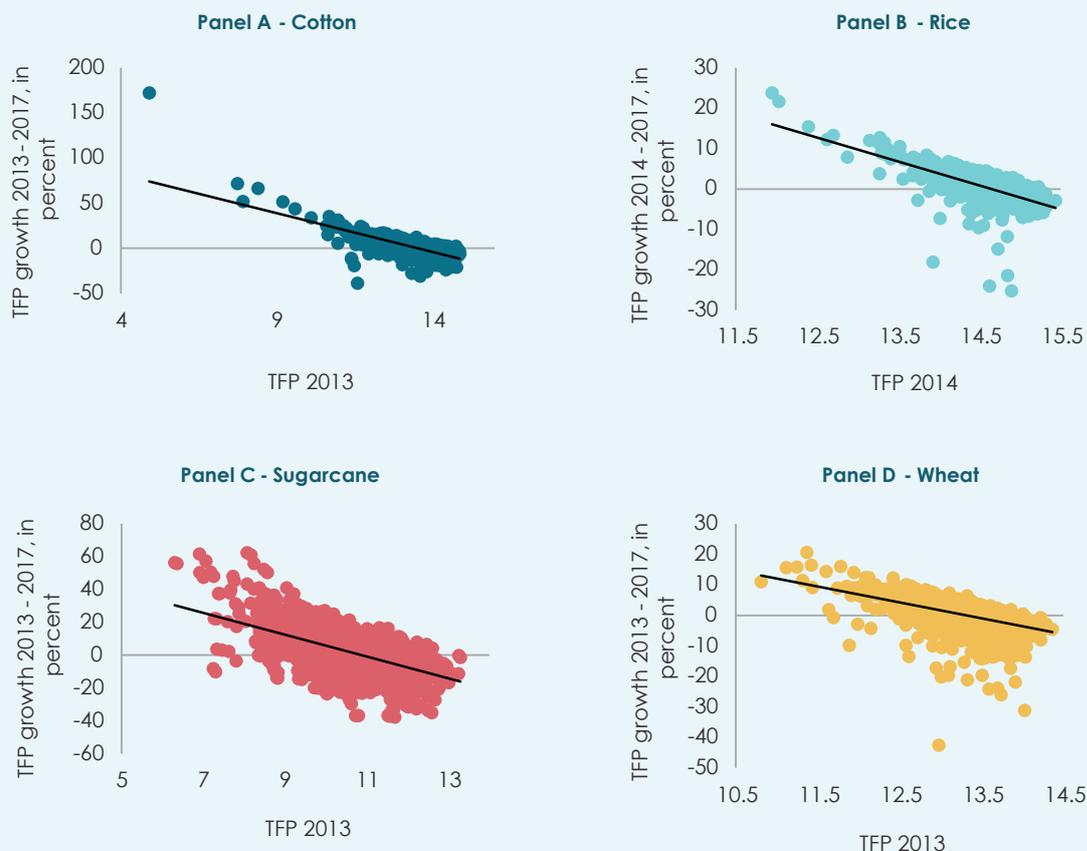


Source: Burki et al. (2022a). Note: The p-values of the slope coefficients are: 0.022 for Balochistan, 0.010 for KP, 0.000 for Punjab and 0.851 for Sindh.

¹¹⁵ It is possible that if innovation is continuous and endogenous to past innovations, then a process of divergence may be observed instead, as more advanced farms will be better placed to gain from further innovations or technology adoption than less-advanced farms. Also, climate and soil quality that is district-specific can determine a similar type of path dependence in productivity growth as endogenous innovation.

¹¹⁶ Burki et al. (2022a) regress the average annual rate of growth of TFP between 1993 and 2019 on the initial level of TFP in 1993. While districts with higher initial TFP had slower TFP growth than those with lower initial TFP (indicating that some convergence is taking place), the estimated coefficient is not statistically significant.

Figure 4.17: TFP convergence across farms in Punjab, by crop is more marked
(Productivity convergence at the farm level in Punjab, by crop)



Source: Burki et al. (2022a). Note: Variations were calculated until 2017 because most farms with data for 2013 have missing data for more recent years. P-values for the slope coefficients are 0.000 for all crops considered.

At the farm level, there is also evidence of catching up. For all four crops considered, farms with higher productivity in 2013 performed worse in terms of productivity growth than farms with lower levels of productivity (Figure 4.17), consistent with the dispersion of productivity falling over time as described above. This suggests that information on good farming practices might be to some extent flowing across farms, facilitating the catching-up process. Scaling up interventions that boost the flow of information about good farming practices may help speed up this process.

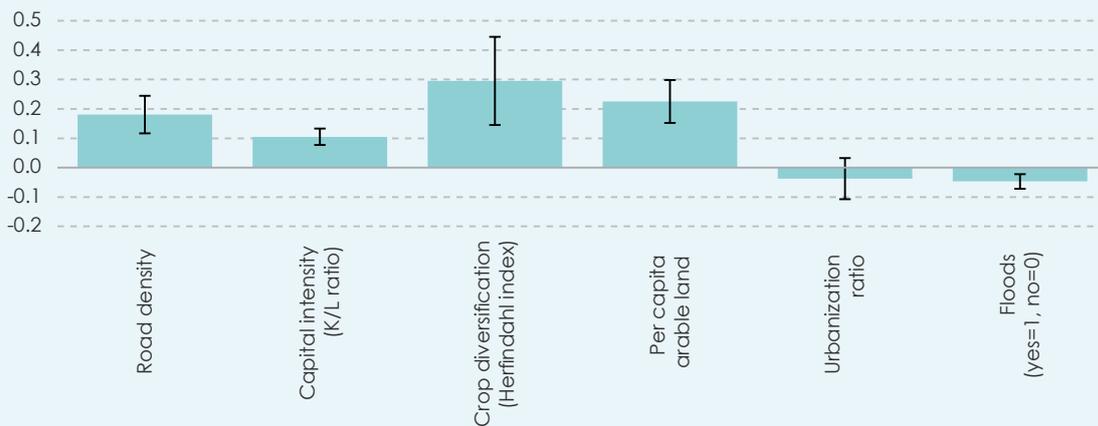
Drivers of Agricultural Productivity

As crucial as it is to understand the patterns of crop productivity in Pakistan, it is also important to understand what explains productivity differences across space and over time. This type of evidence can help better shape policies or interventions aimed at productivity upgrading. This section examines the links between productivity and physical infrastructure, capital intensity, crop diversification, land scarcity, urbanization, and climate-related factors (floods). The results are discussed below.

Infrastructure

Physical infrastructure, such as roads, is crucial for TFP growth.¹¹⁷ Road density is a proxy for investment in physical capital, which provides greater market access and lowers transport costs. The results show that an increase in road density throughout Pakistan is statistically significantly associated with TFP growth: a 1 percent increase in a district's road density raises TFP by 0.18 percent (Figure 4.18).

Figure 4.18: Physical infrastructure is crucial for TFP growth in crop agriculture
(TFP determinants, crop agriculture)



Source: Burki et al. (2022a).

Capital intensity

District capital intensity has a positive effect on TFP. Capital intensity, defined as the ratio of capital (i.e., sum of tractors, tube wells and threshers) to labor (i.e., yearly man days), has been identified in the literature as a key determinant of productivity growth. For example, Chen (2017) shows that lower agricultural capital intensity is key to explaining lower labor productivity in less-developed countries, while Caunedo and Keller (2021) argue that the quality of agricultural capital accounts for large part of agricultural productivity differentials across countries. Indeed, in Pakistan, high efficiency irrigation systems (with drip), or the use of humidity sensors, or precision planters can substantially increase productivity. Analysis of Pakistan's crop TFP confirms the positive effect of capital intensity on productivity documented in the literature: a 1 percent increase in capital intensity raises TFP by 0.11 percent.

Specialization

Districts that are more specialized (production is concentrated in a limited number of crops) tend to have higher TFP. The evidence presented in the literature that tests for the impact of crop specialization/diversification on productivity is mixed, and various channels and mechanisms could be at play.¹¹⁸ Districts that are specialized will also have better developed enabling services that are relevant for the productivity of the crop, so gains of agglomeration could be at play at the district level. On the other hand, crop diversification

¹¹⁷ Burki et al. (2022a) explore the links between TFP and some potential drivers. The data the authors used correspond to a balanced panel with 90 districts over 27 years. To identify the underlying determinants of TFP, a fixed effects specification to control for unobserved heterogeneity at the regional level was used.

¹¹⁸ For literature on this, see Bradshaw, 2004; Coelli & Fleming, 2004; Rahman, 2009; Rahman & Salim, 2013; or Anik et al., 2017.

might be a pathway, at the farmer level, for higher incomes and reduced risk, if there are productive complementarities and relatively high product-specific risks. To evaluate this relationship in the context of Pakistan, Burki et al. (2022a) constructed the Herfindahl index of crop concentration based on output shares of each crop in a district: a value of one denotes perfect specialization and a value of zero denotes perfect diversification. The authors find evidence to suggest that district-level specialization is TFP enhancing: a 1 percent rise in crop specialization is associated with higher TFP by 0.3 percent. District-level specialization does not mean, however, that all districts gain from specializing in the same crop. Thus, district specialization and province-wide diversification could be a compatible and productivity-enhancing scenario.

Land scarcity

Greater per capita availability of arable land is positively and strongly associated with TFP. Per capita availability of arable land is an indicator of land scarcity across districts. Greater land availability has an efficiency-enhancing role, as it promotes the growing of more value-added cash crops rather than traditional low-value crops.¹¹⁹ The results show that per capita availability of arable land is positively and strongly associated with TFP growth through its effects on improved scale-mix efficiency, indicating that greater land availability has a TFP-enhancing effect. A 1 percent increase in per capita arable land, on average, is associated with higher TFP by 0.23 percent.¹²⁰

Urbanization

There is no strong correlation between the level of urbanization of a district and its productivity. The urbanization variable takes the urban-to-rural population ratio in each district. Some sub-sectors of agricultural production, especially those that produce more perishable goods (vegetables and fruits), may directly benefit from urbanization due to proximity to demand. A higher level of urbanization may reduce transaction costs and lead farms to pursue more efficient production techniques (Lopez et al., 1988). On the other hand, increased proximity to urban demand might require tighter quality control in the value chain and hence more attention to food safety issues rather than production (that should in principle reflect in the price, but not necessarily). However, the data do not reflect an important role of urbanization on productivity.

Climate

Floods negatively and significantly affect productivity. Due to the devastation associated with floods, it is expected that such events would have a negative impact on TFP. Ideally, one would like to take the proportion of flooded area to total cropped area in a district to measure the direct impact of floods, but this information was not available before 2010. Instead, Burki et al. (2022a) use a flood dummy variable that has the value of one if the district suffered a flood in the given year, and zero if it did not. The estimated coefficient on floods is negative and statistically significant at the 10 percent level. On average, during the sample period, flood-affected districts suffered a TFP decline of 4.6 percent with respect to those districts not affected by the floods.

¹¹⁹ See Carroll et al., 2011 or Anik et al. 2017.

¹²⁰ These results are in line with the work of Rahman and Salim, 2013; Carroll et al., 2011; Anik et al., 2017; and Cornia, 1985.

Climate Variations and Crop Productivity

Climate variations affect the productivity of key crops in different ways. Burki et al. (2022b) study the effects of climate variation on crop yields by exploiting the spatial variation in whole season weather. The results show that crops tend to be negatively affected by higher maximum temperatures (wheat and sugarcane). Higher minimum temperatures negatively affect wheat and rice, while they benefit sugarcane yields. More abundant precipitations and humidity tend to negatively affect yields in all crops (the only positive coefficient corresponds to the precipitation variable on sugarcane), while wind negatively affects rice and sugarcane yields. Next, we present a more detailed account by crop.

Wheat crops

Wheat crop yields tend to benefit from lower temperatures, while too much humidity, especially toward the maturity phase of the crop, is detrimental. In general, the estimation results highlight the importance of both average maximum and average minimum temperatures in influencing farm-level wheat yields (Figure 4.19, Panel A).

Rice crops

Basmati rice is severely affected by higher minimum temperatures: a 10 percent rise in average minimum temperature lowers rice yields by 7.2 percent. Both untimely rainfall and humidity cause damage to rice yields. Earlier studies suggest that rainfall has a negative impact on rice yields when heading and flowering takes place during the reproductive phase of crop growth (Panel B).

Sugarcane crops

Sugarcane is a year-long crop planted in the autumn and spring seasons in Central and South Punjab. It is a water-intensive crop that is sensitive to heat stress: increased maximum temperatures severely affect sugarcane yields. On the other hand, higher minimum temperatures generally benefit the crop's yields: a 10 percent increase in minimum temperature increases the yield by 6 percent (Panel C).

Cotton crops

Since cotton yields increase under dry conditions, increased minimum temperatures are beneficial. On average, a 10 percent increase in minimum temperature increases yield by 3.2 percent. However, higher rainfall and humidity levels negatively and significantly influence cotton yields. These effects remain large for relative humidity and precipitation: on average, an increase in humidity by 10 percent leads to nearly an 8 percent decline in cotton yields, while a similar increase in precipitation causes a 3.2 percent loss in cotton yields (Panel D).

Figure 4.19: Climate variations have heterogeneous effects across crops



Policy Recommendations

Addressing the agricultural productivity challenges described in this chapter will require a major effort by different government agencies with mandates in areas that directly affect agricultural productivity and climate-change resilience, in coordination with the private sector. This section focuses recommendations in three areas: (i) addressing distortions in input markets; (ii) addressing distortions in output markets; and (iii) upgrading the agriculture innovation ecosystem. It also provides a prioritization for these recommended actions.

Top Priority

Address distortions in input markets

Recommendation 1: Price water right. While the effects of subsidized water on resource allocation and aggregate productivity are not formally identified in this note, the challenge of climate change to water availability and to agricultural productivity in Pakistan is well established. Pakistan's water insecurity is driven by poor water management and governance in the irrigation sector. The irrigation tariff structure does not reflect actual water use and the tariff rates do not reflect the scarcity value of water or the cost of irrigation services. In its current form, the irrigation tariff cannot be used as an instrument to induce crop changes or increases in water use efficiency, nor does it support adequate cost-recovery for operations and maintenance of the irrigation infrastructure. This heavy subsidization of canal water encourages water-intensive crops, such as sugarcane and rice, at the expense of less water-intensive crops and, fundamentally, at the expense of future generations. Proper water pricing would lead to better allocation of this scarce resource. The development of a regulatory framework for the use of ground water would also help avoid overexploitation.¹²¹

Recommendation 2: Facilitate the development of financial instruments for farmers and universalize their access. The financial sector plays an important role in facilitating productivity upgrading in agriculture. First, credit is crucial in ensuring that technology adoption is feasible. While agriculture accounts for almost one-quarter of GDP, it only accounts for 4 percent of outstanding bank loans.¹²² The recent launch of the Electronic Warehouse Receipt Financing (EWRf) has the potential to facilitate access to finance for small farmers, improve price discovery, and develop a secondary agricultural commodity market.¹²³ Enhancing the financial literacy of small farmers will be crucial. Second, uninsured risk discourages farmers from technology adoption or purchasing inputs that can raise productivity. To address this challenge, weather index insurance products could be introduced. The large, revealed differences in productivity between small and large farms in Pakistan may be related to limited access to credit, and excess reliance on retained earnings for investments, which puts small farmers at a disadvantage. Ensuring that credit and insurance markets serve all farmers will help reduce the gap and increase aggregate productivity.

Recommendation 3: Facilitate the adoption of climate smart technologies by removing distortions such as import duties. Climate smart technologies can help address chronic challenges expected to intensify, such as those related to droughts, floods, and intense heat. Water management (and storage) strategies, including alternate wet and drying (AWD) or laser leveling, can increase productivity. Similarly, renewable energy technologies, including windmills and bio-energy production units, can be used for water supply and storage, and to power other farm equipment.¹²⁴ However, these technologies are subject to high import duties, artificially increasing their domestic price and reducing the feasibility of their adoption. For example, import duties in FY22 for renewable energy equipment was at 12.9 percent, on average, with some products reaching 42 percent. Similarly, import duties on water use efficiency technologies faced average import duties of 17.1 percent, with some products reaching 46 percent.¹²⁵

Medium-Term Priority

Address distortions in input markets

Recommendation 4: Invest in enabling services, including connectivity—both hard and soft—to better connect farmers to markets and to improve their capabilities. Connectivity matters for increased

¹²¹ See more on 'The PIDE Reform Agenda for Accelerated and Sustained Growth'. PIDE, 2021.

¹²² Pakistan Development Update – Spring 2022 "Financing the Real Economy".

¹²³ EWRf is an initiative of the State Bank of Pakistan (SBP), that consists in of a mechanism that enables farmers to use stored harvest as collateral to access credit. Under the EWRf, the EWR operator, an SECP registered company, installs systems at licensed warehouses that are directly connected with commercial banks. The farmer can collateralize harvest at commercial banks with receipts provided by the licensed warehouse.

¹²⁴ For more information on climate smart technologies for agriculture in Pakistan, see <https://climateknowledgeportal.worldbank.org/sites/default/files/2019-06/CSA-in-Pakistan.pdf>

¹²⁵ For details see Sugathan, M. & G. Varela, 2021.

productivity and farmers' incomes, as it helps to connect them directly to markets. Investments in village-to-market roads, as well as in storage facilities to reduce wastage, will support agricultural productivity upgrading. Soft connectivity also matters as facilitate the provision of information to farmers. Extension services that are enabled through information technologies are increasingly prevalent and impactful on improving farming practices, and thus on productivity.¹²⁶ Information technologies can also help the transition to cash crop production. These types of crops can provide higher incomes to farmers but are also associated with higher risks due to perishability and post-harvest losses, if modern storage is unavailable. Evidence for Pakistan shows that cellphone access helps farmers move to cash crops because it improves coordination with traders at the time of harvest, minimizing losses.¹²⁷

Address distortions in output markets

Recommendation 5: Reform food procurement programs. Reforms that promote competition can improve input-mix or scale-mix efficiencies in the crop sector.

Recommendation 6: Gradually reduce the government footprint in the sugar and wheat sub-sectors.

Increase competition in the sugar sub-sector, removing import protection, export subsidies, minimum prices, and licensing restrictions for new millers. Licensing requirements for millers lead to an oligopsony, reducing consumers' and farmers' welfare. More fundamentally, interventions introduce distortions to the efficient allocation of land and equipment, which could be deployed for higher-productivity crops, and thus rationalize water use and contribute to climate resilience.

Reducing the Government's footprint in wheat and other crop markets to encourage a market-based allocation of resources in the sector will help productivity growth in agriculture. Food security is a valid policy priority that does not require the current procurement system that is in place for wheat. To ensure food security, the Government of Pakistan could maintain a 'security stock' comprising a fraction of national consumption, as it is done in other countries in the region, such as Bangladesh.¹²⁸ In addition to the security stock, a strategic reserves management system should be in place, and equipped with modern bulk storage infrastructure, early warning systems, market information, a food security fund and policy flexibility to ensure trade policies facilitate the smoothing of reserves in case of need through importing or exporting. Also, a reduced government footprint in wheat markets will induce more farmers to diversify into other crops that are becoming increasingly relevant in the consumption basket of Pakistani households. Provincial agriculture departments could support alternatives for wheat planting areas that show very low productivity, to support farmers in moving into alternative crops, such as oilseeds, pulses and fodder, or fruits and vegetables when closer to markets. In Sindh, for example, the share of household expenditure on high-value food products is increasing, while there has been a decrease in the consumption of cereals and other crops (including sugar) over the past two decades. However, the agri-food system has not responded to these changing consumption patterns and the demand for pulses, rapeseed, mustard and other water-thrifty, high-value crops is being supplied through imports, despite the suitability of local agro-climatic conditions, and the shorter durations and lower water requirements. Pakistan is spending US\$3.0–3.5 billion on importing oilseeds and US\$ 0.7 billion on importing pulses every year. Pakistan is paying the opportunity cost of forgone economic productivity and water conservation, and paying it in scarce foreign exchange.

Improve the innovation ecosystem in agriculture

Recommendation 7: Improve the innovation ecosystem, facilitate university-private sector and public-private sector linkages, and increase R&D investment in agriculture. Nearly 300 studies have shown that returns to agricultural research spending are exceptionally high, on average. For developing

¹²⁶ Evidence for India, for example, shows that SMS-based agriculture information provided to farmers improves yields through the adoption of cost-effective and improved farming practices (Subramanian, A. (2021). In Pakistan, IT-enabled coordination with livestock farmers, helped improve the cost-effectiveness of extension services focusing on artificial insemination (Hasnain, A. et al., 2015).

¹²⁷ See, for example, Asad, S., 2016.

¹²⁸ For example, Bangladesh maintains a strategic reserve of 1.5 million of metric tons of rice and wheat combined for a population of about 163 million.

countries, the median internal rate of return of R&D investments is estimated at 43.3 percent (out of 683 estimates). In the Asia Pacific region, it is estimated at 49.5 percent (out of 222 estimates).¹²⁹ For investments in R&D to be fruitful, increased partnerships between the public and private sectors, involving firms and farmers, as well as academia, are needed to ensure that investments take place in locally adapted technologies, focused on resilience to climate change. Public-private partnerships are also crucial at the policymaking stage, encouraging community-level development approaches to facilitate the implementation of productivity-enhancing reforms in agriculture.

¹²⁹ See Chapter 3 in *Harvesting Prosperity: Technology and Productivity Growth in Agriculture*. World Bank, 2018.

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Section 2

Investment and Firms' Growth

The previous Section focused on measuring productivity dynamics and identifying underlying drivers. It measured how efficiently resources were allocated and the role that distortions had in this process. The productivity challenge unveiled by the analysis, namely either stagnating or declining within-firm and firm productivity in agriculture, manufacturing and services sectors, is also related to how firms in the economy invest and grow.

Section 2 focuses on patterns of capital accumulation at the firm level, and the implications on firms' growth, and also examines the extent to which the economy taps into foreign (direct) investment, and how much it gains from it.

This Section consists of two chapters or policy notes. Chapter 5 examines patterns of firms' growth, how these are linked to capital accumulation and, in turn, how capital accumulation interacts with economic returns that firms face. Results in this chapter show that Pakistani firms are predominantly smaller than in comparator countries, with slower growth, and a largely absent pattern of 'up-or-out' that is typically observed in private sector environments in other countries. In part this is linked to the fact that many systematically loss-making, or 'zombie', firms remain in operation either because they face soft-budget constraints either through government aid (in the case of SOEs) or this is related to firms' support (in the case of family-owned firms that are part of conglomerates). Examining patterns of firms' growth in Pakistan relying on balance sheets is challenging because of the alleged high prevalence of 'double books'—a practice that involves under-declaring a firm's size, equity and profits in official books, to reduce the tax burden. To mitigate this problem, the chapter examines firms' growth dynamics of exporters, based on annual shipments as a proxy for size, which are substantially less likely to be underdeclared. Similar patterns of small size firms' growth and slow growth dynamics are then observed. Chapter 6 turns its focus on FDI as a source of investment, and more generally, financing, and performance upgrading. It unveils new evidence on untapped FDI potential, estimated at US\$2.8 billion a year—almost a full point of GDP per year in forgone FDI. These are forgone foreign savings that could help finance productive investments in a country characterized by low saving rates. Chapter 6 also shows that the existing, albeit limited, FDI has not created substantial spillovers in terms of productivity. It is only FDI in upstream services sectors that has spilled over to the productivity of downstream manufacturing firms that use services intensively. Both chapters end with actionable policy recommendations.

Firms' Size and Growth in Pakistan

Pakistani firms are **small**

In 2017, the average export firm exported



Entry into exporting is **low**

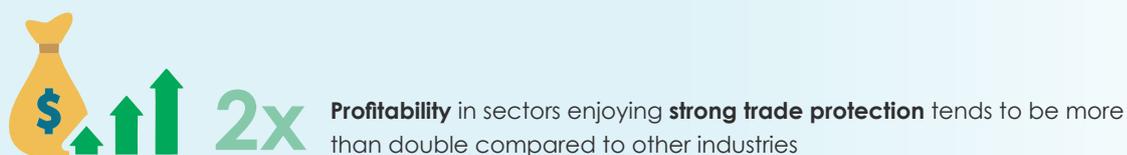
Export market entry rate is



Pakistan has a high share of **zombie firms (making losses for 3 consecutive years)**



High prevalence of zombie firms is indicative of weak competition, preferential access to subsidized bank credit, and underdeveloped insolvency regimes



But large firms in sectors enjoying **high trade protection** focused predominantly on **domestic markets**

Firms with **250-1000 employees** in these sectors exported only **1.3%** of their revenue compared to **13.3%** for similar firms in other sectors

Chapter 5

Firms' Size and Growth in Pakistan

Large and rapidly growing firms are drivers of economic growth. Large firms tend to be more productive and export more, tapping into global knowledge and generating positive spillovers for smaller firms in the economy. Faster growing firms are, in turn, engines of job creation. This chapter provides evidence for the size distribution and growth of firms in Pakistan, and their profitability. The results show that: (i) Pakistan has few large firms, and few large exporters; (ii) firms experience low and volatile revenue growth: transitioning from small to large size classes is rare; (iii) there are many loss-making or 'zombie' firms in Pakistan that tend to be state-owned or family-owned, and some high-profitability firms that tend to be in highly protected industries; (iv) entry into and exit out of exporting is infrequent, suggesting a limited process of 'creative destruction'; and (v) protection discourages exporting, thus limiting the ability of firms to grow. The chapter ends with policy recommendations for reducing constraints to firms' growth, in three areas: (i) create fiscal space to move from crowding out to crowding in of private investment; (ii) reduce regulatory complexity; and (iii) upgrade insolvency regimes.

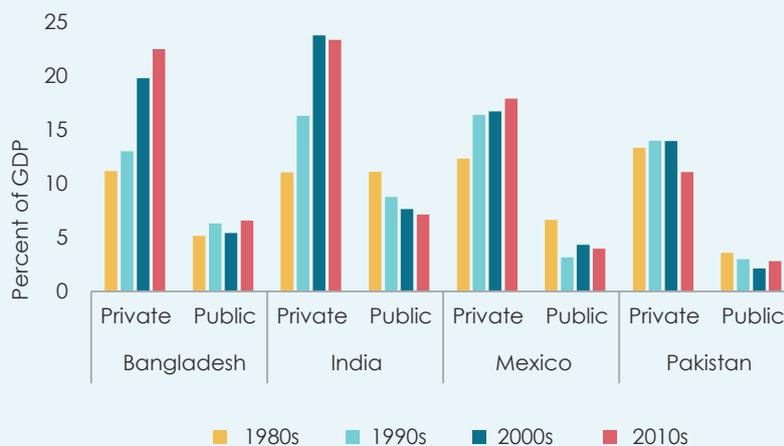
Background

Private investment as share of GDP has been declining in Pakistan. Investment stimulates growth by expanding the productive capacity in an economy, leading to value and job creation. It is associated with increases in the stock of technologies, both tangible and intangible, at the base of productivity and firms' growth. However, investment rates in Pakistan have been on a declining trend. For instance, private investment has declined from an average of 14.0 percent of GDP in the 2000s to 11.1 percent during the 2010s (Figure 5.1). Part of this challenge lies in the inability to channel savings into productive investments for expansions of installed capacity. In addition, Pakistan has struggled to attract significant foreign direct investment (FDI) into productive sectors, which has averaged less than 1.0 percent of GDP over the past decade (see Chapter 6).

Low private investment has led to a decline in capital deepening, and the inability of formal firms to grow large. The rate at which the stock of capital per worker grows—capital deepening—is lower in Pakistan than in structural comparators, and its rate of growth has been falling over time (Figure 5.2).¹³⁰ Every new Pakistani worker entering employment is equipped with increasingly less machinery relative to workers in comparator countries. Part of this is associated with firms in Pakistan struggling to grow large as they grow old. A young, formal firm in Pakistan that has been in operation for less than 10 years is about the same size as a firm that has been in operation for 20–25 years (Figure 5.3).

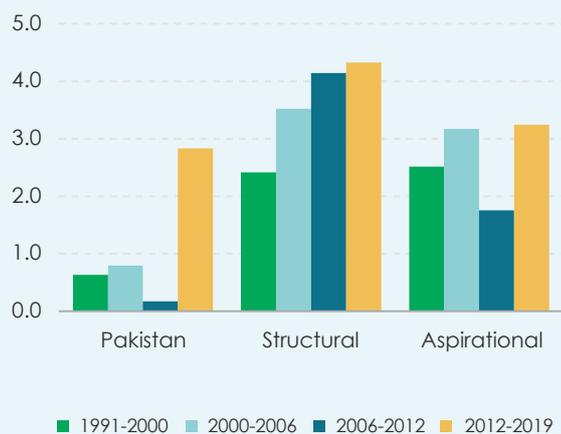
¹³⁰ Two comparison groups are used for the analysis. Structural comparators: Bangladesh, Egypt, Ethiopia, and India; and Aspirational comparators: Indonesia, Mexico, Turkey, and Vietnam. These comparator countries have been selected using the World Bank CEM2.0 Country Scan Tool and local country context.

Figure 5.1: Private and public investment as a share of GDP has been declining in Pakistan and is lower than that in peer countries
(Public and private investment, percent of GDP)



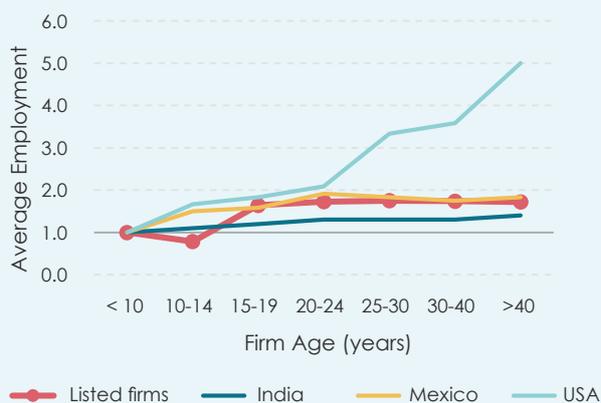
Source: WDI.

Figure 5.2: Growth in capital per worker or “capital deepening” in Pakistan lags that of comparator countries
(Annual increases in capital stock per worker or capital deepening at constant prices, in percent)



Source: Jobs Group JD Standard Code (JDSC) based on WDI & PWT.

Figure 5.3: Firms in Pakistan struggle to grow large as they grow old
(Firms' growth over their lifecycle, publicly listed firms)



Source: Authors' calculations and Hsieh and Klenow (2014).
Note: Mexico, India and the United States come from Hsieh and Klenow (2014), data for Pakistan are based on financial statements analysis of companies (non-banking) listed on the Pakistan Stock Exchange. Initial firm size for age class below 10 is normalized to 1 for all countries.

Firms' Size

The presence of large firms in the economy can have positive development implications. Large firms can benefit from economies of scale, thus making them more productive. This explains why they are better positioned to face the fixed costs of exporting, and to tap into global knowledge. Large productive firms in low- and middle-income countries tend to be more innovative, export more, provide training to their workers, and are more likely to use internationally competitive technologies and standards.¹³¹ These firms

¹³¹ See, for example, Ciani et al., 2020.

can also benefit other firms in their supply chains (Chapter 6, for example, points to gains from these types of spillovers in Pakistan, particularly from large multinationals in upstream services sectors).

Despite this, in developing countries large firms are rare. For example, in India, Indonesia, and Mexico, firm distribution analysis indicates that both mid-sized and large firms are “missing” (when compared with developed countries).¹³² This phenomenon is likely to be a symptom of the weak reallocation of resources in the direction of more productive firms, and the existence of barriers to firms' growth, which limits the potential gains associated with positive spillovers from large firms.¹³³

In Pakistan too, firms tend to be smaller in size and large firms are rare. Using internationally comparable data on the 500 largest firms in Pakistan and comparator countries, it is possible to extract some cross-country patterns.¹³⁴ In Pakistan, in 2017, within the top 500 firms, 51.6 percent of them reported annual revenues of less than US\$50 million, compared with 25 percent for countries that could be considered 'aspirational'. Meanwhile, 4.4 percent of firms reported annual revenues above US\$1 billion, compared with 10.9 percent in the aspirational group. However, the size distribution of the largest 500 firms in Pakistan is similar to that in the structural comparator countries (Table 5.1 and Figure 5.4).¹³⁵

Table 5.1: Size distribution by country-group in 2017, percent share

US dollars	<50 million	50 - 100 million	100 - 500 million	500 million -1 billion	> 1 billion
Pakistan	51.6	14.8	25.6	3.7	4.4
Structural	57.6	18.3	19.3	1.9	3.0
Aspirational	24.7	13.9	41.6	8.9	10.9

Pakistan has few very large firms in the manufacturing and knowledge-intensive services sectors. Pakistan's largest firms, with revenues above US\$1 billion, are primarily concentrated in industries related to extraction, with the largest number of firms in utilities (mainly related to gas distribution and trade). The share of such firms in the services and manufacturing sectors is smaller than that observed in the structural and the aspirational groups (Figure 5.5). Given the importance of manufacturing (and especially low-tech manufacturing) in the industry composition of Pakistan, that sector is under-represented among these large firms. Pakistan also has no “knowledge-intensive services” firm in this revenue category (these are often telecom and IT-related firms in the comparator countries).

¹³² See, for example, Hsieh & Olken, 2014.

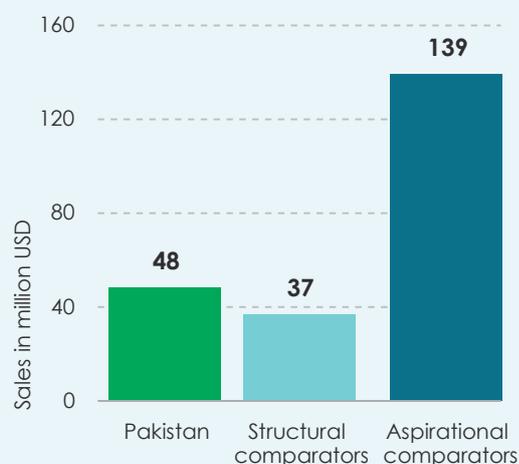
¹³³ See, for example, Restuccia and Rogerson, 2017.

¹³⁴ ORBIS provides firm-level data in terms of revenues for various countries, which facilitates international comparisons. As the coverage of smaller firms differs across countries, this chapter focuses on the largest 500 firms in terms of revenue in each country for cross-country comparisons. However, it is possible that the largest 500 firms in Orbis may not be the largest 500 firms in the economy. While Orbis tends to include listed firms, large state-owned or non-listed firms may be missing. Firms in Petroleum and Finance are excluded, as profitability and productivity are challenging to measure in these sectors.

¹³⁵ See, for example, Hsieh & Olken, 2014.

Figure 5.4: Pakistani firms tend to be smaller in size than those in aspirational comparator countries...

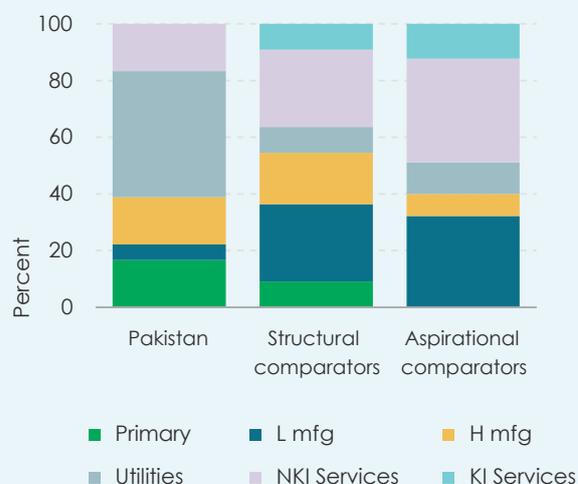
(Median revenue of top 500 firms [US\$ million] 2017, average for country-group)



Source: Orbis, authors' calculations.

Figure 5.5: ...and Pakistan has few very large firms in manufacturing and knowledge-intensive sectors

(Industry composition of firms with revenues higher than US\$1 billion)



Source: Orbis, authors' calculations. Note: Technology-type definition follows the Eurostat categorization. "L mfg" stands for "Low and low-medium tech manufacturing", "H mfg stands" stands for "Medium-high and high-tech manufacturing", "KI serv" stands for "Knowledge-intensive services" and "NKI serv." for "Not knowledge-intensive services".

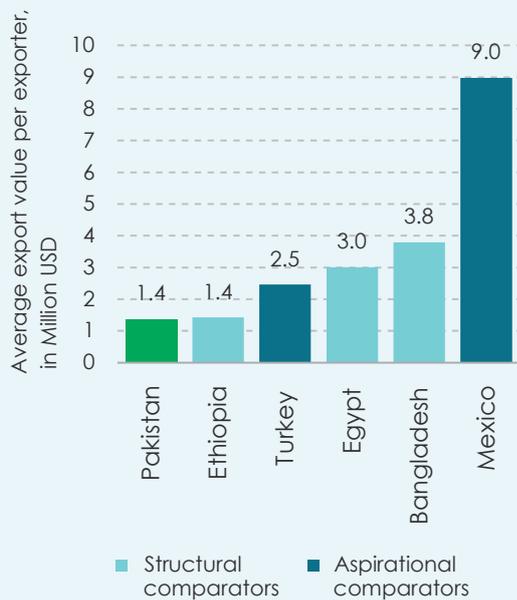
The relatively small size of firms is also apparent among exporters. Pakistani exporters are smaller than those in comparator countries. The mean export revenues of Pakistani exporters are low compared with aspirational countries and with some of the structural peers (Egypt and Bangladesh) (Figure 5.6).¹³⁶ Within Pakistani exporters, merchandise exporters tend to be larger than IT exporters (see Box 5.1). The limited number of large exporting firms is also revealed by the fact that the share of the top 1 percent of exporters in Pakistan's total export value is also small, showing that even the largest exporters ('superstars') account for less of total exports than in aspirational countries, while aligned with or slightly higher than structural comparators (Figure 5.7). This might be impeding growth and diversification of exports, as export 'superstars' tend to drive export growth and diversification. It is likely related to Pakistan's challenge in attracting export-oriented FDI, as superstars in developing countries tend to be primarily foreign-owned (which is, in turn, consistent with Bangladesh's similar lack of export superstars).¹³⁷

¹³⁶ The Exporter Dynamics Database provides a comparable picture of exporters of merchandise firms across countries. The results are analogous when the focus is on median rather than average export values.

¹³⁷ Freund and Pierola, 2020.

Figure 5.6: Pakistani exporters are smaller than those in most comparator countries...

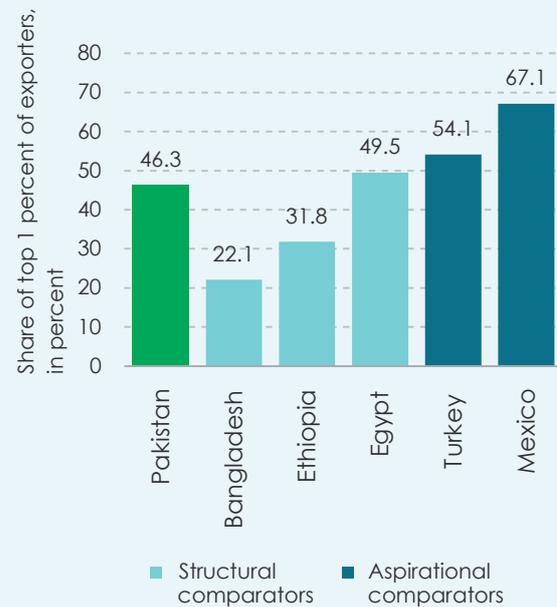
(Average export value per exporter, 2017)



Source: Exporters Dynamics Database, authors' calculations.

Figure 5.7: ...and there are fewer very large exporters compared with Egypt, Turkey and Mexico

(Share of the top 1 percent of exporters in each country's export value, 2017)



Source: Exporters Dynamics Database, authors' calculations.

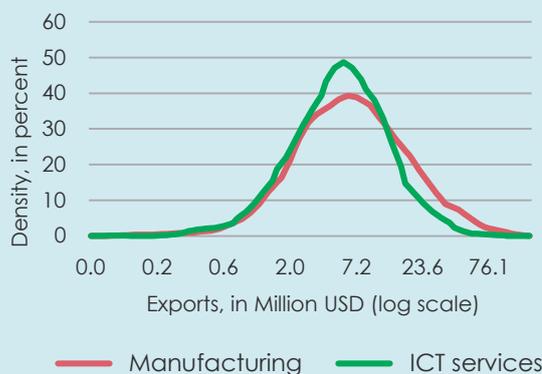
Box 5.1: Size distribution comparison: Merchandise and IT services exporters

The average export value of merchandise exporters is nearly three times that of IT services exporters. However, both distributions are dominated by smaller firms (Figure 5.8), with the median exporter size being US\$68,000 for merchandise exporters and US\$45,000 for IT services exporters. The main difference between the two distributions is that there are more large firms exporting merchandise. The 99th percentile of the IT services export distribution is US\$3.7 million, compared with US\$17.7 million for merchandise exporters.

The smaller size of services exporters does not necessarily reflect that services exporting cannot contribute significantly to development. Even though services exporters tend to be smaller on average than manufacturing exporters in developing countries, their smaller size may not be a disadvantage in terms of productivity. Thanks to digital technologies, services firms can reach high productivity levels without having to invest in large quantities of human or other intangible capital.¹³⁸

Figure 5.8: While merchandise exports are on average, larger than IT service exporters, there are many small firms in both categories

(Distribution of firm-level export values for merchandise and IT services exporters)



Source: Authors' calculations. Note: This figure shows kernel densities for the values (in US\$) of firm-level merchandise exports (in 2017) and IT services exports (in 2019). The horizontal axis has a logarithmic scale.

The limited presence of large firms in Pakistan suggests inefficiencies in the way resources are reallocated away from smaller low-productivity firms, and into larger high-productivity ones. Shallow financial markets that limit the ability of firms to grow beyond the capacity of their own retained earnings, size-dependent policies that add regulatory and other burdens above certain size thresholds (see Box 1.1 for a brief review of such policies in Pakistan), limited enabling infrastructure that increases operational costs for firms and reduces the rate of return on capital, and distortions that reduce incentives to improve management capabilities are all typically associated with these types of inefficiencies.¹³⁹

Firms' Growth

Firms' growth is a pre-requisite for the presence of large firms in a market. Although firms can 'be born large', high-growth firms (HGFs) play an important role in the reallocation process toward more efficient uses and in creating jobs. While the most important appeal of these fast-growing firms or HGFs is their large contribution to employment creation, they can also contribute to, or indicate, 'healthy' business dynamics and generate spillovers to other firms in the value chain.¹⁴⁰ HGFs are present across countries with different income levels, age groups or sectors.¹⁴¹

The share of HGFs is smaller in Pakistan than in most comparator countries. On average, 5.5 percent of Pakistani firms were HGFs between 2012 and 2020, defined as having a three-year real revenue growth rate above 20 percent per year, while the share of such firms was 9.3 percent in Bangladesh, 10.8 percent in India, and between 6.9 and 10.1 percent in the aspirational group.

Pakistani firms tend to experience lower and more variable revenue growth than comparator countries in the aspirational group. When comparing three-year real revenue growth rates for the largest 500 firms across countries, two key differences emerge: revenue growth tends to be faster and is also less variable in the aspirational group. In both respects, Pakistan fits into the structural comparator group:

¹³⁹ Reducing administrative costs and red tape benefits large and growing firms disproportionately.

¹⁴⁰ See, for example, Stangler, 2010, and de Nicola et al., 2021.

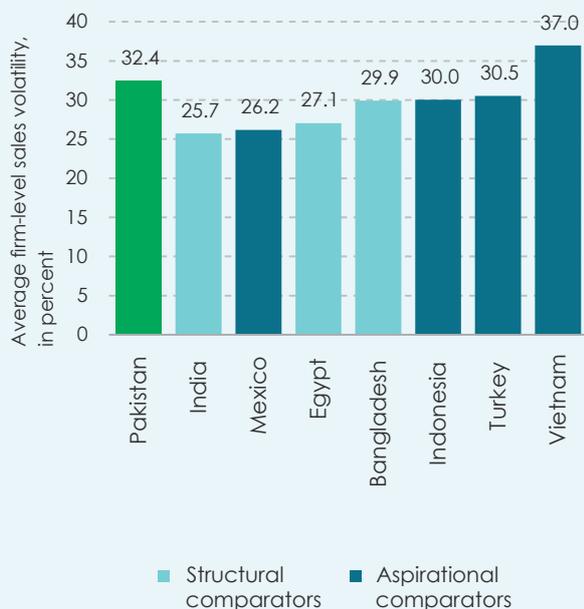
¹⁴¹ See, for example, Coad & Srhoj, 2020, Goswami et al., 2019, and Brown et al., 2017.

(i) the median three-year revenue growth rate in Pakistan was -0.4 percent compared with above 5 percent in all comparator countries except for Bangladesh and Egypt; and (ii) Pakistani firms witnessed more volatility in their revenues than firms in all other countries, except Vietnam (Figure 5.9).

The large share of Pakistani firms operating in industries where prices are more variable, together with their small size, may have contributed to the higher volatility in revenue growth. Revenue volatility matters, as it can reflect uncertain demand conditions that firms face, which can lead to lower investment and hiring. Larger firms tend to experience less volatility and high revenue volatility can also result from firms serving markets with highly volatile prices, leading to higher volatility of firms in primary industries.¹⁴² Both of these are important factors for Pakistan, where there are few large firms, and these few large firms are mostly concentrated in primary industries.

Figure 5.9: Barring Vietnam, firms in Pakistan experience more volatility in their revenues

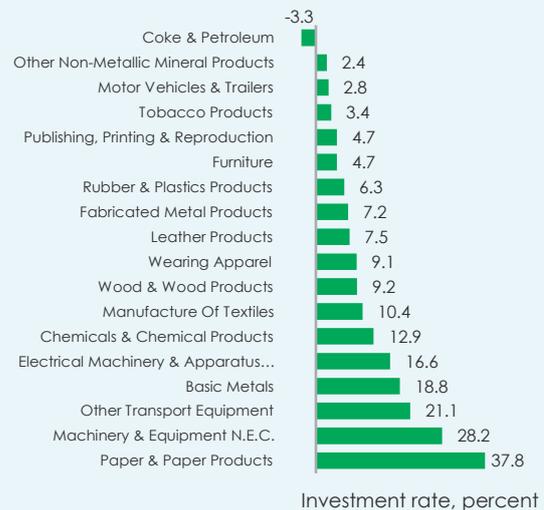
(Average firm-level sales volatility, in percent)



Source: Orbis, authors' calculations.
Note: Includes firms that were in the largest 500 firms at least once and for which revenue data were available for at least five years. Volatility is calculated by average the standard deviation of log revenue growth for each firm across years in each country.

Figure 5.10: Net investment rates are below 15 percent across most sectors in Pakistan

(Net investment rates in by industry)



Source: Census of Manufacturing Industries 2015/16, authors' calculations.

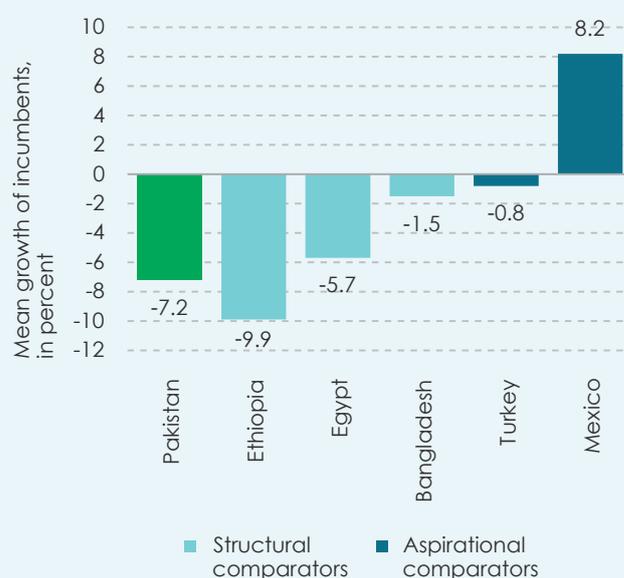
Real investment rates for Pakistani firms are also low and vary across years. There was very low capital growth between 2012 and 2015, whereas investment rates were higher between 2015 and 2018. Average capital growth in Pakistan is similar to India's, but well below that of Indonesia and Turkey. These results aligned with those obtained by analyzing a complementary dataset—the Census of Manufacturing Industries for 2015/16—which indicates that net investment rates are below 15 percent in most industries (Figure 5.10). Investment rates tend to be higher in more high-tech, capital-intensive industries, such as machinery, pharmaceuticals, and electrical equipment. Barring the high net investment rate observed in paper

142 See, for example, Calvino et al., 2018 and Bloom, 2009.

and paper products, and the low net investment rate exhibited by coke and petroleum, this also holds true for Pakistan.

Growth of exporting firms is also low in Pakistan. A complementary dataset focusing on exporters' dynamics in Pakistan and comparators, the Exporters Dynamics Database (EDD), further helps illustrate the growth challenge that firms face, in this case exporters.¹⁴³ An analysis of the EDD indicates that, for Pakistan, the average exports per firm decreased after an upward trend ending in 2008, and the US dollar value of exports per firm in 2017 was very similar to its value in 2005. The median export growth from 2016 to 2017 of exporters that were selling abroad in both years (incumbents) declined by 7 percent (Figure 5.11). These results indicate that Pakistani exporters find it hard to grow (see Box 5.2 for a discussion of growth of Pakistani firms and comparators).

Figure 5.11: Pakistani exporters witnessed a contraction in median export growth between 2016 and 2017
(Median growth of incumbents in export markets, 2016 and 2017)



Source: Exporters Dynamics Database, authors' calculations. Note: This figure shows the median percentage growth. This can be negative even if the average export value per firm stays the same or increases if many smaller firms face declining exports with some larger firms increasing their revenue radically.

Box 5.2: Exporter dynamics: A transition matrix approach

Growing large is one of the main motivations of new firms, particularly exporters, as well as an indicator of 'opportunities' that the market offers. The potential to expand is a key attraction for becoming an exporter, given that more firms will be ready to pay the sunk costs of entering export markets if there is growth potential in these markets. The ability to grow also shows how well markets operate. Analyzing the probability of an exporter that starts in a given size class moving up the size ladder in a given period of time can be a useful indicator of 'opportunity', given that it will also incentivize new firms to enter

export markets in the expectation of scaling up.

The extent of exporters' upward mobility is lower in Pakistan than in Egypt, Bangladesh, and China. Fifty-three percent of Pakistani exporters that were in the lowest quintile (Q1) of the size distribution in year t and were still exporting five years later (in $t + 5$), climbed up to a higher size class (quintile) in year $t + 5$. The remaining 47 percent stayed in the same quintile (Figure 5.12). The average share of upwardly mobile firms across all quintiles is 33 percent in Pakistan, compared with 45 percent in Bangladesh and 53 percent in China. On the other hand, the share of upwardly mobile firms is smaller in higher quintiles for all countries, indicating that larger firms can move both up and down without exiting from exporting altogether.

Upward mobility, when considering firms that exit exporting status, was similar across countries, except China. For example, 12.8 percent of all Pakistani exporters in Q1 in year t were still exporting and moved to a higher quintile in year $t + 5$ (Figure 5.13). Among the remaining 87.2 percent of firms, some were still exporting in Q1 in year $t + 5$, whereas others had exited export markets. The difference between the two figures is explained by the lower exit rate of Pakistani exporters.

Pakistani exporters are more likely to stay in export markets even if they do not grow. In other countries, the “up-or-out dynamics” are more pronounced: exporters either grow or exit and are replaced by new exporters. The low survival rate of young firms and the very strong growth of a small group of firms, reflects strong experimentation and reallocation.¹⁴⁴ This can also be applied to exporting firms: slower growth and lower rates of exit among exporting firms in Pakistan suggest high entry and exit costs, which in turn lead to less experimentation and reallocation among exporters, leading to low overall export growth.

Figure 5.12: Upward mobility among Pakistani exporters is lower than in most comparator countries...

(Share of five-year surviving firms, within each quintile that move to a higher quintile (only includes firms that remain exporters))

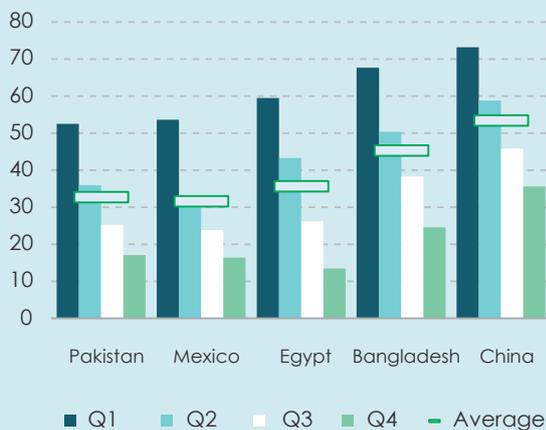
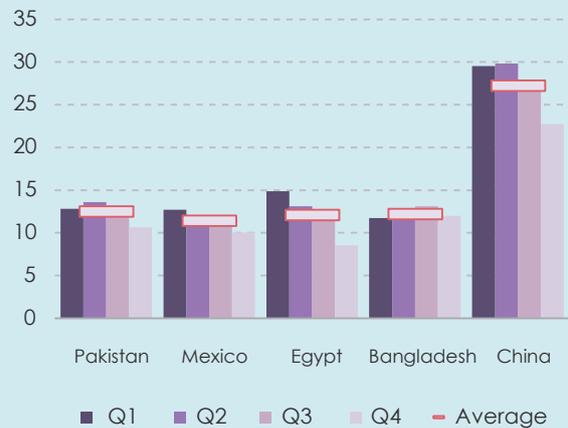


Figure 5.13: ...but Pakistani firms exit export markets at a lower rate

(Share of firms, within each quintile, that survive and move to a higher quintile (includes firms that exit exporting status))



Source: Authors' calculations based on the World Bank Exporter Dynamics Database. $t = 2011$ except for Pakistan ($t = 2010$) and China ($t = 2003$). Note: These figures show the share of exporting firms in t that move up to a higher quintile of the export size distribution by year $t + 5$. Figure 5.12 considers only surviving firms and Figure 5.13 considers all exporting firms in year t .

144 See, for example, Haltiwanger et al., 2013, and Eslava et al., 2019.

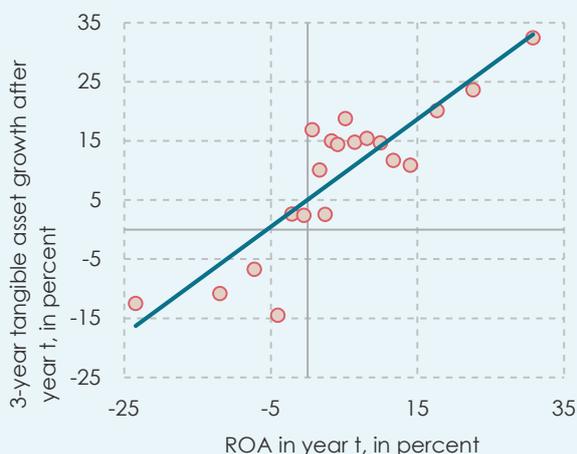
Firms' Profits

In a market that allocates resources efficiently, loss-making firms would gradually shrink and eventually shut down, releasing resources to more productive units. However, distortions may impede this productivity-enhancing process. The recent literature on firms operating with low profitability over an extended period—also called 'zombie firms'—has emphasized that a large share of these firms can depress both investment and reduce the efficiency of the resource reallocation process.¹⁴⁵

Profitability is strongly linked to investment, and this holds true in Pakistan. Profitability is a key variable for firms' growth. It indicates how lucrative a firm's activities and investment opportunities are, i.e., whether the firm has strong incentives to expand. Moreover, current, rather than expected, profits are an important predictor of investments, when firms face limited access to credit, and need to resort to retained earnings to finance investment projects. This is the case in Pakistan, where large government borrowing from commercial banks tends to crowd out feasible private investments (see Box 5.3 for a discussion on credit constraints in Pakistan and the link to government borrowing). Firm-level financial and ownership data for listed firms indicate that return on assets (ROA) is strongly associated with subsequent investment in Pakistan (Figure 5.14). Profitable firms with ROA values of around 5 percent have three-year tangible asset growth rates of about 15 percent, while firms with ROA values of below -5 percent experience a 10-percent decline in their tangible assets in a three-year period.

Figure 5.14: Return on assets is positively associated with future investment in Pakistan

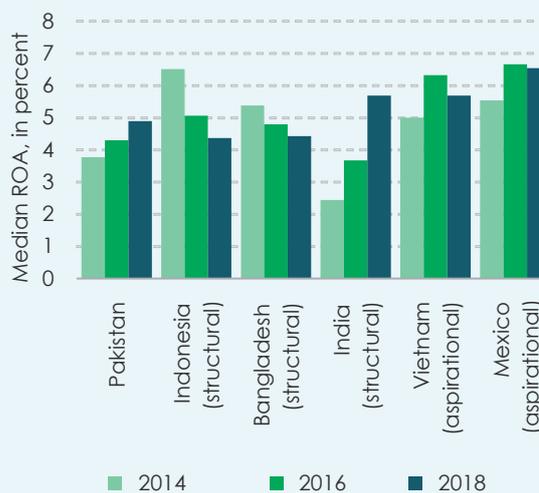
(Relationship between ROA and subsequent investment in Pakistan)



Source: Orbis, Securities and Exchange Commission of Pakistan, authors' calculations. Note: Figure shows relationship between the Return on Assets (ROA) in year t and tangible fixed asset growth between t and $t+3$. Each of the 20 points represent a group of firm-year observations, categorized based on their ROA values, and shows the average ROA and investment of the firms in the group. The three-year growth rates are calculated using Haltiwanger et al., 2013

Figure 5.15: Profitability of the median large firm in Pakistan is similar to comparator countries

(Median value in ROA across countries, largest 500 firms)



Source: Orbis, authors' calculations.

145 See, for example, Banerjee & Hofmann, 2018, and McGowan et al., 2017.

Box 5.3: The crowding-out of private sector credit by government borrowing

Pakistan's financial sector remains underdeveloped and is failing to effectively deliver on its role as an intermediary of capital. A deep, inclusive, and innovative financial sector is foundational for economic growth anchored in investment. However, Pakistan's financial sector is relatively small and underdeveloped, and it is not effectively delivering on its role as a facilitator of investment and growth. Credit to the private sector as a percentage of GDP in Pakistan is low in comparison to peers and has also trended downward over the past decade and a half, dropping from a high of 29 percent in 2008 to 17 percent in 2020.

In Pakistan's financial sector, the Government is the dominant borrower. To finance persistent fiscal deficits that averaged 4.7 percent of GDP in FY20–FY21, the Government borrows from the financial sector. As a result, credit to the Government has increased drastically in recent years, both in levels and as a percentage of GDP (Figure 5.16). For example, compared with the 143 percent increase in credit to the private sector over the period FY11–FY21, credit to the Government surged by 438 percent. In this respect, Pakistan also stands out among peer comparators. As of 2019, credit by domestic banks to the Government and state-owned firms as a share of GDP in Pakistan was the 11th highest among 156 countries (Figure 5.17).

Increasing exposure to the Government has led to the crowding-out of credit to the private sector. Higher bank holdings of government debt in emerging market and developing economies is associated with lower credit growth to the private sector (and with a higher return on assets of the banking sector).¹⁴⁶ In Pakistan, a 1-percentage-point increase in government borrowing is associated with a crowding-out of private sector credit by 8 percentage points in four months.¹⁴⁷

Apart from the Government, most of the loans from the banking sector are primarily being intermediated to the corporate segment and industrial sector, leaving other critical segments and sectors underserved. The corporate segment accounts for close to 70 percent of the loan book of banks and this share has been trending upwards in recent years. The sector's lending is also significantly concentrated in a few large business conglomerates.¹⁴⁸ Often, these large firms have direct ownership linkages with banks; therefore, a considerable portion of the loan book of banks is comprised of related-party loans, rather than conventional private sector lending. On the other hand, credit to the small and medium enterprises (SMEs) accounted for about 6.3 percent of total private sector financing in June 2021, catering to the financing needs of only 172,893 SMEs. According to the SME finance forum, the current quantum of financing amounts to less than 10 percent of the financing requirements of the SME sector (World Bank, 2022).

Increasing exposure of the financial sector to government debt has also reduced the incentives for innovation. In the presence of a dominant borrower with no to low risk, the financial system has few incentives to design innovative financial products or extend finance to underserved sectors of the economy. The impact of the “dominant borrower syndrome” is indicated by the fact that alternative financing models, such as value-chain financing, warehouse receipt financing, and factoring, are still at a nascent stage in Pakistan.

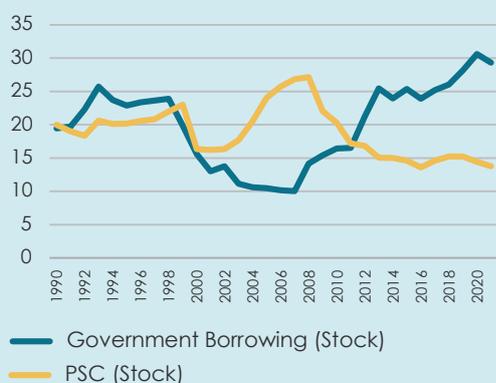
¹⁴⁶ See, for example, Bouis, 2019.

¹⁴⁷ See, for example, Zaheer et al., 2017.

¹⁴⁸ Only 20 business groups in the country accounted for 30 percent of the banking sector's private sector lending portfolio in 2017. State Bank of Pakistan – Bank Credit to Private Sector: A Critical Review in the Context of Financial Sector Reforms (2017).

Figure 5.16: The Government is the dominant borrower in Pakistan

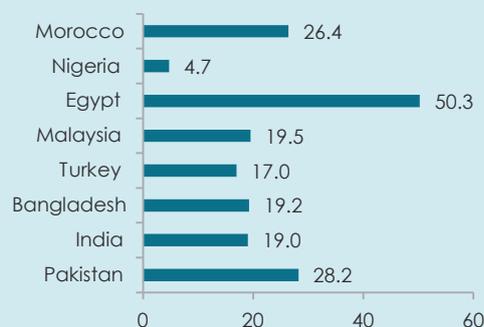
(Government vs private sector credit [PSC], percent of GDP)



Source: International Financial Statistics.

Figure 5.17: Credit to the public sector as a share of GDP in Pakistan is higher than most peer countries

(Credit to the Government and state-owned firms, 2019, percent of GDP)



Source: State Bank of Pakistan, Pakistan Bureau of Statistics.

Consistent with crowding out, recent research undertaken on emerging market firms shows that their investment expands after fiscal contractions. The response is not immediate. Indeed, the immediate effect to an unexpected fiscal contraction is a decline in investment, but this increases rapidly above the pre-shock level. The rebound in investment is facilitated by fiscal space, flexible exchange rates, and the predictability of fiscal policy.¹⁴⁹

For a more detailed discussion on financial sector issues in Pakistan, see *Pakistan Development Update: Financing the Real Economy*, April 2022. World Bank.

The profitability of the median large Pakistani firm is similar to comparator countries. The results indicate that median ROA measures are similar across countries and Pakistan is not an outlier in this regard (Figure 5.15). Moreover, ROA rates are also not always correlated with economic development: in 2018, average ROA was lowest in Indonesia and highest in Mexico, both in the aspirational group of countries.¹⁵⁰ Similar results are obtained using other measures of profitability, such as return on equity (ROE) and operating margins.

The share of loss-making and 'zombie' firms among firms in Pakistan is high. In 2016, Pakistan had the highest share of 'zombie' firms—i.e., firms that are loss-making for at least three years—among all comparator countries, with more than 11 percent of the largest 500 firms falling into this category (Figure 5.18).¹⁵¹ The share of loss-making firms was around 30 percent each year between 2014 and 2020. Other estimates from the literature suggest that the share of zombie firms in Pakistan is even higher, at 25 percent, with around 47 percent of these non-viable firms operating in the textile sector, 19 percent in chemicals, and 10 percent in cement.¹⁵²

Weak competition, access to subsidized bank credit, and underdeveloped insolvency regimes can explain the survival of zombie firms. Weak competition, substantial barriers to entry, and inflexible labor markets can help inefficient firms to survive. Moreover, banks in less-developed financial systems

¹⁴⁹ See Magud, N. and S. Pienknagura, 2022.

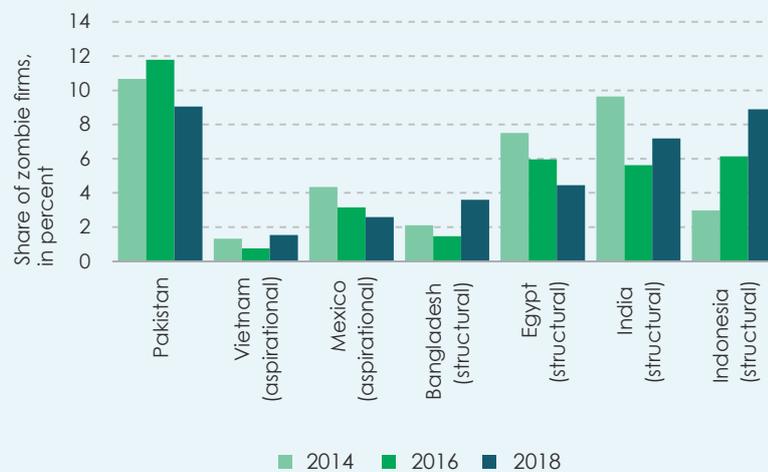
¹⁵⁰ Higher profitability can “mechanically” lead to large capital growth in the same period, as the profit becomes part of the capital stock by the end of the period (unless paid out to shareholders). The figure excludes this channel. It models asset changes between the end of year t and the end of year $t + 3$ as a function of profit realized during year t , so the profit/loss in t is already included in the initial capital stock.

¹⁵¹ McGowan et al., 2017, consider a firm to be a zombie firm if it is at least 10 years old and its interest coverage ratio (the ratio of operating income to interest expenses) is below one for at least three years. As interest expenses for most firms in the sample are not reported, an alternate definition is used: a firm is a zombie firm if it is at least 10 years old and reports negative pre-tax profits in year t and the two years before that. The firm will not be able to pay its interest expenses from negative profits.

¹⁵² See Faraz, 2020.

may lend to firms even if they are permanently loss-making, especially if the firms are politically important or connected by ownership links to the banks themselves. Estimates suggest that US\$3 billion in short-term bank credit flows to zombie firms in Pakistan on an annual basis.¹⁵³ If the firms are state-owned or have strong lobbying power, the Government itself can provide support in various ways. Poorly designed insolvency regimes can prevent creditors from taking effective action and liquidating or reorganizing the firm.¹⁵⁴ This highlights the importance of the legal system governing bankruptcy procedures and corporate governance in general for an efficient reallocation process. In Pakistan, while there has been progress in this area recently, including the New Corporate Rehabilitation Act 2018, both the rules and their implementation could be improved further.¹⁵⁵

Figure 5.18: Pakistan has a higher share of persistently loss-making or 'zombie' firms than peer countries
(Share of 'zombie' firms across countries, largest 500 firms)



Source: Orbis, authors' calculations. Note: Zombie firms are firms that are at least 10 years old and report negative profits in three consecutive years.

The Role of Ownership Structure in Performance

Compared with foreign-owned firms, state-owned firms are more likely to be large and less productive. Operating state-owned firms was one of the strategies that many developing countries, including Pakistan, used to manage strategic sectors. However, state-owned firms, while often large, tend to be less productive because of soft budget constraints and non-profit-maximizing behavior.¹⁵⁶ They can operate with lower productivity due to their ability to lobby the Government for favorable treatment and because they enjoy the implicit guarantee of the state. This does not promote the efficient allocation of capital and labor. In Pakistan too, state-owned firms enjoy favorable treatment from regulators, and preferential access to finance and government contracts.¹⁵⁷ In contrast, for foreign-owned firms, productivity is positively associated with size (Figure 5.19) elsewhere, and also in Pakistan (see Chapter 2).¹⁵⁸

The quality of management practices and access to credit can differ across firms with different ownership structures. State- and family-owned firms, especially if they are managed by a family member,

¹⁵³ Ibid.

¹⁵⁴ See, for example, Andrews & Cingano, 2014; Ahearne & Shinada, 2005; and McGowan et al., 2017.

¹⁵⁵ See Manes, 2011; Khan & Niazi, 2021; and World Bank, 2018.

¹⁵⁶ See, for example, Boycko et al., 1996.

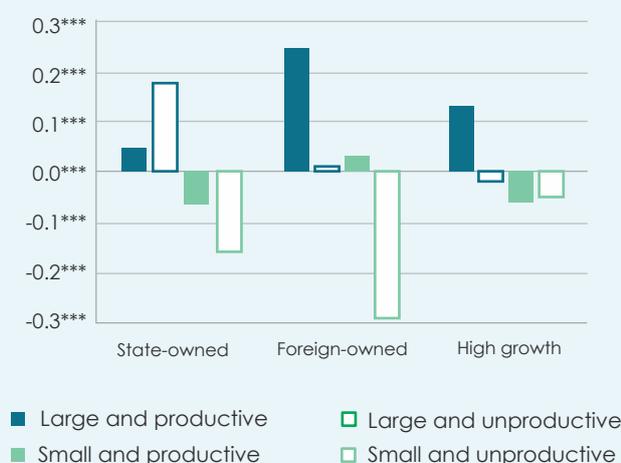
¹⁵⁷ World Bank, 2020: Pakistan Systematic Country Diagnostic.

¹⁵⁸ Ciani et al., 2020.

tend to be run less effectively than other privately-owned firms.¹⁵⁹ With regards to access to credit, family-owned firms may prefer to rely more on internal sources when financing investments, but also have better access to external funding, especially during a crisis period. One reason for this is that there is little conflict of interest between the owners and managers in firms that are both owned and managed by the same family, which reduces the risk of lending to such firms.¹⁶⁰ State-owned firms also have better access to capital from the Government or banks. On the other hand, foreign-owned firms tend to have better management and access to credit.¹⁶¹

Figure 5.19: Foreign-owned firms are likely to be larger and more productive than state-owned firms

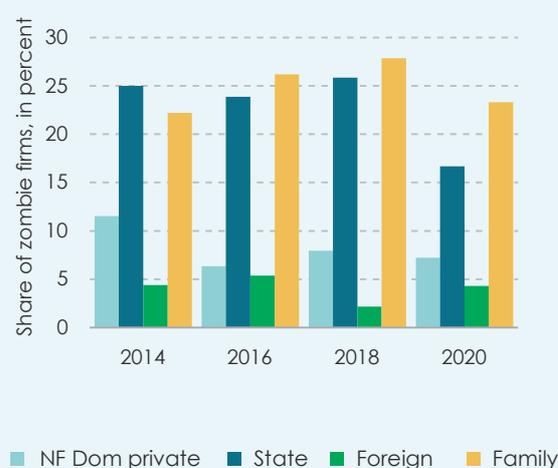
(Firms' ownership and productivity in emerging economies)



Source: Taken from Ciani et al 2020. Calculations based on industrial census data from a selection of countries.

Figure 5.20: State- and family-owned firms constitute a larger share of zombie firms in Pakistan

(Zombie firms, by ownership structure)



Source: Orbis, Securities and Exchange Commission of Pakistan, authors' calculations.

In Pakistan, foreign-owned and domestic but non-family-owned firms tend to be more profitable than family-owned and state-owned domestic firms. The higher profitability of foreign firms is in part due to foreign owners acquiring more productive firms (although there is also evidence for learning, see Chapter 6). Investment and profitability are substantially lower in family- and state-owned firms compared with non-family domestic and foreign-owned firms (Table 5.2). This also leads to a large share of state- and family-owned firms being loss-making. Specifically, more than one-fifth of state-owned firms and two-fifths of family-owned firms were loss-making at any given point of time, suggesting that low profitability is an important issue for many of these firms, while loss-making is rather rare among non-family-owned domestic firms. Low profitability can indeed be a long-lasting problem for family- and state-owned firms, with the share of zombie firms exceeding 20 percent in each year for these two ownership groups, compared with less than 5–10 percent for the other two ownership groups (Figure 5.20).

¹⁵⁹ See, for example, Bloom et al., 2015.

¹⁶⁰ See, for example, Bopaiah, 1998; and Crespi-Cladera & Martin-Oliver, 2015.

¹⁶¹ See, for example, Hijzen et al., 2013; Bloom et al., 2012; and Girma et al., 2015.

Table 5.2: Growth and profitability by ownership, Pakistan, percent

	Asset growth	Tangible growth	Sales growth	ROA	ROE	HGF share	Loss-making share
Non-family private	12.8	11.8	-9.2	3.8	8.5	1.1	4.5
State	0.9	5.9	5.1	1.5	3.1	2.9	22.0
Foreign	13.9	9.5	4.9	10.1	20.4	4.7	14.1
Family private	0.2	-2.1	-6.3	2.1	4.8	5.3	41.8
Total	7.4	4.3	-8.2	3.7	8.7	2.3	12.8

Source: Orbis, Securities and Exchange Commission of Pakistan, authors' calculations. Notes: Table reports median of the growth and profitability distribution. "Asset growth" stands for three-year total asset growth, "Tangible growth" for three-year tangible fixed assets growth and "Sales growth" for three-year revenue growth. All growth rates are calculated following Haltiwanger (2013). "HGF share" is the share of high-growth firms, defined as realizing more than 60 percent revenue growth during a three-year period (20 percent per year, on average). "Loss-making share" is the share of firm reporting negative pre-tax profit. "ROA" stands for Return on Assets, and "ROE" for Return on Equity, in percentages.

The lower profitability, investment, and loss-making nature of state- and family-owned firms is not driven by industry composition or size. Firms in different ownership groups differ in many respects: family-owned firms, for example, tend to be smaller, more likely to operate in services, use less capital per worker, and operate with a lower labor productivity level. Ownership differences are substantial even when controlling for industry composition and firm size: (i) compared with non-family-owned domestic firms, state-owned firms realize 6.7 percentage points and family-owned firms 3.9 percentage points lower profits, while foreign-owned firms realize 3.2 percentage points higher profits; and (ii) family-owned firms invest less than firms in other ownership categories. The different productivity of firms under different ownership structures can help explain these differences.

Firms' Dynamics in Export Markets

Exporting matters for productivity upgrading.¹⁶² Nonetheless, exporting involves substantial fixed costs that may be hard to overcome except for the most productive firms. As a result, only the most productive firms enter foreign markets, implying that the share of exporting firms depends both on the productivity of firms and the costs of entering export markets.¹⁶³ Indeed, exporters tend to be 40–50 percent more productive in Pakistan, with evidence suggesting that both selection (they need to be more productive to afford the large fixed costs in the first place) and learning (their productivity grows further as they export more systematically) (see Chapter 3) are important factors. Thus, examining firms' dynamics in export markets matters.

Both entry and exit rates are lower in Pakistan than in any of the comparison countries. Export market entry and exit rates fell from around 30 percent in the early 2000s to around 20 percent in 2017 (Figure 5.21 and Figure 5.22).¹⁶⁴ The low entry rates suggest that fixed costs of exporting are high in Pakistan, being prohibitive for most smaller and less productive firms. The low exit rate is also in line with this: if only productive firms are able to pay the sunk cost of exporting, they will be less likely to exit.¹⁶⁵ Another potential explanation for the low exit rate of exporters in Pakistan is that many exporters benefit from different types of government subsidies, such as credit, export incentives, and duty drawback schemes, that tend to benefit incumbent exporters (for details, see Chapter 3).

More productive and larger firms are more likely to export, but ownership does not seem to matter. A 10-percent-larger firm size is associated with a 1.25-percent-age-point increase in the probability of

¹⁶² See, for example, Atkin et al., 2017, and Atkin & Jinhage, 2017.

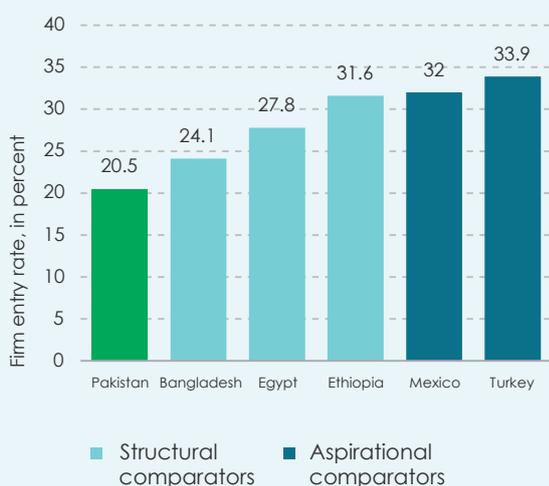
¹⁶³ See, for example, Bernard et al., 2007, Bernard & Jensen, 1999, Melitz, 2003, and Greenaway & Kneller, 2004.

¹⁶⁴ As discussed in Box 5.2, Pakistani exporters have high survival rates and low exit rates even if they do not grow.

¹⁶⁵ See, for example, Melitz, 2003.

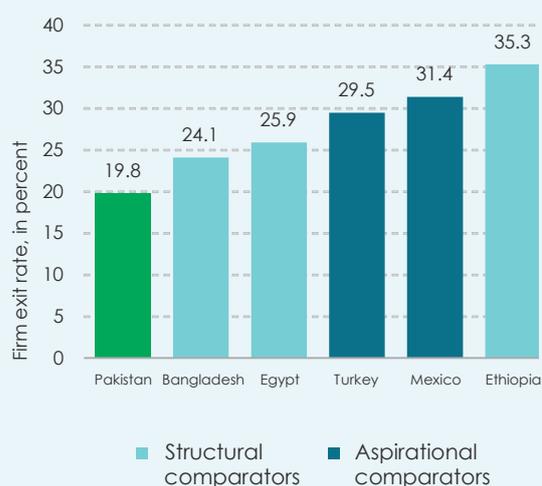
exporting, while a firm with 10-percent-higher productivity has a 0.8-of-a-percentage-point higher probability of exporting. These patterns suggest that exporting depends mostly on firm performance and is not associated with other factors, such as ownership.

Figure 5.21: Pakistani exporters show lower entry rates...
(Firm-level entry rate)



Source: Exporter Dynamics Database, 2017, authors' calculations.

Figure 5.22: ...and exit rates
(Firm-level exit rate)



Source: Exporter Dynamics Database, 2017, authors' calculations.

Incumbent exporters enter new destinations and introduce new products in similar proportions to firms in comparator countries, but they sell lower volumes in each of their markets. Pakistani exporters serve a similar number of export destinations and sell a similar number of products as firms in the structural comparator group. However, Pakistani firms sell a smaller value in their markets (country-product combination) than firms from any of the comparator countries. This suggests that the lack of expansion in their existing markets, rather than entry to new markets, seems to be the main reason for the small size of these exporters, especially when compared with the structural comparator group.

Box 5.4: Insiders and outsiders, trade protection and firms' revenues

The insider-outsider dynamics in the political economy of distortions can be observed in the design of import tariff policy. This chapter shows that firms in sectors facing high rates of effective protection tend to realize greater financial returns. This is the case because effective import protection adds to the market power that domestic firms have by limiting one source of competition: that originating in imports. Thus, it matters what determines the setting of import restrictions.

A recent working paper, Malik (2022) attempts to look at how import restrictions in Pakistan are introduced and what role political economy factors play. The analysis combines data on non-tariff measures (NTMs) with

information on the political connectedness of an economic sector, to examine if politically influential sectors sway trade policy in their favor by achieving higher levels of protection. Political connectedness is defined as the top shareholder being either a member of parliament, a minister, or the head of a state, or closely related to a top official. Data on connectedness are obtained from public information, the Orbis database, and previous analysis on the matter by ur-Rehman (1998). The analysis focuses on one particular import restriction, namely NTMs, because these are easier to be manipulated in practice given their dependence on implementation procedures and administrative mechanisms. It also focuses on a major trade reform as part of a five-year engagement plan with the EU to access the Generalized System of Preferences starting in 2013. Because of this reform, the use of NTMs increased substantially: in 2012, the author claims, NTMs were applied to less than 10 percent of all manufacturing products, while a year later the ratio reached about 80 percent.

Results from a difference-in-differences approach show that politically connected sectors received a disproportionately higher intensity of NTMs after the 2013 reform. The result is robust to various controls such as Most Favored Nation (MFN) tariff rates, value added in GDP, and others, reflecting political influence on the introduction of import restrictions. Complementing this approach, the authors also estimate a structural model proposed by Grossman-Helpman, which models the interaction between government and special interest groups lobbying for protection. Estimates from this approach are also in line with those obtained from the difference-in-differences, highlighting the role of special interest groups in trade policy formation. This role is particularly salient in the post-2008 period when import duties and NTMs emerged as important trade policy instruments in Pakistan.

In Pakistan, firms in protected sectors tend to realize larger financial returns. Developing countries often charge much higher tariffs than developed ones to protect some of their industries, but Pakistan's tariffs are higher than countries in both the structural and aspirational groups (Figure 5.23). In Pakistan, firms in protected sectors, defined as industries with more than 100 percent effective protection rates, tend to be more profitable (Figure 5.24). The median return on equity (ROE) of firms in protected sectors is more than 5 percentage points higher than that observed in other sectors. These differences do not result from different ownership or size composition across these industries but seem to be associated with protection itself.

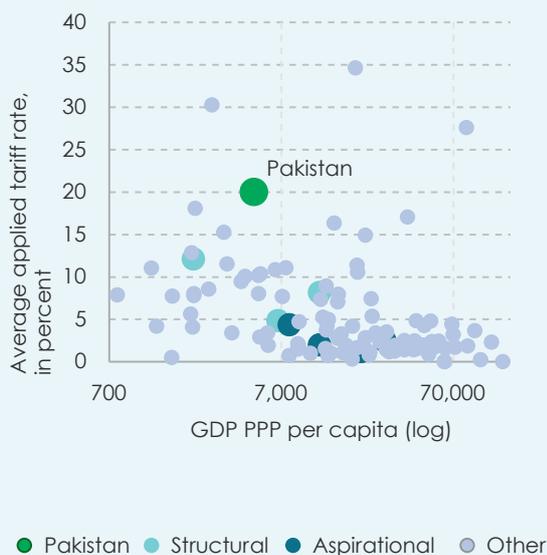
They also export less, on average, consistent with the anti-export bias of high import tariffs. The lower competitiveness of firms in protected industries is reflected by the fact that, despite being sheltered from import competition in their domestic markets, they export less on average (see Box 5.5 for a discussion). In 2017, the mean export value of firms in less protected industries was 20 percent higher than that of firms in more protected industries (Figure 5.26).¹⁶⁶ Moreover, firms with more than 1,000 employees export less than 3 percent of their revenue in protected sectors compared with 27 percent of revenue in non-protected industries (Figure 5.27).¹⁶⁷ These results suggest that the largest firms in protected industries underperform the smallest ones in non-protected industries. Improvements in the allocation of resources between smaller and larger firms could have a significant effect on industry-level export competitiveness and other outcomes. Specifically, reducing tariff rates in some of these protected industries has the potential to increase productivity and make allocation more efficient.

166 A firm is considered to operate in more protected markets if the average import tariff rate in its host country for the product it exports is above 20 percent.

167 These patterns hold when size is measured with revenue rather than employment or when labor productivity is related to export share.

Figure 5.23: Pakistan has higher rates of tariffs than most countries

(GDP/capita and tariffs, 2018)



Source: WITS, FBR, authors' calculations. Note: This figure shows GDP per capita in current PPP US dollars and average Actually Applied Tariff Rates (unweighted average of 6-digit products). Data for Pakistan include regulatory and additional customs duties (FBR), data reported are for countries with GDP/capita below US\$60,000.

Figure 5.24: Firms in protected sector realize larger financial returns

(ROE, 2012–2020)



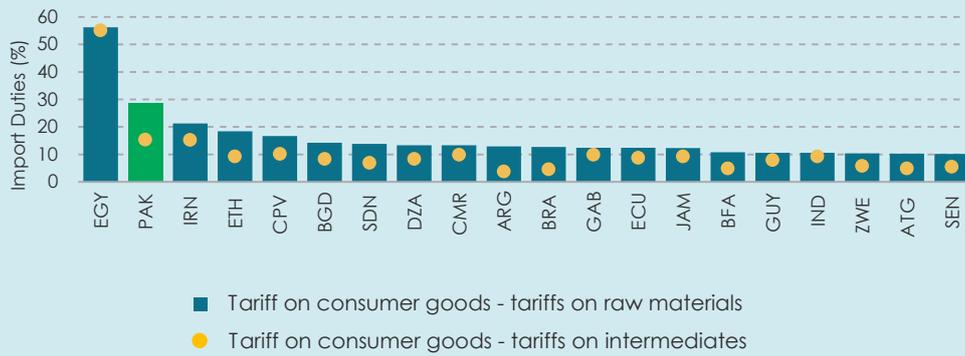
Source: Securities and Exchange Commission of Pakistan, Federal Bureau of Revenue, Input-output tables from International Food Policy Research Institute, author's calculations.

Box 5.5: Import tariffs as implicit (and powerful) export taxes

In 1936, the Anglo-American economist, Abba Lerner, developed the idea that an ad-valorem import duty has the same effect as an export tax. This unintuitive idea, known as the 'Lerner symmetry theorem', implies that when a government introduces an import duty in a sector to protect it from foreign competition, say, with the objective of promoting industrialization at home and substituting imports, it is artificially increasing the profitability (or attractiveness) of domestic firms that choose to sell in that sector, relative to that profitability of those that choose to sell in (unprotected) export markets. Thus, import tariffs introduce an anti-export bias that is intended to substitute imports, but ends up substituting exports instead.

The anti-export bias of import duties is accentuated when these duties are structured in a cascading manner. Cascading means that duties on raw materials and intermediates required to produce a final good are lower than those on the final good itself. Say, import duties on bike pedals, wheels, saddles, brakes, or frames are set at 26 percent lower than those applied on a completely built-up bicycle, set at 51 percent. In this case, an indicator of cascading would be that difference between the 51 percent duty on built-up bikes and the 26 percent duty on their inputs. In Pakistan, cascading is marked across the board. Indeed, Pakistan shows the second-highest import duty cascading in the world (Figure 5.25).

Figure 5.25: Pakistan shows the second-highest import duty cascading in the world
(Import duty cascading, top 20 countries with the highest cascading)



Source: Pakistan's FBR and UN Comtrade.

A concrete example can help visualize the effects. Going back to the bicycle example, assume that there are no import duties now. Bicycles are sold internationally at US\$100 and, assuming for the sake of simplicity that transport costs are negligible, bikes would also be sold at the equivalent PKR price in Pakistan. If domestic bike producers were to sell at a higher price, import competition would price them out of the market. And if they were productive enough to sell at a lower price, they would export all they could produce and secure a US\$100 price in international markets (Table 5.3).¹⁶⁸ Imagine also that in Pakistan, out of the US\$100 value of the bike, US\$67 are input costs and US\$33 are value added (as suggested by the latest Census of Manufacturing Industries, CMI, 2015/16 that reports value added in output to be about 33 percent). In addition, and again following data from the CMI, of the US\$33 of value added, US\$8 corresponds to wage costs, and US\$25 to operating margins (markups, or profits).

Table 5.3: The anti-export bias of cascading tariffs – an example

	Before import duties (on bikes)	After import duties (on bikes)
International price of bike	US\$100	US\$100
Import duty on bike	US\$0	US\$10
Domestic price of bike (US dollar equivalent)	US\$100	US\$110
Input costs	US\$67	US\$67
If firm sells domestically:		
Value added (domestic price – input costs)	US\$33	US\$43
Of which wage costs	US\$8	US\$8
Of which markups/profits (value added – wage costs)	US\$25	US\$35
If firm exports:		
Value added (international price – input cost)	US\$33	US\$33
Of which wages costs	US\$8	US\$8
Of which markups/profits (value added – wage costs)	US\$25	US\$25
Relative profits of selling domestically/exporting	US\$25/ US\$25=1	US\$35/ US\$25=1.4

168 The example assumes that bikes sold in Pakistan and abroad are substitutable.

An apparently small 10 percent import duty will have a large effect in distorting relative profits. If now the Government of Pakistan introduces an import duty of 10 percent on bikes, say because it wants to promote import substitution (but introduces no duty on the inputs required to produce bikes, that is, in cascading), then imported bikes will sell in Pakistan for US\$110.¹⁶⁹ Pakistani producers of bikes can choose to sell bikes domestically or export them. If they sell domestically, because the import duty reduced the competition they faced from imports, now they can sell bikes at a price up to US\$110 without being priced out of the market by foreign competition. That means their profits would increase from US\$25 to US\$35 (or by 40 percent).¹⁷⁰ If the domestic firms decided instead to export the bikes, with the international price at US\$100, their profits from exporting would remain at US\$25. The cascading import tariff (of just 10 percent!) has increased the profitability of selling domestically relative to exporting by 40 percent! The import duty has had a magnified and powerful effect on the incentives to export.

This is not just a made-up example. Systematic evidence for publicly listed firms in Pakistan shows that, on average, a 1 percent increase in tariffs in final goods increases the profits of firms producing that final good by 4 percent (Figure 3.16). It is no surprise, then, that firms in sectors that face increased protection tend to export less as a share of total sales, as shown in Figure 5.27.

The intended objective of the import tariff cascading is to promote industrialization and substitute imports. The unintended consequence is that it discourages exports. This is because cascading allows domestic firms to import cheap inputs but gives them protection on the final product through a high import tariff, so that they do not have to compete on a level-playing-field basis with international firms. When cascading is prolonged over time, not only exporting is discouraged, but so is investment in innovation and productivity upgrading.

Source: Authors' elaboration.

Figure 5.26: Average exports of firms in less protected industries exceed those of firms in more protected industries

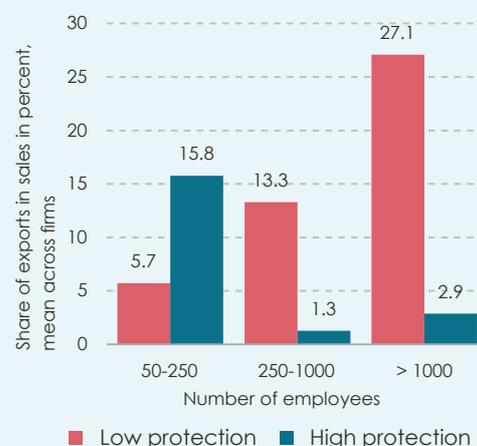
(Pakistani firms' average export values and import tariffs, 2002–2017)



Source: Securities and Exchange Commission of Pakistan, Federal Board of Revenue, Input-output tables from International Food Policy Research Institute, author's calculations.

Figure 5.27: Larger firms in protected sectors export less than those in non-protected sectors

(Pakistani firms' size and share of exports in revenue, by level of protection, 2012-2020 average)



Source: Securities and Exchange Commission of Pakistan, Federal Board of Revenue, International Food Policy Research Institute, author's calculations. Notes: High protection sectors are defined as industries with more than 100 percent effective protection rates.

169 The example assumes demand is price inelastic, so the tariff is passed on to consumers.

170 It is also possible that the composition of domestic firms will change. With lower import competition, less productive domestic firms will be able to enter the market. For these less productive firms, profits will be lower.

Policy Recommendations

Enabling firms' growth through higher investment rates requires addressing challenges that are both external and internal to firms. Firms' growth can be constrained by distortions in the business environment in which they operate. Complex procedures, size dependent policies, or limited enabling infrastructure can add to firms' costs and reduce returns to investment, thereby limiting incentives to expand. Similarly, weak firms' capabilities (which are, in turn, to some extent endogenous to the environment in which firms operate) can also limit the returns to firms' investment and, consequently, their ability to grow. This section focuses on three areas in which public policy interventions can facilitate firm growth.¹⁷¹ These are: (i) transforming the Government's crowding-out of private investment into a crowding-in of private investment; (ii) reducing regulatory complexity, including in tax regimes; and (iii) boosting firms' capabilities and improving corporate governance. It also provides a prioritization for these recommended actions.

Top Priority

From crowding **out** to crowding **in**

For the private sector to scale up, coordination with the public sector is required so that public investments in enabling infrastructure crowd **in** more private investments. However, when countries run systematic fiscal deficits—as is the case in Pakistan—the fiscal space to invest in the enabling infrastructure is limited. Not only do persistent fiscal deficits limit needed public investments, but they also crowd out private investments—as evidence presented in this chapter shows—because they limit the availability and increase the costs of credit for risky projects. Turning around the current 'crowding-out' role of the Government with private investment into a 'crowding-in' role will require policy reforms to create fiscal space and productive investments in enabling infrastructure.

Recommendation 1: Expand the tax base and reduce distortions that incentivize investments in less-productive uses, or that disincentivize firms' growth.

Tax exemptions to various sectors in the economy create distortions to an efficient allocation of resources. Most notably, the fact that capital gains in land (particularly urban real estate) do not face an analogous tax burden compared with gains from investments in manufacturing or services, creates an incentive for resources to be allocated to less productive and non-tradable sectors. Not only does this limit the size of the tax base, thus increasing fiscal deficits, but it also reduces the capacity of the productive sector of the economy to create exportable goods and services, thus increasing the trade deficit. In addition, within the manufacturing and services sectors, differences in corporate tax rates according to the size or type of firm create disincentives for firms to grow. For example, corporate tax rates are higher for a private limited company registered under the Companies Act 2017, than for an association of persons (AOP) registered under the Partnership Act 1932. Sole Proprietorships (SP) are registered with the Federal Bureau of Revenue and are charged the same rates as AOPs. This can create incentives for firms to register as an AOP or SP instead of as a company. However, the protection afforded to directors of private limited companies from personal liability is not available to AOPs/SPs. This reduces incentives for firms to take risks to expand. Financial institutions may also be more inclined to lend to companies because of their legislative cover rather than AOPs or SPs, which then reduces the credit available to these firms for expansion.

Recommendation 2: Reform SOEs, from strengthening corporate governance to privatizing those that are unviable and in which state involvement is unnecessary.¹⁷²

¹⁷¹ There are other factors determining firms' growth. These include, for example, improving the ecosystem for innovation (discussed in Chapter 2), strengthening investment laws and FDI promotion (discussed in Chapter 6), or streamlining size dependent policies (discussed in Chapter 1). The three areas identified here are considered priorities that do not overlap with those discussed in the rest of the chapters of this volume).

¹⁷² For details, see 'State-Owned Enterprises: Reforms and Way Forward', Ministry of Finance, Government of Pakistan.

Loss-making state-owned firms are a drag on the economy and deter private firms' growth. First, state-owned firms increase the financing costs of private investments, given that they result in a fiscal burden for the federal government (budgetary financing to SOEs was 15.0 percent of the fiscal deficit in FY19), that needs to be financed, thus increasing the cost of credit in the market.¹⁷³ Second, they unproductively lock in resources (talent, capital) that could be better deployed in productive private investments. Third, many of these state-owned firms enjoy a dominant position in the market and operate in upstream sectors (out of the 87 commercial state-owned firms, 18 are in the financial sector, 21 are in the power sector, eight are in oil and gas, and 12 are in infrastructure and transport). Thus, inefficiencies are passed on in the form of higher costs or subpar services to downstream captive clients. When these state-owned firms are in downstream sectors (out of the 87 commercial state-owned firms, 14 are in manufacturing, mining, and engineering, and four are in trading and marketing), they also introduce distortions to the normal functioning of competitive markets. In Pakistan, in addition to enacting a new law that establishes an ownership framework for state-owned firms, other reforms that can help improve their performance include separating the Government's role as owner from its role as policy maker and regulator, professionalizing state-owned firms' boards and holding them accountable through the development of a proper performance monitoring and evaluation system. Finally, privatizing or liquidating those state-owned firms that are not viable, or operating in sectors in which state involvement is not needed can help reduce SOE related fiscal costs, remove distortions generated from the preferential treatment of SOEs and improve competition.

Regulatory complexity

Recommendation 3: Harmonize the General Sales Tax (GST) across provinces.

Firms are required to comply with a fragmented tax regime. A complex and opaque tax regime increases the cost of compliance for businesses and can discourage the entry of new firms, in particular the GST regime. Businesses operating across the country are estimated to need to submit 60 tax returns annually and sales tax refunds take an average of 18 months to be processed. The tax base is split into goods and services, with the power to tax them separately vested with the federal and provincial governments, respectively, and each province has the power to tax services supplied within its jurisdiction and levy its own tax rates on these services. This fragmented nature of the tax base has led to inter-provincial and federal-provincial jurisdictional conflicts, resulting in double taxation, exporting of taxes, and consequently high costs of compliance for businesses. On the one hand, this is particularly problematic for small and medium enterprises (SMEs), as they may have reduced accounting capabilities. On the other hand, it also acts as a deterrent to firms' growth, since expanding their supply chains according to comparative advantage becomes increasingly costly when these expansions entail cross-province transactions.

The fragmented GST regime also results in lower export competitiveness as it entails exporting taxes. In the fragmented GST system, there is no systemic mechanism to ensure that all tax paid on inputs can be credited against a final sale (the output tax). This results in the cumulative taxation of the intermediate inputs of production and distorts the prices that producers face in buying and selling from one another. Under this system, it is harder to generate full information on all aspects of the value chain, which is critical to eventually removing all taxation from exports. As a result, Pakistani exports carry unrecovered tax on their inputs, and exporters' prices are systemically higher than those of exporters in countries without the cascading effect of the GST system.¹⁷⁴

Recommendation 4: Streamline and digitize business licensing and registration processes.

Pakistan's complex regulatory regime adds to the operational costs for businesses. Market distortions arising from a complex regulatory regime can distort the efficient allocation of resources and add both implicit (opaque and cumbersome processes) and explicit (high costs associated with business registration, licensing and permitting) costs for businesses. In Pakistan, investors with operations across

¹⁷³ Latest data available on budgetary financing to SOEs. 'State-owned Enterprises, Annual Report, Volume-1', Ministry of Finance, Government of Pakistan

¹⁷⁴ See IMF Country Report No. 22/27 for a discussion on the cascading effect of Pakistan's GST regime.

the country frequently need to comply with five distinct regulatory regimes that are administered with little coordination and often with overlapping jurisdictions. There are at least 12 categories of general regulatory layers that are applicable to all firms, with four additional administrative processes for foreign companies. In recent years, the Government has taken steps to simplify and automate regulatory processes across the federal and provincial authorities, but the process still needs to be completed.¹⁷⁵

Medium-Term Priority

Recommendation 5: Re-consider size-dependent policies that discourage de jure or de facto firms' growth.

Size-dependent policies aim at supporting micro and small enterprises. However, they also create incentives for firms not to grow. Evidence points to these size-dependent policies (or size-dependent enforcement of policies) introducing distortions that are costly for the economy. Support could instead focus on new, rather than on small, firms.

Recommendation 6: Invest in enabling infrastructure, leveraging private sector resources to close the infrastructure gap.

Lack of enabling infrastructure creates constraints for firms to grow. The quality of infrastructure in Pakistan remains relatively poor and needs significant investment. According to the WEF Global Competitiveness Index (GCI), Pakistan ranks 105th out of 140 countries in terms of the quality of its overall infrastructure, which includes transport and utility infrastructure. It is estimated that Pakistan needs to ramp up its investment in infrastructure to over US\$30 billion annually if it is to sustain growth.¹⁷⁶ To this end, given the existing fiscal constraints, the Government needs to leverage resources from the private sector through public-private partnerships.

Sustainable improvements in energy transmission and distribution infrastructure, rather than short-term, sector-specific energy subsidies, will crowd in private investments in productive sectors. The high cost of electricity and shortages adversely impact firms' investment plans. To address this challenge, firms often have to set up their own power plants, and venture into an area which is a core competency for them, and which raises their operational costs. Recent investments in generation capacity have reduced demand-supply shortages, but they have not contributed to reducing the cost of electricity, which in FY21 was about US\$ cents 8.8, as opposed to an average of US\$ cents 4–8/kWh in neighboring countries. The high cost of energy generation is further compounded by inefficiencies in the transmission and distribution (T&D) infrastructure, with losses accounting for about 18 percent of generated power. Short-term solutions such as sector-specific energy subsidies can be counterproductive, as they reduce the fiscal space for sustainable investments in energy transmission and distribution, and induce firms that are benefiting from the subsidies to overconsume. Instead, support to firms that incentivizes energy efficiency and the transition into renewable energies should be prioritized.

Firms' capabilities, bankruptcy, and courts

Recommendation 7: Re-allocate export subsidies away from unconditional transfers to exporters, and into support to firms' capability upgrading on a cost-shared basis with the private sector.¹⁷⁷

Firms' capabilities are those elements of the production process that a firm cannot buy in the market, but instead needs to learn.¹⁷⁸ Examples are innovation, or managerial competencies. Evidence points to

¹⁷⁵ The Government has adopted the 'Better Business Regulation Initiative' (BBRI) to introduce a new wave of investment climate reforms. BBRI entails the mapping of all the rules, regulations, licenses and permits which govern the operations of the private sector in Pakistan, followed by the simplification and streamlining of these rules and regulations, and finally automation and integration.

¹⁷⁶ International Financial Corporation 2021: Country Private Sector Diagnostic for Pakistan.

¹⁷⁷ This recommendation is aligned with Recommendation 3 in Chapter 2.

¹⁷⁸ Sutton, 2012.

these capabilities are crucial in determining firms' growth.

Pakistan spends substantial public funds in unconditional subsidies to firms (e.g.: DLTL, EFS, etc.).

Given the decision to support firms with public funds, growth could be better supported if some of these funds were re-allocated into pilot interventions to upgrade capabilities, and subject to impact evaluations. Recent studies find that management extension services generate very high rates of return, but firms remain reluctant to invest in managerial consulting services to become better at what they do. One of the reasons that firms do not invest in upgrading managerial practices is that firms systematically overestimate their managerial capacity. Partially subsidizing initial consultations on managerial upgrading services could help provide a benchmark of managerial quality and areas of improvement for firms. Another possibility is that small firms may lack the scale to assess the value of the services or quality of the providers. Thus, the emergence of a support industry, even if firms know they need to improve, would be a challenge. There is, thus, both an information asymmetry and a coordination failure in the market for management and extension services.¹⁷⁹ One potential solution is for a shared public-private intervention that partially subsidizes these extension services in coordination with business associations, and that would also play a role in screening services providers. These support schemes should be subject to impact evaluations, and their continuation should be conditional on positive results.

Recommendation 8: Strengthen legal procedures for restructuring and liquidation to facilitate loss-making firms to exit and release resources to productive uses, and eliminate barriers to entry to the insolvency system.

Weak insolvency processes allow loss-making firms to continue to operate, leading to a misallocation of credit and resources. In an ideal situation, available credit should be allocated to profitable firms, leading to their growth. However, the low profitability of state- and family-owned firms in Pakistan suggests that these firms either have too much capital or too little labor compared with their productivity—a sign of misallocation. This is partly an outcome of weak insolvency processes in Pakistan, which are often slow, have unpredictable outcomes and low creditor recoveries. Court cases can be prolonged, and it can take five years to obtain winding-up orders for firms. In terms of re-structuring, not all firms are eligible for formal restructuring. Under the Companies Act of 2016, most schemes are only options for large companies (a common practice globally), but in Pakistan the alternative restructuring option provided by the Corporate Rehabilitation Act (CRA) 2018 is not open to companies that have debts of less than PKR 100 million (about US\$540,000), nor to firms on which execution proceedings are pending for at least 25 percent of the value of their assets. These exclusions from potentially beneficial financial restructuring leave liquidation as the only option. As a result, the insolvency system is not able to aid in the resolution of non-performing loans in the financial system (currently close to 8.0 percent) nor does the existing legal framework effectively facilitate viable restructurings. To facilitate firms' liquidation and structuring and a more efficient allocation of resources, the insolvency system should be open to all enterprises, including SOEs, and restrictions allowing only “qualifying creditors” to apply to the CRA 2018 should be eliminated. In addition, early warning tools to facilitate successful restructurings/liquidations should be developed so that debtor firms can access restructuring options when they are still a possibility.

¹⁷⁹ See Cirera, X. and W. Maloney. 2019. “The Innovation Paradox.”

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Foreign Direct Investment in Pakistan: Achieving Potential, Maximizing Gains



Pakistan has the potential to more than double its FDI inflows, which in FY21 stood at **US\$1.8 billion**

Untapped potential FDI is around **US\$2.8 billion** per year



The **IT sector** offers high potential for attracting FDI

More than **1/4** of greenfield FDI announcements for **Pakistan** in the period 2017-2021 were in the IT services sector



F D I a n d P r o d u c t i v i t y

Foreign-owned firms are

46% 

more productive than comparable domestic-owned firms

Why?

Cherry-picking



Multinational companies acquire more productive domestic firms. Domestic firms that will be acquired in the next period are **34%** more productive than comparable domestic firms that will not

Learning



When acquired, firms gain productivity through learning, technology transfers, and exposure to better managerial practices. After being acquired, formerly domestic firms gain productivity by about **12%**

FDI has generated limited vertical spillovers on productivity...



10% increase in FDI in upstream services is associated to



0.5% increase in productivity downstream



Primarily for less advanced firms, suggestive of a process of learning

...and no horizontal spillovers

Chapter 6

Foreign Direct Investment in Pakistan: Achieving Potential, Maximizing Gains

Pakistan has much to gain from attracting more foreign direct investment (FDI). This chapter argues that increased FDI in Pakistan will help complement its low saving rates, and thus contribute to boosting its also structurally low investment rates, create good quality jobs, facilitate productivity growth, and macroeconomic stability. The chapter presents new evidence on the gains from productivity spillovers from FDI in Pakistan, as well as estimates on Pakistan's untapped FDI potential of US\$2.8 billion in net inflows per year. It then provides policy recommendations in four areas, to achieve the full potential of FDI and maximize gains: (i) investment policy, promotion, and climate; (ii) negotiation of deep trade agreements; (iii) tax policy and administration; and (iv) policy stability.

Background

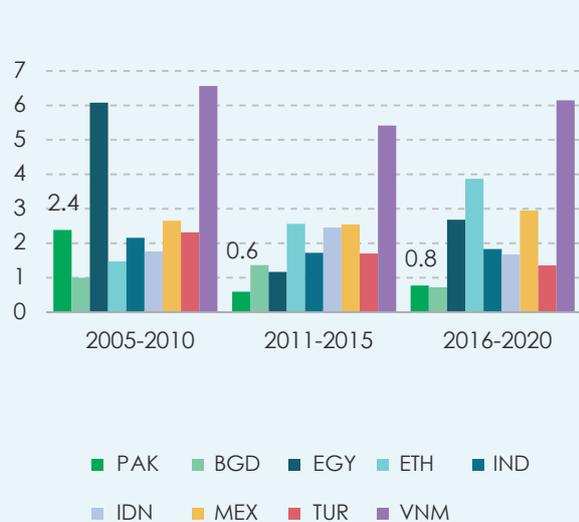
Foreign direct investment (FDI) can be a useful source of financing for developing countries. It is closely linked to export performance, job creation, and productivity growth. The presence of foreign multinationals allows domestic firms to integrate in global value chains (GVCs) and can create positive knowledge spillovers to domestic producers (through supplier-client linkages and, in some cases, also through increased competition in the same sector).

Pakistan's FDI inflows as a share of GDP are low and have declined over the past 15 years. Pakistan's inflows of FDI were on average 0.8 percent of GDP between 2016 and 2020, lower than for all the comparator countries, and below inflows in the 10 years prior (Figure 6.1). More recently, FDI inflows in FY20 and FY21 averaged US\$3,174 million, or less than 1 percent of GDP. The decline in FDI coincides with falling domestic private investment as a share of GDP. Indeed, there is a declining trend in capital deepening—the rate at which capital per worker increases over time (Figure 6.2)—as private investment rates as a share of GDP remain below 10 percent.¹⁸⁰

¹⁸⁰ There has been an increase in capital deepening over the past years, although it remains substantially lower than in structural and aspirational countries.

Figure 6.1: FDI inflows in Pakistan, as a share of GDP, are low and have declined over the past 15 years

(Net FDI inflows, Pakistan and comparators, percent of GDP)



Source: UNCTAD.

Figure 6.2: Growth in capital per worker or “capital deepening” in Pakistan lags that of comparator countries

(Annual increases in capital stock per worker or capital deepening at constant prices, in percent)



Source: WDI and PWT.

Gains from FDI in Pakistan

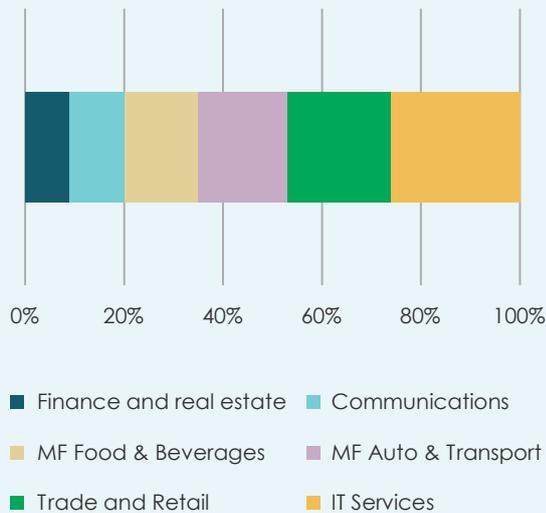
Despite being low, FDI in Pakistan has shown some positive effects

FDI has promoted structural transformation and created good quality jobs. In addition to adding to investment, FDI can be transformative in supporting structural change in the country and creating quality jobs. Most of FDI announcements in the past five years have focused on the services sector, and within the services sector, in the knowledge-intensive IT segment that has also performed well in terms of export growth.¹⁸¹ It is also worth mentioning that a substantial portion of announcements have been in the highly protected auto sector (Figure 6.3). FDI announcements have also been matched with announcements on job creation, mostly in manufacturing (food and beverages, and others), but also in trade and retail, as well as in IT (Figure 6.4).

¹⁸¹ Knowledge-intensive services exports—dominated by computer and professional services—have grown at double-digit rates for the past 10 years. Consequently, the share of knowledge intensive services exports in total services exports out of Pakistan grew from 10 percent in 2010 to 50 percent in 2020. Venture capital investments in the startup sector that is also dominated by IT and IT-enabled services has also been increasing dramatically, with investments close to US\$6 million in 2017, up to US\$325 million in 2021 (see <https://www.insightsi2i.com/pser-21>).

Figure 6.3: Greenfield FDI announcements for Pakistan over the past five years have been focused on the IT sector

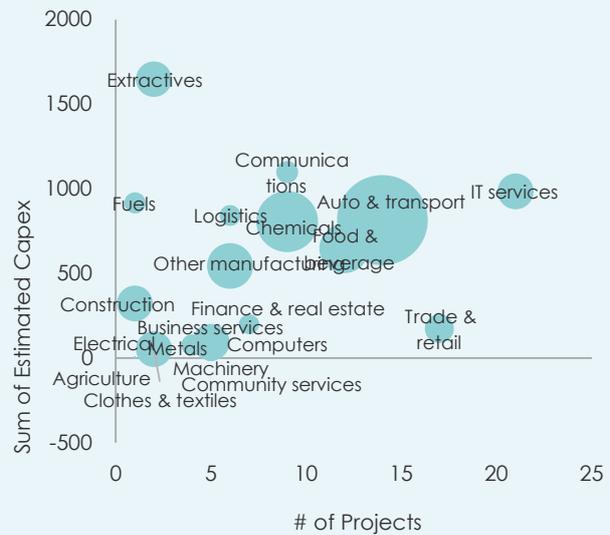
(Greenfield FDI announcements by sector for Pakistan, average 2017–2021)



Source: Financial Times FDI Markets database.

Figure 6.4: Greenfield FDI announcements on job creation have been focused on manufacturing, trade and retail and IT

(Greenfield FDI announcements by sector jobs and capital expenditure for Pakistan, average 2017–2021)



Source: Financial Times FDI Markets database. Note: Bubble size represents estimated number of jobs. Data are based on the sum of announced greenfield projects over the period. Capex (in million US\$) and jobs figures are estimates.

FDI can be a powerful platform for productivity growth, but gains are not inevitable or automatic.

Policy makers, both in Pakistan and around the globe, consider FDI to be an important source of productivity spillovers. Indeed, the fact that governments offer investment incentives to foreign companies that decide to set up shop in the home country is based on the possibility of positive knowledge or productivity spillovers from foreign subsidiaries to domestic firms. For example, the Government of Pakistan offers a 10-year income tax holiday, along with exemptions on import duties on machinery and equipment, intermediates and raw materials needed to produce, and in some cases land. In principle, spillovers could occur when foreign subsidiaries set up shop in the host country, bringing modern technologies, managerial practices, or some form of knowledge that may spill over on the domestic economy. Nonetheless, the empirical evidence on FDI productivity spillovers offers mixed results. There is strong evidence to suggest that horizontal spillovers—those that occur through the interaction of foreign firms and domestic competitors in the same sector through competition or imitation channels—are rare. Instead, there is more evidence pointing to vertical spillovers—those that occur through the interaction of foreign firms in upstream sectors and domestic firms downstream (spillovers through forward linkages) or the reverse (spillovers through backward linkages). Evidence also points to the importance of absorptive capabilities to benefit from productivity spillovers, at the firm and host country levels.¹⁸²

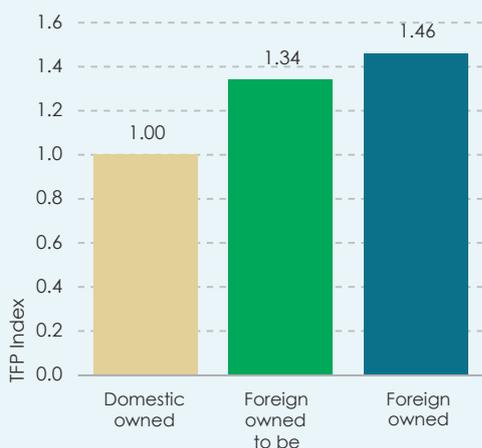
Evidence from Pakistan points to some productivity effects associated with FDI presence. In Pakistan, publicly listed, foreign-owned firms are 46 percent more productive than domestic-owned firms of comparable size operating in the same sector (Figure 6.5). Evidence also shows there is 'cherry-picking' by multinational companies. This means that they target more productive domestic firms to acquire: when we compare the productivity of domestic firms with that of comparable domestic firms that will be acquired in the next period ('foreign-owned to be' in), the latter are 34 percent more productive than the former, suggesting that multinationals choose more productive firms to acquire (i.e., cherry-picking). However, after being acquired, these formerly domestic firms gain productivity by about 12 percent (possibly through

¹⁸² For a review of the evidence on FDI spillovers, see Rojec and Knell, 2018.

earning, technology transfers, and exposure to better managerial practices).

There is no evidence of horizontal productivity spillovers from FDI, but evidence of vertical spillovers of FDI in the upstream services sector. Indeed, FDI in the upstream services sector in Pakistan has boosted the productivity of manufacturers downstream. Firms operating in the downstream manufacturing sector have benefited from productivity spillovers from FDI in the upstream services sector. However, the benefits are small and accrue disproportionately to less technologically advanced firms, i.e., those further away from the technological frontier, which is indicative of a process of learning. FDI in upstream services is associated with greater investment in intangible assets, which is a measure of innovation and is associated with higher productivity growth (Figure 6.6). This result is consistent with a recent finding based on a unique innovation survey of firms in Pakistan that points to increased innovations through vertical linkages with suppliers.¹⁸³

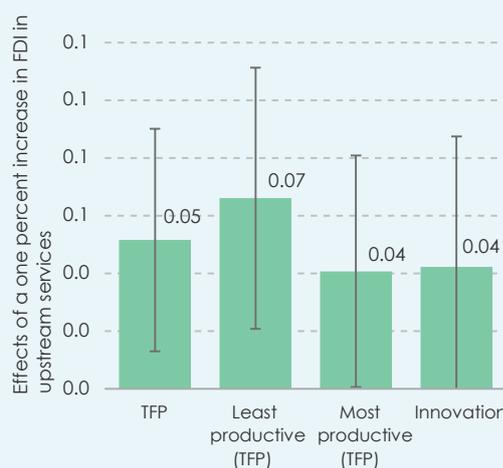
Figure 6.5: Foreign-owned firms in Pakistan are more productive than domestic-owned firms
(Productivity differences across ownership status, Pakistani publicly listed firms, average 2012–2020)



Source: Authors' calculations. Note: Average TFP index. Differences are statistically significant at 5% controlling for sectorfixed effects and size class dummies

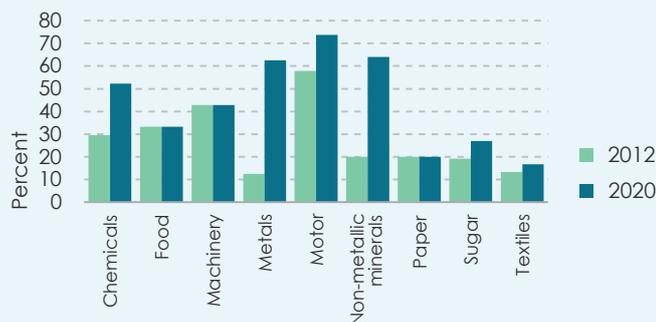
Figure 6.6: FDI in upstream services sectors positively impacts productivity of firms in downstream manufacturing sectors, particularly those that are less technologically advanced

(Effects of increased FDI upstream in services by type of firm, 2012–2019)



Source: Authors' calculations. Note: Based on regression estimates. Lowest productivity firms are those in the two bottom quintiles of the distribution of productivity. The graph on the right considers innovators those investing in intangible assets. The effect for intangible assets refers to a 1% increase in FDI in upstream service sectors. The error bars indicate 95% confidence intervals.

Figure 6.7: Foreign-ownership in Pakistan is concentrated more protected and domestic-oriented sectors
(Foreign ownership shares in Pakistan's publicly listed firms, 2012–2020)



Source: Authors' calculations, SECP data.

183 Wadho, W. and A. Chaudhry, 2022.

The foreign presence in Pakistan has historically focused on highly protected, domestic-oriented sectors. The sectoral structure of foreign ownership is revealing. Foreign presence is the highest in the most protected sector—motor vehicles—and lowest in the most outward-looking one—textiles (Figure 6.7). This supports the argument that foreign investors in Pakistan respond to the incentives that the import duty structure offers: focusing on the domestic market, rather than on exporting. This is also revealed by the motivation expressed by business executives announcing new investments.

The size (and captivity) of the market is the main motivation for foreign executives announcing investments in Pakistan. The size of the domestic market, growing demand, the large population or fast population growth are the most common motivations for announcing foreign investments in Pakistan. There are increasingly references to the IT sector gaining strength, as well as to business opportunities or cost-effective technologies (Figure 6.8).

Figure 6.8: Pakistan's large domestic market is the most commonly mentioned motivation for foreign investment announcements in the country
(Text analysis of motivations for FDI investments [2017–2021], Pakistan)

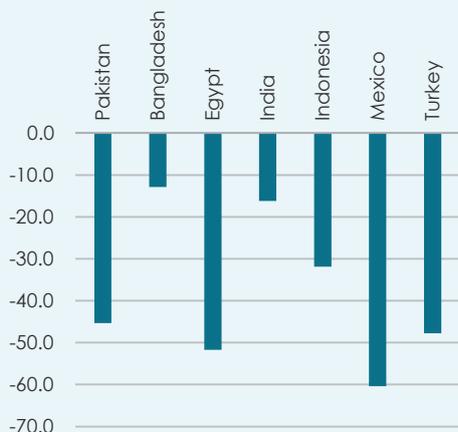


Source: Authors' analysis based on Financial Times FDI Markets database. Note: the size of the font is an indicator of the frequency of the motive in the database.

FDI can contribute to macroeconomic stability because it is a relatively safer form of foreign liabilities. Foreign liabilities of a country link today's current account deficit to the deficit that future generations will face. A current account deficit today builds into the stock of net foreign liabilities, generating a stream of debt-servicing and amortization payments that will fall on future generations. When net liabilities become large, they may pose a risk to the sustainability of a large and persistent current account deficit. The risk of a balance-of-payments crisis is related to the stock of net foreign liabilities and to its structure (Catao and Milesi-Ferreti, 2014). Evidence shows that when net foreign liabilities exceed 50 percent of GDP or their historical average by more than 20 percent, the risk of balance-of-payments crises increases (Pakistan's net foreign liabilities stood at 45.3 percent of GDP in 2020, Figure 6.9). However, when the increase in these liabilities is associated with increased FDI, no increase in external crises risk is found. This is because FDI is a less outflow-prone source of foreign financing than other forms of financing the current account deficit (FDI in Pakistan accounts for 24 percent of its foreign liabilities, Figure 6.10).

Figure 6.9: Pakistan's net foreign liabilities, as a share of GDP, are high

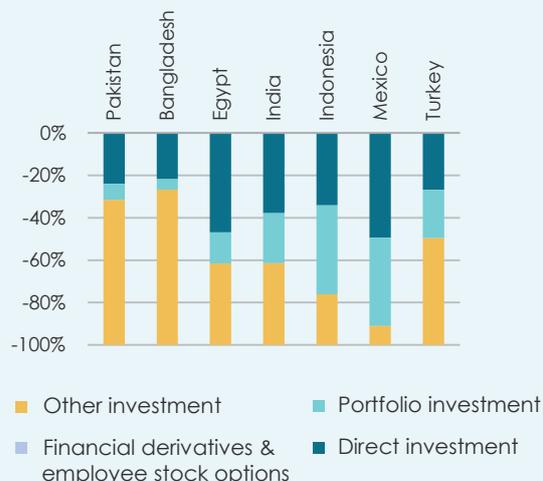
(Net foreign liabilities as a share of GDP, Pakistan and comparators, 2020)



Source: IMF IFS.

Figure 6.10: FDI accounts for one-quarter of Pakistan's net foreign liabilities

(Composition of foreign liabilities, Pakistan and comparators, 2020)



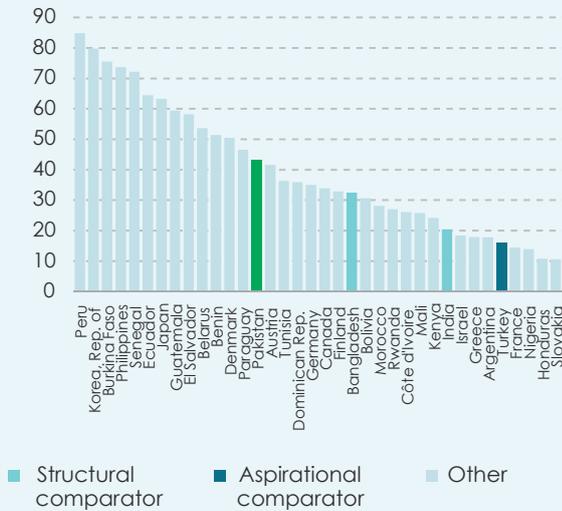
Source: IMF IFS.

FDI Untapped Potential

Pakistan's missing FDI inflows stand at US\$2.8 billion per year. The FDI potential is obtained by comparing actual FDI flows to the predicted ones obtained from a gravity model (see Box 6.1 for a methodological discussion). Given Pakistan's observable characteristics in terms of economic size, level of development, remoteness, and factor endowments, it is estimated that Pakistan's untapped potential FDI is around US\$2.8 billion per year. Put differently, Pakistan's has the potential to more than double its FDI inflows, which in FY21 stood at US\$1.8 billion. This gap between actual and potential FDI places Pakistan among the top half of countries in terms of missing FDI (Figure 6.11). This estimated untapped potential FDI does not imply a ceiling but rather what would be expected with Pakistan's characteristics, and average policies and implementation capacity.

Figure 6.11: Pakistan has one of the highest shares of missing FDI

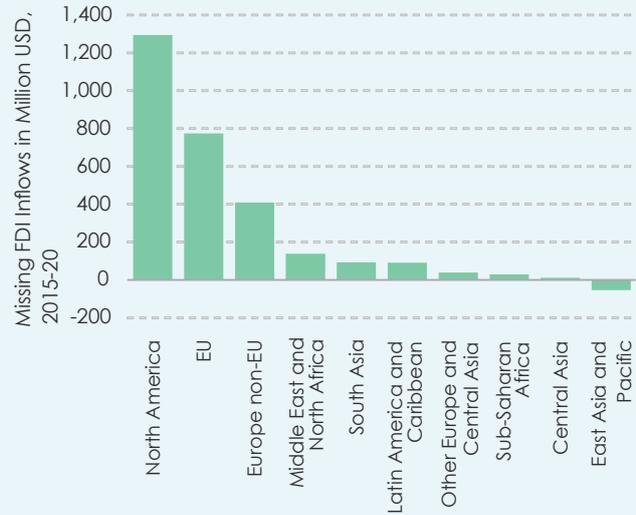
(Index of untapped FDI potential, Pakistan and comparators, 2015–2020)



Source: Authors' calculations.

Figure 6.12: North America and the European Union account for most of Pakistan's missing FDI potential

(Untapped FDI potential by destination of origin, Pakistan average, 2015–2020)



Source: Authors' calculations.

There is high potential to increase Pakistan's FDI inflows from countries across regions. The regions with the greatest potential for FDI into Pakistan are North America and the European Union, with US\$2.5 billion of missing FDI (Figure 6.12). These are also the two regions that currently account for the bulk of inward FDI. FDI inflows are estimated to be above their potential only with the East Asia Pacific (EAP) region. The results suggest that Pakistan received more investment than we would expect, given its observable characteristics, from EAP.

Box 6.1: Estimating missing FDI – a methodological note

The gravity model has become a workhorse tool for empirical analysis of international economics. The model has been widely used to estimate the impact of geography and institutions on trade flows since its first application by Tinbergen (1962). In its simplest form, which is derived from the physical gravity equation, trade increases proportionally with an exporter's and an importer's economic size, and decreases with physical distance. Countries tend to trade more with, and invest in, large or nearby partners than with small or distant ones. Over time, several other determinants that impede or promote trade and investment among countries have been included, such as policy variables for the presence of trade agreements, or historical characteristics such as colonial history that determine bilateral frictions.

The gravity model can also be used to assess how much investment we expect for each country pair based on their observable characteristics.¹⁸⁴ Using information on actual FDI flows and comparing them with predicted flows obtained from a gravity regression can be used to evaluate countries' FDI performance and to quantify the amount of missing FDI flows. These results should be interpreted with caution as countries' performance depends on which variables are included in the gravity regression. For

184 See Kox and Rojas-Romagosa, 2020, and Laget et al., 2021, for recent applications.

instance, two countries may have high values of missing FDI because of political reasons and, if we include controls for political tensions in the model, the estimated missing FDI could disappear. In other words, the gravity model provides an empirical benchmark based on the variables that are included in the regression, which assumes that countries behave as the “average” country in the sample.

To quantify Pakistan's missing FDI, we estimate a gravity equation using data on FDI flows for 85 receivers (hosts) of FDI and 106 investing countries (sources) over the period 2010–2020. As is standard in the gravity literature, we use a Poisson Pseudo Maximum Likelihood (PPML) estimator to estimate the following gravity equation:

$$\begin{aligned}
 X_{ijt} = \exp & \left(\beta_1 \ln(1 + \text{tariff}_{ijt}) + \beta_2 \text{RTA}_{ijt} + \beta_3 \ln(\text{Dist}_{ij}) + \beta_4 \text{Contig}_{ij} + \beta_5 \text{Lang}_{ij} + \beta_6 \text{Colony}_{ij} \right. \\
 & + \beta_7 \ln(\text{GDP}_{it}) + \beta_8 \ln(\text{GDP}_{jt}) + \beta_9 \text{Resource Rich}_i + \beta_{10} \text{Resource Rich}_j \\
 & + \beta_{11} \ln(\text{Rem Host}_{it}) + \beta_{12} \ln(\text{Rem Source}_{jt}) + \beta_{13} \ln\left(\frac{K_{it}}{L_{it}}\right) + \beta_{14} \ln\left(\frac{K_{jt}}{L_{jt}}\right) \\
 & \left. + \beta_{15} \ln(\text{GDPpc}_{it}) + \beta_{16} \ln(\text{GDPpc}_{jt}) \right) + \varepsilon_{ijt}
 \end{aligned}$$

where X_{ij} is the bilateral FDI flow from source country i to host country j , tariff_{ijt} are bilateral applied tariff duties, RTA_{ijt} comes from Mario Larch's Regional Trade Agreements Database from Egger and Larch (2008) and is an indicator variable that takes the value of 1 if i and j have a trade agreement in year t , Dist_{ij} is the geographical distance between i and j , Contig_{ij} is a variable that takes value of 1 for country pairs that share a border, Lang_{ij} is a binary variable equal to 1 if i and j share the same language, and Colony_{ij} captures the presence of any colonial ties. FDI inflows are from the United Nations Conference on Trade and Development (UNCTAD). Bilateral tariff duties are from the Market Access Map (MAcMap) database, while all the other variables come from CEPII's gravity database.

Additional controls include source and host countries' GDPs, as well as their per capita GDPs, to account for the level of development that can affect the level of FDI. These variables are sourced from the World Bank's World Development Indicators (WDI). Finally, we also include controls for factor endowments: natural resources and capital per worker (Chor, 2010; Romalis, 2004). First, to control for the presence of resource rich countries, we use data from the World Bank to construct variables equal to 1 if average rents from oil, coal, and minerals exceed 10 percent of GDP for the period 2000–2018. Second, we follow --Levchenko and Zhang (2014) and construct variables for capital stock per worker based on data from the Penn World Tables 9.1.

To control for the unobservable multilateral resistance terms, we construct “remoteness indexes” for FDI. A popular alternative to this method requires the inclusion of investor-year and recipient-year fixed effects. Fixed effects account for multilateral resistance terms, as well as any country specific time determinants of investment. However, in a PPML model, fixed effects impose a perfect fit in terms of total outflow investment and inflow investment for each country, which implies that countries' total FDI inflow would be always perfectly predicted and never departing from their potential.

To understand the lack of excess of investment for a country given its observable characteristics, we use the predicted FDI inflows obtained estimating the gravity equation above. We aggregate FDI inflows at the country level to calculate the aggregate index of missing FDI, which is defined as follows:

$$\text{Index of Missing FDI}_{i,t} = \left(\frac{\sum_j \hat{X}_{ij,t} - \sum_j X_{ij,t}}{\sum_j \hat{X}_{ij,t} + \sum_j X_{ij,t}} \right) * 100$$

The index of missing FDI varies by between -100 and 100. The maximum value of the index is obtained when observed flows are equal to 0, but the model predicts positive flows. Meanwhile, the minimum value (i.e., -100) is obtained when the predicted value is equal to 0 and we observe positive FDI flows.

To better understand the importance of specific investors, we take a closer look at deviations of observed FDI flows from the predicted ones. The US dollar value figures of “missing FDI” provide a better measure of opportunities and are more informative in the case where a government is planning activities aimed at promoting investment from specific countries (e.g., trade events). Specifically, we define missing FDI as follows:

$$\text{Missing FDI}_{PAK j,t} = \hat{X}_{PAK j,t} - X_{PAK j,t}$$

Source: Adapted from Mulabdic and Yasar (2021).

The estimated FDI potential is conditional on external conditions that have been affected by the COVID-19 pandemic. For FDI to flow into Pakistan, external conditions need to be suitable. That is, investors need to be willing to invest in developing countries. The outbreak of the COVID-19 pandemic, and its aftermath, coupled with the Russia-Ukraine war, have triggered supply chain disruptions that increased production costs and fueled inflation in developed and developing countries. Advanced economies' central banks have responded with tightened monetary policies, thus tightening global financial conditions, and incentivizing a flight to quality that will likely negatively affect the ability of developing economies such as Pakistan to attract investment. These adverse global conditions exacerbate the need for ensuring the domestic conditions are most suitable for foreign and domestic investment alike.

Policy Recommendations

Realizing Pakistan's FDI potential and maximizing gains requires addressing constraints. This section focuses on four areas: (i) investment policy, promotion, protection, and climate; (ii) trade agreements; (iii) tax and tariff policy and administration; and (iv) policy stability and branding.¹⁸⁵ It also provides a prioritization for these recommended actions.

Top Priority

Investment policy and climate

Recommendation 1: Update the legal framework for investment through a new Investment Law that harmonizes and modernizes existing laws and policies.

FDI is being deterred by a lack of consistency between the legal framework for investment and policy. For instance, the Foreign Private Investment Act of 1976 stipulates that foreign investment is subject to the

¹⁸⁵ The list is not exhaustive. Other factors that matter include, among others, the availability of infrastructure, skills, unit labor costs, and restrictions on capital movements.

Government's clearance and would be allowed if it meets the development priorities of the Government or the activity currently does not exist in the country. In contrast, the Investment Policy of 2013, in line with international best practices, opens all sectors to investment and lists certain activities in which investment is not allowed, using a negative investment list approach. While the policy is more liberal, it is not only in conflict with the Act of 1976, but it also lacks the authority of a law and therefore is not legally enforceable.

An updated legal framework should also harmonize investor protections provided in the Protection of Economic Reforms Act of 1992. This provides unconditional guarantees against expropriation. Such provisions need to be updated to consider more modern concepts of due process, which are provided for in the Investment Policy of 2013. It should assist in investment policy and legal framework coordination between federal and provincial governments, which would provide more certainty to investors. By revising and updating the legal framework, the Government can clarify and consolidate legal protection, while leaving matters such as investment restrictions, incentives, and other more flexible promotional measures to its Investment Policy.

Recommendation 2: Improve the investment climate, and harmonize and simplify federal, provincial, and local regulations governing business licensing and operations, and digitalize processes.

Regulations have become more fragmented following the 18th Amendment. Instead of responding to a single, harmonized, and transparent regulatory regime, investors with operations across Pakistan need to comply with five distinct regulatory and tax regimes, which are often administered without full coordination and with overlapping jurisdictions. There are at least 12 different categories of general regulatory layers that are applicable to all firms, with four additional administrative processes for foreign-owned companies. The administration and implementation of business regulation is also based on manual processes with patchy enforcement. The multiplicity of regulations and their fragmentation across different levels of government, together with their ad-hoc nature and a lack of digitalization, exposes the system to rent-seeking behavior. This has served as a major deterrent to private investment, and is particularly costly for small and medium foreign investors. To address these challenges, some processes have been recently digitized as part of the Government's reform agenda, but the bulk of licensing and regulation is still paper-based and needs to be urgently digitized end-to-end.

Medium-Term Priority

Investment promotion

Recommendation 3: Professionalize investment promotion, and ensure that it covers the entire investment lifecycle.

Pakistan should facilitate the operations of foreign-established firms at every juncture of the investment lifecycle (Figure 6.13). This is currently not the case, with investment promotion focused on attracting investment, with limited aftercare services available for foreign investors. While recent measures have simplified the process of investment, reforms related to investment entry have not been strengthened through the establishment of fully automated one-stop shops for registering and starting a business in Pakistan. Both aftercare services and systems to address investors grievances need to be strengthened and aligned with international best practices. Carefully designed and regularly evaluated suppliers' development programs can also help linking micro and small firms with multinationals, and gain from spillovers.

Figure 6.13: The investment lifecycle



Source: World Bank Group (2020), *Strengthening the Delivery of Investment Promotion Agencies: The Comprehensive Investor Services Framework*, Washington, DC: World Bank Group, available at <http://documents1.worldbank.org/curated/en/375281584479055974/pdf/Strengthening-Service-Delivery-of-Investment-Promotion-Agencies-The-Comprehensive-Investor-Services-Framework.pdf>

Trade agreements

Recommendation 4: Negotiate trade agreements, moving toward full scope and deep agreements that include investment protection and competition provisions.

Pakistan is party to only 10 trade agreements that are mostly partial in scope and only cover tariff liberalization for a limited number of products. Pakistan has signed relatively shallow bilateral free trade agreements (FTAs) with China, Malaysia, and Sri Lanka, and is also part of South Asian Free Trade Agreement (SAFTA).¹⁸⁶ Only two of these agreements go beyond goods liberalization and cover services as well (i.e., FTAs with China and Malaysia). The agreements with China and Malaysia also include provisions related to investment and intellectual property rights but do not address issues such as competition policy. Improvements in domestic institutions and trade agreements can help to boost investment in Pakistan.

Indeed, modern trade agreements combined with well-functioning domestic institutions are associated with higher overall FDI inflows. Deep trade agreements that go beyond tariff reductions help stimulate overall inward FDI in member countries, especially in countries with better rule of law and government effectiveness. Moreover, Laget et al. (2021) confirm the positive impact of trade agreements on bilateral FDI and show that provisions related to investment, intellectual property rights, visas and asylum, movement of capital, competition policy, labor market regulation, and environmental laws positively stimulate bilateral FDI in services-related activities.

¹⁸⁶ Current SAFTA signatories are Afghanistan, Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan, and Sri Lanka.

Tax and tariff policy and administration

Recommendation 5: Gradually reduce import duty protection to incentivize the export orientation of new investments.

Reducing the anti-export bias of tariff policy gradually is a necessary condition to tap into Pakistan's FDI potential with an export focus. Evidence shows that protecting the domestic market through high rates of effective protection, such as the ones observed in Pakistan, comes at the expense of higher missing exports, because firms prefer to sell domestically rather than exporting, and it also discourages efficiency-seeking FDI. Protection carries a high opportunity cost in terms of export-oriented investments and jobs lost, and a higher productivity path that the economy could undertake.

Policy stability

Recommendation 6: Commit to stability and invest in country branding.

Instability creates uncertainty that acts as a deterrent to FDI. Routine clashes between and within institutions, such as those between political parties, have compromised the efficacy of policymaking, introducing policy uncertainty in addition to putting a political premium on short-term policymaking, one with a focus on immediate results, at the expense of longer-term objectives. The extent of policy uncertainty can be gauged from the government effectiveness indicator of the World Governance Indicators (WGI), which captures the quality of policy formulation and implementation, and the credibility of the Government's commitment to such policies. Pakistan's percentile rank¹⁸⁷ on the government effectiveness indicator of WGI was 26.12 in 2018, and has declined considerably from highs in the 40s during the early 2000s, indicating considerable weaknesses in policymaking and credibility.

This is a particularly binding constraint for a country with a poor brand, such as Pakistan. Soorty Denim, for example, has a commercial lab set up in Turkey, where it brings global buyers to experiment and engage in product development together. Apart from the fact that in Turkey there is availability of top-class wash technologists, crucial for the denim industry, the main reason the commercial lab is set up in Turkey and not in Pakistan is that clients do not want to come to Pakistan. This is due to a perception of instability, combined with the fact that insurance companies often do not cover Pakistan in life insurance policies. Actively negotiating with the largest international insurance companies to include Pakistan in the list of covered destinations will be a step forward, as well as in parallel, investing in country branding.

¹⁸⁷ The percentile rank of a score is the percentage of scores in its frequency distribution that are equal to or lower than it. For example, a test score that is greater than 75% of the scores of people taking the test is said to be at the 75th percentile, where 75 is the percentile rank.

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Section 3

Female Labor Force Participation

The previous two Sections focused on firms: on their productivity and, relatedly, and on their patterns of capital accumulation and the implications for growth. They highlighted challenges with the process by which resources are allocated and that this is not always to their most efficient use, which has important implications for growth. The missing part of the puzzle relates to how *talent* is allocated in the economy. This Section looks at that angle of the puzzle and zooms in on a particular part of it: female labor force participation (FLFP). Low FLFP in Pakistan constitutes another form of misallocation of resources—talent that has static and dynamic effects on economic activity.

The Section consists of a chapter that assesses the economic gains from narrowing the gap of Pakistan's FLFP relative to peer countries and examines how some key policy-malleable factors correlate with FLFP. The chapter relies on a micro-founded novel approach to measure the opportunity cost of low FLFP and shows that narrowing the gap with respect to the average of lower middle-income countries (LMICs) would increase GDP by 9 to 23 percent. The wide margin in gains is related to the fact that the size of the gains depends on the type of compositional shift in employment occurring because of the new jobs created with more women participating in the labor force. Thus, active labor market interventions on the demand side, jointly with supply side ones to boost FLFP, can maximize the gains. The drivers of FLFP are manifold, and both economically and culturally related. Thus, identifying policy reforms leading to increases in FLFP with a relatively high degree of confidence is a challenging, if not impossible, task given the existing stock of knowledge on the matter. Rather, a policy approach involving substantial experimentation, trials, and learning from errors is likely required to address this important agenda of increased FLFP. Thus, the section presents several potential interventions for experimentation, and emphasizes the need for constant impact evaluations for enhanced learning and better policymaking.

Closing the Gap: Overcoming Barriers to Female Labor Force Participation in Pakistan



Only **21%** of working age women are employed in **Pakistan**



compared to **36%** in **Bangladesh**



and an average of **58%** across **19 countries** at a similar level of development as Pakistan

Closing Pakistan's female employment gap relative to a selected set of low-middle income countries could

generate up to **19.3 million jobs**



boost Pakistan's GDP by up to **23%** depending on complementary labor market policies



Educational attainment and female labor force participation in Pakistan

51% of working age women have never attended school

compared to

28% of working age men

But among those who have attended school, educational attainment is similar between men and women...

...and even higher for women in urban areas

9.9 years of schooling



Vs.



9.3 years of schooling



Yet, women with secondary education tend to be out of the labor force or in low-skilled occupations



their probability to participate is on average lower than women with no schooling by **5 percentage points**



Female labor force participation improves with internet penetration

High internet penetration **27%** | **5%** Low internet penetration

(Avg. LFP of women with secondary education)

But digital connectivity is absent for most working age women



Own a mobile device



30%



80%



Used the internet in the previous 3 months



15%



28%

Closing the Gap: Overcoming Barriers to Female Labor Force Participation in Pakistan

Pakistan's low female labor force participation (FLFP) rate implies that the country is not taking advantage of its labor-rich demographic structure or all its talent. Strong gender-based social norms prevent women's integration into the labor market in Pakistan. This chapter examines the potential job and GDP gains from closing Pakistan's female employment gap with its peers—between an estimated 7 and 19 million new jobs could be created for women in Pakistan with the associated gains in GDP ranging from 5 to 23 percent, depending on the complementary labor market policies. It also presents evidence on how FLFP in Pakistan is affected by: (i) physical mobility; (ii) digital connectivity; (iii) education and skills gaps; (iv) the childcare burden; (v) home-based work; and (vi) sectoral specialization. It builds on qualitative and quantitative analysis conducted for Pakistan, and provides benchmarking against structural and aspirational countries. The chapter ends with policy recommendations to address the constraints to FLFP in Pakistan.¹⁸⁸

Background

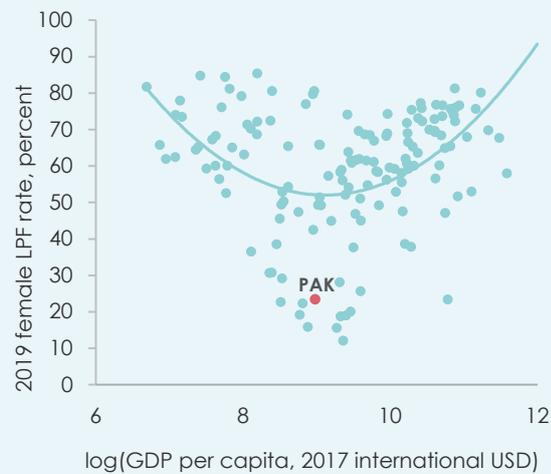
Pakistan displays far lower female labor force participation rates than would be expected for a country at its level of development. Achieving fast and sustained economic growth in Pakistan requires tapping into all of its talent and ensuring that this talent is allocated to its best uses. However, in Pakistan, half of its population—women—show very low rates of participation, particularly in paid employment. Previous studies have shown that female labor force participation (FLFP) follows a U-shaped pattern as economies develop,¹⁸⁹ with high levels of participation at low and high levels of income, and lower levels at medium levels of income.¹⁹⁰ A cross-country comparison of FLFP and per capita GDP levels in 2019 confirms the existence of such a U-shaped FLFP curve on average (Figure 7.1). However, heterogeneity in the data is large. Several countries display much lower FLFP rates than median values would predict at their per capita (pc) GDP level (Figure 7.2). With an FLFP rate of only 23 percent, Pakistan belongs to this group of outliers. More specifically, in 2019, there were only two countries in the lower-to-middle per capita GDP range (US\$4,000 to US\$8,000 per capita GDP at 2017 PPP prices) and nine overall that had lower FLFP rates than Pakistan. Suppressed female labor supply carries real costs to the economy, and for Pakistan to achieve higher growth it must mobilize and productively allocate the talent and resources of its female population.

¹⁸⁸ Key findings in this chapter are based on structured interviews with Pakistani women in the workforce and their employers. These interviews were possible with the collaboration of organizations in international development who facilitated the engagement with the interviewees through their programs. We are very grateful to the following collaborators: Japan International Cooperation Agency, Sindh Rural Support Organization, Female Exclusive Training Institute (FETI) and Faisalabad Garment City Company (FGCC), and Khyber Pakhtunkhwa Information Technology Board.

¹⁸⁹ The labor force is defined as all individuals who are either employed or actively seeking to work. This includes unpaid family workers in family businesses and those working to produce goods for self-consumption. However, in 2013, the ILO updated its recommendations on the measurement of employment to consider employment for pay and profit and employment for own use separately. Few LFS surveys (including those in Pakistan) reflect this new definition and do not allow for a clear-cut distinction of the different types of work recommended in the new resolution. Hence, the analysis in this chapter follows the pre-2013 ILO resolution to define labor force participation.

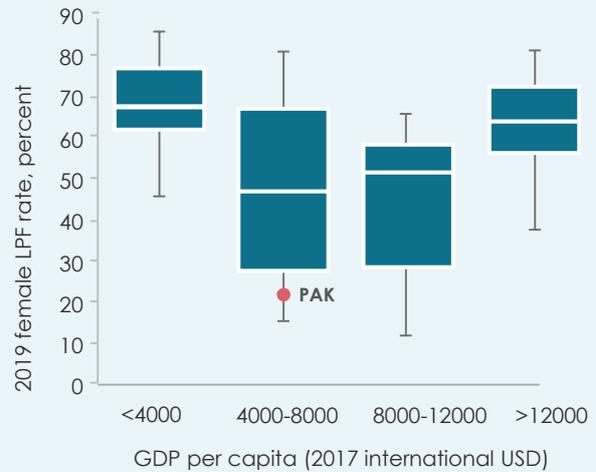
¹⁹⁰ See Goldin (1994) for one of the first studies reviewing the economic drivers of the U-shaped FLFP function in economic development.

Figure 7.1: FLFP follows a U-shaped pattern as economies develop
(FLFP across per capita GDP income levels)



Source: Authors' calculations based on WDI and PWT10.0.

Figure 7.2: Pakistan has one of the lowest FLFP rates among lower middle-income countries
(Spread in FLFP by per capita GDP income levels)

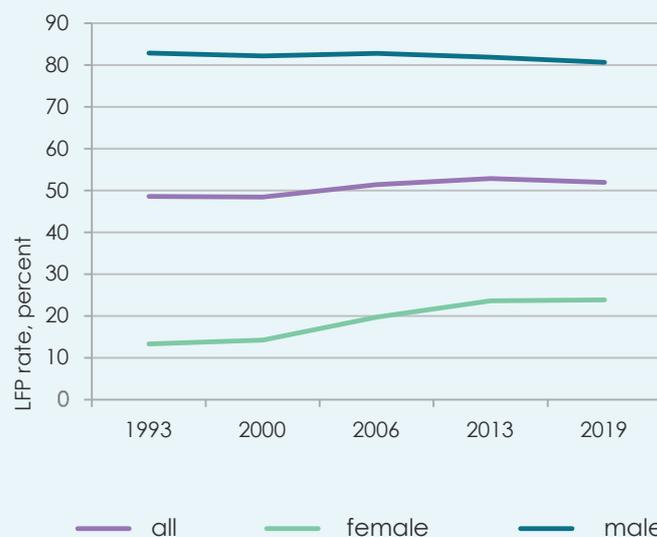


Note: Blue boxes capture the interquartile range around means. Extremes equal mean +/- two times standard deviation or the maximum/minimum value, whatever is closer to the mean. Source: Authors' calculations based on WDI and PWT10.0.

Pakistan's Labor Market Features in Perspective

Over the past three decades, Pakistan has had some success in increasing FLFP, although from a very low initial level. Over the 1993–2019 period, FLFP rose from 13 to 24 percent (Figure 7.3). Female unemployment rose from 1 to 3 percent of the labor force during this period but continued to play a relatively minor role relative to the overall female working age population. This implies that the increases in FLFP resulted in very similar increases in female employment, which rose from 13 to 23 percent of the total female working age population.

Figure 7.3: Pakistan has had some success in increasing FLFP over the past three decades
(Labor force participation in Pakistan, 1993–2019)



Source: PBS Labor Force Survey for 1992/93, 1999/00, 2005/06, 2012/13, and 2018/19

Employment gains for women were driven by an increase in self-employment and unpaid work. Most of the expansion in employment opportunities for women came in the form of unpaid work, which rose from 8 to 13 percent of the female working age population (Figure 7.4). Paid employment (wage workers, employers and the self-employed) also experienced an increase from 5 to 11 percent, but this was mostly driven by more self-employment. Meanwhile, waged jobs for women, which tend to be better paid and more productive on average, have stagnated since the early 2000s. This suggests the existence of a trade-off between FLFP increases and job quality, as documented earlier when comparing labor market outcomes between groups of countries with high and low FLFP.

Contrary to the case of women, labor force participation of Pakistani men has remained broadly constant, but the number of waged jobs for men has expanded relative to the number of self-employed jobs. This suggests that the stock of quality jobs for men is increasing, while it has declined for women. Male LFP declined from 83 to 81 percent of the male working age population between 1993 and 2019, with overall male employment levels falling more, from 83 to 79 percent, due to a slight increase in unemployment rates. Interestingly, the share of men with unpaid and self-employed jobs declined from 50 to 40 percent of the male working age population, while the share of men with waged jobs rose from 31 to 37 percent (Figure 7.5).

The increase in female employment was predominantly driven by more agricultural jobs, which rose as the number of male jobs in agriculture declined. Out of the total increase in female employment of 10 percentage points between 1993 and 2019, 7 percentage points came from an expansion in agricultural employment (Figure 7.6), which took place as male workers were leaving the sector (Figure 7.7). This suggests that much of the employment gains experienced by women over the past three decades were because men increasingly started to find work in the non-agricultural sectors of the economy.¹⁹¹ Manufacturing jobs and jobs in the personal services sector for women also expanded significantly, albeit from very low initial levels. In 2019, 3 and 2 percent of working age women were working in the manufacturing and personal services sectors, respectively, compared with only 1 percent in both sectors in 1993.

¹⁹¹ In the World Bank 2020 Systematic Country Diagnostic for Pakistan this is referred to as a 'gendered' structural transformation process in which women are unable to take advantage of job opportunities in the more dynamic sectors of the economy.

Female employment in the agriculture sector has increased over the past three decades as male workers left the sector

(Employment patterns in Pakistan, 1993–2019)

Figure 7.4: Female workers, by type of employment

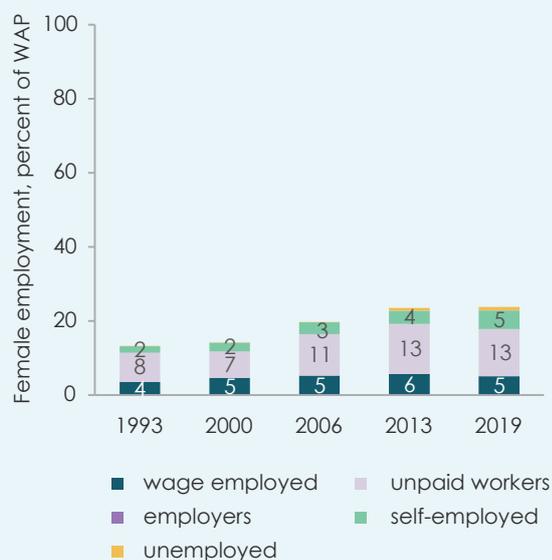


Figure 7.5: Male workers, by type of employment

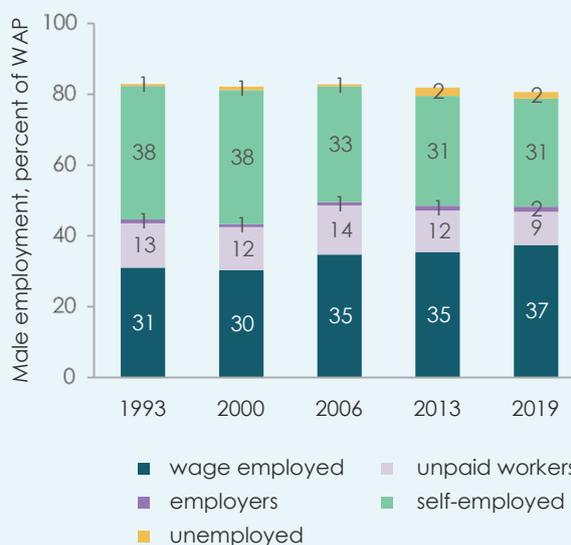


Figure 7.6: Female workers, by sector

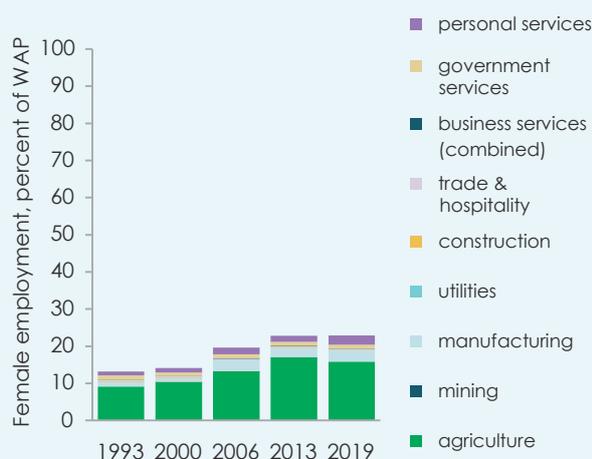
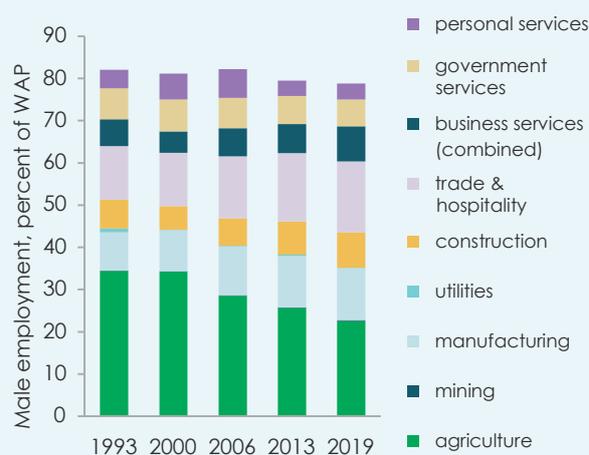


Figure 7.7: Male workers, by sector



Source: PBS Labor Force Survey for 1992/93, 1999/00, 2005/06, 2012/13, and 2018/19.

A feature of the evolution of female employment in Pakistan is the absence of jobs for women in the trade and hospitality sector. As the economic structures of countries change with development, there are some services activities, especially those that are close substitutes for home production, that usually play a particularly important role in contributing to female employment growth in middle-income countries.¹⁹² Trade, food services, and hospitality services are prime examples of activities that are close substitutes for home production. In LMICs, about 13 percent of working age women are employed in the trade and hospitality sector (which also includes food services)(Figure 7.8). But in Pakistan this share is almost zero. This confirms the notion that existing social norms are particularly averse to Pakistani women

¹⁹² See, for example, Bridgman et al., 2018, and Dinkelman and Ngai, 2021.

taking up jobs that imply high customer contact and shared working spaces with men, as confirmed in several recent qualitative studies on attitudes to female employment in Pakistan.¹⁹³ Eliminating the barriers that women face to work in the trade and hospitality sector could alone close the female employment gap by 50 percent relative to that normally observed at Pakistan's level of development.

In comparison, Bangladesh has similarly struggled to increase female employment in the services sector, but has managed to raise female employment in other sectors. Based on Bangladesh's most recent labor force survey of 2017, 36 percent of working age women are employed. This means that, relative to the respective countries' working age populations, Bangladesh has 60 percent more women in employment than Pakistan. A key similarity, however, is that in both countries the share of women working in the trade and hospitality sector is very low compared with other countries at this level of development. Instead, the difference in female employment stems mainly from a higher share of Bangladeshi women working in the agriculture, manufacturing, and personal services sectors.

Moreover, Bangladesh has managed to generate many more wage employment opportunities for working age females than Pakistan. The female wage employment share (relative to all working age females) in Bangladesh is double that of Pakistan. This suggests that the difference in female employment levels between the two countries is not solely driven by a higher share of low value-added jobs, which appeared to account for a large share in the overall difference in female employment between high and low FLFP countries in our analysis above. That said, Bangladesh still lags in terms of the share of women that have wage jobs among LMICs.

Figure 7.8: Female employment in the services sector in Pakistan and Bangladesh is similar but lower than that in other LMICs

(Female employment, by sector)

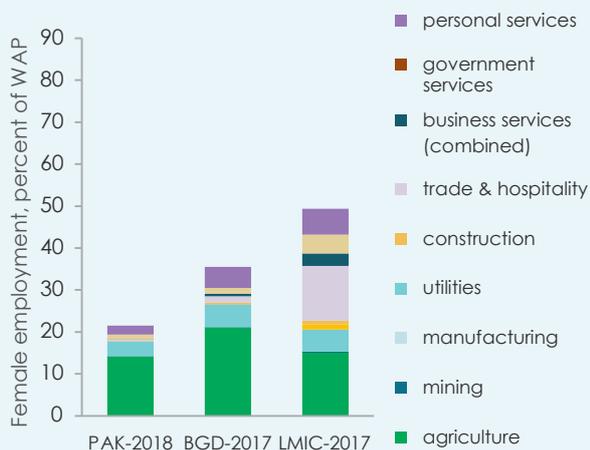
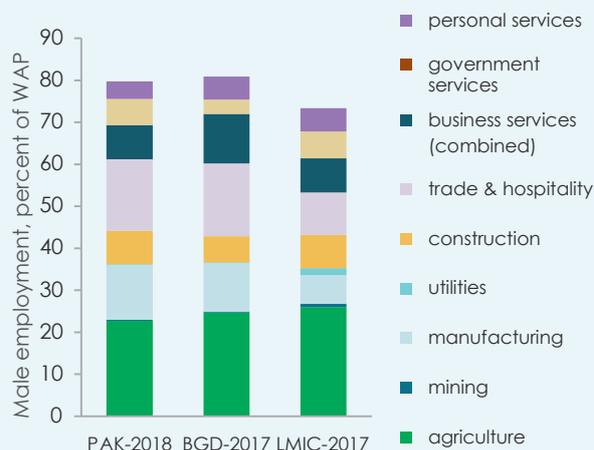


Figure 7.9: The sectoral distribution of male workers across Pakistan and Bangladesh is very similar

(Male employment, by sector)



Source: Authors' calculations based on PBS Labor Force Survey for 2017/18, BBS Labor Force Survey for 2016/17, and the World Bank Global Jobs Indicator Database.

¹⁹³ See, for example, Ahmed et al., 2020, and Field and Vyborny, 2016.

For men, both Bangladesh's and Pakistan's employment compositions are very similar. The distribution of male workers across sectors is very similar between the two countries (Figure 7.9). The agriculture and the trade and hospitality sectors contribute to most male jobs in both countries. The large share in the trade and hospitality sector could be driven by a job diversion effect, given that women face such high barriers to work in this sector in both countries, boosting male employment shares in these sectors somewhat artificially. Generally, shares for males in these sectors are usually lower at this level of per capita GDP. The composition of male jobs is also broadly similar by employment type, with relatively similar shares of waged and self-employed men in both countries.

Pakistan has a larger education gap between men and women than Bangladesh. Only 35 percent of working age women in Pakistan have completed primary education or above, compared with 52 percent of working age men. This difference is smaller in Bangladesh, where 63 percent of women and 66 percent men have completed at least primary education (Figure 7.10). This lends support to the notion that gender gaps in education are associated with gaps in the labor market. However, despite having a relatively higher share of people without primary education, Pakistan has more people with secondary and tertiary education than Bangladesh. What seems to be missing in Pakistan are workers with medium levels of education. This can also be observed when comparing the educational attainment distribution of workers across different sectors (Figure 7.11). Overall, in Pakistan workers with high and low levels of education seem to be overrepresented compared with those workers with medium levels of education.

Figure 7.10: Pakistan has large gender education gap than Bangladesh

(Educational attainment of the working age population, PAK vs BGD)

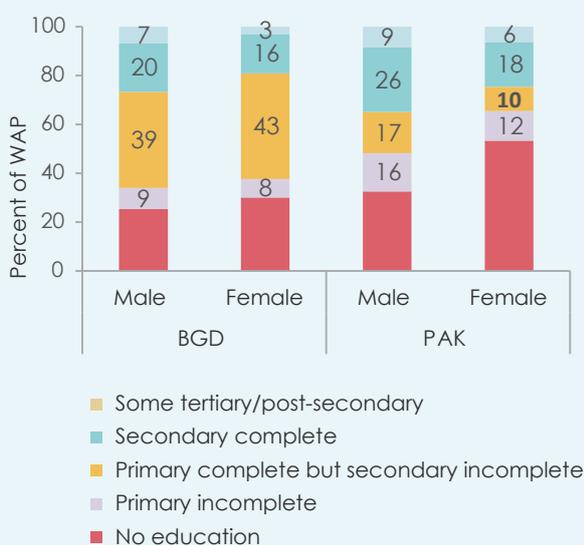
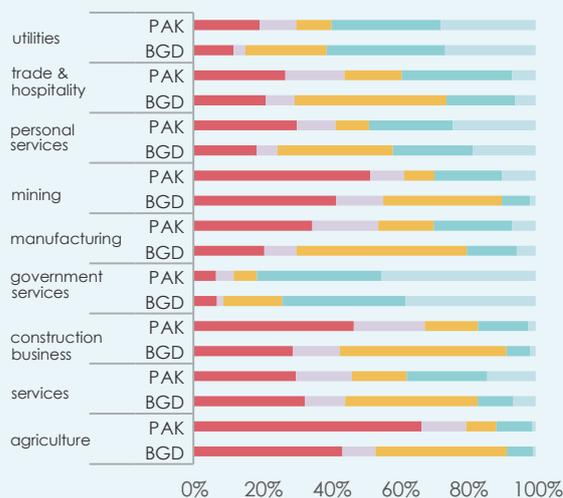


Figure 7.11: There are fewer workers with medium levels of education across most sectors in Pakistan

(Educational attainment of employed by sector, PAK vs BGD)



Source: Authors' calculations based on PBS Labor Force Survey for 2017/18 and BBS Labor Force Survey for 2016/17.

Quantifying the Gains from Closing Pakistan's Female Employment Gap

What would happen if Pakistan's female employment in each sector were to increase to close the gap with the gender employment ratio of Bangladesh or the LMIC average? Building on the framework, developed by Hsieh et al. (2019), potential employment gains that Pakistan could aspire to if it reduced gender barriers to female employment to the level of its peers are estimated (see Box 7.1 for a detailed description of the methodology). Two benchmark cases are considered for the analysis: Bangladesh and a hypothetical country representing an average for LMICs. Bangladesh was chosen as it shares cultural preferences and norms that result in fewer women seeking employment in specific sectors (as discussed above). Moreover, both Pakistan and Bangladesh are at a similar level of development and display similarities in the employment patterns for men. Nonetheless, even Bangladesh lags the female employment levels observed in other LMICs. Therefore, a more ambitious scenario is one in which Pakistan's employment gap closes relative to what is observed in LMICs on average.

Box 7.1: Assessing the economic gains from closing Pakistan's female employment gap – a methodological note

The analytical framework proposed by Hsieh et al. (2019) provides a basis to test for the existence of gender-specific employment barriers across sectors. In this framework, men and women make choices about their occupations, where the home sector is one sector of occupation and choosing to work in it means not participating in the labor force. Occupational choices between women and men are then assumed to differ on account of gender-specific talent, gender differences in preferences for certain occupations, and differential sector-specific occupational frictions experienced by women relative to men, where these differences in occupational frictions result from gender-specific differences in labor market discrimination (defined as all factors that drive a wedge between wages and marginal products) across different occupations, as well as differential barriers between men and women to acquire human capital in certain sectors.

Against the backdrop of this framework, female-to-male employment ratio in each sector i can be linked to the relative friction experienced by men vis-à-vis women in sector i , the relative talent of women in sector i , and the male-to-female wage ratio in sector i :

$$\frac{s_{i,w}}{s_{i,m}} = \left(\frac{\tau_{i,m}}{\tau_{i,w}} \right)^\alpha \times \frac{\text{talent}_{i,w}}{\text{talent}_{i,m}} \times \left(\frac{\text{wage}_{i,m}}{\text{wage}_{i,w}} \right)^{\alpha(1-\beta)} \quad (1)$$

where $s_{i,w}$ and $s_{i,m}$ stand for the respective employment share of sector i of women and men, while $\tau_{i,w}$ and $\tau_{i,m}$ represent an index of labor market friction equal to one when there is no friction. α and β are parameters governing the dispersion of skills and the elasticity of human capital with respect to education spending, respectively. The key implication of equation (1) is that the female-to-male employment ratio ($s_{i,w}/s_{i,m}$) is higher in sectors: (i) where the friction that women experience relative to men is low; (ii) where women have more talent relative to men; and (iii) where the average wage of women is lower relative to men because a lower average wage received by women than by men means that, on average, women have a higher preference to work in that sector and are thus willing to accept a lower wage than men.

Equation (1) provides the foundation for our comparison between the female-to-male employment ratios for each sector between Pakistan and Bangladesh/ LMIC average. Assuming that differences in sector-specific talent between men and women do not vary across these countries, any gap between Pakistan's female-to-male employment ratio and Bangladesh's female-to-male employment ratio in any given sector can be ascribed to the combined effect of difference in male-to-female occupational friction and male-to-female occupational preferences (or the social norms underpinning such preferences). In addition, if the parameters:

To study the potential GDP gains from closing the female employment gap in Pakistan relative to peers, it is important to analyze the correlation between average sectoral value added per worker and sectoral employment in lower middle-income countries. For analysis, an unbalanced panel which combines data from the World Bank Global Jobs Indicators Database sectoral value added from various sources (ETD, GGDC, KLEMS, OECD) is used.

At the sectoral level, the sign of the correlation between sectoral value added per worker and sectoral employment can vary on account of two opposing effects. First, the correlation will be positive when employment increases on account of rising demand for labor among firms; that is, when changes in employment are driven by an increasing marginal revenue product of labor, which causes firms to hire more labor and results in a compositional shift in the sectoral employment structure toward more wage employment. Second, the correlation will be negative if the increase is predominantly supply side driven; that is, when employment increases because the opportunity costs of working in the sector become less onerous, but the demand from firms does not rise accordingly. This is tested using the following regression specification:

$$\log lprod_{ist} = \gamma_i + \alpha_1 \times logempl_{ist} + \beta_1 \times wshare_{ist} + \sum_{s=2}^8 \alpha_s \times sect_s \times logempl_{ist} + \sum_{s=2}^8 \beta_s \times sect_s \times wshare_{ist} + \epsilon_{ist} \quad (2)$$

where subscripts i , s , and t denote the country, sector, and year, respectively; $loglprod$ is the log. average value added per worker; $logempl$ is the log. employment; $wshare$ is the wage employment share; $sect_s$ are sector dummies; and γ_i represent country fixed effects. The coefficients $\alpha_1 - \alpha_8$ measure how labor productivity in sector s is associated with changes in employment that are not the result of more wage employment in the sector. By contrast, the coefficients $\beta_1 - \beta_8$ measure how labor productivity in sector s is associated with changes in employment that are purely compositional. Two additional variations of the regression specification above are considered to allow for the inclusion of year fixed effects and country-year fixed effects. Coefficients do not change much when estimated in this way. Three scenarios are considered for the analysis:

- Scenario 1: No waged jobs are created as female employment expands.
- Scenario 2: The proportion of waged jobs in each sector remains the same as female employment expands.
- Scenario 3: All new jobs constitute waged jobs.

The results imply that increases in sectoral employment that are not accompanied by an increase in the wage employment share are negatively associated with labor productivity in all sectors. Meanwhile, purely compositional changes that result in a higher share of wage employees in the sector are always positively associated with sectoral labor productivity (except for the agricultural sector where an increase in wage employment share appears to be zero).

There are important caveats to keep in mind when interpreting these projections. First, the estimated relationship between increases in sectoral female employment and average value added per worker is not causal. The quantification exercise assumes that increases in employment would induce the same labor productivity effects as the correlation exercise suggests. However, this may not hold true. The estimated effects under each scenario should thus be interpreted as a first order approximation to the possible gains in GDP. Moreover, in interpreting these results emphasis should be placed on the relative magnitudes across scenarios rather than on absolute effects. Second, jobs between men and women are assumed to be non-rivalrous, meaning that employment and participation rates of men are not affected as female employment increases on account of fewer barriers. While similar male LFP rates between Pakistan and Bangladesh ameliorate this concern, the same cannot be said for the comparison with LMICs, where participation rates among males are lower than in Pakistan. If men's LFP rate were to fall because of an increased participation of women, this would imply smaller increases in GDP than estimated above. Third, the estimation exercise does not consider dynamic effects that could kick in over time, such as learning by doing spillovers of higher female entrepreneurship. If these effects were to materialize GDP increases would be larger than what our estimates suggest. Fourth, the approach assumes that home sector activities do not generate any value added. Relaxing this assumption would result in smaller effects.

Source: Eberhard-Ruiz and Michel-Gutierrez (2022).

About 7.3 million new jobs would be created if Pakistan were to close its female employment gap with Bangladesh. The share of working age women in employment would increase from its 2018 level of 22 percent to 34 percent. Most of the newly created jobs for women would be created in the agriculture sector, accounting for 56 percent of the total increase in employment (2.7 million additional jobs in absolute terms equivalent to 5.2 percent of the WAP) (Figure 7.12 and Figure 7.13). The second- and third-largest sectoral contributors of new female jobs would be the government, personal services and manufacturing sectors, adding 2.2 million (about 4.2 percent of the WAP) and 1.4 million jobs (2.6 percent of the WAP), respectively.

Figure 7.12: If Pakistan were to close the female employment gap with Bangladesh, most of the newly created jobs would be in the agriculture sector...
(Estimated increase in employment by sector, using BGD as a benchmark)

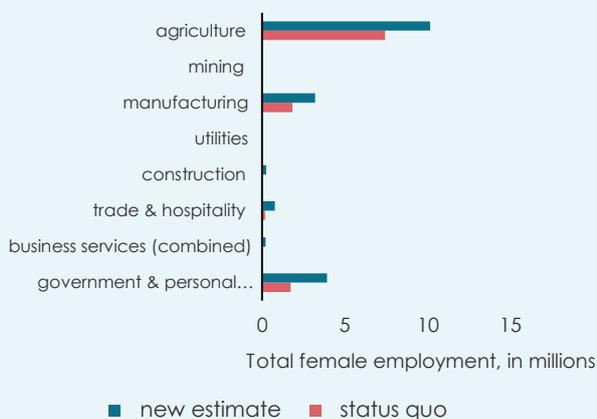
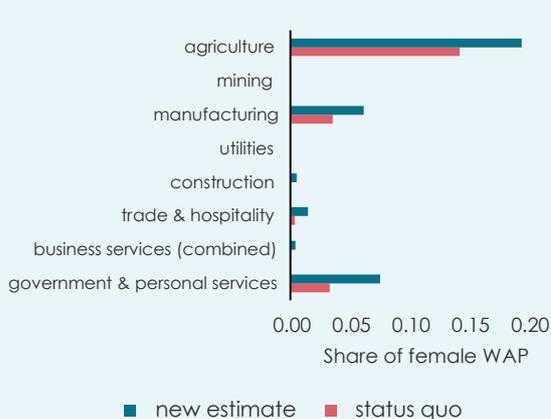


Figure 7.13: ... and the sector would also account for the largest share of female working age population
(Estimated increase in employment relative to the WAP, using BGD as a benchmark)



Source: Authors' calculations based on PBS Labor Force Survey for 2017/18, PBS Labor Force Survey for 2016/17.

Figure 7.14: Closing the female employment gap relative to Bangladesh could boost Pakistan's GDP by 5 to 10 percent...

(Projected increases in value added by sector using Bangladesh as a benchmark)

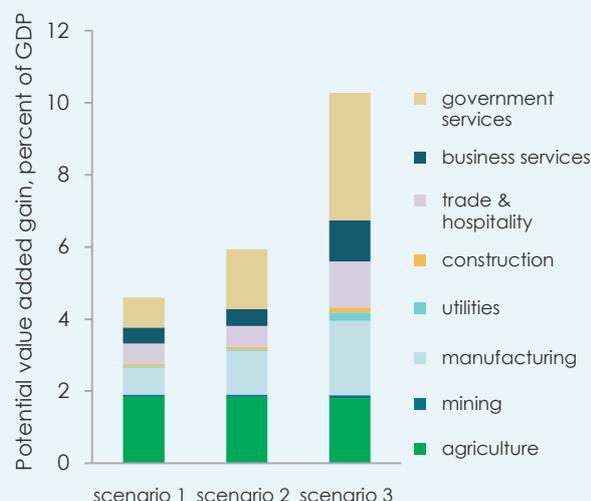
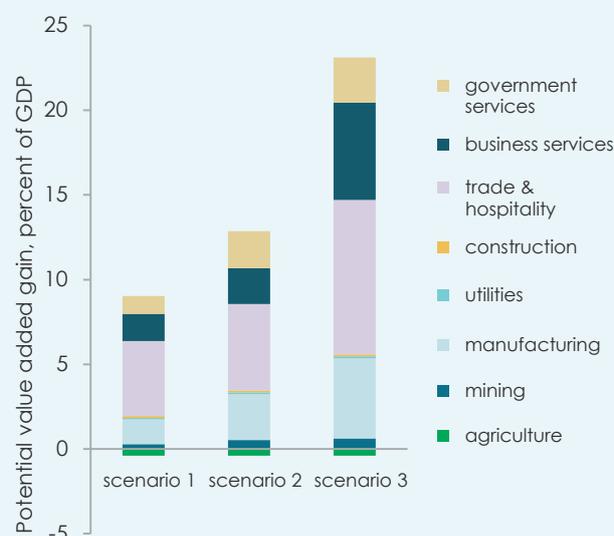


Figure 7.15: ...and 9 to 23 percent if the employment gap was to close with the LMIC average

(Projected increases in value added by sector using the LMIC average as a benchmark)



Source: Authors' calculations based on PBS Labor Force Survey for 2017/18, PBS Labor Force Survey for 2016/17. Note: Scenario 1 assumes that no waged jobs are created as female employment expands, Scenario 2 assumes that the proportion of waged jobs in each sector remains the same as female employment expands, and Scenario 3 assumes that all new jobs constitute waged jobs.

If Pakistan were to close the female employment gap relative to the LMIC average, employment effects are estimated at 19.3 million jobs. Both employment and GDP effects are larger if Pakistan's female employment gap were to close relative to the LMIC average. The same quantification exercise was repeated using an LMIC average as a comparator instead of Bangladesh. In this case, the total employment effects are much larger and about 19.3 million jobs would be created. A key difference with previous results is that most new jobs would come from the services sector (particularly in trade and hospitality), while agricultural jobs would decline. This is explained by the fact that LMICs have, on average, a much larger female employment share in the services sectors than both Bangladesh and Pakistan. Assuming the same scenarios as above and applying the same methodology, the projected increases in GDP are higher and range between 8.6 and 22.7 percent (Figure 7.15).

Constraints to Female Labor Force Participation in Pakistan

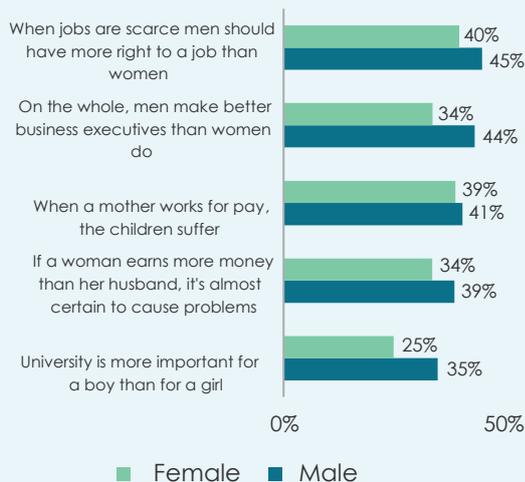
Social norms as constraints to paid work

Social attitudes and beliefs surrounding female work are major obstacles that prevent Pakistani women from engaging in paid employment. As evidenced by the World Values Survey (Figure 7.16), many Pakistanis agree that “when jobs are scarce, men should have more right to a job than women” (85 percent), “when a mother works for pay the children suffer” (80 percent), and that it is problematic that a woman

earns more money than her husband (73 percent). Notably, people agreeing with these statements are similarly distributed between men and women. Given such social norms, women often lack the autonomy to decide on their participation in the labor market. Both in rural and urban settings, the father or household head commonly decides if a woman can seek or remain in paid employment (73 percent in rural areas and 65 percent in cities). Only a few women (10 percent in rural areas and 15 percent in cities) decide by themselves (Figure 7.17). Interviews confirmed that most women across different contexts require permission to work from the men in their household.

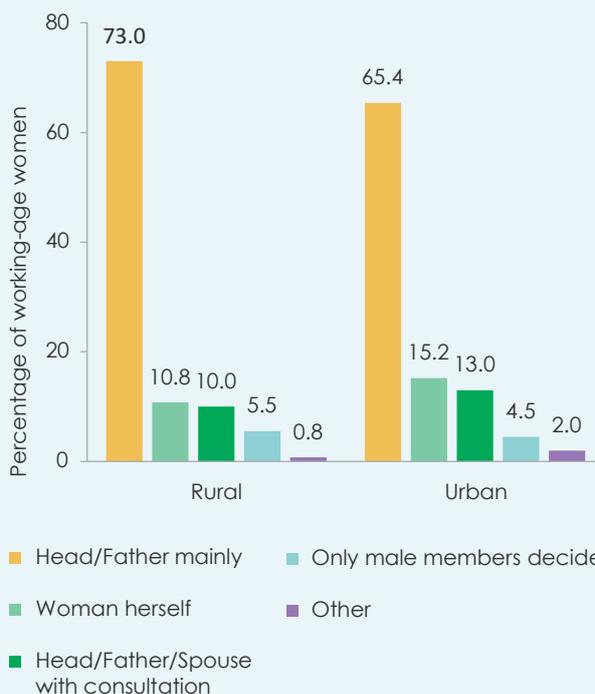
There are at least three exceptional circumstances under which women appear to obtain permission to work. First, poverty and necessity to support the overall family income is one such circumstance. Second, finding a job that is acceptable for women is another rigid condition to gaining authorization to work. Often, despite having the necessary training, women may still be barred from working if the area/sector they wish to work in has a strong social stigma attached to it. Third, a progressive mindset within their own families enables women to decide independently whether to work or not.

Figure 7.16: Social beliefs and attitude influence female employment decisions in Pakistan
(Beliefs and attitudes around women’s roles and engagement in paid work)



Source: World Value Survey (WVS) 2017–2020 Wave 2017. Note: The WVS asked “For each of the following statements, do you strongly agree, agree, disagree, or strongly disagree?” The Figure reports the sum of those who strongly agree and those who agree.

Figure 7.17: Male family members play an important role in decisions related to female employment in Pakistan
(Decision-makers around a woman entering paid work)



Source: Authors’ elaboration based on data from Pakistan Bureau of Statistics’ PSLM/HIES 2018.

In communities where strong gender-based norms dominate family beliefs, it is important to involve men and help them see the long-term benefits of women’s engagement in paid work. Interviews suggested that engaging men by taking them to see the place of work and by addressing their concerns regarding the safety and respect of women and girls who wanted to start working played a

fundamental role in gaining their support. Moreover, as women increased their earnings and reinvested their savings in the business, their autonomy increased and they were allowed to visit the market, buy their own raw materials, and handle their own money. In some cases, violence toward these women and their daughters from men in their households also subsided.

Rigid cultural norms often put certain occupations out of women's reach. Interviewees in rural areas mentioned that teaching or nursing are commonly acceptable occupations for women, which is partly explained by these jobs often being public sector jobs and well paid, compared with other locally available jobs. Often, when it comes to jobs outside the home, private sector jobs are not deemed acceptable.¹⁹⁵ Private sector salary jobs were typically only acceptable if they resulted in high enough earnings to justify the associated costs, such as leaving children unattended and high transport costs. In other cases, where women could take up private jobs, they reported that there were few paid career opportunities in areas where they lived. In other cases, employers considered women to be ineligible for certain departments. For instance, women were considered unfit for roles in sales departments because these involve going out into the market and engaging with different clients.

Physical mobility

Restrictions on leaving home hinder women's ability to participate in the workforce. Data from the Pakistan Social and Living Standards Measurement Survey (PSLM) 2019 and the Household Integrated Economist Survey (HIES) 2018 indicate that, among women who could potentially be in the workforce but are not seeking employment, over 34 percent reported that their main reason for not seeking a job was not being permitted to work outside the home.¹⁹⁶ This response was particularly widespread among young women (15–24 years old) and among rural women (Figure 7.18). Not wanting to work outside the home was less frequently cited as a reason for not participating in the labor force, which suggests that these restrictions may come more from family members with decision-making power over the woman's employment status than the women themselves. Moreover, young women are perceived, and perceive themselves, as being more vulnerable when leaving the home than older women. Among women interviewed, social norms impeding women's mobility were particularly strong in rural areas, where women reported that they are not able to go to the market by themselves, and to leave their villages they must be accompanied by a male relative. Overall, norms constraining mobility may affect around 70 percent of women in Pakistan.¹⁹⁷

The fear and threat of sexual harassment and discriminatory attitudes deter women themselves from engaging in activities outside the home even further. Results from the Peshawar Urban Household Survey indicate that one in three women experienced sexual harassment in public spaces in the city.¹⁹⁸ This rate is lower than in other countries in South Asia and can be partly explained by women preemptively shunning public spaces altogether to limit their exposure to sexual harassment.¹⁹⁹ Indeed, 64 percent of the women in Peshawar who did not experience sexual harassment said they avoided public places due to the fear of harassment. Similarly, in Quetta, half of the surveyed women did not report any harassment experience and, among them, 43 percent said they rarely left the house and 6 percent responded that they were not allowed to go out.²⁰⁰ Thus, fear of sexual harassment is likely a potent driver, together with compliance with household responsibilities, of imposing work from home as a condition to working for pay.²⁰¹ In addition to the fear of sexual violence, working women regularly deal with gender discriminatory attitudes and behaviors, such as a lack of respect and appreciation, not being considered for professional growth opportunities, and resentment from their male colleagues.²⁰²

¹⁹⁵ Surveys conducted in Peshawar and Quetta by the Pakistan Gender and Social Inclusion Platform & Social Protection and Jobs teams of the World Bank also indicate prevalence of a favorable attitude toward public sector jobs over private sector jobs.

¹⁹⁶ The figure excludes working-age women not seeking jobs because they are studying and women who are retired or too old to work, handicapped or sick and thus unable to work.

¹⁹⁷ Survey results from the Labor Skills Survey 2013 indicate that only 30 percent of women were allowed to go to the local market or a local facility alone (Amir et al., 2018).

¹⁹⁸ Peshawar Urban Household Survey (PUHS), World Bank.

¹⁹⁹ See, for example, World Bank, 2020.

²⁰⁰ See, for example, Orlando and Waqar, 2022.

²⁰¹ Across cities of Karachi, Lahore, Peshawar, and Quetta, among women who preferred jobs outside the home, many preferred sex-segregated office spaces (World Bank, 2019).

²⁰² See, for example, World Bank, 2019.

Besides norms-related mobility limitations, the lack of transport is a major constraint on women's mobility. Public transport in Pakistan is lacking. Only in a handful of districts, concentrated in the northeast of the country, is the average distance of households to the nearest public transport option less than 2 kilometers (Figure 7.19). Private transport options are also lacking, more expensive, and perceived as being less safe. In remote rural areas, women are dependent on the men in the family to take them to the market. Due to these restrictions, women are unable to buy raw materials at affordable prices and have poor client outreach. Therefore, even for women who work from home, mobility constraints can negatively impact their businesses. The lack of transport is also a constraint to girls' education when school centers are far away from households.

Figure 7.18: Lack of permission to work outside the home is the most commonly cited reason by young women who are out of the workforce

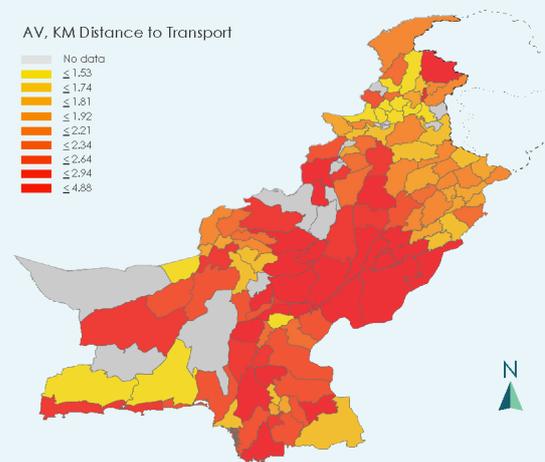
(Reasons of out of the workforce women and not seeking a job)



Source: Authors' elaboration based on data from Pakistan Bureau of Statistics' PSLM/HIES 2018.

Figure 7.19: Restricted access to public transport is a major issue across most of Pakistan

(Pakistan districts according to the average distance of households to the nearest public transport)



Authors' elaboration using PSLM 2019.

Digital connectivity

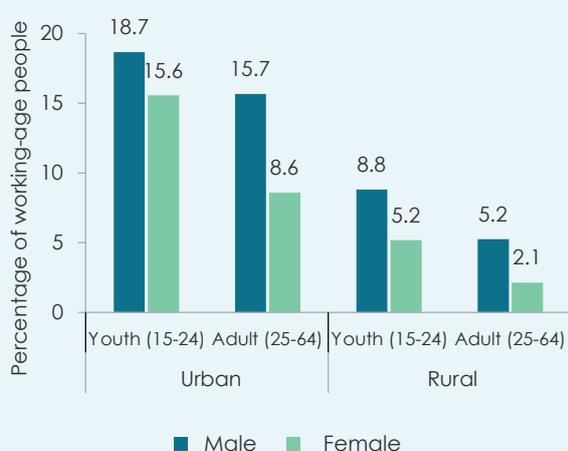
In Pakistan, access to technology for digital connectivity is limited, especially among women. In 2019, only 6 and 15 percent of working age women reported having used a computer and the internet in the previous three months, respectively.²⁰³ Working age men, in comparison, are more digitally connected, with 10 and 28 percent of them reporting computer and internet use, respectively. Mobile phone ownership is somewhat more widespread, albeit with a large gender gap: 30 percent of working age women compared with 80 percent of working age men have a mobile phone. The gender disparity in internet usage and computer access varies across locations and age groups. For computer access, the gap is largest among urban adults (Figure 7.20), while for internet use the gap is about 15 percentage points wide in urban areas and among the rural youth, and somewhat smaller among rural adults (Figure 7.21).

²⁰³ Data from Pakistan's LSMS survey, 2019.

Access to reliable and affordable internet access is low. Most households in Pakistan lack reliable access to the internet. Thirty-five percent of households or more enjoy internet access in only 22 out of 123 districts. These districts are mostly located in the northeast of Pakistan, with some in the south and west of the country. The remaining districts are poorly connected—in almost half of the districts, fewer than one in four households has internet access. Affordability of the internet is another problem: interviewees in rural Sindh indicated that monthly internet packages cost them around 10–15 percent of their total household income.

Figure 7.20: The gender gap in computer access is widest among urban adults...

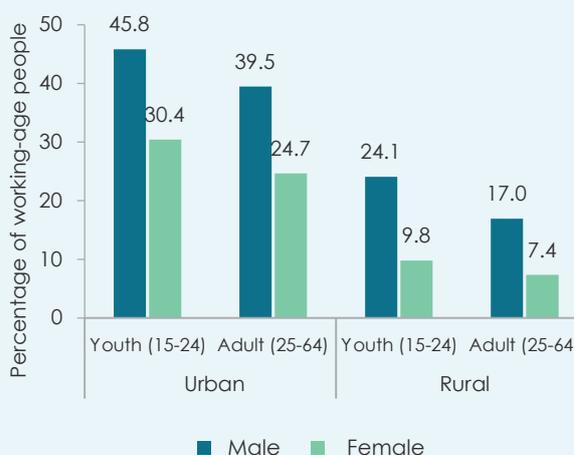
(Rate of use of computer devices among working age women)



Source: Authors' elaboration using PSLM/HIES 2018.

Figure 7.21: ...but that for internet usage is wider in both urban and rural areas, as well as across youth and adults

(Rate of use of the internet among working age women)



Source: Authors' elaboration using PSLM/HIES 2018.

In addition, the risk of cyber harassment and the presence of cultural norms around the use of digital tools limit their potential to support women's employment opportunities. Results from the Gender Survey of Mobile Access (GSMA) conducted across countries revealed that, in 2020, lack of family approval was the second-most-important factor preventing Pakistani women from using the internet on a mobile phone (20 percent of respondents), cited after reading/writing difficulties (27 percent).²⁰⁴ Similarly, women interviewed reported that men in their households disapproved of women using phones to access social media applications or prospective employers, fearing it might put their safety at risk. This is an increasingly relevant constraint, particularly after the COVID-19 pandemic increased the importance of mobile connectivity for work purposes.²⁰⁵

But even when women have good access to the internet and digital tools, they may lack the necessary digital skills to use these tools for work-related purposes. Internet use for business purposes is negligible among Pakistani women. Compared with 5 percent of male internet users, only 1 percent of working age female internet users mentioned work as a reason for using the internet. The most frequently cited use of the internet was for communication and entertainment (49 percent) and education/research/

²⁰⁴ For details, see GSMA, 2021.

²⁰⁵ E-commerce, for example, became more prevalent to connect buyers with sellers, which requires some sort of connectivity. Evidence from a survey conducted by the World Bank and Pakistan's Ministry of Commerce in 2021 showed that, 58 percent of firms experienced a boost in sales due to the COVID-19 pandemic (in a context in which overall sales were falling due to reduced economic activity), while one-third actively promoted e-commerce because of the COVID-19 pandemic. In addition, results from a Business Pulse Survey conducted during the COVID-19 pandemic showed that there was an acceleration in digitization of businesses (across sectors and across firms' sizes), which provides opportunities to those potential workers that know how to use and can use digital technologies. For more information, see World Bank, 2021: Pakistan Development Update: Navigating Uncertain Times.

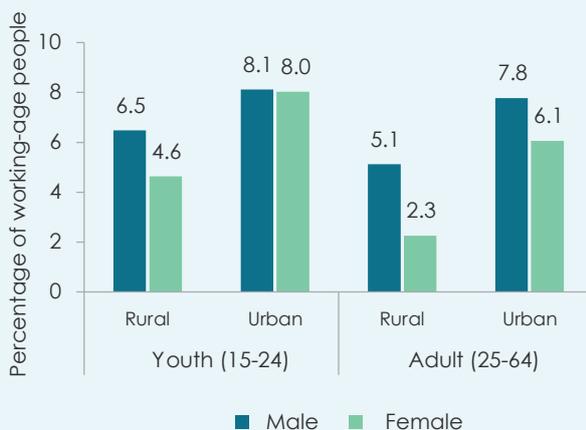
information-seeking (11 percent).²⁰⁶ Even among the women interviewed, those who had a computer or mobile phone said they mostly used it to access social media or for entertainment purposes.

Education and skills development

The gender gap in educational attainment is wide in Pakistan. In 2018, over half of working age women (51 percent) had never attended school, compared with 28 percent of working age men.²⁰⁷ Except for the urban youth, the difference in schooling years across men and women is large (Figure 7.22). However, when considering those who have attended school, educational attainment is rather similar between men and women, with women's attainment being higher than men's in urban areas (Figure 7.23). This may suggest that getting women and girls into schools is critical to reducing the education gap between men and women. Furthermore, the COVID-19 pandemic may have worsened educational outcomes for girls in Pakistan, as many students dropped out of school during the pandemic and remote learning was not an effective substitute to in-person learning for most students.²⁰⁸

Figure 7.22: Apart from the urban youth, the gender gap in educational attainment is large across all categories...

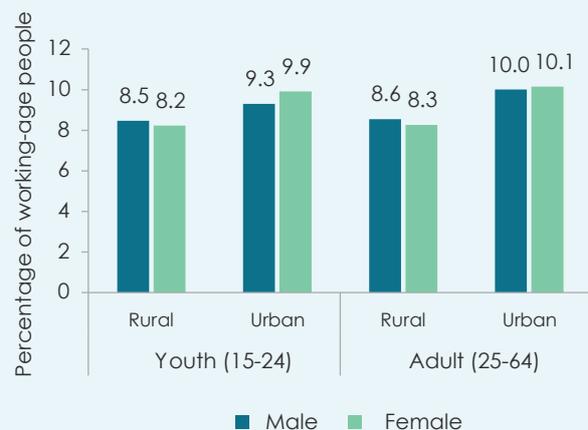
(Gender gap in schooling years, by location setting and age group among working age people)



Source: Authors' elaboration using PSLM/HIES 2018.

Figure 7.23: ...but when focusing on those who have attended school, this gap narrows considerably

(Gender gap in school years, by location and age group among working age people who have attended school)



Source: Authors' elaboration using PSLM/HIES 2018.

Financial constraints, social norms, and low expectations of the returns to education limit women's access to education. Data for Punjab (2017–2018) indicate that young women (aged 15–24) frequently report never receiving formal education or not being currently enrolled in education due to a lack of financial means (33 percent), domestic responsibilities (28 percent), lack of permission from family, husband, or in-laws (26 percent), distance from educational institutes or the lack of transport (22 percent), and marriage (17 percent).²⁰⁹ As indicated in the field interviews with female workers in Sindh and Faisalabad, in some cases, the decision to invest in girls' education depends on the family's judgement of its returns. If families perceive that well-remunerated jobs with good working conditions are not available nearby, they may choose not to invest in female education.

²⁰⁶ For details, see GSMA, 2021.

²⁰⁷ Data from PSLM/HIES, 2018.

²⁰⁸ World Bank, 2022. Impact of the COVID-19 pandemic on adolescents' learning and enrolment in Punjab, Pakistan: Insights from SMS Girl Data.

²⁰⁹ See, for example, PBS and PCSW, 2018.

Pakistani women with secondary education often do not have access to job opportunities that match their educational attainment, thus reducing the efficiency with which talent is allocated. Female workers with secondary education are concentrated either in unpaid work or low-skilled occupations, and only post-secondary education helps them transition into higher-skill occupations.²¹⁰ While women with secondary levels of education are locked into low-skilled occupations, men with the same educational attainment can access several middle-skilled positions, such as machine operation, clerks, marketing, and services. An average woman with upper-secondary education has a higher likelihood (25 percent) of accessing wage jobs than a woman with no schooling, while one with post-secondary education has an even higher (58 percent) chance. In contrast, the average man with upper-secondary education can access wage employment with almost the same probability as a man with primary or no education.²¹¹

Training can help women gain better jobs, but access to training opportunities is low. Only 2.2 percent of young women (compared with 3.4 percent of young men) reported having attended any training in the previous 12 months.²¹² Often, women can only access formal training when support is offered, such as daily stipends or free transport. However, even when such type of support is available, other reasons can prevent women from enrolling in training. In Punjab, while 17 percent of women reported financial constraints and around 8 percent of women reported commuting difficulties as reasons for not undergoing training, while most women mentioned domestic responsibilities (50 percent) and not having permission from their husbands (26 percent) as reasons.²¹³

Domestic responsibilities and the childcare burden

A high household workload is the most common reason cited by working age women for not participating in the workforce. Domestic responsibilities are strongly related to the childcare burden, which is closely linked to the number of children per family and the unequal distribution of childcare responsibilities across parents. In rural Pakistan, about 82 percent of families have children and the average number of children per household is 3.3. In urban areas, 76 percent of households have children, with an average number of 2.7 children per family. However, there is heterogeneity in the data: 17.5 percent of rural families and 9 percent of urban families have five children or more.²¹⁴ A high household workload is cited by 55 percent of adult women in rural areas and 62 percent of women in urban areas as a reason for not entering the workforce (Figure 7.18). For young women (ages 15–24), it is the second-most-frequently provided reason (36 percent in rural and 39 percent in urban areas).

Finding support to manage work and childcare responsibilities is key for many women to engage in paid work. Many of our interviewees with children relied on relatives' support to look after their children and help with household responsibilities while they worked. Similarly, in Quetta, employed women are more likely to be found in extended-family households than non-employed women because relatives might help with childcare.²¹⁵ Support from family members is integral because formal childcare services are scarce. Insights from a study in Pakistan that conducted focus group discussions with blue- and white-collar working parents confirmed a strong need for employer-supported childcare services.²¹⁶ The same study collected information from employers and found that only 27 percent of total surveyed organizations reported providing a childcare solution to their employees, 44 percent said they were yet to consider this type of support, and 14 percent said they were planning to offer it soon. Among organizations not planning to provide childcare support, almost half of them stated not seeing the need and/or the benefits of doing so.²¹⁷

210 The shift happens only after attaining post-secondary education: 82 percent of employed women with post-secondary work in the professional sector, while only 17 percent of employed women with secondary education do. Amir et al., 2018.

211 See, for example, Cho and Majoka, 2020.

212 Using data from PSLM, 2019.

213 See, for example, PBS and PCSW, 2018.

214 Using data from the PSLM, 2019.

215 See, for example, World Bank, forthcoming.

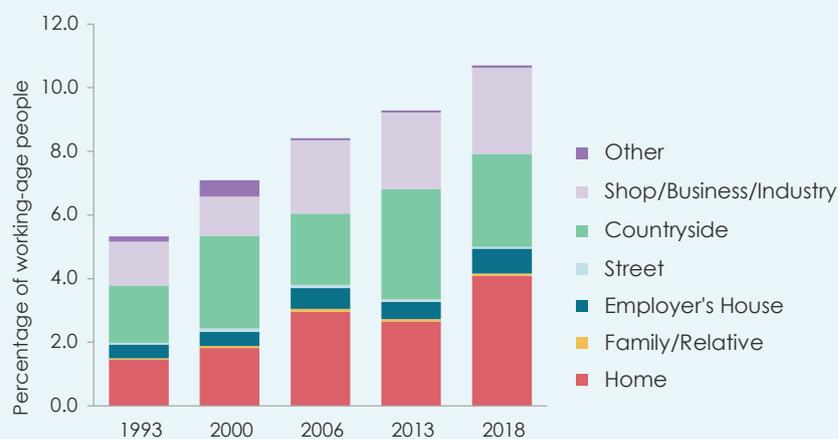
216 See, for example, IFC and PBC, 2021.

217 These results come from an e-survey applied to 140 employers around the country, from multiple sectors.

Home-based work

Home-based work (HBW) has become an acceptable form of female employment in Pakistan. About half of the increase in paid female employment between 1993 and 2018 came from jobs performed at home (Figure 7.24). In 1993, HBW women represented 27 percent of total female paid employment, while by 2018 the proportion had increased to 38.5 percent. Overall, HBW represents 32 percent of total female employment. Under the continued pressure of women's domestic responsibilities and existing social norms, HBW is increasingly perceived as an acceptable form of employment. For example, in Peshawar, most men (59.4 percent) and women (80.5 percent) said that women are allowed to work for pay if they work from home or close to home.²¹⁸

Figure 7.24: The share of home-base work in female paid employment has increased over the past three decades
(Female paid employment by job location, as a percentage of working age women, 1993–2018)



Source: Authors' elaboration using Pakistan's Labor Force Survey data for selected years.

Working from home has challenges of its own and can result in worse working conditions for women.

While affording women greater flexibility in terms of work schedules, home-based working conditions can often be worse. A survey of women home-based workers in the Lahore city area found that many of them are “invisible and unrecognized” in different ways.²¹⁹ First, these women lack the minimum social protection and legal rights to protect them from unfair treatment and working conditions, which results in them working at very low wage rates and in poor environments. Second, the burden of work is often unhealthy, as these women work for long hours, together with domestic duties, and face pressures from middlemen who assign work to them on behalf of the employing company. Third, despite being full-time earners, they are often perceived as housewives who work during their leisure time. Finally, a disadvantage of working from home for these women is the reduced interaction with colleagues and the missed opportunities for learning.

Passing appropriate laws across the country would help improve conditions of female home-based workers.

In 2018, Sindh province was the first to pass regulation (Sindh Home-Based Workers Act, 2018) to entitle registered home-based workers to have social, medical, and maternity benefits, and marriage and death grants. The provincial governments of KP and Balochistan followed with their own home-based workers' laws in August 2021 and April 2022, respectively.²²⁰ Adoption and implementation of these laws

²¹⁸ See, for example, World Bank, forthcoming.

²¹⁹ See, for example, Hassan and Azman, 2014.

²²⁰ Adoption of similar laws by Punjab and ICT is underway.

will allow women HBWs to access better wages and other benefits, which are expected to improve the quality of labor force participation (LFP) for a large group of women in informal jobs, in addition to the overall FLFP rate.

Labor demand and sectoral specialization

Faster growth in services has brought about greater gains in gender employment equality. As the economic structures of countries change with development, some service activities, especially those that are close substitutes for home production, usually contribute significantly to female employment growth in middle-income countries.²²¹ Across lower middle-income countries, women have benefited from the expansion of low-skill services.²²² Research also indicates a strong and significant negative correlation between increases in the employment share of services and the male-to-female employment ratio.²²³

However, Pakistan is not yet on this path where the expansion of the services sector is linked to higher FLFP. FLFP is high in districts where the employment share in agriculture is relatively high, and it is lower where manufacturing and, above all, services have higher shares of total employment (Figure 7.25 and Figure 7.26). This may be because most women employed in agriculture are family workers and, as this sector's share in total employment drops, so women lose employment in the family farm but do not gain employment in other sectors. For example, while in lower middle-income countries about 13 percent of working age women are employed in the trade and hospitality sector (which also includes food services), in Pakistan this share is almost zero.²²⁴

There are indications that gendered occupations are to an extent shaped by employers' perceptions and preferences on employing women. Survey data on firms' perceptions indicate that a belief that hiring women disrupts the workplace is associated with lower female employment across five South Asian countries (Afghanistan, Bangladesh, India, Nepal and Pakistan).²²⁵ In Pakistan, a study that uses data from the leading Pakistani job portal, *Rozee.pk*, found that hiring based on gender is not rare in Pakistan.²²⁶ Fourteen percent and 6 percent of job postings (from a total of 412,000 job posts) indicate a preference for men and women, respectively. Moreover, one in every five professional job posts and one in every four managerial job posts indicate a preference for men. The gender segregation is also evident across industries. Thirty-one percent to 41 percent of the jobs in the manufacturing; construction; wholesale, retail, hotel, and restaurant; and transport, storage, and postal sectors prefer male workers. On the other hand, female workers were preferred in 18 percent of the education and health sector job posts.

²²¹ See, for example, Bridgman et al., 2018.

²²² See, for example, Nayyar et al., 2021.

²²³ See, for example, Ostry et al., 2018.

²²⁴ See, for example, Eberhard-Ruiz, A. & V. Michel-Gutierrez, 2022.

²²⁵ See, for example, Kotikula et al., 2019.

²²⁶ Jobs that seem to be almost gender-neutral are in the professional, scientific, technical, financial, and real estate sectors, where about 90 percent of jobs do not have gender preferences. See, for example, Matsuda et al., 2019.

Figure 7.25: FLFP is high in districts where the employment share in agriculture is relatively high...
(Female employment share in the agriculture sector)

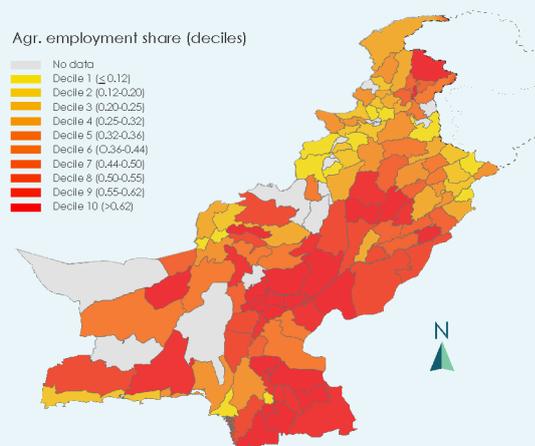
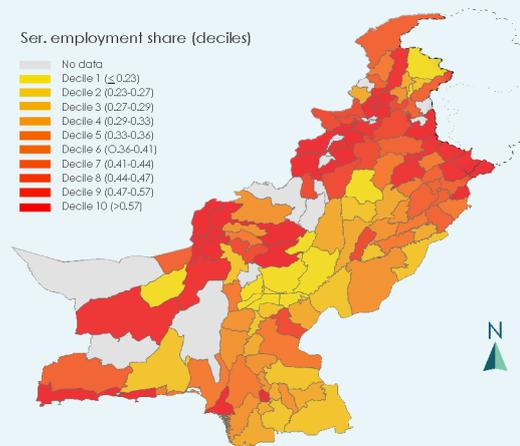


Figure 7.26: ...but it is lower in districts where manufacturing and services have a higher share in total employment
(Female employment share in the services sector)



Source: Authors' elaboration using PSLM 2019.

Predictors of Female Labor Force Participation

This section presents quantitative results of the factors identified in the previous section as influencing FLFP. The analysis combines district-level information, retrieved from district representative survey data, with individual and household characteristics to analyze the correlates of FLFP. See Box 7.2 for a description of the methodology.

Women's participation in the labor market is affected by marital status and the presence of children in the household. Being married in Pakistan reduces the probability of female participation in the labor force by 4 percentage points. The presence of infants in the household reduces this even further: in the presence of a children of age less than 2, a married woman participates in only 17 percent of cases (Figure 7.27). The effect of infant presence on FLFP does not change with the inclusion of controls for the presence of other (or older) women in the household, which could allow for shared child-rearing and thus improve women's FLFP.²²⁷

The decline in FLFP associated with marriage and the presence of children is predominantly driven by a decline in female wage employment. The decline in FLFP associated with marriage is predominantly driven by a decline in wage employment, while employment in a family business increases slightly with marriage. However, this is not enough to offset the decline in wage and self-employment. Similarly, most of the decline in FLFP associated with the presence of children of age less than 2 comes from a reduction in wage employment (Figure 7.28).

²²⁷ This is contrary to responses from interviewees who said that with higher support to bear responsibilities at home, women have higher chances of work. The quantitative results may reflect the still widespread situation in which women must comply with their duties as wives and mothers.

Figure 7.27: Marriage and presence of children reduces the likelihood of FLFP in Pakistan...

(Changes in the estimated FLFP probability when varying marital status and children age)

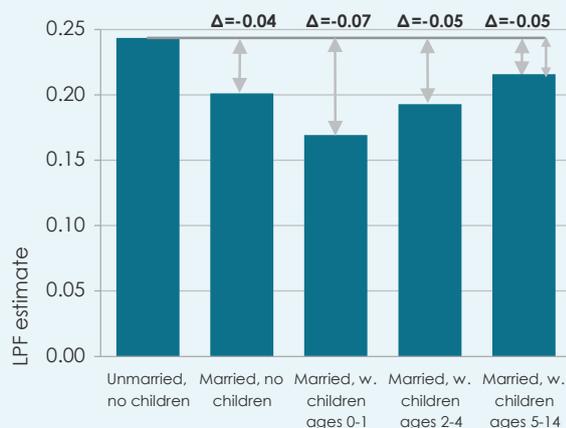
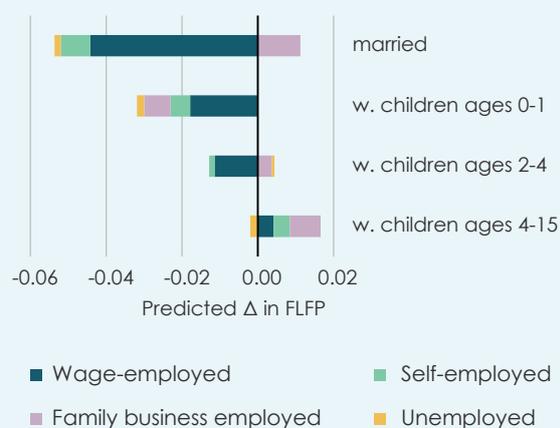


Figure 7.28: ... and this is mostly driven by a decline in wage employment

(Decomposition by employment status of the effect of marital status and children's age on FLFP probability)



Source: Authors' elaborating using data from 2018 HIES.

Box 7.2: A regression approach to examine the determinants of FLFP at the individual, household, and district levels

In Pakistan, there are two Social and Living Standard Measurement Surveys (LSMS): (i) an in-depth household survey, called the Household Integrated Economic Survey (HIES), which is representative at the provincial level and covers about 25,000 households in each round; and (ii) a less detailed survey, called the district level Pakistan Social and Living Standards Measurement Survey (PSLM), which spans a much larger sample of about 170,000 households and is representative at the district level. To examine the correlates of FLFP in Pakistan, the 2018 HIES and 2019 district-level PSLM survey are used.

The district-level PSLM survey is used to generate district-level indicators for specialization patterns and average connectivity measures at the district level. This information is then combined with individual and household-level characteristics coming from the HIES to study the individual, household, and district-level factors associated with higher FLFP in Pakistan using a series of linear probability regressions. The regression is implemented in two steps.

The first set of regressions focus on household and individual-level correlates and use district fixed effects to account for all common factors that affect FLFP at the district level:

$$LFP_{i,h,d} = \theta_d + H'_h \alpha + I'_h \beta + \epsilon_{i,h} \quad (1)$$

where $LFP_{i,h,d}$ is a dummy variable equal to one, if a woman i of household h living in district d is participating in the labor market. H_h and I_h are respective vectors of household and individual level variables, while θ_d represents district fixed effects for 123 different districts covered by the data.

The following household-level correlates are considered:

- i. the household's annual per capita adjusted consumption expenditure, including consumption of items produced by the household itself or, alternatively, a set of dummy variables that indicate the demi-deciles a household belongs to;
- ii. the schooling years of the household head;
- iii. a set of dummy variables that indicate whether there are children of the following age groups in the household: 0-1, 2-4, 5-14 years; and
- iv. a binary variable indicating whether the household is located in an urban or rural setting;

The individual-level correlates included are:

- i. a woman's total years of schooling or, alternatively, a set of dummy variables indicating the maximum level of schooling she attained, with some primary, completed primary, completed secondary, and some/completed tertiary as possible schooling outcomes and no education defined as the reference outcome;
- ii. a dummy indicating whether she is married or not;
- iii. her age and her age squared; and
- iv. whether she used the internet in the previous three months.

In our second set of regressions, the district fixed effects in equation (1) are dropped to allow for the inclusion of district level variables D_d :

$$LFP_{i,h,d} = \theta + D'_d\gamma + H'_h\alpha + I'_h\beta + \epsilon_{i,h} \quad (2)$$

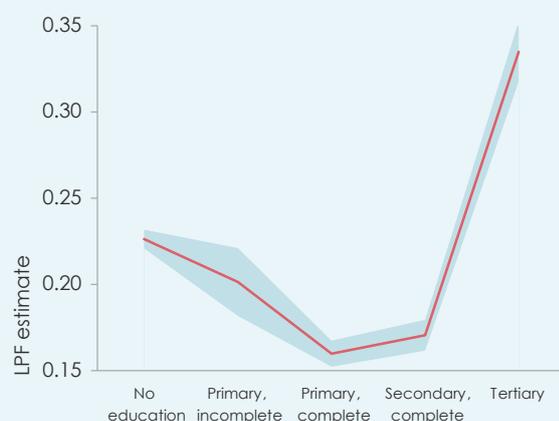
Specifically, the following district-level variables are considered:

- v. the schooling enrolment gap defined as the difference between the share of boys and the share of girls (ages 4 to 14) attending school;
- vi. the sectoral employment shares in total employment (male plus female) of manufacturing, other industry (mining, construction, and utilities), and of services, where the agricultural employment share is treated as base category and thus excluded from the regression equation;
- vii. A physical connectivity measure defined as the average distance of households in a district to a road;
- viii. A transport connectivity measure defined as the average distance of households in a district to a bus or public transport; and
- ix. A digital connectivity measure defined as the share of households in a district with access to the internet.

In Pakistan, increasing educational attainment is associated with a U-shaped pattern of FLFP. Working age women who lack formal education altogether or have very high levels of education are more likely to participate in the labor market. Meanwhile, medium levels of educational attainment are associated with lower FLFP (Figure 7.29). Education is only associated with higher FLFP for women with tertiary education, whose probability of participation is 34 percent, or about 11 percentage points higher than women without any formal education. Moreover, a decomposition of the effect of education on FLFP by employment type shows that the increase in FLFP for women with tertiary education is driven by an increase in wage employment (Figure 7.30).

Figure 7.29: Increasing educational attainment is associated with a U-shaped pattern of FLFP in Pakistan

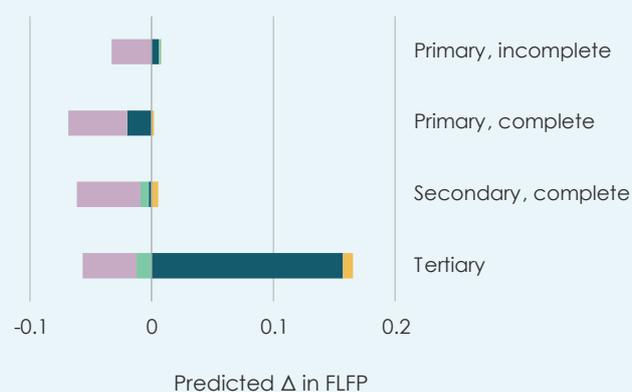
Changes in the estimated FLFP probability when varying a woman's schooling level)



■ 95% confidence interval

Figure 7.30: The increase in FLFP for women with tertiary education is driven by an increase in wage employment

(Decomposition by employment status of the effect of schooling levels on FLFP probability)



■ Wage-employed
■ Self-employed
■ Family business employed
■ Unemployed

Source: Authors' elaborating using data from 2018 HIES.

For women in most households, participation declines with rising household income—only in the richest 25 percent of households does FLFP rise as incomes rise. In the poorest 10 percent of households, the probability of FLFP is about 30 percent. As households become richer, the probability declines steadily up the point where the household income reaches the 75th percentile, where women participate with a probability of only 15 percent. Beyond the 75th percentile participation starts to increase again, reaching 18 percent in the 5 percent richest households (Figure 7.31). The declining FLFP rates across most of Pakistan's income distribution suggests that FLFP is largely driven by necessity rather than choice. Once households become richer, there are strong societal norms that result in women not seeking employment. The uptick in participation at very high levels of income could suggest that these social norms may become less stringent as households become richer. Or, alternatively, it could suggest that richer households are better able to afford technologies (such as the internet) or safer (or socially accepted forms of transport) that allow women to better integrate in the labor market despite the existence of such norms.

Internet use by women is positively associated with labor force participation and is a driver of rising participation at the top income levels. Women who report having used the internet over the previous three months are 5 percent more likely to participate in the labor market.²²⁸ The increase in FLFP observed once households' income surpasses the 75th percentile is partly driven by richer households' better internet access. Including internet usage as a control in the regression specification lowers the predicted participation only among rich households, because part of the effect is now captured by internet usage (Figure 7.32). This suggests that below the 75th percentile the probability of participation is barely affected when controlling for internet usage, likely because the potential impact of increased internet usage among women in poorer households is constrained by access and affordability issues.

Figure 7.31: FLFP declines with rising household incomes, and only increases as incomes rise for the richest 25 percent of households...

(Changes in the estimated FLFP probability with rising levels of household income)

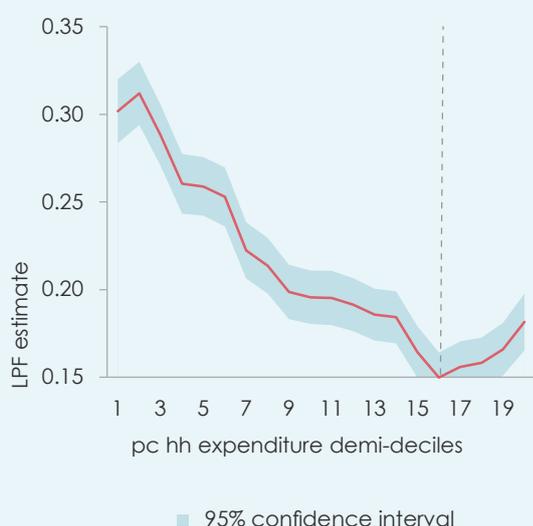
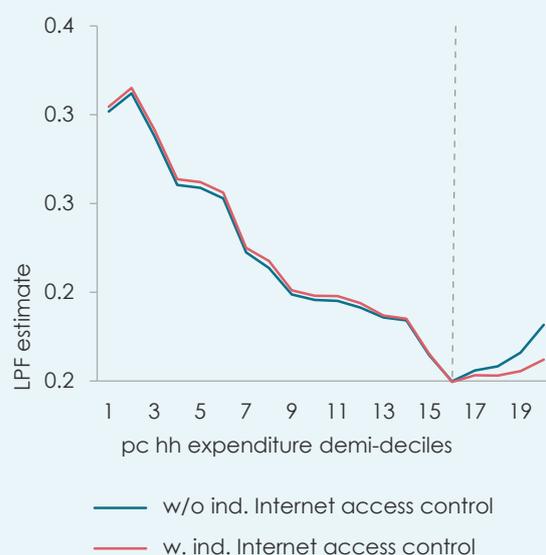


Figure 7.32: ...and this is partly driven by better internet access in richer households

Changes in the estimated FLFP probability with rising levels of household income when controlling for individual internet use)



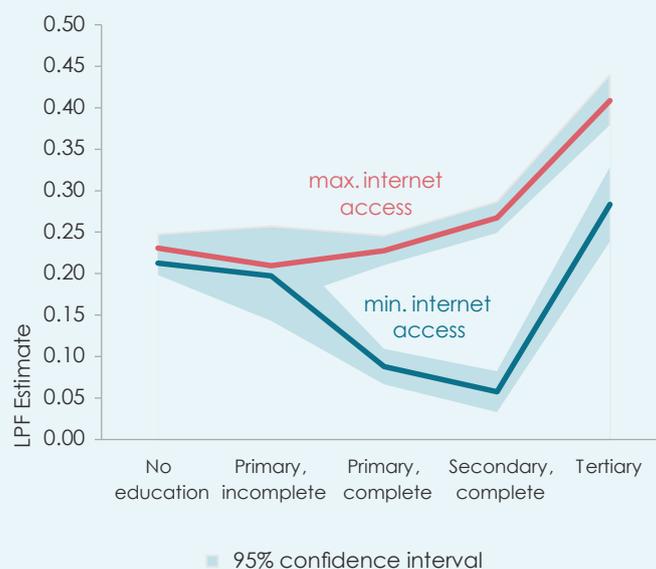
Source: Authors' elaborating using data from 2018 HIES.

Interestingly, high internet penetration at the district level appears to be particularly beneficial for women with medium levels of education, improving the allocation of talent. Earlier regression results suggested that the likelihood of participating is lowest for women with medium levels of education. However, digital connectivity and education are likely complementary for FLFP and may affect the U-shape pattern discussed earlier (Figure 7.29). When allowing for interaction effects between women's schooling level and internet penetration in each district, the results indicate that the interaction is strongest for women with completed primary and completed secondary education (Figure 7.33). In fact, the U-shape pattern almost disappears in the district with the highest level of internet penetration. By contrast, in the district with lowest level of internet penetration, the U-shape pattern is even stronger than the average.

²²⁸ However, women using the internet may have unobserved talents that make them more likely to participate than women not using the internet. Or it may be proxying for social norms that increase both internet usage and FLFP. The effect may thus not be driven by internet usage per se, but by characteristics of women using the internet, or their households, which are unobserved in the data.

Figure 7.33: Higher internet penetration increases the probability of FLFP for women with medium levels of education

(Changes in the estimated FLFP probability when varying a woman's schooling level conditional on there being high or low district level internet penetration)



Source: Authors' elaborating using data from 2018 HIES and 2019 district PSLMS.

A reduction in the agricultural employment share at the district level is always associated with a decline in the likelihood of female labor participation. Outside agriculture, results show that, even after controlling for individual and household-specific characteristics, certain sectoral structures of employment are associated with higher FLFP than others (Figure 7.34). In a scenario where the manufacturing sector has a 10-percentage-point higher employment share and the agriculture sector has a 10-percentage-point lower share, women participate in 21 percent of cases.²²⁹ In the case where the services sector has a 10-percentage-point higher employment share, women participate in 17 percent of cases. This suggests that there are indeed sector-specific cultural norms that make it harder for women to work in some sectors than in others. Furthermore, most of the decline in FLFP is driven by a reduction in family business jobs, which characterizes employment in the rural agriculture sector (Figure 7.35). Intuitively, women occupied as contributing family workers in the family farm need to circumvent social norms much less than women seeking to participate in a salaried job in a factory.

²²⁹ As these results account for a wide range of individual and household specific characteristics, the observed effects do not compound for differences in educational attainment or a household's income level.

Figure 7.34: Lower share of agriculture sector employment is associated with a decline in FLFP...

(Changes in the estimated probability of FLFP with varying sectoral composition of employment)

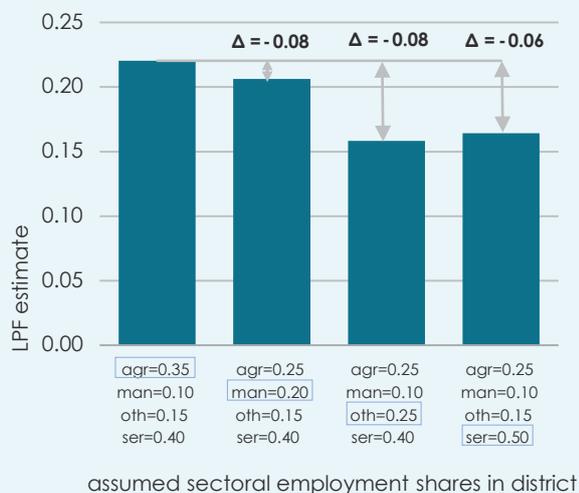
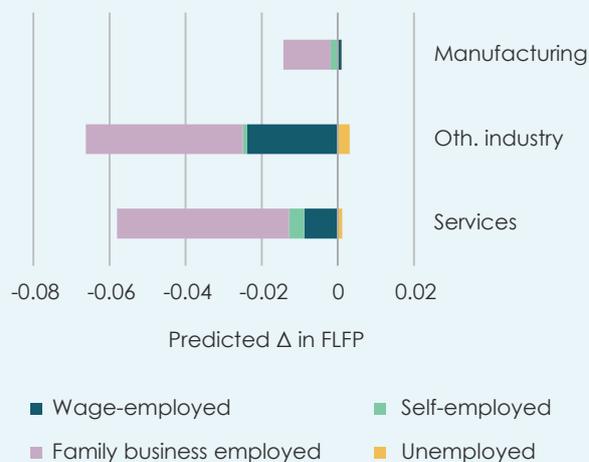


Figure 7.35: ...and this decline is driven by a reduction in family business jobs

(Decomposition by employment status of the effect on FLFP probability of a 10-percentage-point sectoral employment shift from agriculture to non-agriculture)



Source: Authors' elaborating using data from 2018 HIES and 2019 district PSLMS.

Better access to roads and digital connectivity at the district level are positively associated with FLFP.

Access to roads and higher internet penetration correlate positively with FLFP (Figure 7.36).²³⁰The results imply that, in a district where 81 percent of households have good road access, the average women is expected to participate in the labor market with a probability of 20 percent. Where 97 percent of households have good access, her probability of participation is predicted to rise to 22 percent. An almost identical jump in the probability of FLFP results from increasing internet penetration from 19 to 39 percent.

The relationship between better public transport access at the district level and FLFP is more ambiguous.

In districts with fewer than 50 percent of households less than 2 kilometers away from public transport, an improvement in transport access was associated with rising FLFP. By contrast, in districts with more than 50 percent of households less than 2 kilometers away from public transport, an improvement in transport access was associated with declining FLFP (Figure 7.37). A possible explanation is that the higher availability of transport is also a proxy for density, which in turn might intertwine with safety concerns and cultural norms that reduce the likelihood of FLFP.

²³⁰ To proxy physical connectivity, two measures are used: the proportion of households in the district that reported having a road at less than 2 kilometers away, and the proportion of households in the district that declared being less than 2 kilometers from the nearest public transport. Second, the share of households reporting to have accessed internet services over the previous three months was used to measure differences in digital connectivity.

Figure 7.36: Better access to roads and higher internet penetration positively impact FLFP...

(Changes in the estimated probability of FLFP with varying road and internet access at the district level)

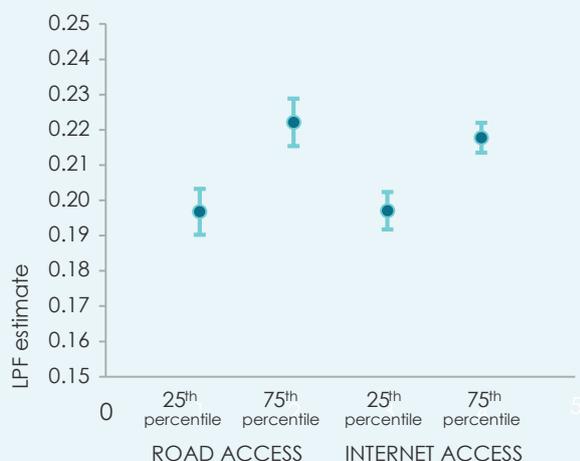
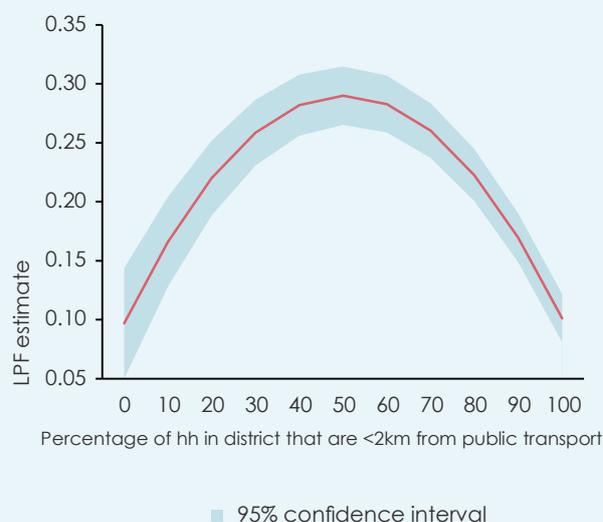


Figure 7.37: ...but the relationship between better public transport access and FLFP is more ambiguous

(Changes in the estimated probability of FLFP with varying public transport access)



Source: Authors' elaborating using data from 2018 HIES and 2019 district PSLMS.

Policy Recommendations

Changing social norms takes time and accelerating the process of change requires a multi-pronged policy approach. Changing social norms requires an approach that builds on a holistic understanding of how social norms interact with women's life circumstances, education, household decision-making, household income, the type of jobs available for women in different locations, and the ability to access those jobs. Moreover, the existence of such strong interaction implies that addressing a constraint in one area alone may prove futile. For example, increasing the availability of female-only public transport may induce more families to allow women to commute to work as it reduces potential safety concerns. But if the jobs available in the newly connected area are not considered socially acceptable for women, then increasing safe transport may not result in a substantial rise in FLFP.

Interactions between policy measures and social norms should be carefully assessed. For example, public transport should be made more accessible, while keeping vehicles and stations safe of harassment risks. Internet access should be expanded, while preventing cyber harassment and sensitizing male relatives to supporting women to safely use digital tools. Supporting the expansion of subsectors that have the potential to attract women (i.e., matching preferences and ability) should be coupled with actions that reduce gender-bias in recruiting practices and gender-related discrimination at the workplace.

A policy approach involving substantial experimentation, trials, and learning from errors is required to address the important agenda of increased FLFP. Given the existing stock of knowledge, identifying policy reforms leading to increases in FLFP with a relatively high degree of confidence is a challenging task. Thus, the recommendations below suggest several potential interventions for experimentation, and emphasize the need for constant impact evaluations for enhanced learning and better policymaking.

The focus of these recommendations is on: (i) physical mobility constraints; (ii) digital connectivity and digitally-enabled jobs; (iii) norms around paid work; (iv) improved job opportunities and skills development; (v) reducing the childcare burden; (vi) home-based work; and (vii) sectoral bias in employment. It also provides a prioritization for these recommended actions.

Top Priority

Providing safe and affordable physical mobility

Recommendation 1: Invest in safe and affordable transport for women, with a focus on female-only transport.

Access to safe and affordable transport for women, particularly women-only transport, can reduce physical mobility constraints faced by women. In certain contexts, safe, affordable, and easily available transport can support women's mobility and ability to work outside home. However, in more densely populated areas, addressing the unsafe environment in public transport systems and high costs is crucial to enable women's mobility. Research suggests that men who disapprove of female family members using public transport are much more comfortable with women-only or gender-segregated buses/vans.²³¹ However, existing women-only transport services serve a small number of women due to their very limited geographic coverage, restricted timings, and lack of publicity. In the short term, regulating and improving the quality and coverage of existing informal transport services, such as rickshaws and taxis, which provide women with the advantage of door-to-door transportation, can help. But in the long term, generating better evidence on women's existing transport options, needs and constraints, and the impact of existing women-only transport services can support better transport planning.

Boosting digital connectivity and digitally-enabled jobs

Recommendation 2: Increase access to affordable internet and support women by providing training on cyber safety and skills needed for digitally-enabled jobs.

Digital connectivity can open news opportunities for female employment. Digital job opportunities have grown in recent years, especially with the impact of the COVID-19 pandemic. According to the Online Labor Observatory, the global daily demand for online labor (major online web-based platforms) increased on average by 49 percent between 2016 and 2021.²³² In 2021, India (27 percent), Bangladesh (14 percent) and Pakistan (13 percent) were the three largest suppliers of online freelancers on major online web-based platforms.²³³ To enable women in Pakistan to benefit from these jobs, internet expansion with an equity lens (across income and gender groups) should be accompanied with interventions to improve women's digital skills. Mentorship on future career options, suggestions for self-learning and training, job search, and topic-specific training will also allow more women to benefit from jobs in this sector.²³⁴

Medium-Term Priority

Shifting norms around paid work to reduce family objections

Recommendation 3: Shift norms around paid work by involving men and women in interventions aimed at reducing family objections to female employment.

²³¹ See, for example, Sajjad et al., 2017.

²³² See, for example, Stephany et al., 2021.

²³³ Pakistan contributes mostly with writing and translation workers (22% of global online supply), followed by professional services (16%), clerical and data entry (13%), creative and multimedia sector (12%), software and technology sector (13%), and sales marketing support (6%).

²³⁴ See, for example, S4YE, 2018.

In view of the role played by family members, particularly men, in female employment decisions in Pakistan interventions aimed at increasing female employment should be targeted at them. Given the existence of imbalanced power dynamics across men and women, policies seeking to reduce family objections to female employment could be more effective when aimed at males. For example, coupling investments in public transport with interventions that engage men in accepting women's activity outside the home could improve women's numbers in the workforce. Making women more supportive of gender equality is also important. Evidence suggests that mothers have higher influence than fathers on their children's attitudes; for example, research has found that if a man's mother worked when he was a child, his wife is more likely to work.²³⁵

Improved job opportunities and skills development

Recommendation 4: Invest in skill-development and training programs to consider innovative options to support wage employment opportunities for women with educational attainment.

Policies should address factors compressing labor market returns to women for their education and provide access to skill-development programs. Despite parity in educational attainment among working age men and women, men can access better jobs by attaining secondary education, while women with below tertiary education are mostly in low-skill occupations. Being confronted with low expectations of the returns to education may be one important reason why families decide not to enroll their daughters in school in the first place. To address this issue, from the supply side, a shift in norms among families is necessary to support women to expand their horizon of job options, and affordable and easily accessible skill-development programs can improve labor market opportunities for women. From the demand side, a policy option to boost wage employment opportunities, with safe working conditions, could consider wage-subsidies programs. Wage subsidies have been used to support employment levels during economic crises with positive results.²³⁶ In Pakistan, an experimental trial is being implemented in Punjab that focuses on a temporary wage subsidy targeted to women for technical/professional roles. The Government may consider the possibility of scaling up an intervention of this sort once conclusive evidence is obtained.

Reducing the childcare burden

Recommendation 5: Invest in childcare support facilities and enforce existing laws related to maternity leave and childcare.

Reducing the childcare burden faced by women can increase their labor market participation. This could be done by public actions encouraging more firms to provide childcare support, including: by promoting enforcement of existing laws, including maternity leave and protection;²³⁷ making childcare-related laws gender inclusive and not based on the number of women employees;²³⁸ ensuring the provision of women-specific basic facilities in the workplace; and basic protection for pregnant employees.²³⁹ State-subsidized childcare programs and public-private partnerships for daycare facilities can support working women.²⁴⁰ Moreover, flexible work hours and working-from-home options can alleviate some of the stress of dual responsibilities and also help women gain approval from their families.²⁴¹ Moreover, given that traditional social norms in Pakistan emphasize the mother's caregiving role, investments in childcare services should be complemented with sensitization actions that make utilization of childcare services more acceptable.

²³⁵ See, for example, Jayachandran, 2021.

²³⁶ See, for example, Levinsohn et al., 2014, for a successful implementation of wage subsidies in South Africa, Bruhn, 2015, for an application in Mexico, and Katz, 1996, for a broader study of wage subsidies in developed countries.

²³⁷ Currently, even though formal sector workers in Pakistan are entitled to paid maternity leave, employers have reported not hiring women due to a reluctance toward implementing such policies. See for example Amir et al., 2018.

²³⁸ Balochistan Factories Act, and Shops and the Establishments Act, passed in May 2021, mandate provision of day care facility for workers' children in factories, shops and establishments.

²³⁹ See, for example, IFC and PBC, 2021

²⁴⁰ The provincial government of Punjab serves as a working example of this initiative and has established a fund for providing grants to public- and private-sector organizations to provide daycare facilities to their employees. Mancini, 2021.

²⁴¹ See, for example, World Bank, 2019.

Improving conditions and opportunities for home-based workers

Recommendation 6: Provide home-based workers with good working conditions and opportunities for learning and networking.

HBW can support more Pakistani women to participate in the workforce. However, it is important to ensure good working conditions for home-based workers. The recent efforts by local governments to pass laws on this issue is a step in the right direction. Going forward, it will be important to undertake continuous assessments and evaluations of their implementation and results, and periodically inform policy and revisions of the content of such laws where necessary. Moreover, as HBW appears to be a relatively socially acceptable way to engage in the labor force, it is important to expand HBW opportunities so that more women can utilize them. This can include improving awareness of opportunities, skills training, and the establishment of informal/formal platforms and networks to improve the exchange of information, knowledge and learning between home-based workers.

Reducing sectoral gender-bias

Recommendation 7: Develop strategies and policies to help women enter new sectors or traditionally male-dominated sectors, and reduce gender-bias in recruitment and workplace harassment.

Sectoral biases against women and workplace harassment limit job opportunities for women. Strategies to help women enter traditionally male-dominated sectors include: safely connecting women to male mentors and role models, particularly at the secondary or post-secondary levels of education; providing early exposure to male-dominated sectors; enhancing women's skills, including self-efficacy and technical training; and encouraging spousal support.²⁴² In addition, bringing down barriers that limit women's ability to enter the labor market should be complemented by policies aimed at expanding jobs in sectors and occupations, such as in the services sector, that widen women's employment possibilities beyond those in which they are currently constrained. Moreover, law and policies should be developed to ensure that employees implement bias-free hiring policies and existing laws regarding harassment, including the Protection Against Harassment of Women at the Workplace Act of 2010. Employees should also be encouraged to educate their employees to fight discriminatory practices at the workplace and promote affirmative action to invest in women's professional development.

²⁴² See, for example, World Bank, 2022.

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