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STATE OF PAKISTAN'S ECONOMY 2025-26

MISSED OPPORTUNITY: REVISITING PAKISTAN'S CHOICES

ECONOMY, GOVERNANCE & CLIMATE CHANGE

Editors:
Faiz Ur Rehman
Muhammad Salman Khalid

Associate Editor:
Muhammad Zia Muneer

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State of Pakistan's Economy 2025-26

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List of Abbreviations

ADB	Asian Development Bank
AI	Artificial Intelligence
BCI	Business Confidence Index
BCM	Billion Cubic Meters
BCS	Business Confidence Surveys
BISP	Benazir Income Support Program
BISP	Benazir Income Support Programme
BVS	Biometric Verification System
CAGR	Compound Annual Growth Rate
CBCI	Current Business Confidence Index
CCT	Conditional Cash Transfers
CEI	Current Employment Index
CNIC	Computerized National Identity Card
CNIC	Computerized National Identity Cards
CPEC	China-Pakistan Economic Corridor
CPI	Consumer Price Index
CPI	Consumer Price Index
DI	Diffusion Index
DISCO	Distribution Company
DPI	Digital Public Infrastructure
DRF	Digital Rights Foundation
EBCI	Expected Business Confidence Index
EEI	Expected Employment Index
EFF	Extended Fund Facility
EFF	Extended Fund Facility
EGDI	E-Government Development Index
ESCAP	Economic and Social Commission for Asia and the Pacific
FAO	Food and Agriculture Organization
FBR	Federal Board of Revenue
FPA	Foreign Project Assistance
FY	Fiscal Year
GDP	Gross Domestic Product
GHG	Greenhouse Gas
GoP	Government of Pakistan
GRM	Grievance Redressal Mechanism
HDI	Human Development Index
HS	Harmonized System
ICT	Information and Communications Technology
IEI	Inflation Expectations Index
ILO	International Labour Organization
IMF	International Monetary Fund
IPCC	Intergovernmental Panel on Climate Change
IT	Information Technology
ITeS	IT-enabled Services
ITU	International Telecommunication Union
IWT	Indus Water Treaty
KYC	Know Your Customer
LSMI	Large Scale Manufacturing Index

LVI	Livelihood Vulnerability Index
MAF	Million Acre-Feet
MoF	Ministry of Finance
NAB	National Accountability Bureau
NADRA	National Database and Registration Authority
ND-GAIN	Notre Dame Global Adaptation Initiative
NEPRA	National Electric Power Regulatory Authority
NIC	National Incubation Center
NMR	Neonatal Mortality Rate
NNS	National Nutrition Survey
NOAA	National Oceanic and Atmospheric Administration
NOK	Next of Kin
NSER	National Socio-Economic Registry
OECD	Organization for Economic Co-operation and Development
OOP	Out-of-Pocket
OOSC	Out-of-School Children
ORS	Oral Rehydration Solution
P@SHA	Pakistan Software Houses Association
PBS	Pakistan Bureau of Statistics
PCRWR	Pakistan Council of Research in Water Resources
PDA	Pakistan Digital Authority
PDM	Pakistan Democratic Movement
PIAIC	Presidential Initiative for Artificial Intelligence and Computing
PKCERT	Pakistan Computer Emergency Response Team
PMI	Purchasing Managers Index
PMT	Proxy Means Test
PPHI	People's Primary Healthcare Initiative
PPP	Pakistan People's Party
PRA	Provincial Revenue Authority
PSDP	Public Sector Development Programme
PWD	Persons with Disabilities
RCP	Representative Concentration Pathway
RNRR	Revenue Neutral Rate Reduction
SBA	Stand-By Arrangement
SBP	State Bank of Pakistan
SDG	Sustainable Development Goals
SECP	Securities and Exchange Commission of Pakistan
SOE	State-Owned Enterprises
SST	Sea Surface Temperature
TINA	Trade Intelligence and Negotiation Advisor
UCT	Unconditional Cash Transfers
UNDP	United Nations Development Programme
UNICEF	United Nations Children's Fund
WAPDA	Water and Power Development Authority
WHO	World Health Organization
WPI	Water Poverty Index
WRVI	Water Resource Vulnerability Index
WTI	West Texas Intermediate
WWF	World Wildlife Fund
YoY	Year-on-Year

Foreword

If ever there was a missed opportunity, this is it

Pakistan once again finds itself at a critical crossroads—a juncture defined by profound structural imbalances, governance challenges, and escalating climate vulnerabilities. Despite inflation easing somewhat and an apparent stabilization in the economy, deeper institutional and policy deficiencies persist. This moment, rich in potential for transformative change, regrettably appears to be another missed opportunity.

The federal budget for FY 2025–26 highlights the disconnect between policy aspirations and practical outcomes. Instead of capitalizing on a rare moment of relative political stability and declining inflation, the budget further burdens an already over-taxed populace. Limited tax relief for the middle class and symbolic gestures towards exports cannot mask its inherently anti-growth and anti-poor orientation. Critical sectors—retail, real estate, and agriculture—continue to evade meaningful taxation, undermining any genuine effort to broaden the tax base and stimulate inclusive growth. The imposition of taxes on solar panels and minimal investment in human capital further illustrate short-sighted policy decisions at a time when bold and innovative thinking was most needed.

Climate change compounds these economic and governance failures. Rising tensions around the Indus Waters Treaty, dwindling per capita water availability, erratic weather patterns, and declining agricultural productivity all underscore Pakistan's deepening vulnerability. These climate-induced pressures not only threaten food security and rural livelihoods but also exacerbate socio-economic inequalities and regional disparities. The lack of decisive action towards climate resilience and sustainable practices represents yet another dimension of missed opportunities.

Against this backdrop, this year's volume of The State of Pakistan's Economy, titled "Missed Opportunity: Revisiting Pakistan's Choices", offers a timely and critical analysis of the outcomes of key policy decisions. Drawing on the expertise of contributors from School of Economics & Social Sciences at IBA Karachi, the report systematically explores the economic, institutional, and environmental trajectories shaped by these choices. At IBA, our commitment remains unwavering—to produce research that informs public discourse and supports evidence-based policymaking. I commend the editors and authors for this valuable contribution. May this report sharpen our collective understanding and encourage a much-needed shift toward bold, inclusive, and sustainable development.

S Akbar Zaidi
Executive Director, IBA, Karachi

Chapter 1

Introduction

Faiz Ur Rehman and M. Salman Khalid

Since gaining independence in 1947, Pakistan's economy has experienced a volatile trajectory, characterized by alternating periods of high and low GDP growth. These fluctuations are largely attributable to persistent political instability, insecurity, and an enduring lack of political commitment to implement structural reforms. In the 21st century, the challenges facing the economy have intensified, as political and security-related uncertainties reached unprecedented heights. This period of heightened instability has also been compounded by escalating environmental risks, further constraining sustainable economic development.

However, the intensity of economic uncertainty has markedly increased since 2000, driven by a combination of economic and political factors. These include sluggish economic growth, persistent fiscal deficits and rising public debt, double-digit inflation, widening trade imbalances exacerbated by stagnant export performance, and recurrent episodes of political maneuvering leading to sustained political instability. Among these, three critical and interrelated challenges stand out: the unpredictability of macroeconomic conditions, chronic insecurity, and the country's heightened vulnerability to climate-related risks. Collectively, these factors have significantly constrained long-term economic planning and investment, undermined institutional capacity and exacerbated socioeconomic inequalities. Macroeconomic volatility has deterred both domestic and foreign investment, while persistent insecurity has disrupted economic activity and eroded investor confidence. Meanwhile, increasing exposure to climate risks—manifested through frequent floods, droughts, and extreme weather events—has damaged critical infrastructure, disrupted agricultural production, and placed additional stress on an already fragile fiscal framework.

In response to these persistent economic challenges—and in line with its tradition of contributing to policy discourse—the School of Economics and Social Sciences (SESS) at the Institute of Business Administration (IBA), Karachi, has once again contributed valuable insights and policy recommendations through its annual State of Pakistan's Economy report. The report comprises multiple chapters, each examining key dimensions of the national economy. It offers projections on critical macroeconomic indicators, including GDP growth, inflation, fiscal deficits, trade deficits, public and private investment trends, and the direction of monetary policy.

In addition, the report provides a detailed assessment of Pakistan's fiscal architecture. It analyzes the structural weaknesses in revenue generation, including an over-reliance on indirect taxation, a narrow tax base, and issues of tax evasion and administrative inefficiency. On the expenditure side, it explores the drivers of persistent fiscal imbalances, such as increasing debt servicing obligations, rigid current expenditures, and inefficiencies in public sector development spending. The report also examines the fiscal federalism framework in Pakistan, particularly the distribution of revenues between the federal and provincial governments under the National Finance Commission (NFC) Award. It critically assesses the challenges in intergovernmental fiscal coordination, the vertical and horizontal equity of revenue transfers, and the implications for subnational fiscal autonomy and service delivery.

The subsequent three chapters provide an in-depth examination of Pakistan's governance architecture and its implications for public service delivery. Each chapter critically analyzes sector-specific challenges, institutional constraints, and policy opportunities within the broader context of administrative capacity and developmental imperatives. The first chapter explores the evolving contours of the digital economy, highlighting governance gaps, regulatory bottlenecks, and the transformative potential of digitalization for inclusive growth. The second chapter assesses the health sector, examining systemic inefficiencies, unequal access, and the role of governance reforms to enhance service quality and health outcomes. The final chapter focuses on social protection mechanisms, evaluating their effectiveness in mitigating vulnerabilities and promoting socioeconomic resilience. Together, these chapters offer a comprehensive framework for understanding the role of public policy and institutional reform in advancing sustainable development and improving the quality of life in Pakistan.

The final two chapters address one of the most critical and escalating risks confronting Pakistan's economy—climate change and its multifaceted challenges. Given Pakistan's acute vulnerability to climate-induced shocks, these chapters underscore the severity of water scarcity as a structural threat to both livelihoods and economic stability. Particular attention is devoted to the implications of diminishing water resources for the fisheries sector, which plays a vital role in local subsistence, employment generation, and export earnings. Through a detailed analysis of ecological stressors, sectoral vulnerabilities, and policy gaps, the chapters examine the complex interplay between environmental degradation and economic resilience. They further outline potential adaptation strategies and institutional responses necessary to mitigate these risks, thus offering a forward-looking perspective on sustainable resource management and climate resilience in Pakistan.

Chapter 2

Future Landscape of the Economy

Syed Ateeb Akhter Shah, Khanzaib Ahmad, and Hamad Ali

Highlights

- Since FY2021–22, Pakistan's economic growth has slowed considerably and continues to struggle to return to a stable and sustainable path. The projections for GDP growth and inflation for the next three fiscal years are based on three scenarios, each built on a distinct set of key assumptions.
- The projected GDP growth rate for FY26 is likely to stay in the range of 2.5 to 3.3 percent, lower than government target of 4.2 percent.
- In FY26, Inflation is projected to range between 5.7 and 9.0 percent under various assumptions. Several factors including rising remittances, global oil prices, gradual import easing due to IMF conditions to market driven exchange rate may drive this trend.

2.1 Introduction

Pakistan entered fiscal year (FY25) with the aim for stabilization, not expansion, as the core macroeconomic priority. The economy emerged from FY24 with critical vulnerabilities, such as twin deficits, accelerating year-on-year (YoY) consumer price index (CPI) headline inflation peaking at 38 percent in May 2023, declining foreign reserves, which at one time were below $4 billion, and default-level external risk pricing. Consequently, the FY25 budget was framed under stringent International Monetary Fund (IMF) surveillance, targeting a primary surplus of 2.1 percent of gross domestic product (GDP), curbing the overall deficit to be equal to or below 6 percent of GDP, and anchoring inflation expectations with a target of 12 percent. The real GDP growth target of 3.6 percent was ambitious under these constraints, especially given the continuation of contractionary fiscal and monetary policies in place for addressing the soaring inflation and consolidate the government deficit.

By the end of the FY25, the macroeconomic indicators reflect positivity and a short-term success. Headline CPI inflation averaged 4.61 percent over the first eleven months of FY25, well below target, while the current account recorded a surplus of $1.2 billion in the first half (H1) of the FY25, reversing a $1.4 billion deficit a year earlier. State Bank of Pakistan's (SBP) foreign exchange reserves increased to $11.7 billion by December 2024, improving the import cover from 1.6 to 2.1 months. However, growth underperformed: provisional GDP growth is 2.68 percent, falling short of target and insufficient for job creation amid high population growth. Sectoral data confirm the imbalance: agriculture growth has been weak in three quarters (Q1: 0.84 percent, Q2: 0.79 percent, and Q3: 1.18 percent), industry remained negative during the first three quarters (Q1: -0.91 percent, Q2: -0.99 percent, and Q3: -1.14 percent), while services alone sustained aggregate momentum at 2.58 percent, 2.59 percent, and 3.99 percent in the three quarters respectively.

Table 2.1: Pakistan's GDP Growth Performance in FY25 (percent)

Indicator	Target (FY25)	Provisional (FY25)	Q1 (Jul-Sep 24)	Q2 (Oct-Dec 24)	Q3 (Jan-Mar 25)
Overall GDP Growth Rate	3.60	2.68	1.37	1.53	2.40
Agriculture Growth			0.84	0.79	1.18
Industry Growth			-0.91	-0.99	-1.14
Services Growth			2.28	2.59	3.99

Source: Pakistan Bureau of Statistics

This stabilization came at clear trade-offs. Steep disinflation is attributed to a multi-pronged strategy encompassing tight monetary policy, continued fiscal consolidation, improved supply of key food items, downward adjustments in energy prices, spare production capacity due to sluggish domestic demand, and benign global commodity prices. A stable exchange rate, supported by an improved external account, also contributed significantly to these favorable inflation outcomes. However, despite the dramatic fall in headline inflation, core inflation, which excludes volatile food and energy prices, has remained relatively sticky, IMF data showed core inflation stable at 9 percent while PBS data for May 2025 shows 7.3 percent and 8.8 percent for urban and rural respectively.

Inflation control was achieved through tight demand management and favorable global commodity prices, rather than through structural supply-side reforms. Fiscal consolidation was led by non-tax revenue, up 82 percent in H1-FY25, mainly driven by SBP profits, while tax revenue fell short by PKR 384 billion. Public investment was restrained, contributing to industrial stagnation and weak forward linkages. Policy rates were cut by 950 basis points (bps) from June 2024 to May 2025, but core inflation and IMF's caution suggest limited room for further easing.

Table 2.2: Key Inflation Indicators and Monetary Policy in FY25 (percent)

Indicator	Target	Actual/Provisional Performance
CPI Inflation (Annual Target)	12	4.6 (average from June 2024 - May 2025)
CPI Inflation (May 2025)		3.5
Core Inflation (May 2025 Urban)		7.3
Core Inflation (May 2025 Rural)		8.8
SBP Policy Rate (June 2024)		20.5
SBP Policy Rate (April 2025)		11.0

Source: Pakistan Bureau of Statistics; Pakistan Economic Survey FY25; EasyData SBP

International financial institutions recognize Pakistan's macroeconomic performance during FY2024-25 as a macroeconomic miracle but warn of persistent vulnerabilities. The World Bank Economic Outlook reported a revised GDP growth forecast of 2.7 percent from 2.8 percent projected earlier, attributing modest recovery to improved consumption, investment, and business confidence amid easing inflation and interest rates. It also mentioned that the growth was weak in H1-FY25 due to tight fiscal and monetary policy in place. However, growth projections have risen to 3.1 percent in FY26 and 3.4 percent in FY27. The IMF noted improved financial/external conditions, a current account surplus, and foreign exchange reserves surpassing targets. Pakistan met all 7 quantitative performance criteria and fulfilled 5 of 8 indicative targets by December 2024, achieving a 2.0 percent primary surplus. Despite strong stabilization metrics, the provisional GDP growth reached 2.68 percent, falling short of the government's target of 3.6 percent.

The FY25 trajectory illustrates a familiar pattern: short-term macroeconomic stability achieved through compression, not transformation. Growth remains below potential, and without deeper reforms, the current cycle may once again end where it began. Stability remains fragile, threatened by debt, policy uncertainty, global shocks, and climate risks.

2.2 Assumptions for Macroeconomic Forecasting

This section presents assumptions that form the basis for projections of the major macroeconomic indicators under three different scenarios for the next three years, i.e., FY2026, FY2027, and FY2028. The forecasted indicators represent the real sector, the monetary sector, and the external sector. The following assumptions are common to the baseline, and two additional scenarios:

- The US economy is taken as external economy/big country case with its GDP growth, inflation, interest rate assumptions taken from the IMF.
- Oil price forecasts are from the Environmental International Agency.
- Data for all domestic variables in FY25 is from several issues of monthly statistical bulletins as well as the EasyData database of the SBP, the Pakistan Economic Survey FY25, and Pakistan Bureau of Statistics (PBS).

The projections are based on the following three different scenarios:

Baseline Scenario

Under this scenario, we assume that:

- There would be a moderate level of rain and flood (no severe flood like the year 2022 or 2010) in the upcoming monsoon season (July – September 2025 and 2026).
- The US economy will continue to grow at the rate projected by the IMF and there will be no major oil price shocks and oil prices will grow as projected by the Economics Intelligent Unit.
- The Extended Fund Facility (EFF) of the IMF will continue.

Scenario 1 (S1): The Budget FY25 - Proposed Spending and Current Monetary Policy Stance Holds

The Government of Pakistan (GoP) released its annual budget for FY26 on June 10, 2025. It has set a GDP growth target of 4.2 percent and an inflation target of 7.5 percent. Additionally, it has set a revenue target of PKR 14.13 trillion, which is 9 percent higher than that of previous fiscal year. The public sector development expenditure is planned to be PKR 4.22 trillion, which is an increase of 11.4 percent over the previous budget. Interest payments, or debt servicing has contracted by 16 percent on account of more than a 10 percentage point decline in the SBP policy target rate during FY25.

Considering the budget FY26 and the performance figures reported by the Government of Pakistan in Pakistan Economic Survey FY25. We make the following assumptions for macroeconomic projections under this scenario:

- The baseline macroeconomic stability achieving scenario holds during FY26.
- The exogenous policy variables (government expenditure, government revenues, and the SBP policy target rate, etc.) in the model are assumed to be the same as those released in the budget FY26 and Pakistan Economic Survey FY25.

Scenario 2 (S2): The Optimal Spending and Current Monetary Policy Stance Holds

In this scenario, we assume:

- The baseline macroeconomic stabilizing scenario prevails during FY26.
- The growth rates in federal government investment expenditures, credit to the private sector, and policy rate during the upcoming three years turn out to be as follows (Table 2.3).

Table 2.3: Scenario 2 – Assumptions on optimal policy interventions (percent)

	Government Investment	Credit to the Private Sector	Policy Rate
FY26	44.0	25.0	12.5
FY27	39.0	19.0	10.5
FY28	33.0	14.0	9.0

Source: Authors' calculation

2.3 Growth Projections of Macroeconomic Indicators

Incorporating the scenarios defined above into a macro-econometric model for Pakistan's economy estimated over the period 1973-2025, we projected growth in the GDP, private investment, consumption expenditures, exports, imports and the headline inflation for the upcoming three fiscal years.

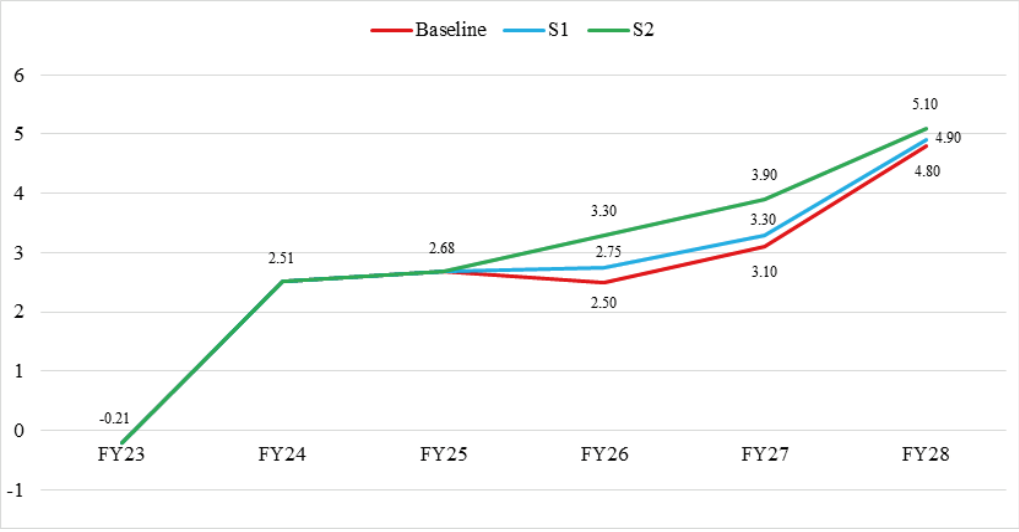
GDP and its Components Growth Projections

According to the Pakistan Economic Survey, the GDP grew at 2.68 percent in FY25 on account of:

- An increase of 13.8 percent rise in investment-to-GDP.
- Growth in all sectors of the economy, with agriculture growth at 0.56 percent, services sector at 2.91 percent, and industrial growth of 4.77 percent.
- Information Technology (IT) and IT-enabled Services (ITeS) growing at 21.6 percent.

Figure 2.1 shows the projected GDP growth for the upcoming fiscal years. The GDP growth rate for FY26 is likely to stay in the range of 2.5 to 3.3 percent as per the baseline scenario, given that the macroeconomic stability achieved over the past year sustains and the stated assumptions hold true. The growth target under the present budget will be difficult to achieve and sustain, given that the inflation was 3.5 percent in May 2025, which may further deteriorate if floods set in, leading to an increase in the policy target rate to anchor inflation expectation. However, if the optimal scenario realizes with implementation of key interventions as listed in Table 2.3, this growth target may be achievable, with policy rate easing as the economy grows in a sustained manner.

Figure 2.1: Projected GDP Growth Rate (percent)



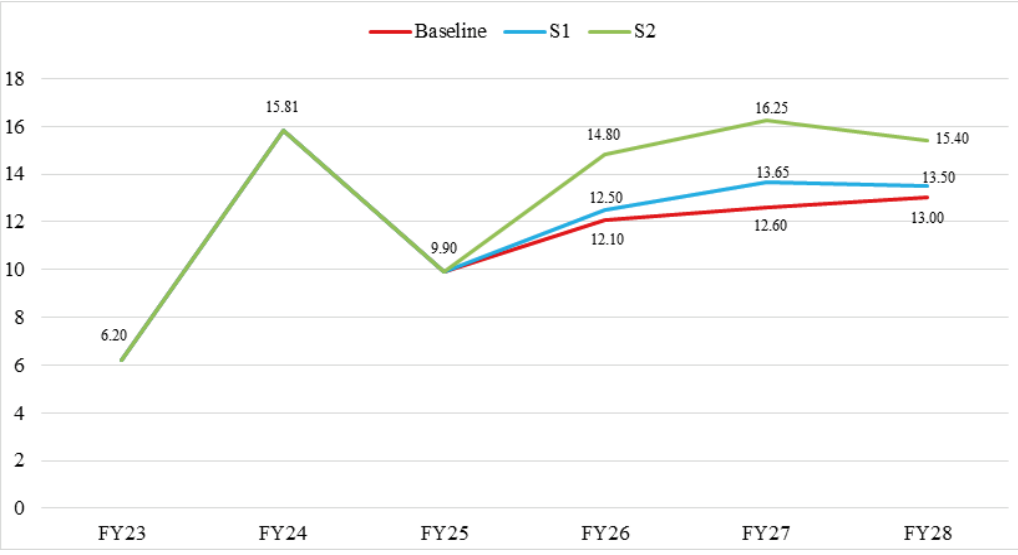
Source: Authors' calculations. Note: S1 refers to Scenario 1; S2 refers to Scenario 2

Growth of Private Investment

Private sector investment shows a growth of 9.9 percent during the outgoing fiscal year, which is lower than the increase that occurred during the last fiscal year (Figure 2.2). However, it is still on a positive trajectory due to the expansionary monetary policy and a conducive business environment. As for the projections for private investment, it ranges from 12.1 to 13 percent under the baseline scenario. This is most likely due to a lower rate of interest, making it easier to borrow and invest. This would most likely prevail during first half of FY26 before SBP tightens as inflation is anticipated to be higher than the target range of 5-7 percent, as indicated by projections from the IMF as well as Ministry of Finance (MoF).

Given that the optimal scenario unfolds as the economy moves through time and SBP policy rate is reduced, it may grow between the rates ranging from 13 to 15.4 percent during FY26 to FY28.

Figure 2.2: Growth Projections for Private Investment (percent)

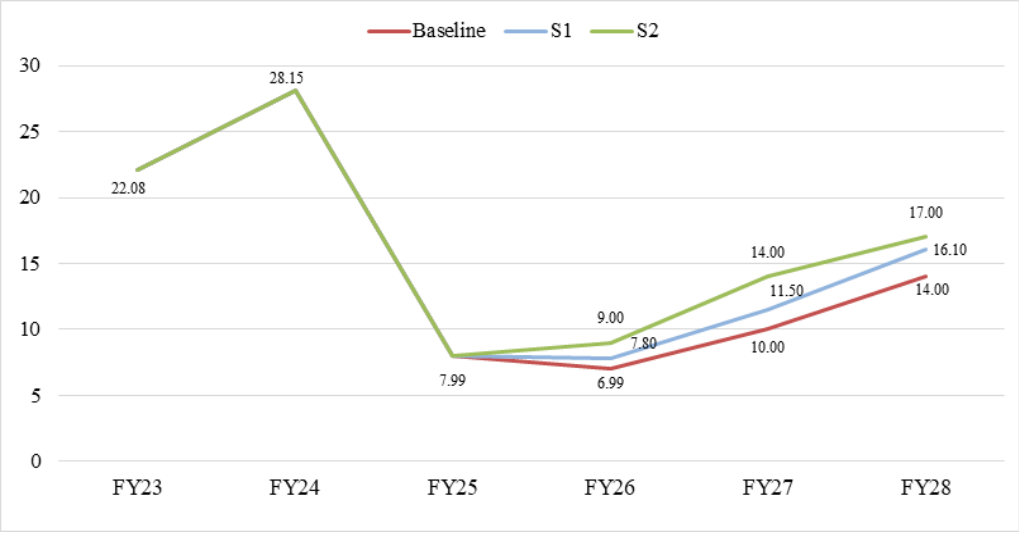


Source: Authors' calculations. Note: S1 refers to Scenario 1; S2 refers to Scenario 2

Private Consumption Growth

Pakistan Economic Review shows that in FY25, household consumption despite having a low growth of 7.99 percent only remained the highest contributor to growth standing at 6.70 percent. The report attributes low growth in consumption to a tightened monetary policy while entering FY25. Furthermore, it states that the consumption still grew positively as low-income households are dependent upon remittances to fulfil their consumption needs. We support the notion that, without a doubt, Pakistan witnessed record-high monthly remittances exceeding USD 4.00 billion during FY25, and it is expected that the remittances inflow would be recorded at its highest ever by the end of this year. As for the interest rate argument, we believe that low interest rates pushed investments upward relatively strongly (growth of 9.9 percent in FY25) than 7.99 percent growth in consumption (Figure 2.3).

Figure 2.3: Growth Projections for Private Consumption (percent)



Source: Authors' calculations. Note: S1 refers to Scenario 1; S2 refers to Scenario 2

Inflation Projections

Since the beginning of the current fiscal year, headline CPI inflation has declined on a year-on-year basis. There are multiple reasons responsible for this decline; a consistent and high monetary policy rate, with an easing in a cautious manner, International Oil Prices (average of Brent, West Texas Intermediate (WTI), and Dubai Fateh on average have come down by 7.6 percent during the first 10 months of FY25. This means that the import bill has declined, currency has held its value and economy has witnessed a decline in inflation. However, there are a few upside risks:

• Remittances are growing fast, if the household spend these inflows on imported goods, it may result in a higher inflation due to demand.

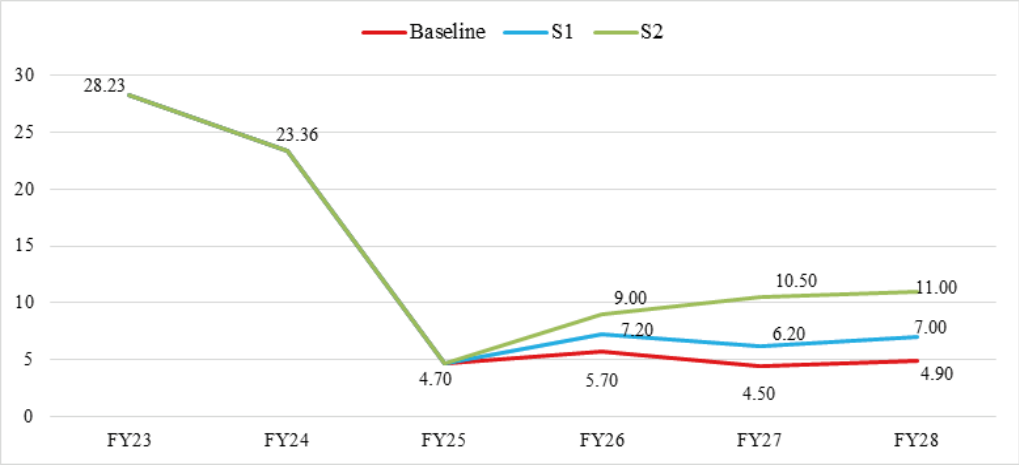
• The recent Isreal's attack on Iran has already spiked the international oil prices, which may lead to an increased input cost indirectly through imports and may lead to inflation.

• The easing of imports in a gradual manner has already started to appear in inflation numbers, with IMF's condition of letting the exchange rate free float and to open up imports, it may add more to the current inflation.

• The base effect has already vanished in May 2025; the inflation went all the way down to 0.3 percent in April 2025 from 38 percent in May 2023. With a 3.5 percent inflation in May 2025, we anticipate that it will once again climb up, given the information above.

Our analysis shows that headline inflation will remain 5.7 percent in FY26 under the baseline scenario and may turn out to be 7.2 percent or even 9 if S1 or S2 is realized. The average inflation for FY26, FY27, and FY28 according to the three scenarios is expected to be 7.3 percent, 7.0 percent, and 7.63 percent, respectively (Figure 2.4).

Figure 2.4: Inflation Projections (percent)



Source: Authors' calculations. Note: S1 refers to Scenario 1; S2 refers to Scenario-2

External Sector Growth Projections

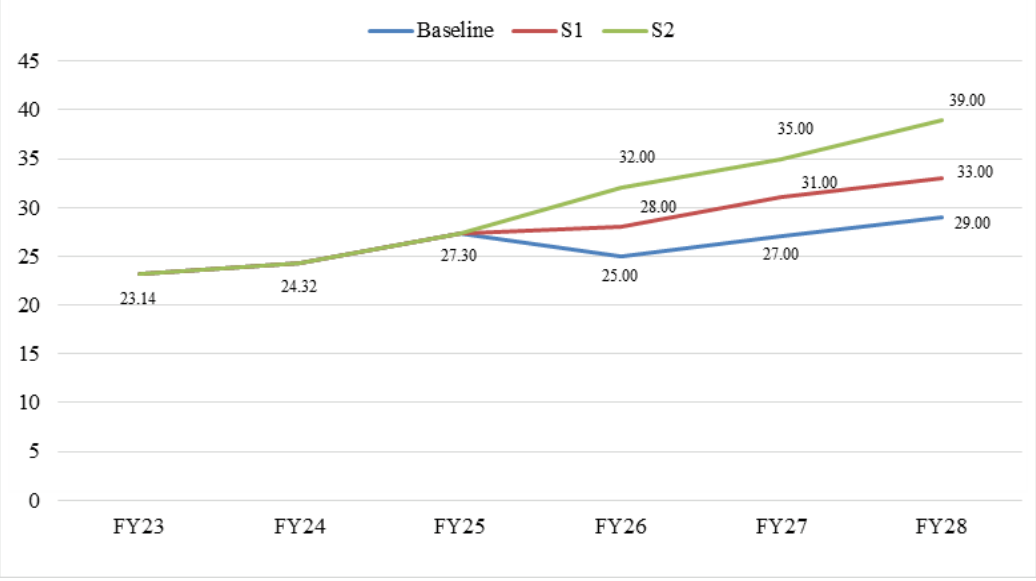
In this section, we present forecasts of Exports and Imports for Pakistan's economy for the next three fiscal years.

Exports Growth

The provisional growth reported for the FY25 in Pakistan Economic Survey FY25 is 27.3 percent, which is an increase from FY24. Despite this, Pakistan still relies heavily on exports of cotton textiles, leather, and rice. The structure must be changed to perform better in the years to come.

Our analysis shows this remarkable performance can sustain in the years to come, however, in the next year, if the tariffs are imposed as proposed, it may bring the exports growth down. The growth in exports as per the baseline scenario is 25 percent, if the optimal policy mix is realized it may go up to 32 percent in FY26. We are hopeful that with URAAN Pakistan implemented as envisioned, it will substantially increase the growth in exports (Figure 2.5).

Figure 2.5: Exports Growth Projections (percent)



Source: Authors' calculations. Note: S1 refers to Scenario 1; S2 refers to Scenario 2

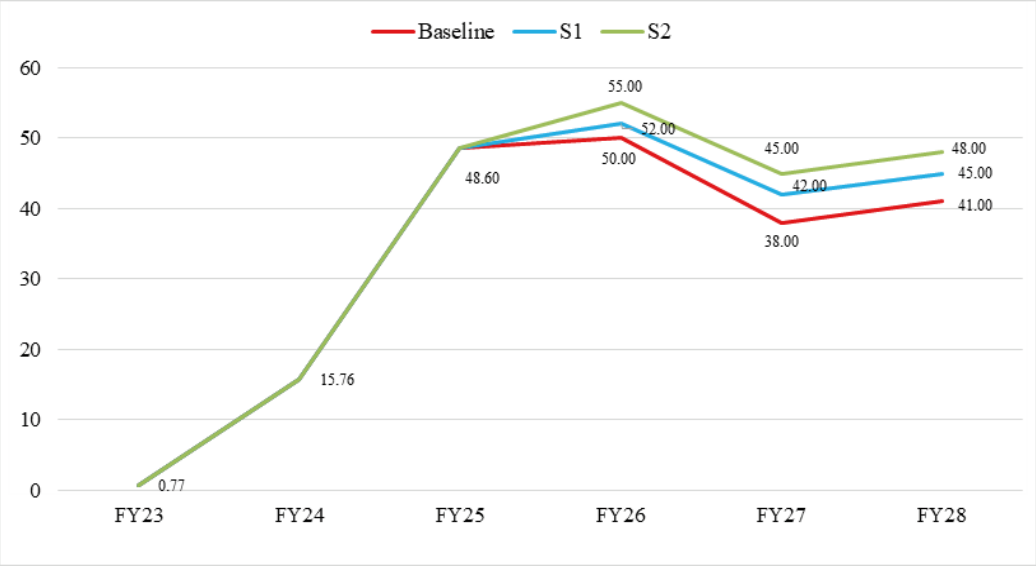
Imports Growth

Pakistan's import sector worsened further in FY25 on account of industrial expansion, exchange rate stability. The recent revival in the domestic demand in particular for capital goods and other industrial inputs have caused the largest increase in imports growth. The price predictability due to stable exchange rate has also played a role in encouraging investments in productive sectors of the economy.

Although the growth rate of imports has risen, a positive side is that it is more investment-led growth with a greater share of machinery, agricultural inputs, and industrial materials, which may pave the way for economic resilience. However, opening up of imports may exert pressure on exchange rate, bringing inflation, therefore, a good policy mix is important to keep this problem in check. Finally, with global tension, especially, Israel's attack on Iran has already increased the international oil price and remains a downside risk to our analysis.

Our analysis shows that with the current policy in place and with a possibility of oil prices surging further the baseline scenario predicts a 50 percent growth in imports for FY26. In case of a favorable scenario, it may come down to 41 percent by FY28 (Figure 2.6).

Figure 2.6: Imports' Growth Projections (percent)



Source: Authors' calculations. Note: S1 refers to Scenario 1; S2 refers to Scenario 2

2.4 Conclusion

With the global economy entering a stabilization phase in mid-2024, inflation has decreased from double digits to a single digit in most economies, even going below the inflation targets set by the central banks. Economic activity has recovered with employment levels returning to the pre-COVID-19 pandemic levels.

As the global economy is projected to grow at a rate of 2.8 percent in 2025 and 3.0 percent in 2026, this represents both risks and opportunities for a country like Pakistan. With demand recovering in the developed parts of the world, Pakistan can take advantage by making URAAN a reality and serving these markets and increase exports. However, on the flip side, the middle east crisis, especially the attack of Israel on Iran, which already soared international oil prices can affect Pakistan's trade balance through higher imports due to price effect.

Although there are risks, Pakistan's economy has recovered remarkably and this recovery has been recognized at the international level with Moody's upgraded Pakistan's rating, which is expected to further enhance economic stability. Our analysis is based on both the opportunities Pakistan has and the risks while being part of the global economic system. Ultimately, Pakistan must acknowledge that without broader reforms, the economy cannot sustain a growth target envisioned for FY26. If we are to achieve or even come near a growth target of 4.2 percent, we need to:

- Broaden the tax base, so that the country's resources can go towards developmental expenditures even after serving the debt
- Implement URAAN in true sense to diversify exports and provide incentives for exports, investment in environment, energy, and e-Pakistan

Political stability is essential for the economic success of countries like Pakistan. Thus, a responsible fiscal side, along with helping monetary policy, and export-oriented growth policies are crucial to Pakistan's success.

Chapter 3

Budget 2025-26: Stabilization, Sustainability and Growth[1]

Asim Bashir Khan

Highlights

- Undoubtedly, during 2024–25, the fiscal efforts of the government materialized into signs of recovery and sustainability. Although the ambitious tax target was revised downward, the ongoing drive for tax reforms improved performance by the Federal Board of Revenue (FBR). As a result, the tax-to-GDP ratio showed an improvement of about one percentage point. The fiscal deficit was contained, and more recently, the release of the IMF's Climate Resilience and Sustainability Support signaled a restoration of confidence in the economy.
- All provincial governments in Pakistan are expected to shift to a negative list regime for sales tax on services starting July 2025, which is anticipated to broaden the tax base. However, the new agricultural income tax laws and regime may not become fully functional in the short term.
- Debt servicing remained the largest component of government expenditures, while the Benazir Income Support Program (BISP) was the fourth-largest item in the federal consolidated fund. Under IMF conditions, compensation under the BISP Kafalat program has increased and will be re-indexed to inflation in January 2026. Nonetheless, fiscal sustainability and creating fiscal space for development will remain serious challenges.

3.1 Macroeconomic Outlook and Significant Developments

The Federal and Provincial budgets for fiscal year 2025-26 have been passed by respective assemblies. By the time of this publication, we do have provisional numbers of economic growth during FY25. Crops declined by -6.82 percent, mining and quarrying -3.38 percent, large scale manufacturing -1.53 percent whereas small scale manufacturing recorded growth of 8.81 percent. This remained a significant debate in the media and among scholars; why is it so that small scale manufacturing recorded high growth whereas large scale manufacturing is negative[2]. The major reason for such negative growth in large scale manufacturing is a recession, shrinking international demand, and a distortionary tariff regime which has been rationalized and improved during the budget 2025-26.

[1] The chapter exclusively presents the author's own analysis and views and does not necessarily represent the position of my present or past associations with any of the organizations in any capacity.

[2] Just to make it part of record that the FY 2008-09 witnessed the similar growth trend with more adversity; growth of large-scale manufacturing was -6.0 percent, whereas small scale manufacturing recoded a growth of 8.6 percent.

One of the major developments during the year was the approval of the 25th IMF programme Extended Fund Facility (EFF) 2024-27[3] which stabilized the external and macroeconomic indicators including inflationary pressure. Also to protect vulnerable classes the programme recommended to increase the BISP transfer from PKR 10000 to PKR 13500 and asked to periodically index the amount of grant to the beneficiaries.

Also, to safeguard households from low-income strata against the rising cost of electricity, the government initiated a programme of targeted subsidy to the consumers whose consumption is under threshold of 200 units. However, a large part of subsidies specifically to power companies and to State-Owned Enterprises (SOEs) are untargeted and such subsidies are consistently draining the national exchequer.

One of the major implications of IMF Stand-By Arrangement (SBA) (2022-23) and EFF (2024-27) is the complete ban on public procurement of wheat at support price, which resulted in chaos and uncertainty. Public procurement at support prices is banned; however, governments may still purchase wheat at market prices. Though there have been many distortions in the support price system and only one-fifth of the produce used to be procured, a sudden withdrawal resulted in chaos.

For FY25; the tax target of FBR was highly over ambitious, and faced a historic downward revision by PKR 1.07 trillion, an analysis of breakdown revised target reveals that the target for direct taxes have been upward revised from PKR 5.5 trillion to PKR 5.8 trillion which is 5.7 percent in addition to the original target, however the target of indirect taxes has been revised from PKR 7.5 trillion to PKR 6.1 trillion which is 18.6 percent of the original target.

It is important to understand underlying rationales for unmet target of indirect taxes with such a huge margin. The execution of tax policy under high inflation is different from a scenario of low inflation. Inflation aggravates the nominal increase in indirect taxes, similarly the indirect taxes increase the inflationary pressures, it's a two-way relationship. As discussed above the government focused on bringing stability, which was further capitalized by the IMF EFF. Although the FBR was highly vigilant with an active enforcement drive, one of the major contributing factors in unmet tax target of indirect taxes was stable inflation, along with negative economic growth in large scale manufacturing.

[3] The Extended Fund Facility for 37 months was in September 2024; this is sixth EFF programme and overall 25th IMF programme of Pakistan. This has erroneously been reported as 26th programme in press and media, adding the Rapid Financing Instrument (April 2020) to the count, which is not a programme, but it was an outright loan to Pakistan as a support during the COVID-19 crisis.

3.2 Federal and Provincial Budgets 2025-26

The budget outlay of Federal Government for FY26 is PKR 17.5 trillion of which PKR 1 trillion is size of Public Sector Development Programme (PSDP) which is 5.7 percent of total budget. Similarly, the budget of Punjab is PKR 4.6 trillion, followed by Sindh at PKR 3.4 trillion, Khyber Pakhtunkhwa at PKR 1.9 trillion, and Balochistan at PKR 967 billion. Like the past few years, the glaring trends of overreliance on Foreign Project Assistance in Sindh and Khyber Pakhtunkhwa are evident.

The Foreign Project Assistance (FPA) component in Sindh is 36.2 percent highest of all governments followed by Khyber Pakhtunkhwa 32.4 percent, such trends raise the question of sustainability and debt neutrality. In Pakistan the evidence of debt non-neutrality tends to prevail, for instance these provincial governments are simultaneously increasing their tax rates, scope of taxation irrespective of the fact how inequitable the taxation measures are. To the extent that the Sindh Government introduced taxation on health and education services last year, apart from an increase in statutory rate of sales tax on services from 13 percent to 15 percent and this the first year of the history of Sindh Revenue Board missing its revenue target by a large amount. Other Provincial Revenue Authorities (PRAs) also missed the targets partly due to low inflation.

Table 3.1: Federal and Provincial Budgets 2025-26

Governments	Total	Non-Development		Developmet		Foreign Project Assistance	
	PKR bn	PKR bn	Percentage	PKR bn	Percentage	PKR bn	As % of Development
Federal	17,573	16,573	94.3	1,000	5.7	106	10.6
Punjab	4,595	3,355	73.0	1,240	27.0	124	10.0
Sindh	3,452	2,434	70.5	1,018	29.5	367	36.1
KP	1,962	1,415	72.1	547	27.9	177	32.4
Balochistan	976	640	65.5	337	34.5	30	9.0

Source: Author's computation from Federal and Provincial Annual Budget Statements 2025-26.

The revision of budgetary estimates shows in general an upward trend in Punjab and Khyber Pakhtunkhwa. However, in the first review report of IMF EFF, Sindh and Khyber Pakhtunkhwa highlighted to have low utilization of education budget resulting in unmet floor condition of EFF programme.

Table 3.2: Revision of Federal and Provincial Budgets Targets 2024-25

Governments	BE	RE	Utilization	BE	RE	Utilization
Federal	18,877	17,249	91.4	1,400	1,100	78.6
Punjab	3,476	3,792	109.1	842	1,109	131.7
Sindh	2,871	2,677	93.2	959	817	85.2
KP	1,654	1,834	110.9	416	447	107.5
Balochistan	930	894	96.2	321	315	98.2

Source: Author's computation from Federal and Provincial Annual Budget Statements 2025-26 and 2024-25.

3.3 Major Federal and Provincial Fiscal Measures and Adjustments

One of the major challenges Pakistan faces is the high debt-to-GDP ratio and high debt servicing cost, which drains the fiscal space for development. The recent amendments to the Fiscal Responsibility and Debt Limitation Act, 2005 binds the Federal Government to bring down the debt-to-GDP ratio to a level of 50 percent by 2033, for which a rigorous adjustment of about 3 percent reduction in debt stock is budgeted which is expected to bring the debt stock down to the target threshold by 2034. The PSDP has been about 2 percent of GDP, whereas the debt service is about 5 to 6 percent of GDP each year. However, during FY25, a significant reduction in stock of domestic debt is mainly attributable to significant reduction in policy rate.

One of landmark initiatives in the coming budget is rationalization of tariff regime, though not much welcomed and appreciated by some segments of importers, however this regime is not only going to rationalize the tariff structure and improve economic efficiency and growth in large-scale manufacturing.

On the other hand, the proposed taxation on e-commerce lacks fundamental principles of enforcement and monitoring. By virtue of assigning e-commerce businesspersons the role of withholding tax agents, that too with weak enforcement might cause further tax distortions, and burden of litigation. The proposed tax expenditure of about 3.7 percent is higher than cumulative education, health and social protection expenditure of Pakistan, it is the need of the hour to revisit and rationalize the tax expenditure system.

Under the IMF EFF, the PRAs of all provinces have been shifted to a system of negative list from FY26. The negative list is going to increase the scope of the tax base; it is therefore imperative to conduct Revenue Neutral Rate Reduction (RNRR) studies both at Federal and Provincial level.

According to recently released Human Development Report 2025, Pakistan is a low human development country with Human Development Index value (HDI) of 0.544 (rank 168 of 193; even less than average value for South Asia 0.672, Sub-Saharan Africa 0.568 and Least Developed Countries 0.560 (Table 3.3). The mean years of schooling in Pakistan is 4.3 years (rank 177 of 193), and the average life expectancy at birth is 67.6 years (rank 144 of 193)[4]. The average per capita income of the country stands US$ 5501 (rank 149 of 193), whereas Pakistan tax rates are as high as of European Union (EU) and Organization for Economic Co-operation and Development (OECD) countries, specifically the tax rates sales tax on goods and sales tax on services are not in coherence with the economic status of Pakistan and level of per capita income. Indirect taxes are paid out of disposable income, if disposable income itself is low, higher tax rate will disproportionately add the regressive burden on people from low-income strata.

Table 3.3: Comparative Analysis of Pakistan's Human Development

Regions	Human Development Index	Life Expectancy at Birth (Years)	Expected Years of Schooling (Years)	Mean Years of Schooling (Years)	Gross National Income Per Capita (2021 PPP $)
Arab States	0.719	72.5	12.0	8.1	15,825
East Asia and the Pacific	0.775	75.9	14.6	8.3	19,520
Europe and Central Asia	0.818	74.8	15.6	10.7	23,171
Latin America and the Caribbean	0.783	75.6	14.8	9.1	18,048
South Asia	0.672	71.9	12.1	6.8	8,722
Sub-Saharan Africa	0.568	62.5	10.3	6.2	4,352
Least Developed Countries	0.560	66.5	10.2	5.1	3,637
Small Island Developing States	0.739	71.9	12.6	8.6	19,343
Organisation for Economic Cooperation and Development	0.916	80.6	16.5	12.3	52,698
Pakistan	**0.544**	**67.6**	**7.9**	**4.3**	**5,501**

Source: Author's compilation from Human Development Report 2025, United Nations Development Programme, New York.

Under the IMF EFF provinces are required to implement and enforce a system for income tax on agriculture. Despite having a large tax base, ascertained through large landholdings or income from various agriculture sources, the legal and economic cadaster of taxpayers and the details of their respective economic activities, source of income, and wealth are difficult to trace. Also the tax is leviable on farmgate prices, whereas in Pakistan farmgate prices are not administered and monitored either by PBS or by provincial governments.

[4] Author's compilation and computations from Human Development Report 2025

3.4 Major Fiscal and Socio-Economic Challenges

One of the major exogenous challenges of Pakistan are climate change and more specifically frequent floods. The total losses from floods between 1950 and 2022 amount to USD 54 billion[5]. Under the EFF, the IMF issued a Climate Resilience Facility to Pakistan to build adaptive resilience against climate change events in future and to prepare for mitigation strategies. The constrained fiscal space not only in the budget of FY26, but historically consistent low PSDP spending with an unsustainable throw-forward liabilities both at Federal and provincial level resulted in a situation of fiscal indiscipline which is now a regular feature of budgeting. (Table 3.4).

Table 3.4: Comparing Federal PSDP and SOEs losses, Pension and Circular Debt

FY	SOEs Losses	Pension	PSDP	Circular Debt
FY13	0.76	0.58	1.61	-
FY14	0.57	0.68	2.15	-
FY18	1.29	0.65	2.63	-
FY19	0.93	0.78	1.83	-
FY21	1.16	0.84	1.16	4.08
FY23	1.00	0.73	0.87	2.76
FY24	0.73	0.76	0.90	2.28

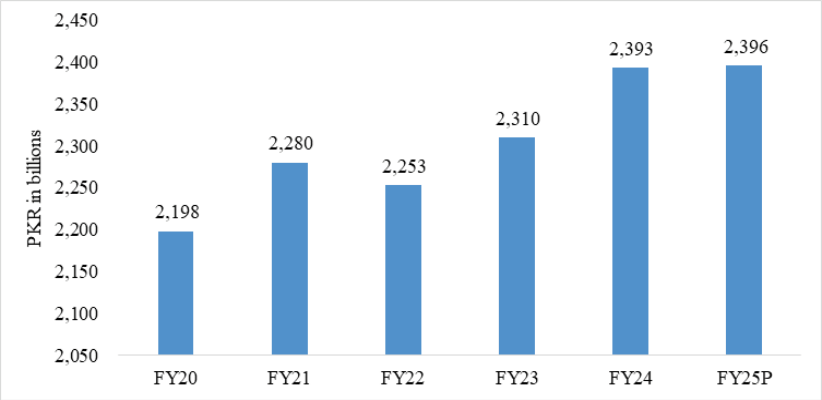
Source: Author's computation from SOEs reports, Annual Budget Statements and Ministry of Energy Power Division Record.

SOEs losses have consistently remained around 1 percent of GDP, so as pension and most alarming are the amount of circular debt which stands PKR 2.4 trillion as of March 2025. The SOE losses during FY24 are PKR 772.4 billion (more than size of BISP) and subsidies and grants to these SOEs during FY 24 are PKR 1.1 trillion which is more than the size of PSDP. Historically this is the first year when Federal pension expenditure PKR 1055 billion has surpassed the Federal PSDP PKR 1000 billion. The amount unrecovered from Distribution Companies (DISCOs) in FY24 was PKR 276.36 billion.

Pakistan the fifth largest country of the world with population of 241.5 million growing at the rate of 2.55 percent. The net increase in between 2017 and 2023 was 33.8 million which is more than the baseline population of Pakistan 33.74 (Census 1951). The median age of Pakistan is 20 years. On the other hand, the old age population of 65 years and above, are merely 3.5 percent and that too with a very high young age dependency ratio.

[5] Author's computation from the data of National Disaster Management Authority (NDMA).

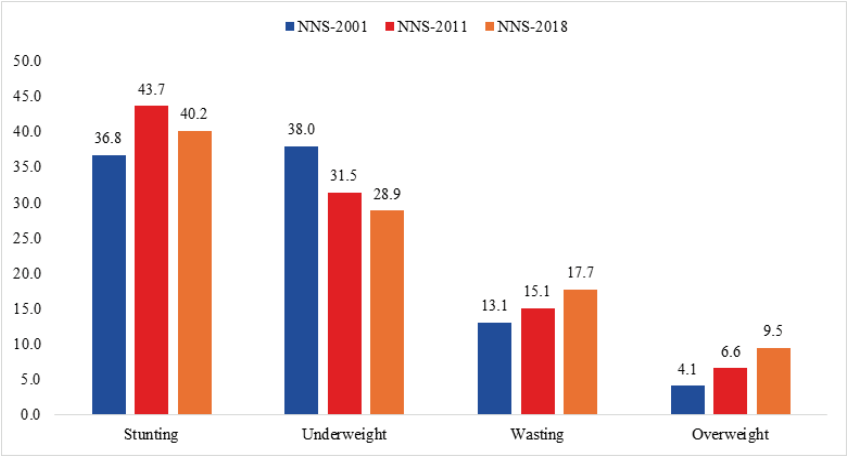
Figure 3.1: Circular Debt FY 20 to FY 25



Source: Author's compilation from Circular Debt Reports Ministry of Energy Power Division and State of Industry Reports NEPRA.
Note: The figure of FY25 is the stock of circular debt as of March 2025.

The public investment in health is largely skewed towards tertiary health care and the public hospital system. The number of hospital beds per 1000 of population is among the lowest in the world. The stunting and other forms of malnutrition in children under five is worst and not improved significantly over past two decades (Figure 3.2 and 3.3). The investment in nutrition remains a low priority to the extent that the Uraan Pakistan document and framework of 5Es are not linked with investment in nutrition. Pakistan host second largest population of out-of-school children (OOSC) in the world; 58 percent children of age bracket 5-16 years are OOS in Balochistan, followed by Sindh 46.3 percent, Khyber Pakhtunkhwa 37.5 percent, and Punjab 27.0 percent (Figure 3.4).

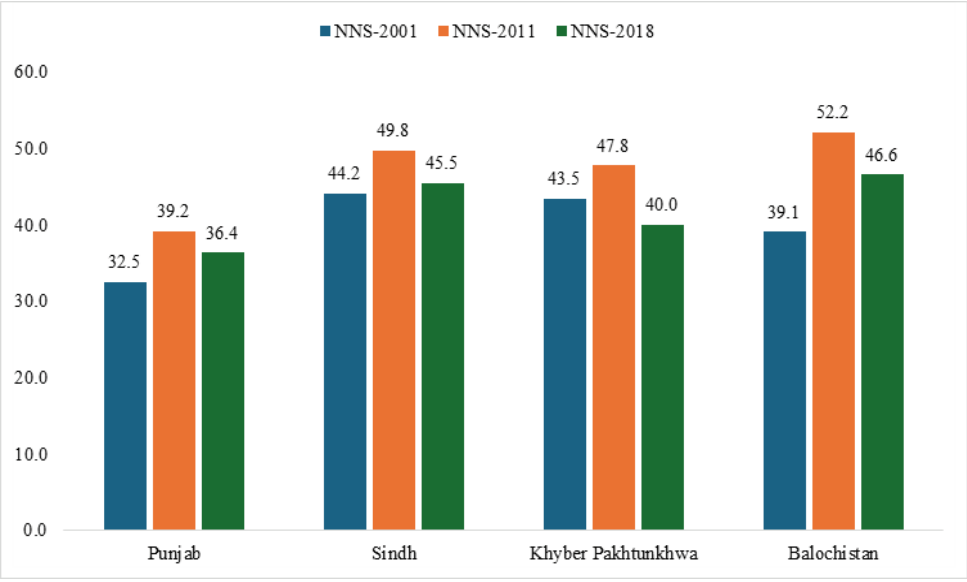
Figure 3.2: Longitudinal Trends in Malnutrition in Children under Five



Source: Author's analysis from National Nutrition Survey 2001, 2011, 2018

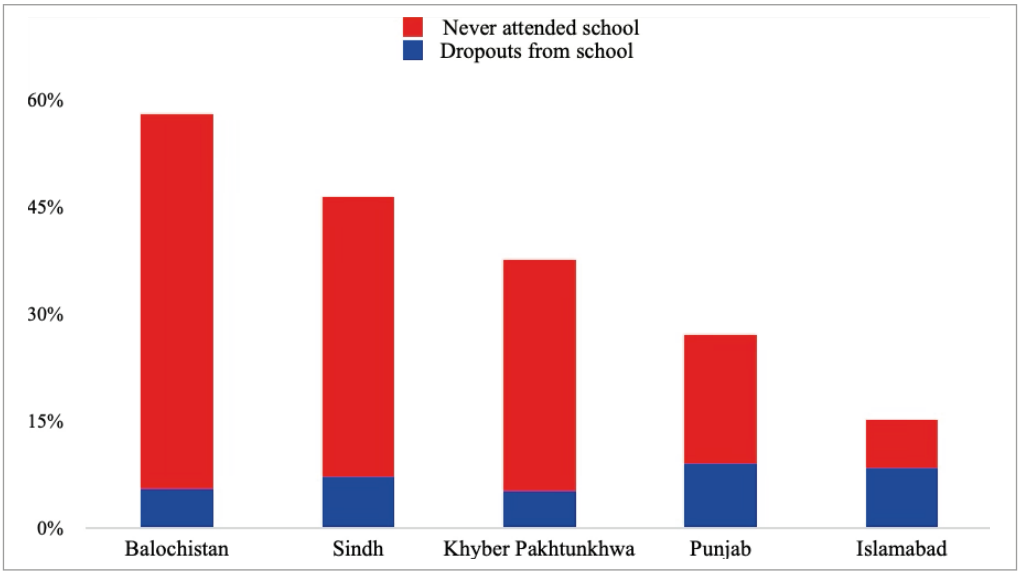
Post Eighteenth Amendment to the Constitution of Pakistan the public service delivery is province centered, very little is budgeted for local governments. Khyber Pakhtunkhwa stands highest in terms of local government budgets which is 19.6 percent of Provincial Consolidated Fund followed by Punjab 17 percent, Sindh 4.9 percent and Balochistan 1.1 percent. The local budgets of Sindh and Balochistan are minimal and the financial and administrative devolution in these provinces stand at a minimum. It is important to note that in the absence of the elected local governments in Punjab, the high allocation is merely a transfer from one bureaucratic level to another, simultaneously it is important to note that during the elected local governments, the Punjab record of high allocations to local government was consistent.

Figure 3.3: Longitudinal Trends of Stunting in children under Five



Source: Author's analysis from National Nutrition Survey 2001, 2011, 2018

Figure 3.4: Percentage of Out-of-School Children in 5-16 Years Age Bracket



Source: Author's analysis from Census 2023, Pakistan Bureau of Statistics, Islamabad.

Given that Pakistan is facing challenge of limited fiscal space, and most of its exchequer will be drained by the debt service, and losses due to governance failure, it is high time to revisit the model of stabilization, and revisit the growth by facilitating private sector, innovative financing, lowering the tax burden, vigilant regulation of markets, lest the routine exercise of budgeting will remain as is indefinitely. Instead of an ever-increasing footprint of government, and an inefficient public sector, community based, participatory governance models may be invoked through budgets and other fiscal measures.

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Chapter 4

Trading Relationships Going Sour? Trump's Tariff Reciprocity and Its Impact on Pakistan's Exports

Aadil Nakhuda

Highlights

- Trump administration's additional tariffs announced on April 2, 2025 were calculated in terms of the ratio of the trade deficit of the US with its trading partner and imports into the US from the trading partner. Exporters running a relatively higher trade surplus with the US were penalized with higher additional tariff rates.
- As per United Nation ESCAP's calculations, Bangladesh is likely to lose 14 percent of its exports, while Pakistan will likely lose 13 percent of its exports due to Trump's tariffs. China will lose 10 percent of its total exports, while India will lose 8 percent at the proposed tariff rates.
- All countries except India will likely lose more than ¾ of their exports to the US due to the additional tariffs in the form of negative trade creation and trade diversion. The share of textile sector is significantly lower for India, China and Vietnam indicating the lower priority likely assigned to the sector by the policymakers as they negotiate for tariff relief with the Trump administration.
- Trade of textile products is most likely to be diverted to Pakistan than trade of other products, with the largest values diverted in terms of percentage share of total exports of the exporting country will be from China followed by India, Bangladesh and Cambodia if Pakistan receives tariff concessions not provided to its counterparts

4.1 Introduction

The Trump administration announced imposing additional tariffs on the imports from several of its trading partners on April 2, 2025. This announcement took the world by storm as exporters expect the cost of selling to the US consumers to increase drastically. The additional tariffs were calculated using a method that itself has been termed highly controversial and flawed by experts, as it is based on the size of the US trade deficit with its trading partners. The higher the trade surplus with the US, the higher the tariffs.

The Trump administration defines these tariffs as 'reciprocal', suggesting that they are imposed in effect as a retaliation to the tariffs imposed on US exports by the exporting countries. Instead, several countries with better manufacturing capabilities but smaller consumer markets are penalized. The United Nations Economic and Social Commission for Asia and the Pacific (ESCAP) has simulated the impact of the tariffs in their Trade Intelligence and Negotiation Advisor (TINA)[1]. The analysis in this chapter uses data relevant to Pakistan and its major regional counterparts in the Asian region, presenting the impact of the additional tariffs on the exports to the US.

The chapter begins with the analysis on the tariff rates and then continues with the analysis on the importance of the US market to various Asian exporters, namely Pakistan, India, Bangladesh, China, Vietnam and Cambodia. The higher tariff rates are likely to change the amount of domestic demand for an imported good, which is dependent upon the elasticity of import demand with respect to domestic price and elasticity of export supply with respect to export price, leading to trade loss. Further, the exports from a particular country may be substituted by exports from other countries that can provide their exports at a lower unit value. Therefore, the elasticity of substitution with respect to relative prices of the same product from different exporters may influence the value of trade diversion[2]. The impact on trade creation and trade diversion because of the tariffs is presented in this chapter followed by a deeper analysis on the top ten products likely to report the largest level of trade diversion from Pakistan[3]. The results presented in the best-case and the worst-case scenarios of trade diversion are calculated based on the assumption that the additional tariffs are imposed on the reporting country while tariffs on its counterparts remain at the original applied level. Even though additional tariffs are being applied to all countries, the analysis provides the maximum gain and loss from the recent tariff hikes.

[1] The dataset is available at: https://tina.trade/app/tariff-simulation-generator

[2] Detailed description on the formula used to calculate trade creation and trade diversion is provided by United Nations ESCAP: https://repository.unescap.org/rest/bitstreams/d1d28a10-e626-4d32-9fb7-9ef7849e56d9/retrieve

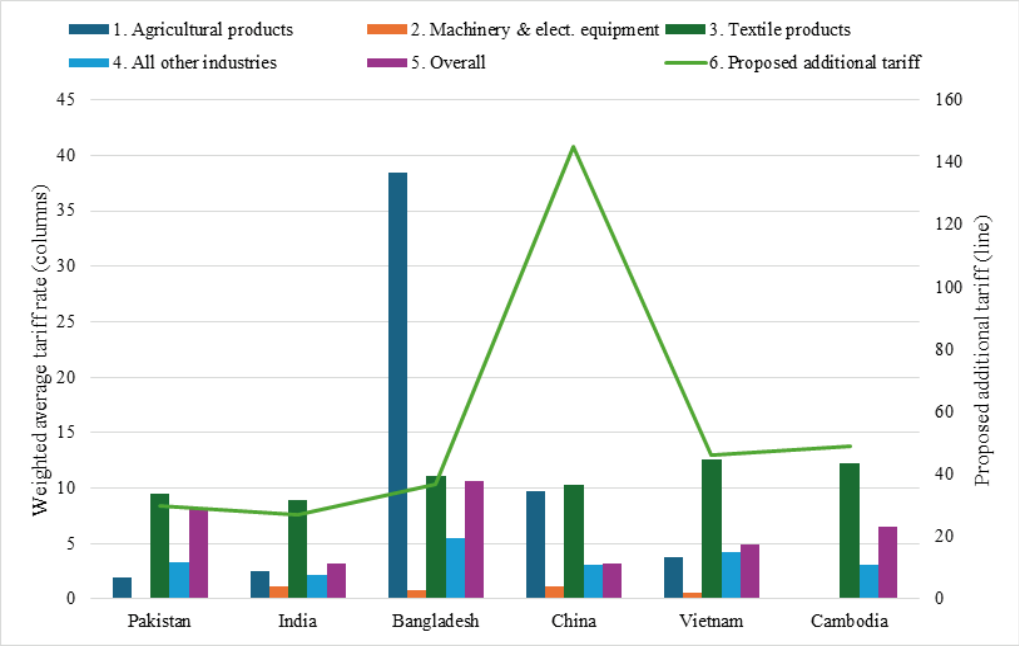
[3] The analysis is borrowed from United Nation ESCAP's TINA. The values for trade diversion are calculated using the original tariff rates applied by the US on the exporting countries. This implies that the counterpart exporting countries do not face additional tariffs as imposed on the reporting country for which the values are calculated. Therefore, the values of trade diversion are likely to be higher (labeled as best-case or worst-case scenarios) than if the US imposes additional tariffs on other trading partners as well. The calculations for trade diversions considering the imposition of additional tariffs on all trading partners of the US were not available at the time of writing this chapter. The dataset was updated on 18th April 2025.

4.2 Analysis and Results

Tariff Analysis

The original applied tariffs, calculated as a trade-weighted average, and additional tariff rates imposed on April 2, 2025, by the Trump administration on imports into the US from selected countries is presented in Figure 4.1. The additional tariffs were calculated in terms of the ratio of the trade deficit of the US with its trading partner and imports into the US from the trading partner. **Exporters running a higher trade surplus with the US were penalized with higher additional tariff rates.**

Figure 4.1: Original applied tariffs and additional tariffs imposed on selected exporting countries.



Source: United Nation ESCAP's Trade Intelligence and Negotiation Advisor

The resultant value was then divided by two as a concession from the Trump administration to the trading partners. Additional tariff rates of 145 percent were imposed on China during this wave, making it the highest in the world. This was followed by additional tariff rates of 49 percent on Cambodia. Vietnam faced additional tariff rates of 46 percent. Bangladesh reported additional tariff rates of 37 percent while Pakistan reported additional rates of 30 percent. India reported additional tariff rates of 27 percent. It is important to note that the textile industry already faces the highest tariff rates, with tariffs on imports from Bangladesh, China, Vietnam and Cambodia exceeding 10 percent, while imports from Pakistan and India facing approximately 9 percent. Machinery and electrical equipment report the lowest tariff rates, with all countries facing tariff rates of less than 1.2 percent. The overall original applied tariff rates are the highest for Pakistan and Bangladesh as they mainly export textile products to the US. Interestingly, Bangladesh faces a whopping 30 percent tariff rate on the exports of agricultural products to the US, while Pakistan and India face less than 3 percent.

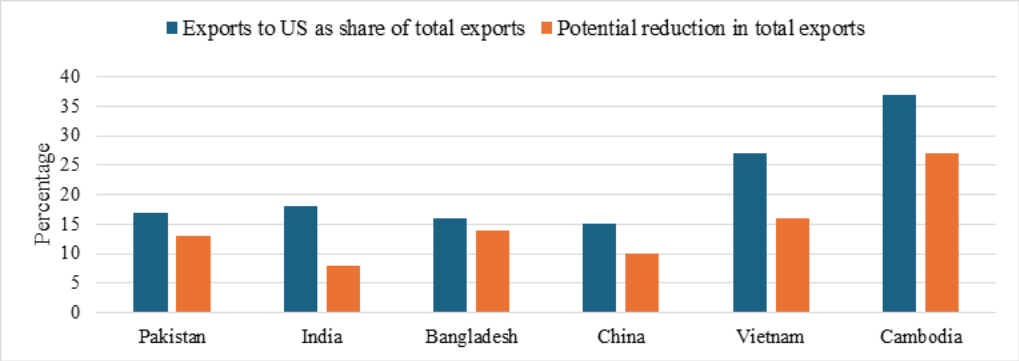
Export Share to the US and Potential Impact

The exports to the US as a share of total exports, indicating the dependency on the US market of the exporting country and the potential reduction in total exports due to Trump's tariffs, indicating the exposure of US tariff policy for an exporting country, is presented in Figure 4.2[4]. Cambodia and Vietnam not only report the highest share of exports to the US in total exports, at 37 percent and 27 percent respectively, but also report the highest exposure to Trump's tariff policies as they may face a reduction of 27 percent and 16 percent of their total exports respectively. The share of exports to the US to total exports of the other four countries is less than 20 percent, while the exposure is less than 15 percent. Bangladesh is likely to lose 14 percent of its total exports, while Pakistan will likely lose 13 percent of its total exports due to Trump's tariffs. China will lose 10 percent of its total exports, while India will lose 8 percent[5]. Even though the share of exports to the US is 18 percent for India, the lower level of potential reduction is because its exports include goods that have exempted from additional tariff rates by the Trump administration.

[4] The values are borrowed from the table available at United Nation ESCAP's TINA (https://tina.trade/app/tariff-simulation-generator).

[5] Additional tariffs were waived off on some products exported to the US. The excluded product list was published on 2nd April 2025 and 5th April 2025.

Figure 4.2: Exports to US as a share of total exports and potential reduction in total exports due to Trump's tariffs.



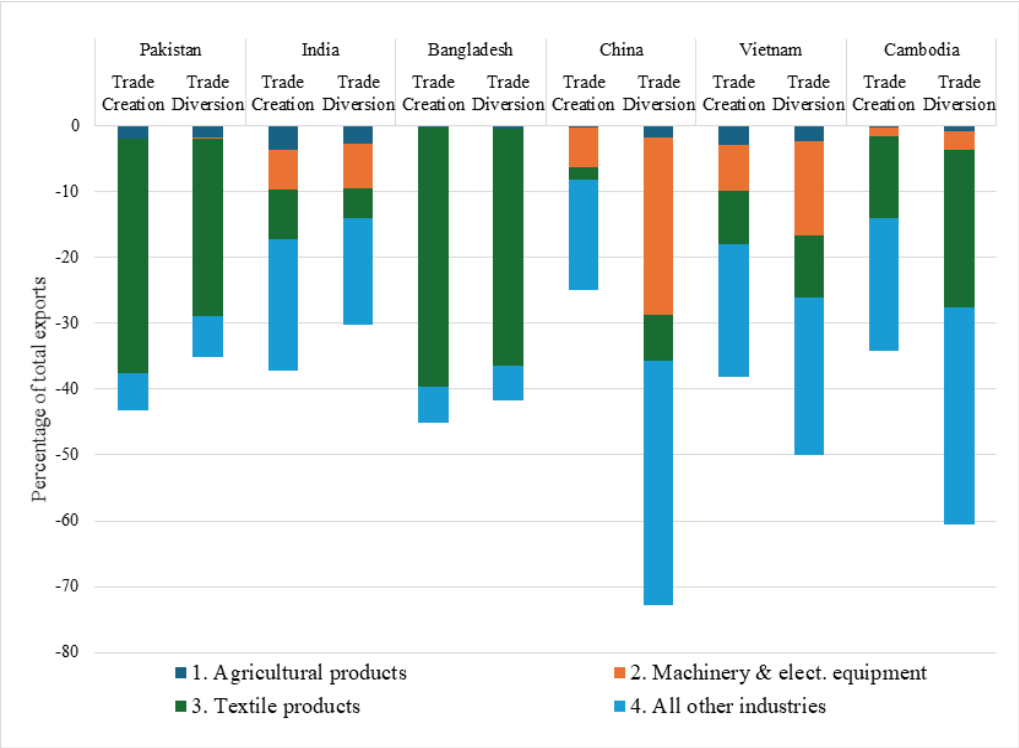
Source: United Nation ESCAP's Trade Intelligence and Negotiation Advisor

Trade Creating (Loss) and Trade Diversion

The negative trade creation and trade diversion from the exporting countries to other trading partners of the US as a percentage of total exports as US imposes additional tariffs on the imports are presented in Figure 4.3. China is likely to report the highest percentage of trade diversion, at more than 70 percent, as its additional tariffs are likely to result in its exports to the US to divert to other countries. Cambodia is likely to report more than 60 percent of its exports to the US diverted to other exporting countries, while Vietnam's share of trade diversion is approximately 50 percent. The negative trade creation is relatively lower than trade diversion for the East Asian economies in comparison to the South Asian economies, which report trade loss due to negative trade creation. Pakistan is likely to lose 40 percent of its exports to the US while India and Bangladesh are projected to lose 37 percent and 45 percent, respectively. Meanwhile, 35 percent of Pakistan's exports to the US will be diverted to other trading partners, 30 percent of India's exports to the US will be diverted and 42 percent of Bangladesh's exports to the US will be diverted. All countries except India will likely lose more than ¾ of their exports to the US due to the additional tariffs in the form of negative trade creation and trade diversion[6]. It is also important to note that as textile constitutes a significantly large share of the exports to the US from Pakistan and Bangladesh, the textile sector in the two countries will likely face the largest destruction in its exports to the US. **The share of textile sector is significantly lower for India, China and Vietnam indicating that the sector is likely given lower priority by the policymakers as they negotiate for tariff relief with the Trump administration.**

[6] The calculations for trade destruction on TINA's simulation website account for all imports into the US. The calculations presented in this chapter account for imports into the US of products that will be affected by the additional tariffs. It excludes the products on the exclusion list. Hence, the percentages reported in this chapter are higher than those reported on TINA's simulation website.

Figure 4.3: Trade creation (loss) and trade diversion due to Trump's tariffs distributed by industry.

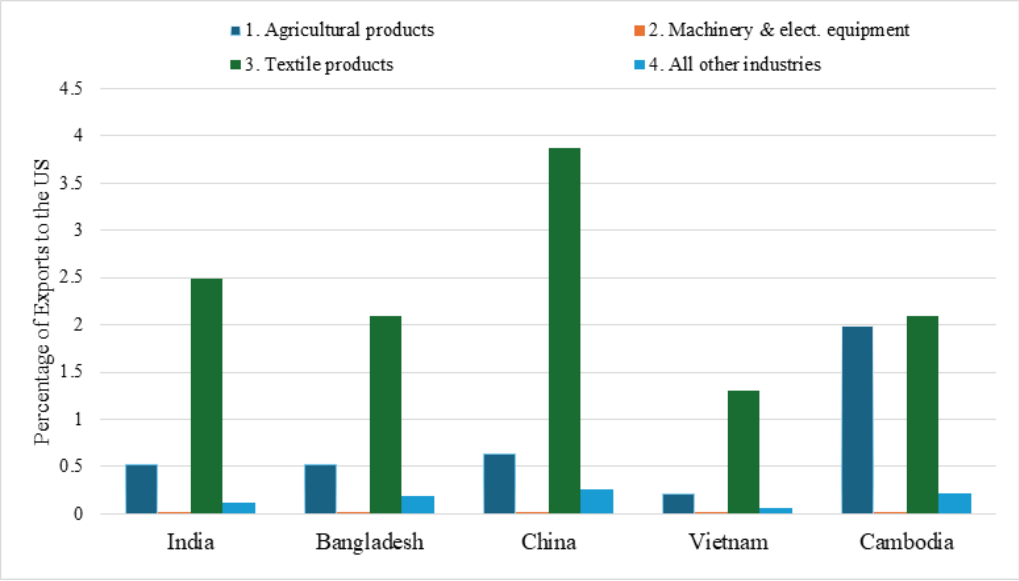


Source: United Nation ESCAP's Trade Intelligence and Negotiation Advisor

Trade Diversion to Pakistan: Best-Case Scenario

The level of trade diversion into Pakistan from other trading partners of the US facing additional tariffs is presented as a percentage of their total exports to the US in Figure 4.4. This scenario considers the best-case scenario for Pakistani policymakers, where the tariffs on imports from Pakistan are maintained at the original rates while the other countries face additional tariffs as announced by Trump on April 2nd, 2025. This is the highest level of trade diversion as Pakistan will face higher tariff rates on its exports to the US. Trade of textile products is most likely to be diverted to Pakistan than trade of other products, with the largest percentage share of total exports diverted from the exporting country will be from China followed by India, Bangladesh and Cambodia. Approximately 3.9 percent of China's exports to the US of textile products will be diverted ($1.05 billion), while 2.5 percent will be diverted from India ($235 million) and 2.1 percent from Bangladesh ($157 million) and Cambodia ($75 million). Only 1.3 percent of exports from Vietnam to the US in textile products will be diverted to Pakistan ($197 million). Interestingly, 2 percent of Cambodia's agricultural exports to the US will be diverted to Pakistan ($0.5 million). This is an anomaly as less than 1 percent of agricultural products exported to the US will be diverted to Pakistan from other exporting countries.

Figure 4.4: Trade diversion of exports to the US to Pakistan from exporting countries

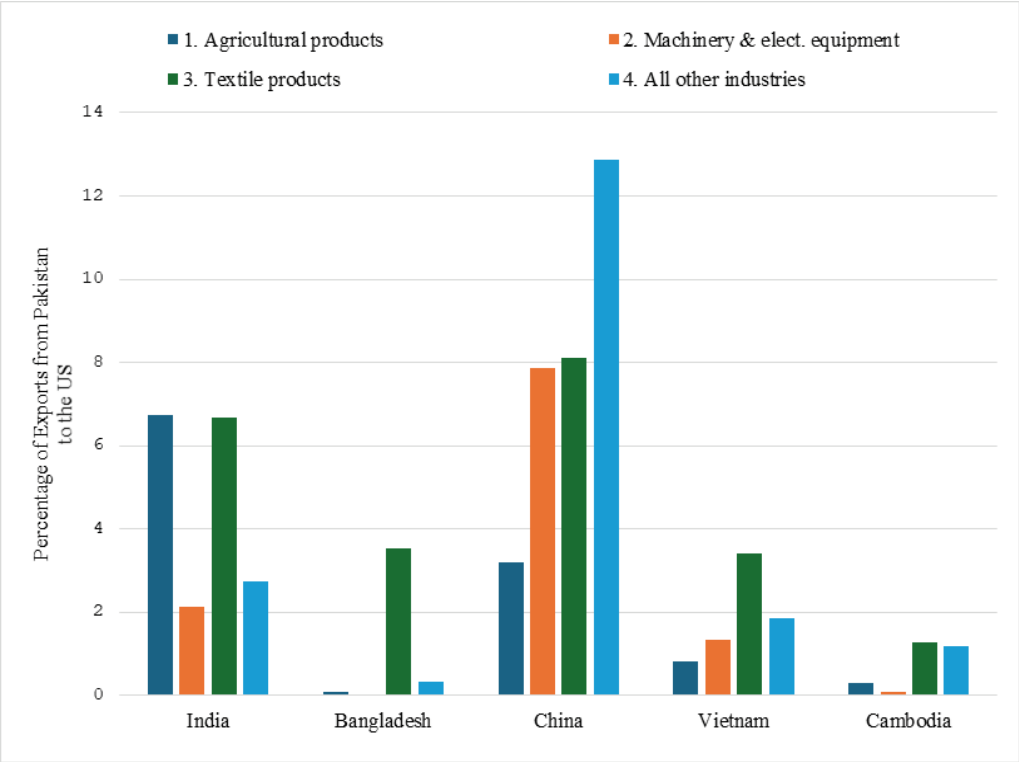


Source: CEPII's BACI dataset. Interventions from Global Trade Alert. Product categories from WITS

Trade Diversion from Pakistan: Worst-Case Scenario

The level of trade diversion of exports to the US from Pakistan into the other exporting countries is presented as a percentage of the total exports from Pakistan to the US in Figure 4.5. This scenario considers the worst-case scenario for Pakistani policymakers, where the tariffs on imports from other countries remain at original levels while Pakistan faces additional tariffs as announced by Trump on April 2, 2025. The largest volume of exports as a percentage of total exports to the US is likely to be diverted to China, with 12.9 percent of exports in all other industries ($100 million), 7.9 percent of exports in machinery and electrical equipment ($2 million) and 8.1 percent of exports in textile products ($324 million). The second largest recipient for exports diverted from Pakistan is India, with 6.7 percent of textile products ($268 million) and 6.8 percent of agricultural products exported to the US from Pakistan ($15 million). Less than 4 percent of textile exports from Pakistan to the US will likely be diverted to Bangladesh and Vietnam (~$150 million). Cambodia is likely to attract the least value of exports from Pakistan. **In essence, Chinese and Indian manufacturers are likely to be the major recipients of exports diverted from Pakistan if they are to receive trade concessions that result in a larger wedge between the prices of imports from Pakistan and its counterparts.**

Figure 4.5: Trade diversion of exports to the US from Pakistan to the other exporting countries.



Source: United Nation ESCAP's Trade Intelligence and Negotiation Advisor

Figure 4.1: Original applied tariffs and additional tariffs imposed on selected exporting countries.

Product code	Product Description	Imports into US from PAK	Total Trade Diversion from PAK	Exporters with highest trade diversion from PAK	Percentage of total trade diversion from PAK
630260	Toilet linen and kitchen linen of cotton	532,502,947	159,608,021	Turkey, China, India	90.56
611020	Jerseys of cotton	382,314,327	149,516,767	Cambodia, China, Vietnam	42.60
620462	Women's or girl's suits of cotton	394,541,424	146,379,519	Bangladesh, China, Vietnam	61.71
620342	Men's or boy's suits of cotton	356,993,010	137,478,545	Vietnam, Mexico, Bangladesh	63.01
630231	Bed linen, table linen of cotton	229,546,342	75,634,522	EU, India, China	93.19
610910	T-shirts of cotton	159,237,915	64,266,357	Nicaragua, Honduras, Bangladesh	33.72
630710	Floorcloths and dishcloths	212,335,103	57,994,696	South Korea, India, China	85.88
940490	Mattress supports	133,585,349	53,604,854	Mexico, India, China	90.26
901890	Medical and surgical instruments	117,106,600	52,334,813	EU, Costa Rica, Mexico	69.72
611595	Hosiery of cotton	145,778,046	44,543,508	China, Honduras, El Salvador	69.41

4.3 Conclusion

The various indicators on trade diversion for the top ten products, defined at the six-digit Harmonized System (HS) product level, reporting the highest level of trade diversion from Pakistan if imports from Pakistan were to face additional tariffs from the Trump administration while other exporters faced original tariff rates on their exports to the US is presented in Table 1. Eight out of ten products are textile products. Further, three out of eight are made-up textile articles such as toilet and bedlinen and floorcloths and five out of eight textile products are apparels and clothing. The trade diversion is likely to be highly concentrated amongst a few exporters as the majority of trade diversion is likely to be destined to three counterparts for eight out of the ten listed products. China features amongst the top three exporters to which exports from Pakistan to the US are likely to be diverted for seven out of the ten listed products, while India features four times. Bangladesh and Vietnam feature thrice and Cambodia features once. Interestingly, Latin American economies and the EU also feature amongst the top exporters where exports from Pakistan to the US will likely be diverted. The US has an FTA with Mexico, Honduras, El Salvador and Nicaragua, which allows these economies to benefit from trade concessions. These economies also take advantage of the 'yarn-forward' rule, allowing them to not only specialize in certain textile products but also participate in textile value chains involving inputs from the US.

The main finding suggests that the South Asian countries are likely to face lower tariff rates than the East Asian counterparts based on the calculations of the additional 'reciprocal' tariff rates. All countries, except India, will likely lose more than ¾ of their exports to the US. The impact of tariffs on total exports for Pakistan will be lower than that for Bangladesh, Vietnam and Cambodia but higher than that for India and China. The major trade loss in Pakistan will be reported by the textile sector, same as Bangladesh. Trade of textile products is more likely to be diverted to Pakistan than other products, with the largest percentage share of total exports from the exporting country being diverted from China followed by India, Bangladesh and Cambodia. However, the share for China is less than 4 percent of its total textile exports to the US. This is smaller for other countries, signifying the lack of major impact on the other exporting countries. However, under the worst-case scenario, more than 8 percent and 6 percent of textile exports from Pakistan may divert to China and India respectively if they are able to negotiate concessions while Pakistani negotiators fail in doing so. Further, China features seven times amongst the top three exporters to which exports from Pakistan to the US are likely to be diverted, while India features four times. Bangladesh and Vietnam feature thrice and Cambodia features once. Therefore, if Pakistan faces the worst-case scenario, the biggest threat to its textile exports is China, followed by India. Bangladesh, Vietnam and Cambodia rank low due to the nature of their exports.

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Chapter 5

Business Confidence Survey: The Rocky Road to Recovery

Qazi Masood and Aadil Nakhuda

Highlights

- Business Confidence Index (BCI) fell into the negative zone in June 2022 and recovered into the positive zone by the end of 2023 and remained in it since then. Expected BCI has always performed more positively than Current BCI.
- The Current Employment Index and the Purchasing Managers Index have both been in the negative zone since mid 2022. They plunged to their lowest level in mid 2023 and recovered close to the positive zone in early 2024. They continued to remain steady with no significant increases till the later half of 2024 when indicators reported a growth in their levels. The business community felt less confident about their hirings and their purchases, indicating weak business prospects in the economy for most of 2022 and 2023. However, there are some signs of recovery around the general election period in 2024. The conditions improved towards the end of 2024.
- The Large Scale Manufacturing Index (LSMI) and the trading activities in Pakistan were also showing a downward trend in 2022 and 2023. The indicators have recovered towards the end of 2023, as the general elections in 2024 approached. However, the levels remained steady throughout much of 2024 with improvements towards the end of it. This suggests that BCI does well in explaining the economic trend in Pakistan as it correlates well with the trend in the LSMI index and exports, particularly in explaining the economic conditions as Pakistan recovers from one of its most daunting economic challenges in recent history.

5.1 Introduction

Policymakers commonly use the Business Confidence Surveys (BCS) to gauge the perceptions of the business community and understand the conditions prevailing in the economy. In Pakistan, the BCS is conducted by the State Bank of Pakistan (SBP) in collaboration with the Institute of Business Administration (IBA), Karachi. It has been carried out as a bi-monthly telephonic survey conducted in the even numbered months of the calendar year since August 2018. However, now it is conducted as a monthly survey since February 2023. This change was made to better facilitate the policymakers given the volatility in the economic environment.

The survey targets firms belonging to the manufacturing, construction, financial services, retail and wholesale and services sectors across Pakistan, with more than 500 firms are surveyed in each wave. The sample of firms was extracted from the business registry provided by the Securities and Exchange Commission of Pakistan (SECP). Firms with the highest paid up capital within selected sectors were selected.

The businesses surveyed share their perceptions on the current and expected (six-month outlook) performance of the economy through several indicators. Although all indicators provide critical information to policymakers, we will focus on the following indicators:

- Current Business Confidence index (CBCI)
- Expected Business Confidence Index (EBCI)
- Business Confidence Index (BCI)
- Current Employment Index (CEI)
- Expected Employment Index (EEI)
- Purchasing Managers Index (PMI), and
- Inflation Expectations Index (IEI)

The details of these and other indicators are available on SBP's website under the Business Confidence Survey[1]. In the analysis that follows, the trend in the above BCS indicators is compared to those of major indicators on economic activity that are easily available, namely Large Scale Manufacturing Index (LSMI), exporting and importing activities.

[1] The website can be accessed through the following url: https://www.sbp.org.pk/research/BCS.asp

5.2 Methodology

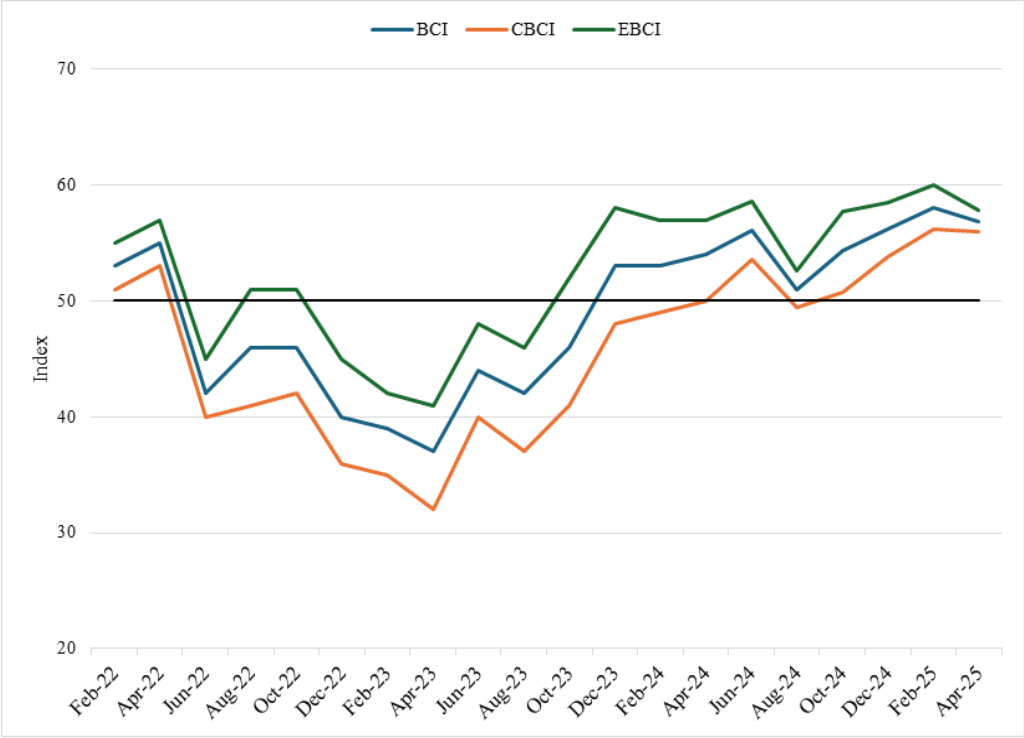
The results of the Business Confidence Survey are reported in the form of a Diffusion Index (DI), which is calculated based on the answers received for each indicator. The diffusion index shows the tendency of the respondents about a particularly aspect in a survey. Responses are collected using five options, ranging from 'very positive' to 'very negative'. The DI falls between 0 and 100, with 50 indicating a neutral perception, values above 50 indicating a positive perception, and below 50 indicating a negative perception.

5.3 Main Results

The diffusion index for major indicators are presented in Figures 5.1 and 5.2. These include the Business Confidence Index, Employment index, Purchasing Managers Index and Inflation Expectations Index. Figure 5.1 presents the trend of the current and expected economic and business conditions using CBCI, EBCI, CEI, and EEI. Literature suggests that if the perceptions on the economy hold and are a good predictor of the actual conditions, the trend in BCI should follow the trend in indicators that account for the actual production levels—i.e., LSMI and the exports are likely to show similar trends as BCI. BCI as determined in the SBP-IBA Business Confidence Survey does follow a similar trend to LSMI and the level of exports from Pakistan. The data on the quantum index of Large Scale Manufacturing Industries (base year 2015-16) and on total exports from Pakistan and total imports into Pakistan is borrowed from Pakistan Bureau of Statistics (PBS). The time period considered is February 2022, when the Pakistan Democratic Movement (PDM) government was poised to assume power, to April 2025[2]. This period also includes the phase when measures such as import controls were implemented to address the balance-of-payment related crisis in Pakistan and the subsequent phase involving the general elections and the undertaking of yet another IMF program. Therefore, the three years have included the period when economic challenges have been one of the most daunting in the history of Pakistan, marked with uncertainty for policymakers and stakeholders. The road to recovery is indeed rocky.

[2] It is not the purpose of this exercise to econometrically prove the validity of the BCI. The main purpose is to present the BCI and report on its trend along with that of major indicators on economic activity.

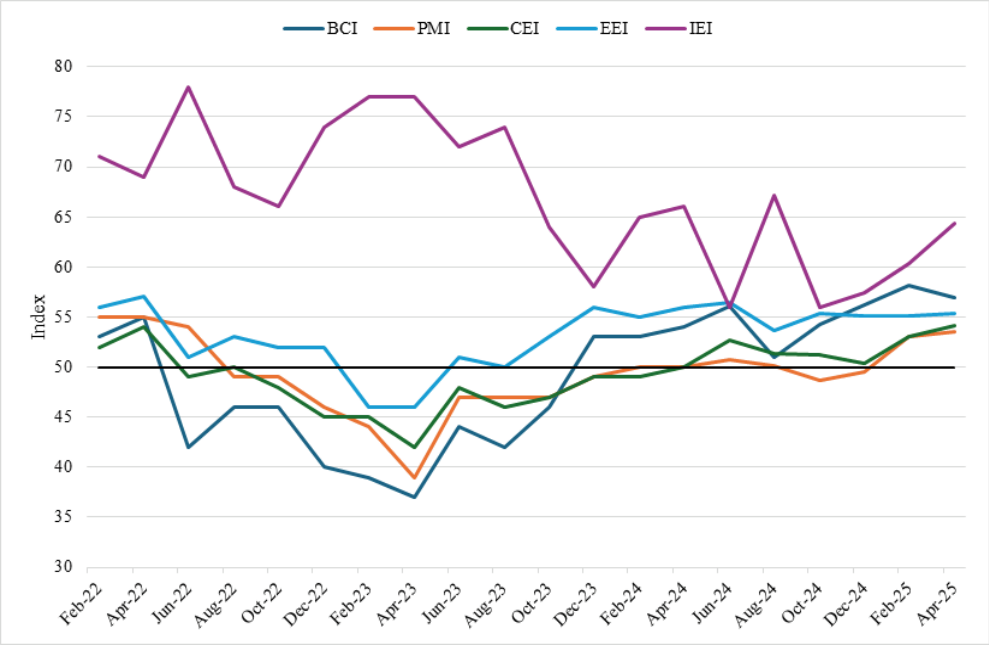
Figure 5.1: Business Confidence in Pakistan between February 2022 and April 2025.



Source: IBA-SBP Business Confidence Survey

The two components of the business confidence, the current and the expected business confidence, above 50 in April 2022, but began to decline in June 2022 as the economic challenges surmounted. The business confidence index decreased from 55 in April 2022 to 42 in June 2022. It remained in the negative zone, below 50, till December 2023 when it touched 50. It has increased since, despite a slight dip in August 2024. It peaked at 58 in February 2025. The expected business confidence decreased to 45 in June 2022, recovered to 50 in August 2022 but decreased again to less than 50 in December 2022. It remained below 50 till October 2023. However, it has since then shown an upward trend, except for a slight dip in August 2024, peaking at 60 in February 2025. The current business confidence has always been lower than the expected business confidence. The current business confidence decreased to 40 in June 2022, decreased further to 32 in April 2023. It recovered to 50 in April 2024, increasing to 54 in June 2024. It decreased to 50 in August 2024 but recovered again as it peaked at 58 in April 2025. The current business confidence has remained in the negative zone from June 2022 to April 2024, rising above 50 thereafter. The business confidence index is likely driven by the stronger positive outlook in the expected business confidence since December 2023.

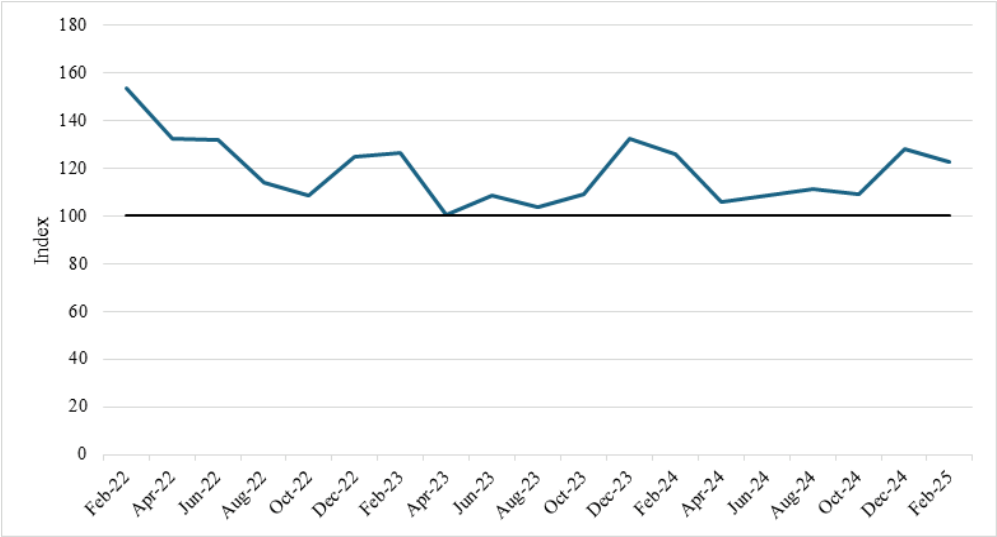
Figure 5.2: Recent trend in selected indicators suggesting the level of confidence in the economy.



Source: IBA-SBP Business Confidence Survey

The recent trend in BCI, PMI, CEI, EEI and IEI is presented in Figure 5.2. The trend in PMI and the employment indices is correlated with BCI. However, the trend in inflation expectations is inversely related to the trend in the other indicators. Inflation expectations peaked at 78 in June 2022, when the other indicators were on a downward trend. Inflation expectations hit a trough of 58 in December 2023 as the other indicators started to achieve their highest levels in recent months. The inflation expectation remained high through most of 2023, when most of the other indicators remained below 50. It dropped from 74 in August 2023 to 58 in December 2023. Since then, it has remained below 70, with its lowest level of 56 in June 2024 and October 2024. It reported 64 in April 2025, following an upward trend since October 2024. The PMI remained below 50 from August 2023 to December 2023. However, it hovered around 50 till December 2024. Since then, it has increased to 54 in April 2025. The CEI showed a similar trend. However, the EEI performed relatively better, falling below 50 between February 2023 and June 2023 and recovering after December 2023 to positive levels above 50. The expected levels are typically higher than the current levels, both for employment and for business confidence. In essence, the loss in business confidence is accompanied by low levels of purchasing manager's index and the employment indices but with higher levels of inflation expectations. However, as the economy began to recover from the crisis, the indicators measuring the confidence levels improved while inflation expectation decreased.

Figure 5.3: Large-scale manufacturing industries index between February 2022 and February 2025.

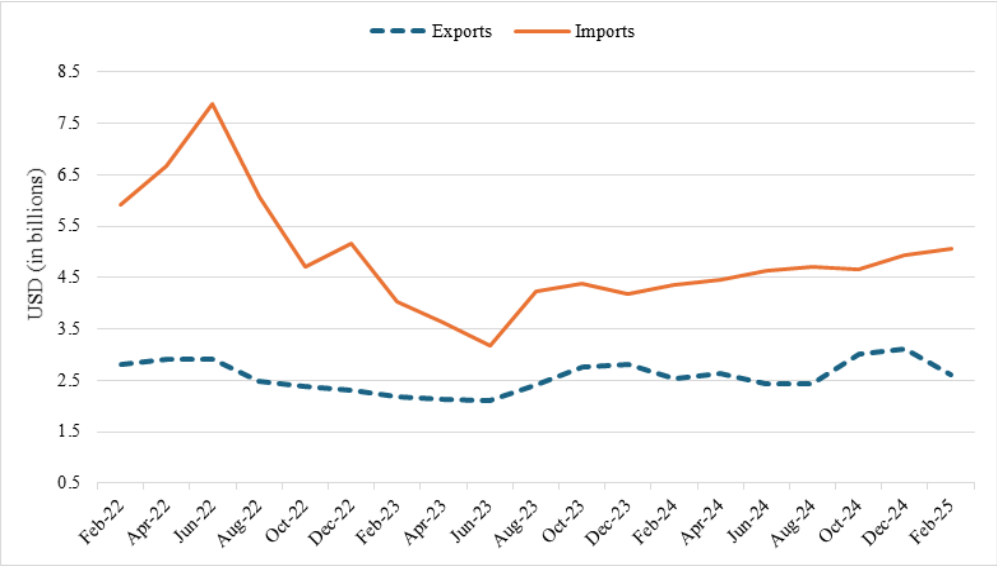


Source: Quantum Index of Selected Large-scale Manufacturing Items published by SBP

The trend for LSMI (base year 2015-2016) (LSMI) is reported in Figure 5.3. LSMI peaked in February 2022, at 153.6, and decreased to 100 in April 2023. It remained below 120 between April 2022 and October 2023, recovering to 132 in December 2023. However, it decreased again to 100 in April 2024. It remained below 110 till October 2024, recovering to 128 in December 2024. LSMI follows closely with the business confidence, purchasing manager's and the employment indices reported in the earlier figures. The LSMI performed poorly in the majority of the months, except for a sharper recovery at the end of 2023. Unfortunately, LSMI has not kept up with the falling inflation expectations, suggesting that industrial activity has not picked up even though inflation expectations have decreased.

The trend in the exports from Pakistan and imports into Pakistan is reported in Figure 5.4. The imports into Pakistan peaked in June 2022, when $7.8 billion worth of goods were imported into Pakistan. However, the decline swiftly followed as Pakistan adopted strict measures to curtail import demand. The imports declined to $4.7 billion in October 2022. The declining trend continued into 2023, as imports bottomed out at $3.2 billion in June 2023. It recovered to $4.2 billion in August 2023. It has since then maintained a level below $5 billion till December 2024. Imports were $5.1 billion in February 2025.

Figure 5.4: Exports from Pakistan and imports into Pakistan between February 2022 and April 2025.



Source: Exports, Imports and Balance of Trade published by SBP

Although the purpose of the measures to reduce import demand is to reduce the trade deficit, the biggest casualty from the reduction in imports is the country's ability to generate export revenues. Several exportable goods require imported inputs in their production. With import controls, the ability to produce exports is also impeded. Exports decreased from a peak of $2.9 billion in June 2022 to $2.1 billion in June 2023. As measures to curtail imports were relaxed in the second half of 2023, exports also started to show some recovery. Exports increased to $2.8 billion in December 2023. It maintained a steady level around $2.5 billion till August 2024. However, it reported an upward trend in October 2024 as it almost touched $3 billion. It peaked at $3.1 billion in December 2024 but decreased to $2.6 billion in February 2025. Again, the performance in the business confidence indicators is also closely related to the performance in trade indicators presented in Figure 5.4.

The lack of economic activity in the first half of 2023, followed by a recovery in 2024 is clearly highlighted in the earlier figures and in the trends revealed by the figures on exports and imports. The upward trend in exports towards the end of 2024 is also correlated with the upward trend in other indicators on business confidence and LSMI.

5.4 Conclusion

Pakistan's economy faced one of its most daunting challenges in recent years in 2022 when balance-of-payment-related pressures plunged business confidence into one of its lowest levels. The result was not only that the different components constituting the business confidence decreased in the latter half of 2022, the purchasing managers' index and the employment index all reported values below 50 for several months in both 2022 and 2023. This was followed by a period of recovery in the majority of 2024 and a sharper increase in the indicators at the end of 2024. The inflation expectations also peaked during this period as high inflation coincided with weak business activity, while the lower levels of inflation expectation accompanied improvement in the confidence indicators. The large-scale manufacturing index in 2022 and 2023 also performed poorly. However, it recovered at the end of 2024. Monthly exports and imports decreased in 2022, remaining steady for most of the period in 2023 and 2024 as measures were implemented to curtail the pressures on the balance of payments. The exports showed a sharp increase towards the end of 2024. **This clearly suggests that the business confidence index has proven effective in predicting the economic conditions in Pakistan. It is recommended that the results of the business confidence index are highlighted by the media to better understand the prevailing and expected economic conditions in Pakistan.**

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Chapter 6

The Digital Economy of Pakistan: An Outlook

Adnan Haider, Syed Ali Ahmed

Highlights

- With freelancers contributing significantly to Pakistan's $3.22 billion IT exports in 2024, improving internet reliability, removing payment barriers, and providing training in global platforms can further scale this sector.
- To enhance IT export revenues, Pakistan should simplify foreign exchange regulations, offer tax incentives for tech companies, and support product-based startups through expanded incubation and venture capital access.
- Expanding high-speed, affordable internet—especially in rural areas—is critical for inclusive digital growth; public-private partnerships can help bridge this gap.
- A centralized authority should coordinate fragmented digital initiatives, enforce data protection laws, and ensure policies benefit all citizens—especially women and rural communities.

6.1 Introduction

Pakistan's digital economy has emerged as a significant driver of economic growth, innovation, and employment in recent years. The country is undergoing a rapid digital transformation, spurred by a confluence of favorable demographic, technological, and market dynamics. One of Pakistan's most notable assets is its young population—nearly 64 percent of the population is under the age of 30—offering a vast, energetic, and increasingly tech-savvy workforce eager to engage with emerging digital trends. This demographic dividend, combined with a steady increase in internet penetration, positions Pakistan to fully harness the transformative power of the digital revolution. As of 2024, over 125 million people in Pakistan use the internet, and smartphone penetration has grown steadily across urban and semi-urban regions. Despite this growing digital adoption, Pakistan's performance in mobile and digital indicators lags several South Asian counterparts across multiple dimensions (see Table 6.1).

Table 6.1: Mobile Connectivity Index

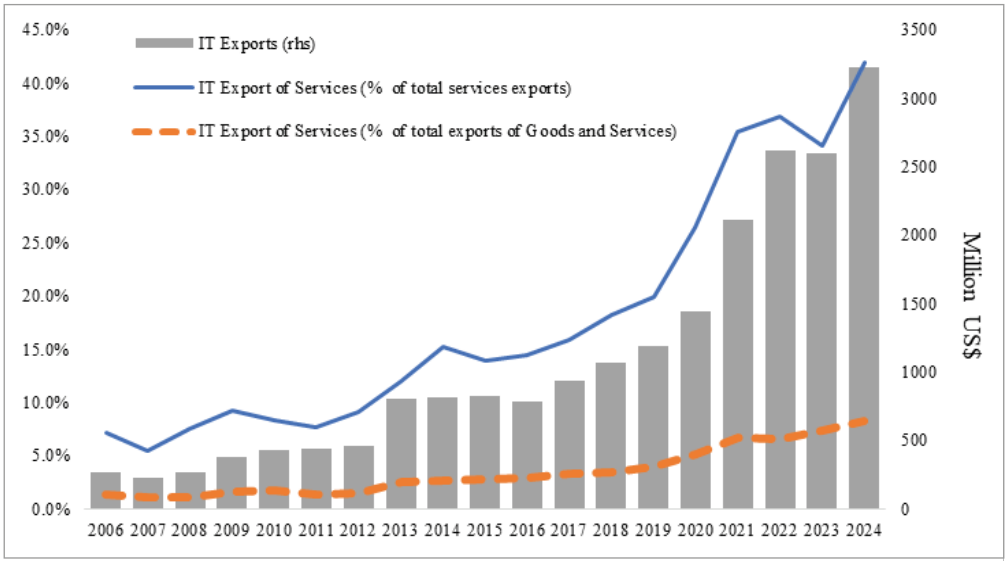
Country	Index	Network coverage	Network performance	Mobile Ownership	2G Population Coverage	3G Population Coverage	4G Population Coverage	5G Population Coverage	Mobile Social Media Penetration	Cyber security Index
Afghanistan	31.39	63.40	29.43	46.39	90.00	71.00	65.00	0.00	8.64	5.20
Bangladesh	53.54	89.27	52.59	59.03	99.63	98.60	98.60	4.26	29.97	81.27
Bhutan	59.56	82.77	65.24	59.63	98.00	90.00	87.00	21.70	57.38	18.34
India	66.46	92.12	62.61	65.21	99.21	99.00	99.00	30.00	32.07	97.50
Maldives	59.17	95.76	68.19	64.16	100.00	100.00	100.00	57.59	69.61	2.95
Nepal	54.35	81.42	51.67	71.14	93.00	90.00	88.31	8.00	43.16	44.99
Pakistan	**45.08**	**73.43**	**53.92**	**40.40**	**91.00**	**81.17**	**79.65**	**0.00**	**29.25**	**64.88**

Source: www.mobileconnectivityindex.com

With an overall index score of 45.08, Pakistan ranks lower than India (66.46), Bhutan (59.56), Maldives (59.17), Nepal (54.35), and Bangladesh (53.54), while only surpassing Afghanistan (31.39). In terms of network coverage and performance, Pakistan scores 73.43 and 53.92, respectively trailing behind regional leaders like Maldives, which boasts the highest scores in both categories. Mobile ownership in Pakistan stands at a low 40.40 percent, significantly lower than Nepal (71.14 percent) and India (65.21 percent). Despite relatively strong 2G coverage (91 percent), Pakistan's 3G and 4G coverage remains below regional averages. Like Afghanistan, the country has not yet deployed 5G. Mobile social media penetration is also limited at 29.25 percent, much lower than the Maldives (69.61 percent) and Bhutan (57.38 percent). However, Pakistan performs moderately well in cyber security, scoring 64.88, which places it ahead of most regional peers except India (97.50) and Bangladesh (81.27). Overall, while Pakistan shows potential in certain areas, it faces significant gaps in mobile ownership, next-generation network coverage, and digital penetration compared to its South Asian neighbors (World Bank Report, 2024).

None the less, the spread of mobile broadband, along with the growing use of e-commerce platforms, online banking, and digital services, has given rise to a new economic landscape that is reshaping industries and consumer behaviors. The information technology (IT) and IT-enabled services (ITeS) sectors, particularly freelancing and software exports, have shown remarkable growth.

Figure 6.1: IT Exports of Pakistan

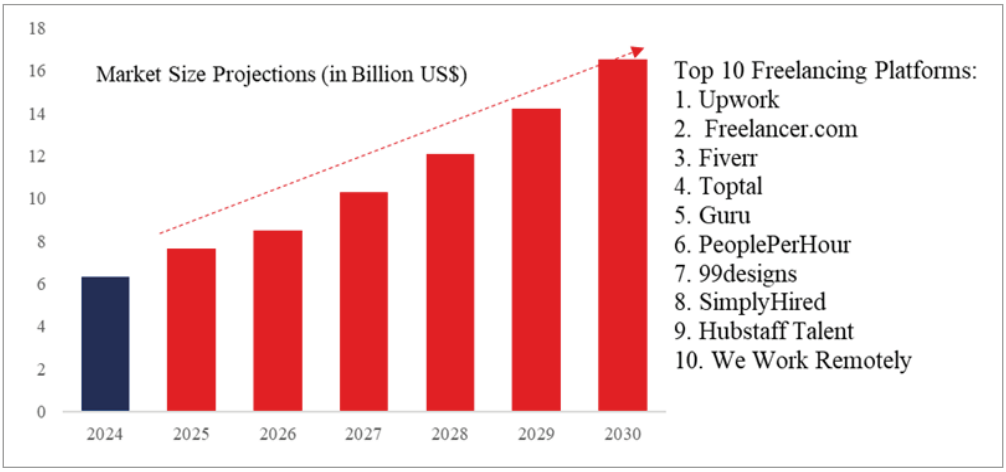


Source: State Bank of Pakistan

Pakistan's IT export performance has shown a remarkable upward trend over the past two decades. In 2006, IT exports stood at just $269 million, constituting 7.2 percent of total services exports and a modest 1.3 percent of total exports of goods and services. Although there was a slight dip in 2007, the sector began gaining momentum from 2009 onward. By 2013, IT exports had tripled to $803 million, accounting for 11.9 percent of services exports and 2.5 percent of total exports. The growth trend continued steadily, with exports reaching $1.44 billion in 2020, representing 26.5 percent of total services exports. A sharp rise was observed in subsequent years, peaking at $2.62 billion in 2022. By 2024, IT exports surged to $3.22 billion, capturing 41.9 percent of total services exports and 8.3 percent of total goods and services exports. This growth underscores the IT sector's expanding role, driven by better infrastructure, rising global demand, and a maturing local tech ecosystem.

Pakistan has emerged as one of the top ten countries in freelance earnings, with an estimated 2.73 million active freelancers generating over $400 million annually. In the fiscal year 2023–2024 alone, Pakistani freelancers brought in $410.15 million in foreign exchange, reflecting their growing role in the digital economy. This sizable freelance workforce represents a notable share of the global market and plays a vital role in supporting the country's economic growth. Alongside the freelance boom, Pakistan's tech startup ecosystem is gaining momentum, fueled by increased access to venture capital, startup incubators, and international partnerships that promote innovation and entrepreneurship. Globally, the freelance platform market is valued at $6.56 billion and is expected to grow at a compound annual growth rate (CAGR) of 16.5 percent from 2024 to 2030, indicating strong future potential for Pakistan to further expand its footprint in the digital services sector (see, Figure 6.2).

Figure 6.2: Global Market Size of Freelancing



Source: Mordor Intelligence

The digital economy's contribution to the national GDP is becoming increasingly significant, not only through direct revenues from tech exports and digital services but also by modernizing traditional sectors like agriculture, retail, and education through digital integration (Carlsson, 2004). For instance, fintech solutions are enabling financial inclusion, particularly in rural areas where access to traditional banking remains limited. Digital education platforms are bridging learning gaps, and e-governance initiatives are improving public service delivery. Furthermore, government-led initiatives such as the "Digital Pakistan" vision aim to promote a technology-driven ecosystem that enables ease of business, smart governance, and inclusive growth. However, despite the promising outlook, Pakistan's digital transformation is hampered by several persistent challenges. The most critical of these is the inadequacy of digital infrastructure—many rural and remote regions still lack reliable and high-speed internet access, creating a digital divide that limits equitable participation. Frequent internet slowdowns and service disruptions, often stemming from policy-driven interventions such as censorship or security-related firewall installations, also affect business continuity and public trust in digital platforms.

Regulatory bottlenecks further complicate the growth of digital businesses (Zhang et al., 2019). Overly stringent or outdated financial and taxation policies discourage foreign investment and hinder cross-border tech collaborations. Moreover, Pakistan has yet to fully implement a robust legal framework for data protection, cybersecurity, and digital rights, all of which are essential for sustaining user confidence in the digital ecosystem. Another key limitation is the digital skills gap. While there is no shortage of enthusiasm among the youth, the education system still lags in equipping students with market-relevant digital skills such as coding, data science, AI, and cybersecurity. Without targeted training programs and upskilling initiatives, the workforce may struggle to meet the evolving demands of the digital economy. Addressing these gaps through comprehensive policy reforms, public-private collaboration, and sustained investment in digital infrastructure and education is essential. In summary, Pakistan's digital economy is brimming with potential, but its full realization depends on overcoming structural, regulatory, and human capital challenges that currently constrain its progress.

6.2 Digital Economic Performance of Pakistan

Pakistan's digital economy has emerged as a significant driver of economic growth, innovation, and employment. With a burgeoning young population, increasing internet penetration, and a growing pool of tech-savvy professionals, the country is poised to harness the potential of digital transformation (Iftikhar, 2019). However, challenges such as infrastructure limitations, regulatory hurdles, and skill gaps continue to impede progress.

- **Digital Infrastructure and Connectivity:** The foundation of Pakistan's digital economy lies in its expanding digital infrastructure. As of 2024, over 50 percent of the population has access to the internet, facilitating the growth of e-commerce and online services. Mobile broadband coverage has seen a significant increase, with 81 percent of the adult population now residing in areas covered by 3G or 4G networks, a substantial rise from just 15 percent in 2010. Smartphone ownership has also surged, reaching 63 percent by the end of 2023. Despite these advancements, only 23 percent of the population subscribes to mobile internet services, highlighting the need for more affordable and accessible connectivity options

- **Economic Contribution and Growth:** The digital sector's contribution to Pakistan's GDP has been noteworthy. In 2024, the information technology (IT) sector contributed 1.4 percent to the country's GDP, amounting to PKR 1.1 trillion (approximately USD 3.7 billion). The mobile industry alone contributed $24 billion, accounting for 6.6 percent of GDP, driven by improved productivity and efficiency from increased mobile internet usage. Furthermore, Google's AI-powered solutions generated economic benefits of Rs. 3.9 trillion in 2023, marking a 222 percent increase since 2020.

- **Digital Financial Services:** The adoption of digital financial services has been on the rise. Internet banking users increased from 3.98 million in FY2020 to nearly 12 million in FY2024, while mobile banking users grew from 8.45 million to 18.68 million during the same period. Mobile banking transactions reached 1.12 billion, amounting to PKR 46.3 trillion in FY2024. E-commerce transactions also saw growth, with 39.9 million transactions totaling PKR 194.3 billion. These developments indicate a positive trend towards a more digitally inclusive financial ecosystem.

- **IT Sector and Export Growth:** Pakistan's Information and Communications Technology (ICT) exports have seen impressive growth, with a 25 percent increase reported in the fiscal year ending June 2024. The government has set an ambitious target of reaching $25 billion in IT exports, emphasizing innovation, cybersecurity, and national digitization. The country's IT sector now contributes 1.4 percent to the GDP, valued at approximately PKR 1.1 trillion (USD 3.7 billion.

- **E-Governance and Cybersecurity:** Pakistan has made significant progress in e-governance, moving up 14 positions in the United Nations E-Government Development Index (EGDI) from 2022, now ranking in the High EGDI category. In terms of cybersecurity, the country has been recognized globally, achieving a Tier-1 (Role-Modeling) status in the Global Cybersecurity Index by the International Telecommunication Union (ITU), alongside global leaders like the United States and Japan.

- **Artificial Intelligence and Future Projections:** Artificial Intelligence (AI) is poised to play a significant role in Pakistan's digital economy. Projections estimate that AI could contribute between $10 billion to $20 billion to the economy by 2030, accounting for up to 10 percent of the GDP. This growth is expected to be driven by advancements in AI technologies and their integration into various sectors, including healthcare, agriculture, and finance.

- **Digital Skills and Employment:** Investing in digital skills training is crucial for Pakistan's economic growth. According to a report by Google, narrowing the digital skills gap through training and greater adoption of education technologies can add Rs 2.8 trillion to Pakistan's GDP by 2030. In 2023 alone, Google's AI-powered tools contributed a staggering Rs 3.9 trillion to the Pakistani economy, supporting over 864,600 jobs by helping businesses expand using Google services.

- **Freelancing and IT Exports:** Pakistan has established itself as a significant player in the global freelancing market. In 2023, IT and IT-enabled services (ITeS) exports exceeded $2.6 billion, with a substantial portion attributed to freelancers providing services worldwide. Between 2018 and 2023, technology exports surged by 143 percent, rising from $1 billion to $2.6 billion. This growth underscores the country's potential in the digital services sector and its role in economic diversification.

- **Challenges and Regulatory Concerns:** Despite the progress, Pakistan's digital economy faces several challenges. The implementation of a national internet firewall has raised concerns among industry leaders, who warn of potential economic losses of up to $300 million due to internet disruptions. Businesses have reported reduced internet speeds by 30-40 percent, affecting operations and investor confidence. Additionally, scams and fraudulent activities in the digital space have eroded trust, highlighting the need for robust cybersecurity measures.

- **Future Prospects and Initiatives:** Looking ahead, Pakistan aims to leverage its surplus electricity by supporting Bitcoin mining and AI data centers, tapping into the country's estimated 15-20 million crypto users. Initiatives like "Agay Barho" emphasize the importance of digital skills training, with studies suggesting that narrowing the digital skills gap could add PKR 2.8 trillion to the annual GDP by 2030. These efforts, combined with supportive policies and infrastructure development, could position Pakistan as a global tech talent hub.

6.3 Digital Policy of Pakistan: Goals and Vision Statement

Pakistan had its first Digital Pakistan Policy in 2018 which stated the vision "To become a strategic enabler for an accelerated digitization eco system to expand the knowledge-based economy and spur socio economic growth".

Following this vision, the policy aimed to achieve twelve objectives including:

- **A Holistic Digital Strategy** involving the creation of a digital ecosystem through a compatible institutional framework and infrastructure to promote innovation.

- **Sectorial Digitalization** by prompting technological advancements in healthcare, education, agriculture.

- **E-Commerce** by enabling retailers to establish digital payment services.

- **The use of IT by Youth, Women, and Girls** by initiating relevant training programs.

- **The Promotion of Innovation, Entrepreneurship, Incubators/Startups in the IT sector** by conducting human resource development programs and creating a framework to tap into the pool of business partners, technology experts, and mentors through appropriate incentives.

- **The increase in software exports, IT remittances, and the Domestic Market** by widening the reach of the IT sector by giving IT professionals exposure to the international market through competitions and freelance.

- **The improvement of ICT rankings** based on international indices and benchmarks.

- **Digital inclusiveness** by narrowing the urban and rural divide and gender disparity while allowing persons with disabilities (PWDs) to connect with the digital world. The objective calls for establishing technology parks, IT zones, and telecentres.
- **E-Governance** to ensure efficiency, transparency and accountability in government operations.
- **The Increase of Foreign Direct Investment** in the nation's IT sector.
- **The access to online facilities for PWDs**
- **Standardization** to ensure compliance with international standards such as ISO.

As part of the fiscal incentives, the policy allowed several tax exemptions and holidays for IT related businesses. For instance, a sales tax of only 5 percent was mandated on the sales on IT services to maintain demand for such services and products. Similarly, IT companies were allowed to get loans at a 5 percent rate to ensure companies could remain competitive both nationally and internationally.

In contrast, non-fiscal incentives included the increase of the timeframe for renewal of registration licenses for call centers. Previously, call centers had to renew their registrations after every year as opposed to five years as indicated in this policy. Furthermore, the registration process was to be streamlined to ensure both initial registration and renewal cases were handled in three days.

The Digital Pakistan Policy served as a good starting point and is now replaced with the Digital Nation Pakistan Bill 2025 introduced by the acting Minister of State for Information Technology and Telecommunication. The Bill established the Pakistan Digital Authority (PDA) to oversee the digital transformation operations and develop, implement, monitor, and update the National Digital Masterplan. Its responsibilities also include to develop and enforce standards and a National Data Strategy for data governance and management.

As part of the Bill, the National Digital Masterplan is similar to the Digital Pakistan Policy as it also provides a strategic framework, vision, objectives, and priority areas for a digital Pakistan. It will also include sectoral plans for all the major sectors of the country that will provide a digital transformation roadmap. The sectors mentioned in the bill include health, education, agriculture, finance, social protection, trade, commerce, and governance.

A plan for implementing the sectoral transformation roadmaps will also be included along with the required projects, resources, timelines, and risk management strategies. The implementation plan will be complemented with a framework for evaluation, monitoring, and execution – something that was missing in the Digital Pakistan Policy 2018. The Bill also requires the plan to include technology standards, governance frameworks and policies for establishing a digital public infrastructure (DPI) that streamlines user experience.

The inclusion of a DPI is a significant and promising step toward digital transformation in Pakistan. DPI refers to the building blocks for developing digital services at scale (Digital Progress and Trends Report, 2023). Without a proper DPI, digital transformation efforts will result in digital silos and fragmented systems that consist of isolated and duplicate digital elements without any integrations. A DPI, in contrast, consists of a shared digital system whose primary components include digital identification, digital payments, and data sharing for enabling experts to leverage available data for building valuable digital services.

In the case of Pakistan, the digitization of national identity cards (NICs) by the National Database and Registration Authority (NADRA) is a phenomenal achievement that allows the government to effectively manage digital identities of more than 240 million citizens (World Economic Forum, 2024). Similarly, the launch of RAAST payment system initiated by the State Bank of Pakistan (SBP) is another major step toward digitizing financial transactions. RAAST is an instant payment system that will allow businesses, individuals, governments to transfer payments to each other with little to no transaction costs. According to SBP, the initiative will allow all players such as fintech companies, retailers, commercial and microfinance banks universal access to the country's financial system.

While the above initiative and projects provide an optimistic outlook for the nation's digital transformation trajectory, it remains to be seen how the outcomes of these efforts will play out in light of the new National Digital Masterplan.

6.4 Challenges and Barriers Against Pakistan's Digital Transformation

Pakistan's digital transformation journey is a complex interplay of progress and persistent challenges. While the nation has made notable strides in expanding internet access and fostering a burgeoning IT sector, several barriers continue to impede the full realization of its digital potential.

- **Infrastructure and Connectivity Challenges:** A significant hurdle in Pakistan's digital landscape is the inconsistent and often unreliable internet infrastructure. In 2024, businesses reported severe internet slowdowns, with speeds reduced by 30-40 percent, leading to estimated financial losses of $300 million. These disruptions were attributed to the government's testing of a nationwide internet firewall intended to regulate content and protect against cyber threats. However, many believe the firewall testing is the root cause of the slowdowns, adversely affecting the IT sector, online education, and international client communications.
- **Regulatory and Policy Barriers:** The regulatory environment in Pakistan presents its own set of challenges. The implementation of the national internet firewall has raised concerns among businesses and rights activists, who perceive it as a potential tool for censorship. The Pakistan Software Houses Association (P@SHA) warned that the firewall could lead to economic losses of up to $300 million due to extensive internet disruptions. They also expressed concerns about data privacy and the lack of transparency in the government's actions.

- **Digital Literacy and Inclusion:** Digital literacy remains a significant barrier, particularly among women and rural populations. In rural Pakistan, cultural norms restrict women's access to technology, with only 36 percent of women owning a cell phone compared to 78 percent of men. Moreover, 40 percent of female users have to ask permission from male owners to make calls, highlighting the gender disparity in digital access.

- **Cybersecurity and Trust Issues:** Cybersecurity threats pose a growing concern as Pakistan's digital footprint expands. The rise of digital banking and online transactions has increased the risk of cyber-attacks and data breaches. Implementing robust cybersecurity frameworks, regular security audits, and advanced encryption technologies are essential to mitigate these risks. Training employees on cybersecurity best practices is also crucial.

- **Institutional and Bureaucratic Hurdles:** Frequent leadership changes within government departments disrupt the continuity of digital transformation projects. Projects that do not show significant returns within a single tenure tend to phase out and be lost in limbo once top management changes hands. This results in unrealistic demands from delivery teams and unnecessary urgency, hindering progress.

- **Financial and Economic Constraints:** The process of funds approval and release for government projects is often tedious and prolonged, impacting the engagement and morale of contractors and vendors. Additionally, the lack of separate procurement rules for software leads to maintenance and support challenges for delivered software systems. Without perpetual budgetary allocations, departments are left with buggy software, affecting efficiency.

- **Socio-Cultural and Gender Barriers:** Societal norms and cultural practices significantly influence digital adoption in Pakistan. In many communities, women face restrictions on technology usage, limiting their participation in the digital economy. Efforts by organizations like the Digital Rights Foundation aim to combat online abuse and advocate for digital safety for women and gender minorities, but widespread change requires broader societal shifts.

- **Sector-Specific Challenges:** In the construction sector, digitalization faces obstacles such as the high cost of technology, lack of energy, and unavailability of digital equipment. Stakeholders' awareness of the benefits of digitalization needs to be increased to enhance productivity within the sector.

6.5 Policy Recommendations

Pakistan stands at a pivotal juncture in its digital transformation journey. While significant strides have been made in expanding internet access and fostering a burgeoning IT sector, several challenges persist that hinder the full realization of its digital potential. To accelerate progress and ensure inclusive growth, a multifaceted policy approach is essential.

- **Strengthening Digital Infrastructure:** A robust digital infrastructure is foundational for any digital economy. Pakistan must prioritize investments in high-speed internet connectivity, especially in underserved rural areas. Public-private partnerships can play a crucial role in expanding broadband access and ensuring affordability. Additionally, the development of data centers and cloud computing facilities will support the growing demand for digital services.

- **Enhancing Cybersecurity Measures:** With the increasing reliance on digital platforms, cybersecurity has become paramount. The establishment of the Pakistan Computer Emergency Response Team (PKCERT) in March 2024 marked a significant step towards coordinating responses to cyber threats. However, continuous capacity building, regular audits, and the development of a comprehensive national cybersecurity strategy are imperative to safeguard digital assets and maintain user trust.

- **Promoting Digital Financial Inclusion:** Digital financial services can drive economic inclusion and reduce poverty. Collaborations between financial institutions and technology providers, such as Visa's partnership with 1Link, aim to increase the adoption of digital payments in Pakistan. Expanding mobile banking services, simplifying Know Your Customer (KYC) processes, and promoting financial literacy can further enhance digital financial inclusion.

- **Reforming Regulatory Frameworks:** An enabling regulatory environment is crucial for digital transformation. Simplifying foreign exchange regulations can attract international tech companies and facilitate cross-border transactions. Additionally, reducing corporate tax rates for digital enterprises and offering tax incentives for startups can stimulate investment and innovation in the tech sector.

- **Investing in Digital Skills and Education:** To harness the benefits of digital transformation, Pakistan must invest in developing a digitally skilled workforce. Initiatives like the Presidential Initiative for Artificial Intelligence and Computing (PIAIC) aim to equip individuals with skills in AI, blockchain, and cloud computing. Expanding such programs and integrating digital literacy into the national education curriculum will prepare the youth for future job markets.

- **Encouraging Innovation and Entrepreneurship:** Supporting startups and fostering an entrepreneurial ecosystem can drive digital innovation. The National Incubation Center (NIC) provides mentorship, funding, and networking opportunities to budding entrepreneurs. Expanding such incubation centers across the country and facilitating access to venture capital can nurture homegrown tech solutions.

- **Ensuring Data Privacy and Protection:** As digital services proliferate, protecting user data becomes increasingly important. Establishing a comprehensive data protection law that outlines data collection, storage, and sharing practices will enhance user trust and align Pakistan with global data governance standards. Implementing transparent mechanisms for data handling and providing users with control over their personal information are essential steps forward.

- **Bridging the Digital Gender Divide:** Addressing gender disparities in digital access is vital for inclusive growth. Organizations like the Digital Rights Foundation (DRF) have highlighted the challenges women face in accessing and using digital technologies. Implementing targeted programs to increase digital literacy among women, ensuring safe online spaces, and promoting female participation in the tech industry can bridge this divide.

- **Streamlining Government Services:** Digitizing government services can enhance efficiency and transparency. The Digital Nation Pakistan Bill 2025 aims to centralize citizen data and provide access to government services via mobile platforms. Implementing this bill effectively will simplify administrative processes and improve service delivery to citizens.

- **Coordinating National Digital Strategies:** A cohesive national strategy is essential to guide digital transformation efforts. Establishing a centralized body to coordinate digital initiatives across various sectors can ensure alignment and prevent duplication of efforts. Regular monitoring and evaluation of digital policies will facilitate timely adjustments and continuous improvement.

Pakistan's digital transformation requires a holistic approach encompassing infrastructure development, regulatory reforms, skill enhancement, and inclusive policies (Malik & Saxena, 2024). By implementing these policy recommendations, Pakistan can unlock the full potential of its digital economy, foster innovation, and ensure sustainable and inclusive growth for all its citizens.

6.6 Conclusion

Pakistan's journey toward digital transformation is a multifaceted and evolving endeavor that holds immense promise for economic development, social inclusion, and global competitiveness. With a youthful population, increasing internet penetration, and growing interest in digital technologies, the country is well-positioned to become a regional leader in the digital economy. Over the past decade, significant improvements have been made in infrastructure, such as the expansion of mobile broadband networks, the rise in smartphone usage, and the increased availability of digital financial services. As of 2024, mobile internet coverage reached 81 percent of the adult population, and mobile banking users grew to nearly 19 million. This infrastructure expansion laid the groundwork for the growing IT and freelancing sectors, which generated over $2.6 billion in exports in 2023 alone, while platforms like Google's AI tools contributed economic benefits of Rs. 3.9 trillion in the same year. The mobile industry's impact was equally substantial, contributing over $24 billion to the national GDP. However, despite these gains, Pakistan's digital economy continues to face several systemic challenges that prevent it from realizing its full potential. These include underdeveloped digital infrastructure in rural areas, slow and unreliable internet connectivity, lack of affordable internet access, and regional disparities in digital inclusion. One of the more recent and controversial developments was the testing of a national internet firewall, which not only slowed internet speeds by up to 40 percent but also raised concerns about censorship, privacy, and transparency. The firewall's implementation could cost the economy up to $300 million, particularly impacting on the IT export and freelancing sectors that rely on fast, secure, and open internet access. Additionally, issues such as cybercrime, scams, and data breaches have eroded public trust in digital platforms, making cybersecurity and data privacy pressing concerns. Women and rural populations remain disproportionately excluded from the digital revolution due to cultural, educational, and infrastructural barriers. Despite this, the government's increasing recognition of the digital economy's potential has led to several policy initiatives. For example, the establishment of the Pakistan Computer Emergency Response Team (PKCERT) is a step in the right direction for addressing cybersecurity issues, while initiatives like the Presidential Initiative for Artificial Intelligence and Computing (PIAIC) aim to build the digital skills of the youth. Visa's partnership with local firms to promote digital payments and the development of national data exchange layers are also promising signs of growing public-private collaboration. However, these fragmented efforts need to be unified under a cohesive and transparent national strategy that aligns with the evolving needs of a digital society. Policy recommendations moving forward must include substantial investments in digital infrastructure to ensure high-speed and affordable internet across all regions, especially rural and underserved areas. Cybersecurity capabilities must be continuously updated through capacity building, audits, and comprehensive frameworks. Digital financial inclusion should be promoted through simplified regulations, increased awareness, and collaboration between banks and fintech firms. The regulatory environment needs urgent reform—this includes streamlining tax policies, simplifying foreign exchange rules, and offering targeted incentives for digital startups and tech exports.

Additionally, it is imperative to invest in digital literacy and skill development on a national scale. Programs like PIAIC should be scaled and embedded into the mainstream education system to prepare students for future job markets. The entrepreneurial ecosystem must be bolstered by expanding incubation centers, offering access to venture capital, and encouraging female participation in tech through gender-sensitive policies and programs. Data protection laws must be enacted and enforced to restore public trust and align with international standards of data governance. Moreover, digitizing government services via platforms like the proposed Digital Nation Pakistan Bill 2025 can streamline service delivery, reduce corruption, and enhance citizen engagement. These policy recommendations should be coordinated under a central authority responsible for aligning goals, measuring progress, and ensuring that digital transformation benefits all segments of society. Importantly, Pakistan must view digital transformation not as a one-time project but as a continuous, inclusive process that touches every aspect of public and private life. With concerted effort, thoughtful policy design, and the collective will of stakeholders—including government agencies, private sector leaders, civil society, and international partners—Pakistan has the potential to leapfrog into a new era of economic resilience, technological innovation, and inclusive growth. The stakes are high, but so is the potential reward: a digitally empowered Pakistan that competes globally, uplifts its citizens, and secures a prosperous future for the generations to come.

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Chapter 7

The Cost of Neglect: Pakistan's Provincial Health Spending and Its Human Price

Muhammad Nasir and Umema Amin Siddiqi

Highlights

- In 2018, Pakistan ranked among the world's riskiest birthplaces (41 neonatal deaths/1,000 births).
- 1 in 14 children die before age five – a rate worse than war-torn Yemen.
- South Punjab's 10 million people share just 23 hospitals vs. Lahore's 50 for a similar population.
- 40 percent of under-5 children are stunted, crippling cognitive and physical development.
- 89 percent of private healthcare is out-of-pocket, forcing families into medical poverty.

7.1 Introduction

In Pakistan your postal code is a stronger predictor of your health outcomes than your genetic code. The nation's healthcare financing system, a fractured landscape of glaring disparities, presents a tale of two Pakistan: one where urban elite access world-class medical care, and another where mothers in rural settings walk miles to reach a clinic without electricity or basic medicines. In the time it takes to read this chapter and the next, another Pakistani mother will die in childbirth. Not in a warzone. Not in a natural disaster. But in a country that spends billions on nuclear missiles while rural clinics lack gloves and gauze.

At the heart of this crisis lies a fundamental failure of prioritization. Pakistan's total health expenditure, hovering around a meager 1.2 percent of GDP, ranks among the lowest in South Asia (International Labour Organization, 2024, pp. 69). This chronic underinvestment has forced nearly three-quarters of Pakistani households to rely on out-of-pocket payments for healthcare, pushing approximately 2 million families below the poverty line each year (Pakistan Bureau of Statistics, 2023). The private sector, which now accounts for 52.6 percent of total health expenditure, has stepped in to fill this vacuum, but at costs that place quality healthcare out of reach for ordinary citizens.

The 18th Amendment of 2010, which devolved health responsibilities to provinces, promised a new era of equitable healthcare access. Yet fifteen years on, the reality exposes an outlook of stark inequalities. Punjab's current health expenditure of PKR 269.5 billion in 2021-22 contrasts sharply with Balochistan's PKR 34.6 billion, translating to per capita spending of PKR 2,122 versus PKR 1,922 respectively (Pakistan Bureau of Statistics, 2023). These provincial inequalities are magnified at the district level, where urban centers like Lahore and Karachi command disproportionate shares of resources while rural areas languish in medical deserts.

This broken healthcare system extracts its toll in preventable human tragedies. Mothers bleed to death during childbirth for want of basic obstetric care. Children succumb to diseases that vaccines could have prevented. Families liquidate their meager assets - land, livestock, life savings - in desperate bids to pay for life-saving treatments. These individual catastrophes aggregate into national crises.

The barriers to care are both physical and systemic. For 42 percent of Pakistani women, simply reaching a healthcare facility presents an insurmountable challenge (Khan, 2022). Nowhere is this more evident than in Tharparkar's harsh terrain, where the absence of basic road infrastructure transforms routine medical visits into perilous journeys. An expectant mother in labor must traverse dozens of kilometers of desert, often on foot or by donkey cart, to reach the nearest functioning clinic.

Compounding these geographical challenges are self-inflicted policy failures. Provincial governments consistently fail to utilize their full allocated health budgets, while critical infrastructure in underserved regions remains either woefully underdeveloped or entirely absent. This dual failure of execution and investment created healthcare deserts where the most vulnerable populations were left to fend for themselves.

This chapter examines the anatomy of Pakistan's health expenditure crisis, tracing the flow of resources from national budgets to provincial treasuries and ultimately to district health facilities. As the country grapples with a growing population, emerging health threats, and the lingering impacts of COVID-19, understanding these expenditure patterns becomes not just an academic exercise, but a matter of national urgency. The following analysis provides both a diagnosis of the current system's failures and a roadmap for building a more equitable, effective healthcare financing model that can deliver on the constitutional promise of health for all Pakistanis.

7.2 Health Financing Infrastructure

In 2018, UNICEF declared Pakistan as one of the riskiest countries to be born in, due to the extremely high rate of 41 neonatal deaths per 1,000 births (VOA, 2018). While the number has dropped to 38 in 2023, Pakistan is still far behind. The global neonatal mortality rate (NMR) in 2023 stands at 17 deaths per 1,000 live births, Pakistan's rate of 38 remains shockingly high; more than double the world average and worse than all regional peers (WHO, 2023). Neighboring India and Bangladesh, once grappling with similar challenges, have reduced their NMR to 17 and 18 respectively through sustained healthcare investments. Even war-torn Afghanistan (34) now outperforms Pakistan.

This disparity translates to a devastating human toll: every year, approximately 240,000 Pakistani newborns die. These deaths are overwhelmingly preventable and expose systemic failures in maternal care, nutrition programs, and rural health infrastructure—failures other nations have successfully addressed. Pakistan's stagnation in neonatal survival isn't just a statistic; it's a policy failure measured in tiny coffins.

The Public-Private Divide

Pakistan's public healthcare system, chronically underfunded and strained by inefficiency, serves less than half the population – primarily the rural poor (Pakistan Bureau of Statistics, 2023). Rural clinics frequently lack even basic medicines like antibiotics, let alone specialist care, while overcrowded urban tertiary hospitals struggle to meet demand. The consequences are dire: 1 in 14 Pakistani children die before turning five (UNICEF, 2020), and 40 percent suffer from stunting due to malnutrition and inadequate maternal care (World Bank, 2024). For those who survive childhood, the system offers little reprieve.

The private sector, dominating 52.6 percent of health expenditure (Ministry of Finance, 2024), operates on a pay-to-live model, charging exorbitant fees even for basic services. A staggering 89 percent of private healthcare spending comes from out-of-pocket (OOP) payments, pushing families into financial distress (Pakistan Bureau of Statistics, 2023). Nowhere is this disparity more acute than in cardiac care: a single stent in a private hospital costs PKR 300,000–800,000, often plunging households into debt, while public hospitals provide stents for free or at minimal cost. Yet, systemic shortages, prolonged waits, and even cases of expired stents (Dawn, 2023) force patients into an impossible choice: financial ruin or untreated illness.

The crisis is even depressing for those already marginalized. In Karachi, 9 out of 10 women deliver with skilled medical help, a figure rivaling middle-income nations. But cross into rural Sindh, and that number collapses to just 6 out of 10. The situation turns catastrophic in Balochistan's dust-blown villages, where only 3 out of 10 mothers receive professional care during childbirth – lower than war-torn Yemen's national average (UNICEF, 2023). While Sindh's urban center showcases what's possible with proper investment, its villages remain deprived of essential healthcare services. This isn't just uneven development; it's a broken system that systematically denies basic care to citizens based on where they live.

Pakistan's Healthcare Crisis: A Policy Failure, Not Fate

The overwhelming disparities in Pakistan's healthcare outcomes cannot be dismissed as inevitable consequences of poverty - they represent calculated political neglect and systemic mismanagement. While some claim rural healthcare gaps reflect resource limitations, the evidence explains a more alarming truth: where political commitment exists, functional healthcare delivery is possible even in resource-constrained areas.

The harsh contrasts between Duki (Balochistan) and Tharparkar (Sindh) proclaim a brutal truth about Pakistan's healthcare discrimination, where you live determines whether you thrive or perish.

Despite serving similar rural populations (4.77 percent in Duki vs. 8.12 percent in Tharparkar), the two districts represent polar opposites in human development. In Duki, 86 percent of births are assisted by skilled professionals, a rate comparable to urban centers, while Tharparkar languishes at a medieval 23 percent – meaning 3 out of 4 mothers deliver without lifesaving care. This divergence isn't accidental: Duki's success stems from the People's Primary Healthcare Initiative (PPHI), which eliminated ghost clinics and enforced staff accountability, while Tharparkar remains trapped in Sindh's broken bureaucratic system.

The inequities extend beyond healthcare. 90 percent of Duki's households have flush toilets, a critical barrier against deadly waterborne diseases, versus just 21 percent in Tharparkar, where open defecation perpetuates cycles of diarrhea and stunting. These infrastructure gaps compound Tharparkar's health crisis, as children surviving birth then battle preventable infections.

The Health Score is a composite metric that evaluates healthcare system performance by combining three critical indicators: immunization coverage (measuring preventive care), skilled birth attendance (assessing delivery care quality), and antenatal care visits (tracking maternal health access). By integrating these components, the score reveals striking differences. Duki outperforms its province by 36 percent, proving effective governance can overcome regional disadvantages. Meanwhile, Tharparkar scores half of Sindh's average, an alarming indictment of rural neglect in Pakistan's "developed" province. Table 7.1 shows the striking contrast.

Table 7.1: Two Rural Pakistans: How Health Systems Produce Opposite Outcomes

Indicators	Duki (Balochistan)	Tharparkar (Sindh)
Rural population (percent)	4.8	8.1
Skilled Birth Attendance (percent)	86.0	23.0
Flush Toilet Facility (percent)	90.0	21.0
Health Score	19.8 (Average: 14.6)	9.7 (Average: 19.5)

Source: Pakistan Bureau of Statistics, 2021

When a woman dies from pregnancy or childbirth complications, her death triggers a disastrous chain reaction that extends far beyond the immediate loss. Studies show that infants whose mothers die have a one-third chance to survive within two years, even if they survive birth (ICRW, 2014). Those who do survive face lifelong disadvantages: they are more likely to be stunted, less likely to attend school. The trauma reverberates through households, as grieving husbands and grandparents suddenly must take on caregiving roles while coping with a loss of household income within a year of the mother's death (Kes et al., 2015).

Perhaps the cruel irony is that many of these deaths stem from preventable birth complications, such as hemorrhage or obstructed labor. Newborns who suffer oxygen deprivation during unassisted deliveries often sustain permanent brain damage, sentencing them to a lifetime of cognitive impairments and lost potential. These poverty-disadvantaged children face lower IQs, reduced earning capacity, and heightened vulnerability to chronic disease, proving that the scars of maternal mortality persist for generations.

In Pakistan, this spatial inequality magnifies human capital challenges, as regions needing most development investment receive least medical support. The solution requires targeted deployment of community midwives, emergency obstetric facilities, and accountability measures ensuring rural health budgets translate to functional delivery rooms rather than remaining unspent or misappropriated.

7.3 Provincial and District-Level Health Expenditure

The 18th Amendment promised a healthcare revolution through provincial autonomy, but a decade later, Pakistan's health system remains broken – not due to a lack of funds, but because of mismanagement, corruption, and systemic neglect. A closer look at provincial spending unfolds a disturbing pattern: money vanishes, audits are ignored, and rural populations pay the price with their lives. Pakistan's four provinces present dramatically different pictures of healthcare investment when examined through per capita spending (Table 7.2)

Table 7.2: Per capita health spending

Province	Current Health Expenditure (million PKR)	2023 Population (million)	Per Capita Spending (PKR)
Punjab	269,494	127	2,122
Sindh	111,310	55	2,024
Khyber Pakhtunkhwa (KP)	88,950	37	2,404
Balochistan	34,597	18	1,922

Sources: Pakistan Bureau of Statistics, 2023, Pakistan Bureau of Statistics (2023 projections)

At first glance, KP appears to lead in per capita spending (PKR 2,404), but this "advantage" disappears when considering its challenging terrain and post-conflict health infrastructure needs. The per capita figure of Sindh masks extreme inequality within the province itself, where Karachi absorbs the lion's share of resources while rural districts like Tharparkar remain medical deserts. Punjab's PKR 2,122 per capita spending, while seemingly substantial for Pakistan's most populous province, translates to just $9.43 annually at 2022 exchange rates (USD 1 = PKR 228) - barely enough for basic vaccinations, let alone comprehensive care.

The consequences are written in mortality rates. In a devastating paradox, Punjab -Pakistan's economic powerhouse with 52 percent of the nation's population - watches more children die before age five (84.7 per 1000) than impoverished, conflict-ridden Balochistan (78.4 per 1000) (NIPS & ICF, 2019). These numbers expose an uncomfortable truth: having more hospitals means nothing when they're concentrated in wealthy urban centers while rural mothers walk miles to clinics without doctors or medicines.

Sindh

Sindh's healthcare system is plagued by financial irregularities and absent oversight. Despite a 10 percent increase in the health budget (reaching PKR 272.16 billion) and billions in grants to institutions in 2023, not a single health facility has submitted audit reports—even after repeated government directives (Dawn, 2023). The Pakistan People's Party (PPP) government's strategy of pumping funds into these institutions without financial scrutiny has failed to improve healthcare outcomes, as money vanishes into opaque cost structures. With zero accountability mechanisms, budgets are allocated year after year, but the funds never reach patients lying on hospital floors without medicines or clean beds.

The People's Primary Healthcare Initiative (PPHI), once hailed as a solution, has instead become part of the problem. Recent audits reveal systemic rot: PKR 1.18 billion in unauthorized loans from Sindh Bank, stockpiles of expired substandard medicines worth over PKR 1 billion, alongside documented cases of ghost employees and embezzled funds (ARY News, 2024). What began as a decentralized healthcare model now mirrors the very corruption it was meant to replace. Further, clinics that were supposed to serve the poor stand empty, their shelves bare, their staff absent – while officials responsible face no consequences.

While Karachi's elite hospitals hoard 45 percent of Sindh's health funds, Tharparkar, home to Pakistan's worst malnutrition crisis, receives scraps. This results in only 23 percent of births attended by skilled professionals (Pakistan Bureau of Statistics, 2021) and children dying of preventable diarrhoea because clinics lack Oral Rehydration Solution (ORS) packets.

Balochistan

In the vast, rugged terrain of Balochistan, Pakistan's largest but most neglected province, a silent healthcare crisis claims lives daily through a combination of shocking financial mismanagement and systemic neglect. The province's health system stands paralyzed by incompetence, as evidenced by the recent revelation that PKR 3 billion in health funds were returned unused while hospitals lack life-saving medicines and non-functional oxygen plants gather dust (Dawn, 2024). These unspent funds, which could have stocked pharmacies, revived emergency services, or staffed rural clinics, represent just the tip of the iceberg.

The true scale of the crisis becomes clear through recent audits exposing PKR 26.54 billion lost to fake procurements and ghost employees (The Friday Times, 2024). The consequences are devastatingly visible: rural health centers stand as empty shells, reduced to mere buildings without doctors, pharmacies without medicines, and ultimately, patients without hope. This catastrophic waste of resources continues while preventable deaths mount across Balochistan's impoverished communities.

Khyber Pakhtunkhwa

Khyber Pakhtunkhwa (KP) presents a troubling healthcare contradiction: despite allocating PKR 2,404 per capita, more than Punjab's health budget, the system fails to deliver. In 2024, the province earmarked PKR 232 billion for healthcare, yet utilized only 15 percent (PKR 5.29 billion) in the first half of the fiscal year (Express Tribune, 2025). While the Sehat Sahulat Card program continues to operate, its reach remains limited; many hospitals either suspend services or deny care, leaving the card's promise of universal coverage unfulfilled. The stalled air ambulance project, buried in bureaucratic delays, further exemplifies this gap between policy and reality.

The crisis deepens when examining where funds actually go. A NAB investigation revealed PKR 1.25 billion stolen through fraudulent medicine procurement in 2023-24, with fake delivery challans approving payments for drugs that never reached hospitals (Daily Times, 2025). Between this brazen corruption and the PKR 226.7 billion in unspent funds, KP's healthcare system resembles an ATM with no cash: the infrastructure exists, yet patients remain unable to access essential care. The Sehat Card's partial success only highlights how much more could be achieved with proper implementation and accountability.

Punjab

Despite commanding Pakistan's largest health budget, Punjab's healthcare infrastructure struggles to meet basic needs for its 127 million residents. With just one bed per 2,389 residents, the province's healthcare system is operating at crisis capacity. Punjab's doctor-to-patient ratio of 1:879 masks severe maldistribution: Lahore Division holds 43 percent of specialists while South Punjab's 35 million people share fewer cardiologists than a single Lahore private hospital (Government of Punjab, 2024).

As shown in Table 7.3, Lahore's 1.05 beds per 1,000 people create a facade of healthcare adequacy, but cross into South Punjab and the system collapses. Rajanpur's 0.18 beds per 1,000 is 5.8 times scarcer than Lahore's. South Punjab's three largest districts (combined population 10 million) have fewer total hospitals (23) than Lahore's 50, despite comparable populations.

Table 7.3: Lahore versus South Punjab

District	Population	Hospitals	Total Beds	Beds per 1,000 People
Lahore	13,000,000	50	13,634	1.05
Bahawalpur	4,500,000	12	2,467	0.55
Rahim Yar Khan	3,000,000	6	1,343	0.45
Rajanpur	2,550,000	5	450	0.18

Sources: Government of Punjab (2024), Pakistan Bureau of Statistics (2023 projections)

These strained resources are distributed with prohibitive inequality: Lahore receives PKR 4,850 per capita in health spending compared to just PKR 980 in Rajanpur, a five-fold imbalance that leaves rural facilities critically under-equipped (Ilyas, 2024). While Punjab possesses the resources to provide quality healthcare, its urban-centric allocation and poor financial oversight have created a two-tiered system where access to care depends entirely on geography. The province's challenge lies not in expanding infrastructure, but in implementing equitable distribution and proper accountability mechanisms to ensure existing resources reach patients.

7.4 Pakistan's Lost Generation

The National Nutrition Survey 2018 (NNS) discloses a crushing truth: four out of ten Pakistani children under five are stunted; their bodies and brains irreversibly stunted by chronic malnutrition. These children, shorter than their healthy peers, will face lifelong disadvantages: lower cognitive ability, school performance, and earning potential. Equally alarming, two out of ten suffer from wasting; a condition of acute malnutrition that leaves them skeletally thin and nine times more likely to die from preventable infections like diarrhea or pneumonia. Another three out of ten are underweight, a sign of persistent hunger that weakens immunity and delays development. Meanwhile, one in ten is overweight, a cruel paradox where children consume empty calories but lack essential nutrients. This sets them up for early-onset diabetes and heart disease.

Together, these statistics paint a grim future. They put the prospects of demographic dividend in Pakistan at risk, resulting in a generation inheriting poor health, stunted potential, and economic vulnerability. Without urgent intervention, Pakistan's malnutrition crisis will perpetuate cycles of poverty, undermine workforce productivity, and burden the healthcare system for decades to come (Ministry of NHSRC, 2019).

Figure 7.1: Childhood Malnutrition in Pakistan

Source: Ministry of NHSRC, 2019

7.5 Roadmap for Reform

Pakistan's healthcare crisis demands bold, systemic reforms that prioritize equity, accountability, and results. First, we must fix broken financial systems through mandatory independent audits and performance-based funding, tying budgets to actual health outcomes rather than political calculations. The current urban bias must end through a "rural first" policy offering salary incentives for health workers in underserved areas and requiring medical graduates to serve two years in high-need districts. Proven models like PPHI should be expanded nationwide, giving districts autonomy to manage their own health budgets with community oversight. A national health emergency must be declared in the 30 worst-performing districts, deploying emergency clinics and telemedicine to bridge immediate gaps while long-term systems are built.

These reforms require constitutional changes to establish minimum health spending floors and strong accountability mechanisms. The cost of inaction is too high - every year of delay means more preventable deaths, deeper poverty, and a weaker nation. But with political will and public pressure, Pakistan can build a healthcare system that serves all its citizens, not just the privileged few. The tools exist; what's missing is the courage to use them.

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Chapter 8

Repositioning Social Protection Amid Fiscal Constraints and Rising Vulnerabilities

Shagufta Shabbar

Highlights

- BISP has persistent targeting and inclusion challenges. Despite the use of the NSER and proxy means testing, many eligible households—particularly in remote and high-poverty regions like Balochistan—remain excluded. Lack of transparency in the PMT score and poor grievance redressal mechanisms undermine equitable access.
- While nominal transfer values have increased over time, their real value has declined. That means that although the monthly transfer is PKR 2,333 the real value of this transfer has declined to around PKR 997. The adequacy of the benefit (share of the average monthly consumption of households in lowest quintile) had declined from 9.8 percent to 6.64 percent by 2018, highlighting the urgent need to link benefits to inflation or basic needs benchmarks.
- BISP has not sufficiently evolved to cover newly vulnerable groups, including climate-displaced populations, urban informal workers, and women without documentation.

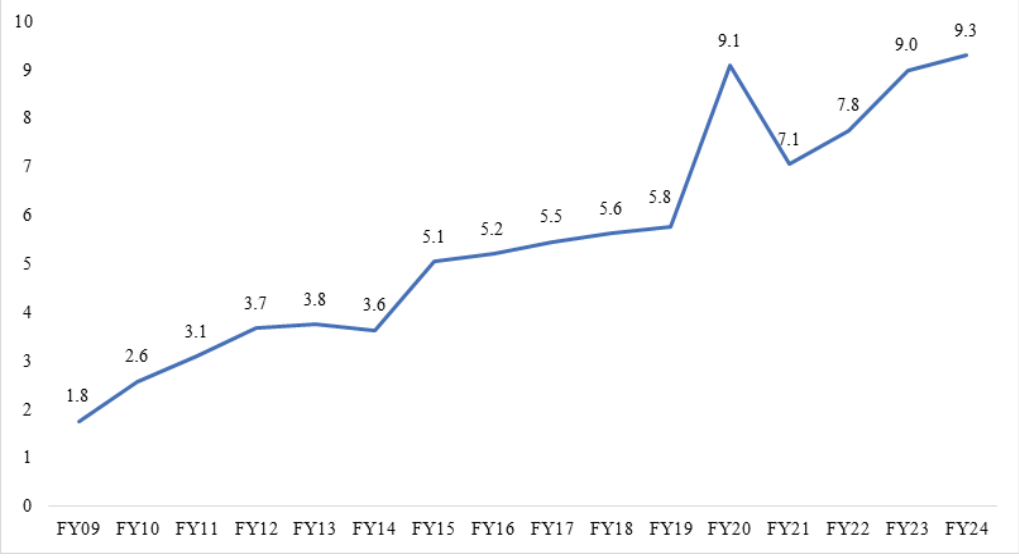
8.1 Introduction

Pakistan's economy is at a critical juncture. While it has recently experienced a considerable reduction in inflationary pressures, it continues to grapple with the aftermath of high inflation periods, stagnant economic growth, and an increasing frequency and intensity of climate shocks. In this challenging and complex environment, fiscal policymakers are confronted with difficult decisions regarding how to effectively protect vulnerable populations without further destabilizing the nation's macroeconomic fundamentals. Within this context, social protection emerges not merely as a moral imperative to alleviate suffering but also as a crucial strategic tool for fostering economic resilience and promoting social stability. The BISP, Pakistan's flagship social assistance program, plays a pivotal and indispensable role in this landscape.

At a time when economic recovery is fragile and inequality risks deepening, BISP provides a stabilizing anchor for millions of low-income households. Its unconditional cash transfers (UCT) help smooth consumption, prevent negative coping strategies such as child labor or distress sales of assets, and contribute to human capital development through linked programs in education and nutrition. As climate-related disasters—such as floods and heatwaves—disproportionately affect the poor, BISP's national reach and digital infrastructure make it uniquely positioned to serve as a shock-responsive delivery mechanism. Furthermore, by targeting women as primary recipients, BISP contributes to broader goals of gender equity and empowerment, amplifying its developmental impact. As Pakistan weighs its policy options at this turning point, safeguarding and strengthening BISP is not just a social choice but an economic necessity.

Launched in 2008, the BISP was initially designed to shield vulnerable populations from the effects of rising food prices (Shabbar, 2024). Since its inception, it has evolved into Pakistan's largest social assistance initiative. The number of recipients has steadily grown from 1.7 million in 2008, to currently reaching approximately 9 million recipients (Figure 8.1)

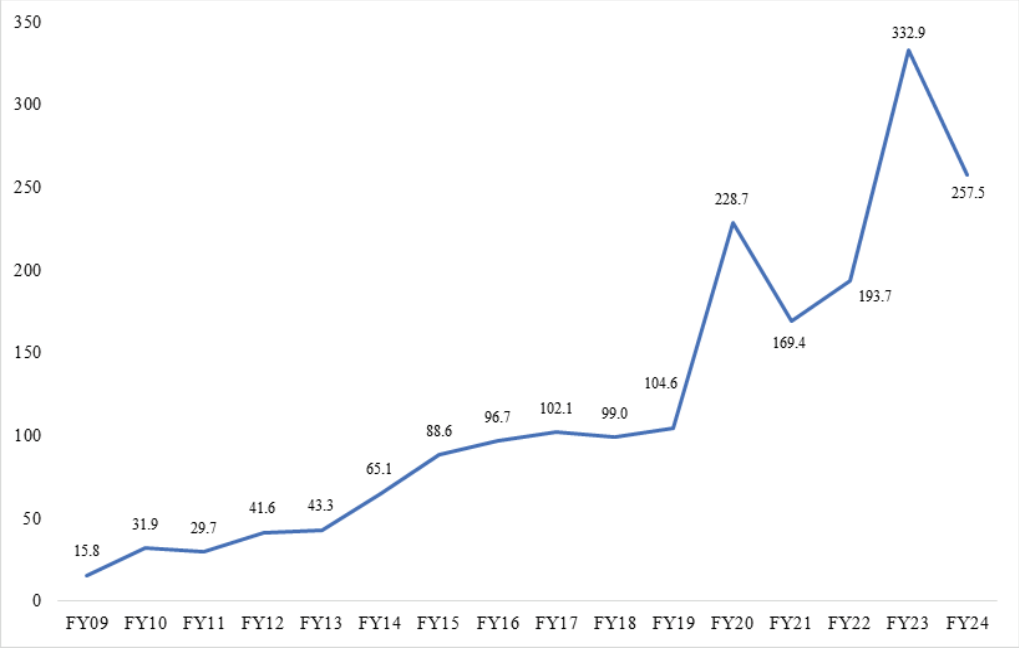
Figure 8.1: Number of beneficiaries (in millions)



Despite being relatively young, BISP has significantly influenced the national economy. It began as UCT scheme, primarily aimed at cushioning the poorest households from food and fuel price shocks. At the time, wheat prices had surged by 106 percent, with some essential food items experiencing increases of up to 120 percent. Given that the lowest income decile allocates nearly 20 percent of its consumption to wheat (Cheema, Hunt, Javeed, Lone, & O'Leary, 2016), these households were disproportionately affected. Over time, BISP's broader objective has become the provision of a minimum income floor.

The program specifically targets women from the most disadvantaged households to mitigate the effects of inflation and sluggish economic growth. Eligibility criteria include possession of a Computerized National Identity Card (CNIC), a proxy means-tested poverty score, and the status of being 'ever-married'—which encompasses currently married, divorced, separated, or widowed women. The poverty score is derived from a World Bank-designed proxy means test (PMT) using observable household indicators, producing a score between 0 and 100 (Shabbar 2023). BISP's targeting mechanism has been assessed to be on par with comparable international programs (Shabbar, 2024). Initially 23 observables characteristics were used to calculate the score, but additional dimensions were included in 2021. At first those households that had a score below 16.173 were deemed eligible. In September 2021 this cutoff was increased to 32 and the households having a score below that were considered eligible to be BISP beneficiaries. However, for families with a differently abled person, the PMT cut-off score is set at 37 for eligibility. As of January 2022, each beneficiary received a biannual transfer of PKR 13,000 (approximately USD 70). These payments are disbursed through BISP's banking partners: Habib Bank Limited (HBL) in Punjab, Sindh, and Balochistan, and Bank Alfalah in Khyber Pakhtunkhwa, Gilgit-Baltistan, and Azad Jammu and Kashmir. Beneficiaries access funds following successful verification through the Biometric Verification System (BVS), which helps ensure transparency and reduce fraud.

Figure 8.2: Disbursements (PKR billions)



In a progressive step toward inclusivity, the Board of the BISP has approved a policy framework that facilitates the inclusion of transgender individuals as beneficiaries under the Benazir Kafaalat initiative. Under this new policy, individuals identifying as transgender must possess a CNIC issued by NADRA that explicitly records their gender as transgender. This documentation serves as a prerequisite for their enrolment in the program.

Additionally, transgender applicants must undergo a mandatory socio-economic survey at the Benazir Registration Centers, which are now operational in every Tehsil-level BISP office. Unlike the general applicant pool, transgender individuals are not subject to the standard PMT poverty score threshold. Instead, all those who complete the survey successfully are deemed eligible to apply, regardless of their PMT score. After their information is validated and verified by NADRA, they are formally registered as beneficiaries and begin receiving cash transfers. This inclusion policy reflects an important acknowledgment of the structural vulnerabilities faced by transgender communities in Pakistan, many of whom are excluded from formal employment and social protection due to stigma and discrimination. By removing poverty score thresholds and enabling targeted outreach, BISP seeks to provide a basic income floor to a historically marginalized population.

To ensure that financial support continues even after the death of a beneficiary, BISP has established a formal Next of Kin (NOK) policy. This provision allows a family member of the deceased beneficiary to continue receiving assistance, subject to verification and documentation. The deceased's household must submit a set of required documents to the nearest BISP Tehsil Office, including the CNIC of the deceased, a cancellation certificate issued by NADRA, the official death certificate from the local Union Council, and valid CNICs of potential successor family members. Once this documentation is processed and verified, the next-of-kin, as defined in BISP's policy guidelines, is enrolled as the new beneficiary. This ensures that the household does not face sudden income shocks or further deprivation due to the loss of a primary female recipient. The NOK policy is especially significant for female-headed households and vulnerable families who depend heavily on these transfers for their subsistence.

A robust and responsive Grievance Redressal Mechanism (GRM) is in place to address complaints arising at various stages of program delivery, including eligibility disputes, payment delays, biometric failures, and issues with banking agents. The GRM is digitally linked with BISP's partner banks, allowing for real-time tracking, escalation, and resolution of grievances. Beneficiaries can lodge complaints by visiting the nearest Tehsil-level BISP office, where trained grievance officers are available to document and address their concerns. Alternatively, complaints can be submitted through BISP's toll-free helpline based at its Headquarters in Islamabad. This mechanism plays a critical role in ensuring transparency, enhancing trust in the system, and maintaining service delivery standards. Periodic audits and monitoring reports further strengthen the accountability of the grievance redressal process.

Together, these institutional innovations—transgender inclusion, the Next of Kin policy, and a strong grievance redressal system—demonstrate BISP's ongoing evolution as a rights-based social protection program aiming to extend financial security to the most marginalized communities across Pakistan.

8.2 Mandate, Evolution, and Institutional Architecture

BISP was initially conceived as an UCT program to support poor women-led households. Over time, it expanded its scope to include conditional transfers (e.g., Benazir Taleemi Wazaif), nutrition support (Benazir Nashonuma), and a robust targeting infrastructure via the National Socio-Economic Registry (NSER). BISP operates under the Poverty Alleviation and Social Safety Division and is administered by a dedicated board. It has four pillars i.e.

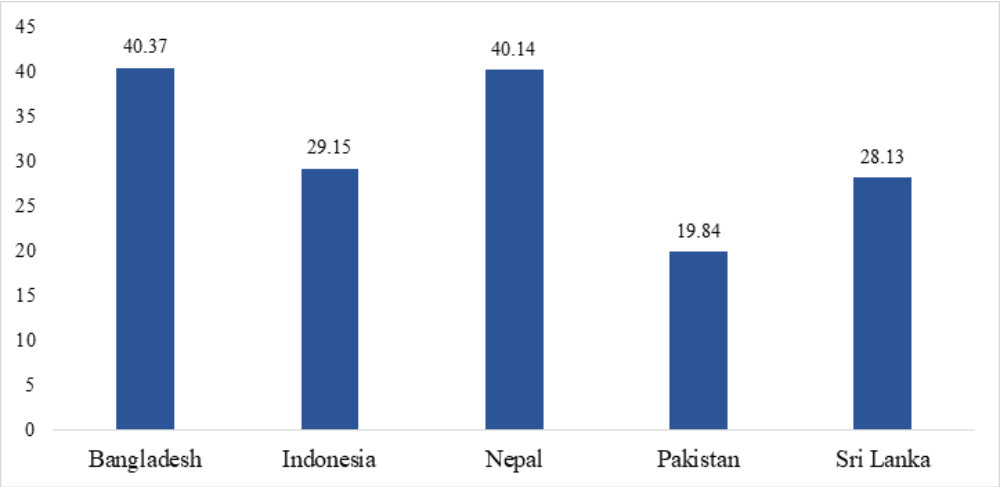
- Kafaalat: Unconditional cash transfers to over 9 million women.
- Taleemi Wazaif: Conditional transfers tied to school enrolment and attendance.
- Nashonuma: Nutrition support for pregnant women and children under two.
- NSER: Pakistan's only national household-level poverty database.

Kafaalat is the core pillar that provides UCT to over 9 million women, serving as a vital social assistance program that helps beneficiary households meet their basic needs, smooth consumption, and cope with economic shocks. The Kafaalat program is the largest component of BISP, reaching a significant portion of Pakistan's vulnerable population. Taleemi Wazaif component offers conditional cash transfers (CCT) directly tied to school enrollment and consistent attendance of children from beneficiary families. The primary objective is to promote education outcomes, reduce child labor, and break the intergenerational cycle of poverty by investing in human capital development. Nashonuma focuses on providing crucial nutrition support for pregnant and lactating women and children under two years of age. It aims to address the pervasive issue of malnutrition, improve maternal and child health indicators, and foster healthy early childhood development, which are critical for long-term societal well-being. NSER stands as Pakistan's sole national household-level poverty database. It is a dynamic and comprehensive registry that uses a proxy means test to identify and verify eligible households for BISP and other social protection programs. The data collection process involves several stages: initial enumeration, rigorous data verification, and validation through community checks and cross-referencing with other national databases like NADRA (National Database and Registration Authority) for identity verification. The NSER is designed to be a dynamic registry, with periodic updates to account for changes in household welfare status due to births, deaths, migration, or economic mobility. This dynamism is crucial for minimizing targeting errors over time. However, maintaining its accuracy and dynamism presents significant challenges, including the high logistical cost of conducting nationwide surveys, operational complexities in reaching remote and conflict-affected areas, and the continuous need to update the PMT model to reflect changing economic realities and consumption patterns.

BISP Coverage

The effectiveness of NSER is significantly hampered by the scoring mechanism that remains largely opaque to the very individuals it aims to serve. This lack of transparency, particularly concerning the PMT that underpins eligibility, creates a profound disconnect. Beneficiaries struggle to comprehend how their scores are determined, leading to widespread confusion among those who are either included or, more critically, those unjustly excluded from receiving vital cash assistance. This opacity fosters a deep sense of mistrust in the system's fairness and integrity. The repercussions of inaccurate targeting within the NSER are severe and far-reaching. When eligible individuals are mistakenly denied benefits—an issue often referred to as "exclusion errors"—it erodes public confidence in the program's ability to fulfill its mandate. The World Bank's report (2024) states that potential beneficiaries in remote areas are being missed. The report provides evidence of lowest coverage in Balochistan although its districts have a higher prevalence of poverty. This high rate of exclusion is concerning. Families living in precarious conditions, who should be receiving a lifeline, are instead left to struggle, often pushed deeper into poverty. This systemic failure not only exacerbates existing inequalities but also undermines the core objective of social assistance program which is to alleviate poverty and promote well-being. Looking at the country level the total population being covered by BISP is 19.84 percent. This is significantly lower than that of Bangladesh, and Nepal (Guven, Majoka, & Jamy, 2024). Figure 8.3 gives comparison with other regional countries. Data from the Labour Force Survey 2020–21 indicates that 72 percent of non-agricultural workers are employed informally. Since many are part of low-income households, it is reasonable to infer that many of these workers are left out of the coverage of the program. Indonesia and Sri Lanka demonstrate significantly higher coverage of UCT programs, reaching 35.1 percent and 21.0 percent of their populations, respectively. In comparison, Pakistan's coverage stands at 9.98 percent (ASPIRE, 2018), ahead of Bangladesh (as Bangladesh relies on other forms of social assistance) but notably behind its regional peers. This disparity underscores the need for Pakistan to expand BISP's reach, especially to underserved groups such as informal workers and communities vulnerable to economic and climate shocks. Strengthening coverage would not only enhance social protection but also align Pakistan more closely with regional benchmarks.

Figure 8.3: Proportion of population covered by social assistance (percent)



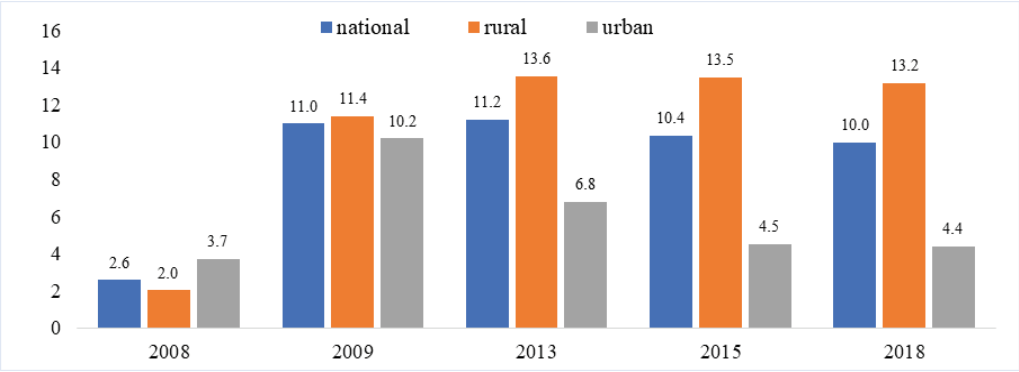
Source: Guven, Majoka, & Jamy, (2024)

Despite modest gains since its inception, the overall coverage of UCTs in Pakistan remains low and inadequate relative to the scale of need. Figure 8.4 below shows that national coverage peaked at just 11.2 percent in 2013 and declined to 9.98 percent by 2018—figures that suggest limited reach in a country with widespread poverty and vulnerability and rising population. While rural areas received comparatively greater attention, with coverage above 13 percent during the same period, the urban share has been persistently and troublingly low, falling from 10.19 percent in 2009 to just 4.38 percent in 2018. This under coverage in urban areas is particularly troubling given demographic and labor market shifts. Pakistan's urban population is growing rapidly, with a rising proportion of workers in the informal sector, many of whom face income volatility, lack of social insurance, and high living costs. The BISP targeting model, historically skewed toward rural poverty, has not adequately adapted to capture the multidimensional vulnerabilities of urban households, including slum dwellers, daily wage earners, and migrant workers. With increasing urbanization and the growth of concentrated urban poverty pockets, there is a pressing need to enhance outreach and registration efforts specifically tailored for urban centers, which often present different socio-economic dynamics and logistical challenges.

A persistent challenge lies in minimizing exclusion errors, where eligible poor households may still be inadvertently excluded from the program. This can occur due to various factors, including lack of awareness about the registration process, geographical barriers making it difficult to access registration points, or inaccuracies in the NSER data itself. In the absence of updated census data, it is difficult to conduct external validity checks on the accuracy of the NSER data set. Displacement due to floods, droughts, or development projects often renders households ineligible due to outdated or inaccessible registry data. Although BISP targets women, many vulnerable women without CNICs or those living in patriarchal households remain unregistered or excluded. Coverage may vary significantly across different regions and provinces of Pakistan. These disparities can be influenced by a multitude of factors, including severe logistical challenges in remote or mountainous terrains, security concerns in certain areas, and varying levels of administrative capacity and political will at the provincial and district levels. The NSER while recently updated, still fails to capture real-time poverty dynamics, leading to exclusion errors and delayed coverage in response to shocks. Poverty is not a static condition; households can frequently fall into or out of poverty due to various shocks, such as illness, job loss, natural disasters (e.g., floods, droughts), or other economic downturns. This dynamic nature of poverty requires the targeting system to be agile and responsive enough to identify newly vulnerable populations and facilitate their rapid inclusion into the program, preventing a deepening of their hardship. Despite increases in nominal budget allocations, the expansion in the number of beneficiaries has not kept pace with the growing number of people living below the poverty line, especially post-COVID and amid persistent inflation. Addressing these requires proactive outreach and robust verification mechanisms.

Ensuring effective coordination and robust collaboration between federal and provincial agencies is paramount to prevent fragmentation and redundant efforts within the social protection landscape. Enhanced inter-governmental cooperation can play a pivotal role in broadening the reach of UCT, minimizing resource leakages, and eliminating instances of beneficiaries receiving duplicate support from multiple programs. A landmark data-sharing agreement has now been established between the federal government and the provinces, granting them access not only to the comprehensive NSER database but also to real-time information on which specific households are receiving BISP transfers. This collaborative framework allows provincial governments to strategically utilize BISP's well-functioning and established delivery systems, thereby avoiding the expenditure of on developing parallel structures and leverage existing, proven infrastructure.

Figure 8.4: Coverage of Unconditional Cash Transfers (percent)

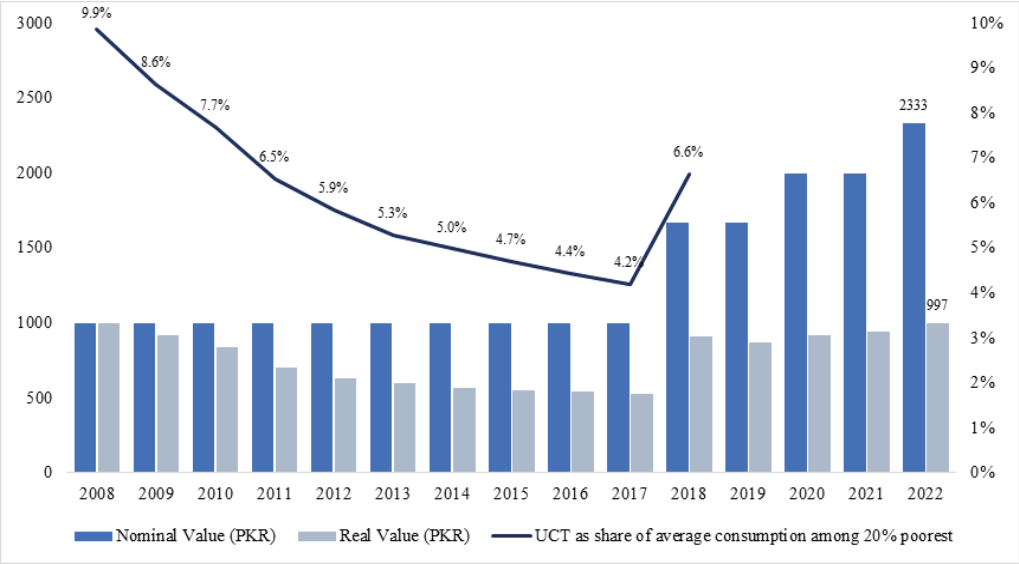


Source: ASPIRE

BISP Adequacy

The concept of adequacy in social protection transfers refers to the fundamental question of whether the amount of financial assistance provided is truly sufficient to meet the basic needs of beneficiary households, prevent them from falling deeper into poverty, or enable them to effectively smooth consumption in the face of various economic and environmental shocks. The adequacy of transfers is a critical metric often assessed against various benchmarks, such as the national poverty line, the cost of a basic food basket, or a percentage of the minimum wage. For BISP, while the nominal transfer values have indeed seen incremental increases over time, the real purchasing power of these transfers has remained a persistent and significant concern, particularly exacerbated during periods of high and sustained inflation. BISP has, in response has periodically adjusted its quarterly cash transfer amounts to beneficiaries. These adjustments reflect a conscious effort by the government to provide greater financial support and maintain some level of relevance for the program. In 2008, the quarterly transfer value was PKR 3,000. This initial amount was set to provide a basic safety net for the most vulnerable households. However, this remained unchanged till 2018. That means that although the monthly transfer was PKR1000 the real value of this transfer had declined to around PKR 500. The adequacy of the benefit (share of the average monthly consumption of households in lowest quintile) had declined from 9.8 percent to 4.3 percent. By 2022, recognizing the cumulative impact of inflation over nearly a decade, this amount had increased to PKR 7,000 per quarter. Thus, the adequacy of the benefit was increased to 6.64 percent. This significant jump reflected a belated attempt to catch up with rising prices (Figure 8.5). Further adjustments were made, leading to a transfer value of PKR 8,750 per quarter in 2023, as the country faced unprecedented inflationary pressures. Most recently, in 2024, the quarterly transfer value was set at PKR 10,500, continuing the trend of nominal increases in response to prevailing economic conditions. Since 2025 this amount has been increased to PKR13,500 per quarter. However, this increase is not based on a proper indexing. Additionally, studies such as Nayab, and Farooq (2020) show that the BISP cash transfer needs to account for a minimum of 15 percent of total household consumption to achieve an increase of Rs. 342 in per adult equivalent consumption, which could support poverty alleviation.

Figure 8.5: Change in real value of benefit and adequacy of transfer



Source: ASPIRE, and Guven, Majoka, & Jamy, (2024)

BISP has seen some growth in coverage and fiscal commitment, especially in response to macroeconomic shocks. In FY09 the total amount dispersed by BISP was PKR15.85 billion of which 99 percent was UCT and rest CCT. This amount has continued to show a steady increase and in FY24 BISP managed to disperse PKR313.44 billion. These figures reflect rising political commitment but also expose increasing fiscal pressures, particularly in periods of high inflation. The amount of transfer per beneficiary has continued to increase too. However, a critical concern that undermines the effectiveness of these increases is the fact that while nominal values have risen, the real purchasing power of these transfers has unfortunately declined significantly due to periods of high and persistent inflation. While Pakistan has recently experienced a considerable reduction in its inflation rate, with the Consumer Price Index (CPI) year-on-year inflation dropping to 3.46 percent in May 2025 from a peak of 38 percent in May 2023 (Pakistan Bureau of Statistics, May 2024), the adjustments made to transfer values in previous periods consistently lagged behind the rate of inflation. This past erosion of real transfer values remains a major challenge, placing strain on the program's design and financing model, as beneficiaries found their limited funds buying less and less during those high-inflation periods. During periods of high inflation, if transfers do not keep pace with these benchmarks, they risk becoming insufficient to meet even the most basic needs, thereby undermining the program's primary objective of poverty reduction and consumption smoothing. The recent disinflation offers an opportunity to reassess transfer adequacy more favorably. To ensure that BISP transfers remain adequate and effective in truly supporting vulnerable households, several strategic approaches must be considered and implemented. One of them being having dynamic indexation and other being regular review and adjustment based on needs.

Multiple rigorous studies and independent evaluations have consistently demonstrated the positive effects of BISP on household welfare and various socio-economic indicators across Pakistan. Research conducted by Cheema et al. (2020) has provided compelling evidence that BISP effectively contributes to consumption smoothing, helping beneficiary households maintain a more stable level of consumption even during periods of economic hardship. Another study (Shabbar, 2024) shows that BISP helps increase dietary diversity. Furthermore, these studies indicate a tangible impact on poverty reduction, lifting many families out of extreme destitution. A study by Ambler and De Brauw (2019) specifically highlighted BISP's role in empowering women. Their findings suggest that direct cash transfers to women have enhanced their decision-making power within the household and increased their mobility, contributing to greater gender empowerment and autonomy. Despite these commendable achievements and demonstrated positive impacts, persistent challenges continue to hinder the program's full potential. These include persistent exclusion errors, meaning some eligible households are not receiving the much-needed support, and limited coverage in urban areas where poverty pockets are also significant. Furthermore, there remains a notable lack of comprehensive integration with other essential services such as health, education, and employment programs, which could amplify BISP's overall impact.

8.3 Key Challenges and Turning Points

Pakistan's social protection system, and BISP in particular, is currently at a critical juncture, facing several significant and interconnected challenges that require careful navigation and strategic foresight:

- Even with the continuous efforts to update and refine the NSER, issues of both inclusion errors (providing benefits to individuals who are not genuinely eligible) and exclusion errors (failing to reach eligible individuals who are in dire need) continue to persist. These errors reduce the program's efficiency and equity, highlighting the ongoing need for dynamic and adaptive targeting mechanisms through the NSER.
- A significant challenge is the limited horizontal integration of BISP with other crucial social services and development programs, including health initiatives, education schemes, and employment generation programs. Despite the clear need for a cohesive approach, a lack of robust collaboration between federal and provincial agencies often leads to duplication of efforts, inefficient resource allocation, and a diminished collective impact. Historically, provincial governments, while reliant on the NSER data for their own program planning, faced considerable difficulties in accessing this critical information, hindering effective targeting and preventing the identification of households already receiving federal support. This limited data accessibility contributed to potential leakages and instances of 'double-dipping,' where beneficiaries might receive aid from multiple, uncoordinated programs. Furthermore, the absence of a unified strategy often compelled provincial governments to invest scarce resources in creating parallel social protection systems and delivery mechanisms, rather than leveraging BISP's well-established and efficient infrastructure, thereby increasing administrative overheads and reducing overall system efficiency.

- Pakistan is highly susceptible to the adverse impacts of climate change, experiencing increasingly frequent and intense climate shocks such as floods, droughts, and heatwaves. Unfortunately, the existing social protection systems are not yet fully climate-responsive, leaving vulnerable populations exposed and highly susceptible to these recurring disasters. Linking social protection to adaptive climate responses and developing early warning systems is crucial for building resilience and mitigating the humanitarian and economic fallout.

- Given the current constrained fiscal environment, characterized by high public debt, limited revenue generation, and competing budgetary demands, maintaining the real value of transfers and expanding coverage to meet growing needs necessitates making difficult trade-offs. While inflation has recently decreased, historical high inflation periods have relentlessly eroded the real transfer values, diminishing the purchasing power of beneficiaries, and climate shocks continue to deepen household vulnerabilities, placing increasing strain on the program's design and financing model. This precarious situation demands tough but necessary policy choices, including the critical need for increasing inflation-adjusted allocations to ensure the program's continued relevance and impact.

8.4 Policy Recommendations: Navigating Tough Choices

To effectively address the multifaceted challenges outlined and strategically reposition BISP as a more robust and responsive instrument for national development and poverty alleviation, several key policy recommendations are crucial:

1. Dynamic Indexation: A fundamental reform would be to link cash transfers to a credible, transparent, and regularly updated inflation index. This mechanism would ensure automatic adjustments that protect the real purchasing power of beneficiaries, safeguarding them from the erosive effects of inflation. Such a system would provide a more predictable and sustainable mechanism for maintaining adequacy, reducing the need for ad-hoc adjustments that often lag behind economic realities (Guven, Majoka, & Jamy, 2024).

2. Regular Review and Adjustment Based on Needs: Beyond simple indexation, periodic and comprehensive reviews of transfer values against updated national poverty lines, the actual cost of a basic food basket, and essential non-food items (especially energy and transport) are necessary. These reviews should be informed by detailed household expenditure surveys to make evidence-based adjustments that genuinely reflect the needs of the poorest segments of society.

3. Expand Adaptive Social Protection: There is a pressing need to proactively integrate climate-triggered transfers and robust early warning systems into the social protection framework. This would enable the system to respond swiftly and effectively to climate shocks, providing timely assistance to affected populations and building long-term resilience among vulnerable communities, thereby mitigating the impact of environmental disasters.

4. Improve Integration: BISP beneficiaries should be systematically and effectively linked to other essential social services and human capital development programs. This includes connecting them to health insurance schemes (e.g., Ehsaas health insurance), vocational training programs, and other initiatives aimed at improving education and employment opportunities. This horizontal integration would create a more comprehensive and impactful social protection program, fostering holistic development.

5. Reduce fragmentation: To overcome existing fragilities and maximize the impact of Pakistan's social protection system, strengthening federal-provincial collaboration is a important policy recommendation. Establishing clear and complementary roles and responsibilities for both federal and provincial agencies, leveraging their respective technical and operational advantages, is crucial. This collaborative framework should prioritize robust data-sharing agreements, building on recent successes that grant provincial governments access to the NSER data and information on BISP transfer recipients. Such transparency will enable provinces to more effectively plan and roll out their own programs, avoid leakages, and prevent instances of duplicate support. Moreover, provincial governments are strongly encouraged to utilize BISP's well-functioning and established delivery systems rather than investing in parallel, potentially less efficient, structures. Furthermore, as BISP continues to expand its coverage, close coordination with provincial governments before introducing new programs or expanding existing ones is essential. Provinces can leverage their inherent advantage of local presence to increase the coverage of both the general vulnerable population and those with specific vulnerabilities. They can also play a vital role in strengthening the linkages with NSER data systems and integrating social protection initiatives with local health and education governance structures, thereby promoting comprehensive improvements in human capital development and service delivery.

6. Strengthen Governance: To enhance transparency, accountability, and public trust, program audits and detailed performance data should be made publicly available in an accessible format. This will not only foster greater scrutiny and accountability but also allow for better oversight, evidence-based policy adjustments, and continuous evaluation of the program's effectiveness and efficiency.

7. Higher Budgetary Allocations and Fiscal Prioritization: Ultimately, ensuring the adequacy of transfers may require a significant increase in budgetary allocations to BISP. This necessitates a shift in fiscal policy, recognizing social protection not merely as an expenditure but as a critical investment in human capital development, social cohesion, and long-term economic stability. Advocating for a larger share of the national budget for social assistance programs, even amidst fiscal constraints, is crucial for the program's effectiveness (Government of Pakistan Budget Statements).

8.5 Conclusion

Pakistan's social protection system requires decisive action and strategic vision. While BISP unequivocally remains a critical pillar of the country's pro-poor policy and a lifeline for millions, its current design and operational modalities are not fully equipped to effectively address the escalating scale and complexity of contemporary vulnerabilities, particularly those exacerbated by economic instability and climate change. Policymakers are therefore faced with the imperative to make bold and strategic choices to fundamentally transition the program from being merely a reactive relief mechanism to a dynamic, strategic, integrated, and climate-resilient social protection instrument. These choices, though fiscally demanding in the short term, are critical for building resilience, fostering social cohesion, and ensuring long-term social stability in the face of overlapping and compounding crises. The goal is to reposition BISP not just to buffer economic shocks and provide immediate relief, but also to strategically invest in the human capital necessary for inclusive recovery and sustainable long-term development in Pakistan. To rebuild trust and ensure the NSER genuinely serves its purpose, a fundamental re-evaluation of its scoring and targeting methodologies is urgently required. This includes making the PMT scoring system more transparent, understandable, and accessible to the public. Furthermore, robust mechanisms for appeals and grievance redressal are crucial to allow excluded individuals to challenge incorrect decisions. Without these critical reforms, the NSER risks perpetuating a cycle of exclusion and distrust, ultimately failing to deliver on its promise of support for Pakistan's most vulnerable citizens.

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Chapter 9

Water Scarcity in Pakistan: Climate Change, Other Factors and Its Implication

Sahar Arshad Mahmood

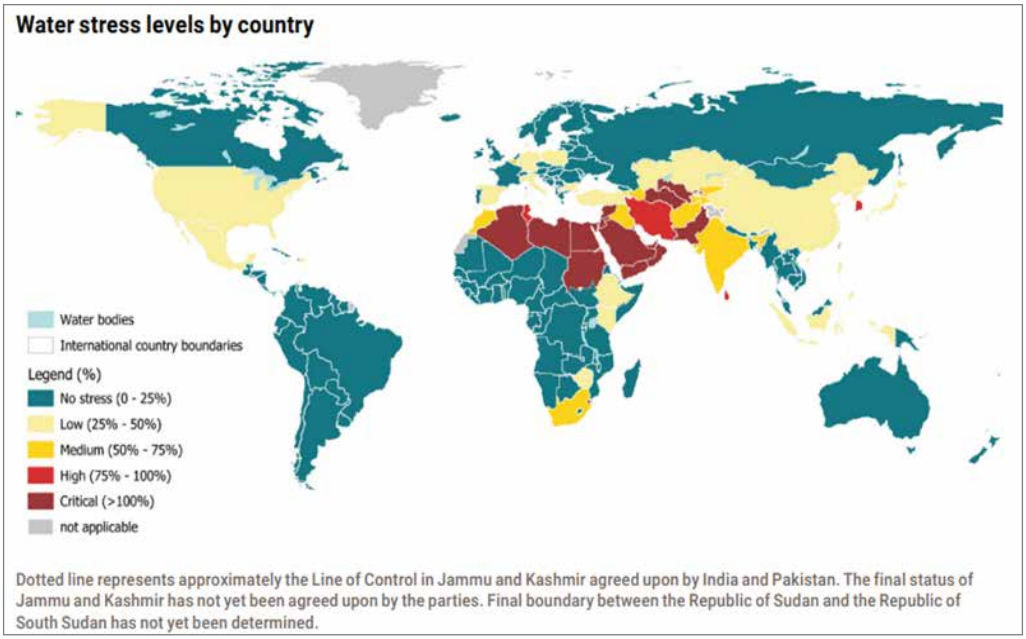
Highlights

- Pakistan has undergone a dramatic water decline from abundance to severe stress, with per capita availability now approaching absolute scarcity levels, endangering food production and economic stability.
- Climate change has exacerbated the water scarcity issue. Accelerated glacier melt and disrupted monsoon patterns are simultaneously creating dangerous floods while undermining long-term water security – a climate paradox hitting Pakistan disproportionately hard.
- The landmark Indus Water Treaty faces mounting pressure due to geopolitical tensions and climate shifts, becoming a growing source of dispute and water scarcity.
- Pakistan's agriculture sector consumes the lion's share of water resources while struggling with shockingly low efficiency rates, trapped between food production needs and unsustainable water use practices.
- Urgent action is needed to address change mitigation, irrigation modernization, sustainable groundwater management, climate-resilient water storage, adaptive treaty mechanisms, and water quality safeguards in water governance.

9.1 Introduction

Pakistan, once a water abundant country, is now fast approaching the absolute threshold of water scarcity. Pakistan has recently become the 15th most water-stressed country in the world and is predicted to become absolutely water scarce by 2035 (IOM, 2024). As per the four international water scarcity indices such as Falkenmark indicator (Falkenmark et al., 1989), Water Resource Vulnerability Index (Raskin et al., 1997), physical and economic water scarcity indicator (Seckler et al., 1998) and water poverty index (Sullivan et al., 2003), Pakistan scored poorly across all four. Pakistan, ranked as the 5th most populous country faces an alarming convergence of climate vulnerability and water scarcity. Pakistan has now reached threatening levels of water scarcity with annual per capita water availability declining from 5600 cubic meters from 1947 to 930 cubic meters in 2023 (WWF, 2023). Figure 9.1 shows water stress level of Pakistan compared to the world (FAO and UN water, 2024).

Figure 9.1: Water stress levels by country

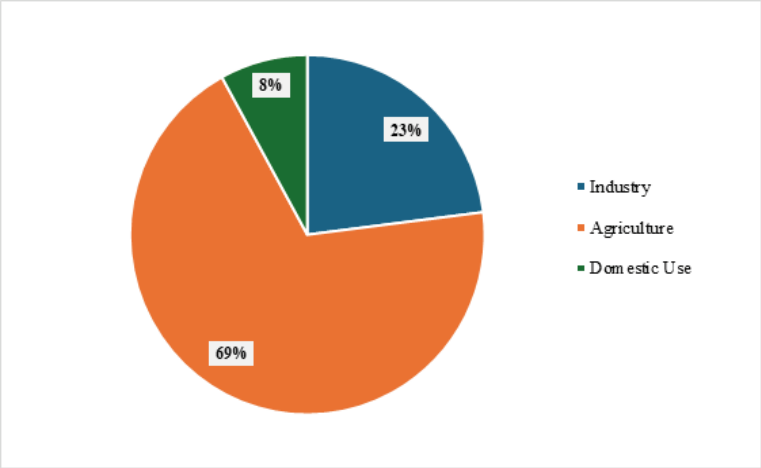


Source: FAO and UN Water (2024)

Climate change is the primary catalyst, exacerbating long-standing issues such as population growth, inefficient water governance, declining infrastructure, and geopolitical tensions in Pakistan. Climate change results primarily from human activity, especially the release of greenhouse gas emissions (Mahmood et al., 2016). Due to this, the earth's surface is exposed to several risks that include heat waves, floods, droughts, and cyclones (Haddad et al., 2020). Pakistan, as part of the Global South, is particularly vulnerable due to erratic weather patterns (Bacha et al., 2021).

As a major agrarian economy, where agriculture employs 38 percent of the labor force, Pakistan's water scarcity problem is both economic and existential. Figure 9.2 shows that the agricultural sector uses nearly 69 percent of water (Ishaque et al., 2022), while the Indus River system provides 90 percent of the irrigation water. However, the system is overstressed, and recent studies indicate that crop yield per unit of water is declining (Arshad & Shafi, 2010; Akbar & Gheewala, 2020).

Figure 9.2: Pakistan water usage distribution by sector



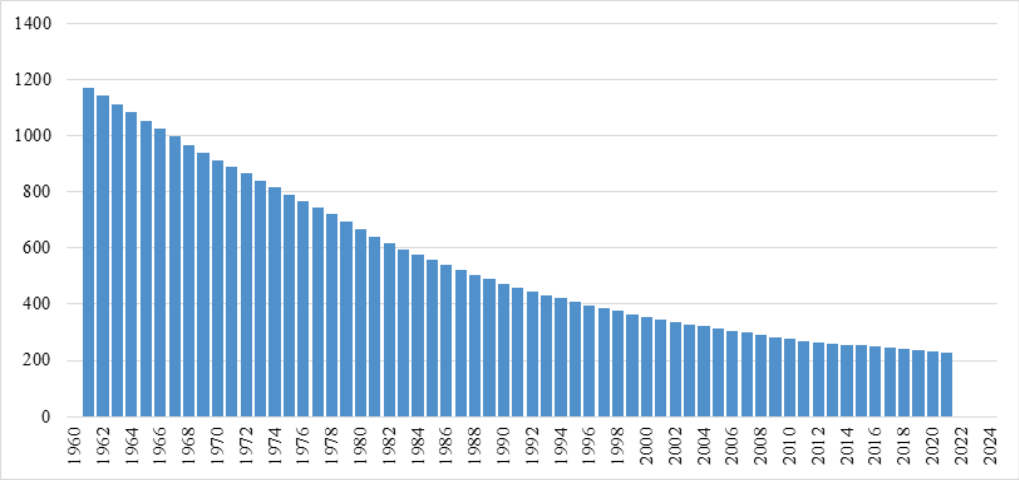
Source: Ishaque et al., 2022

The Intergovernmental Panel on Climate Change (IPCC) has highlighted Pakistan as a climate hotspot where warming trends and glacier retreats alter hydrological patterns. From the Global Climate Risk Index (2021) to the Notre Dame Global Adaptation Initiative (ND-GAIN), Pakistan consistently is among the most vulnerable nations. This chapter offers a comprehensive, literature induced data driven commentary on the current state of water scarcity in Pakistan. It integrates climate trends, agricultural impacts, demographic pressures, infrastructure constraints, geopolitical strains, institutional responses, along with strategies and pathways to sustainable water management.

9.2 Water Scarcity Indicators

As mentioned above, there are four most widely used indicators to measure water scarcity in a country. Ashraf (2018) in his study highlighted Pakistan's mounting water scarcity problem based on the 4 indicators. Falkenmark water stress indicator classifies countries based on per capita water availability. Nations are considered water-scarce if available water per capita falls below 1000^{m^3} and face absolute water scarcity if it falls below 500^{m^3}. As reported above, in 2023 Pakistan had 930^{m^3} water availability per capita (WWF, 2023), which means Pakistan is categorized as a water scarce nation according to the Falkenmark indicator. Figure 9.3 shows renewable internal freshwater resource per capita till 2021. It clearly indicating the dire condition of the country with freshwater resource per capita declining and reaching the critical level of 230^{m^3} in 2021 (World bank, 2022).

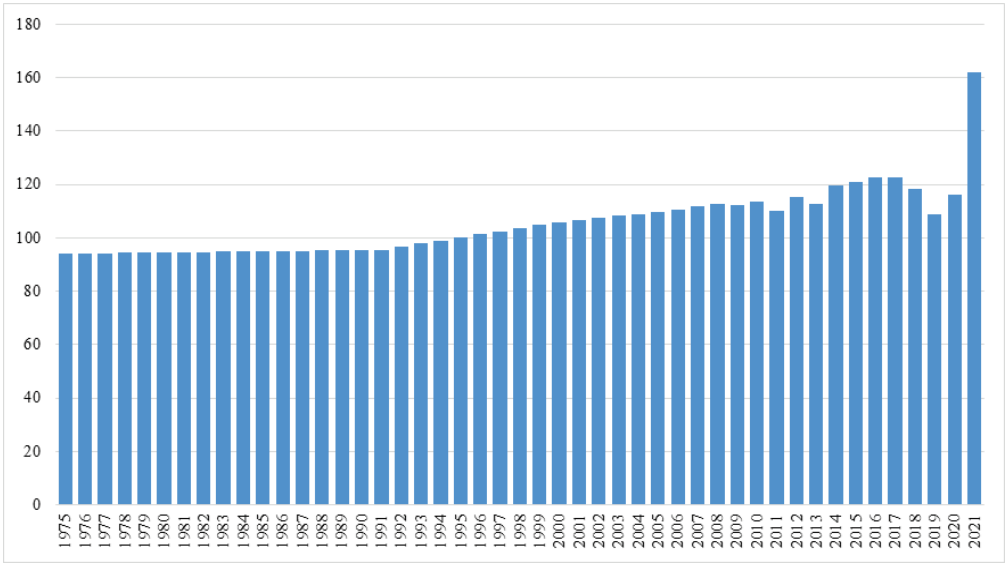
Figure 9.3: Pakistan Renewable internal freshwater resources per capita (cubic meters)



Source: World bank, 2022

WRVI (Water Resource Vulnerability Index) compares national annual availability to withdrawals. Ratios above 20 percent indicate stress while ratios above 40 percent indicate severe water scarcity. Ashraf (2018) calculated WRVI to be 77 percent for Pakistan. Figure 9.4 shows the alarming upward trend of freshwater withdrawal as a proportion of available freshwater resource for Pakistan from 1975-2021 (World bank, 2021).

Figure 9.4: Pakistan level of water stress (freshwater withdrawal as a proportion of available freshwater resources)



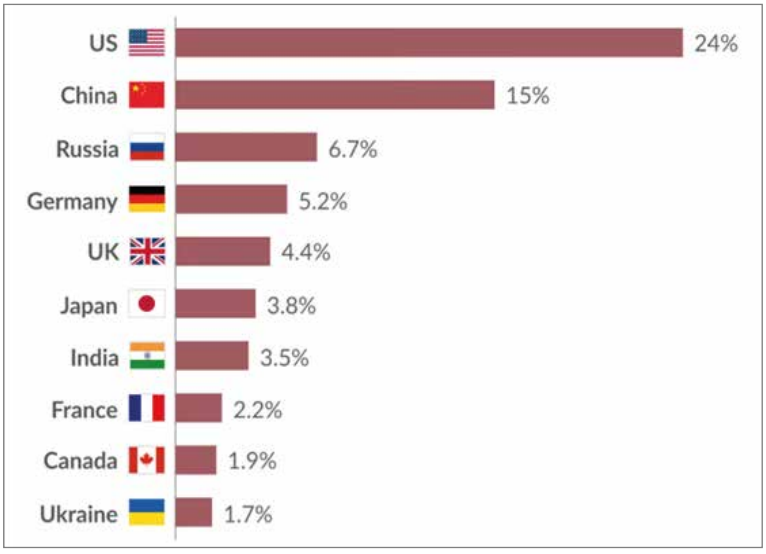
Source: World bank, 2021

Finally, it seems clear tThe water poverty index (WPI) combines resources available with access, use, capacity, and environmental factors. Pakistan scores poorly due to low access to safe drinking water. Water quality data when compared with national standard for drinking water indicated that 61 percent drinking water sources were unsafe (Pakistan Council of Research in Water Resources[1], 2021). And lastly, Pakistan is water scarce according to IWMI's physical and economic water scarcity indicator. This is because Pakistan has both insufficient natural water availability and there is a need for substantial investments to make water accessible to everyone. According to ADB's report, Pakistan needs to invest almost 2.3 percent of its GDP to advance water security (ADB, 2020).

9.3 Climate Change and Water Availability

Climate change has disrupted the hydrological cycle of Pakistan. Although Pakistan is not among the top 10 contributors of CO2 emissions, as shown in figure 9.5, but is among the top 10 most affected by climate-induced weather events (Global Climate Risk index, 2025).

Figure 9.5: Countries that have emitted most CO2 till date

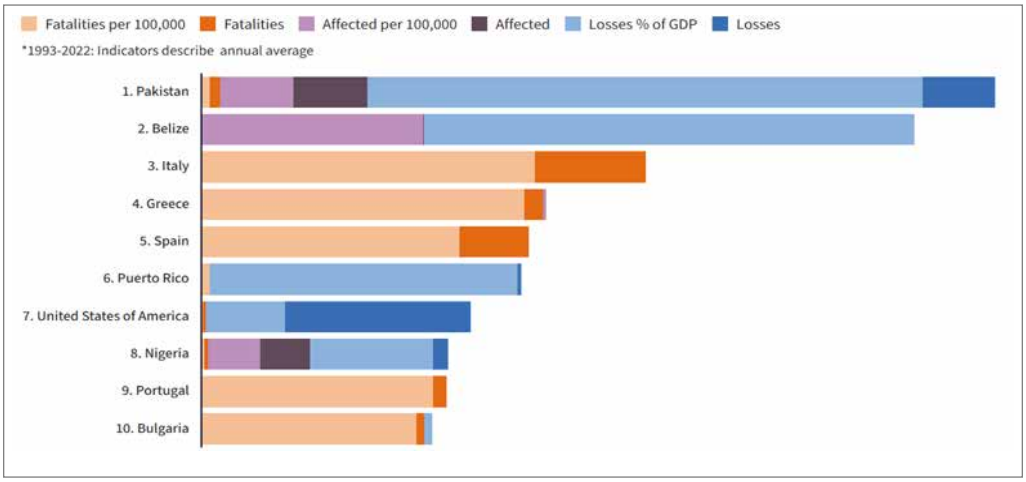


Source: Global Carbon Budget (2024)

[1] (PCRWR) Pakistan Council of Research in Water Resources

Many developed countries remain unaware of the alarming damage that greenhouse gas emissions are causing to the ozone layer, resulting in Ultraviolet (UV) radiation causing cancer and even impacting agriculture yield (Wardekker et al., 2012). This has led to the phenomena of global warming and various protocols were initiated like KYOTO protocol, Paris accord and more to combat the problem of climate change, but many industrial powers withdrew from these as they did not serve their economic interest. This has led to vulnerable countries like Pakistan facing various natural disasters, water insecurity, and economic burdens. Figure 9.6 shows Pakistan being the top-most impacted country due to climate change with economic losses of almost US$30 billion, and 1765 fatalities just in 2022 (Global Climate Risk index, 2025).

Figure 9.6: Climate Risk index (Top 10 most affected countries)



Source: Germanwatch (2025)

Climate changes leading to global warming has led to warming temperatures in Pakistan. The highest temperature in Pakistan was recorded at 53.7 Celsius in Turbat, Balochistan on 18 May 2017, making it one of the hottest temperatures recorded worldwide (Zahra et al., 2023). This has accelerated the melting of glaciers in the Hindu-Kush Himalay region, that supplies over 75 percent of the Indus River system[2]. Initially, this led to an increase in river flow but in the long-term threatens water availability due to shrinking glaciers. Table 9.1 shows a decline in total glacier area of Lidder watershed, a key tributary of Jhelum River, which accounts for major downfall in streamflow (Shakil et al., 2015).

[2] Indus river system is the main source for freshwater withdrawal and for irrigation of agriculture system in Pakistan.

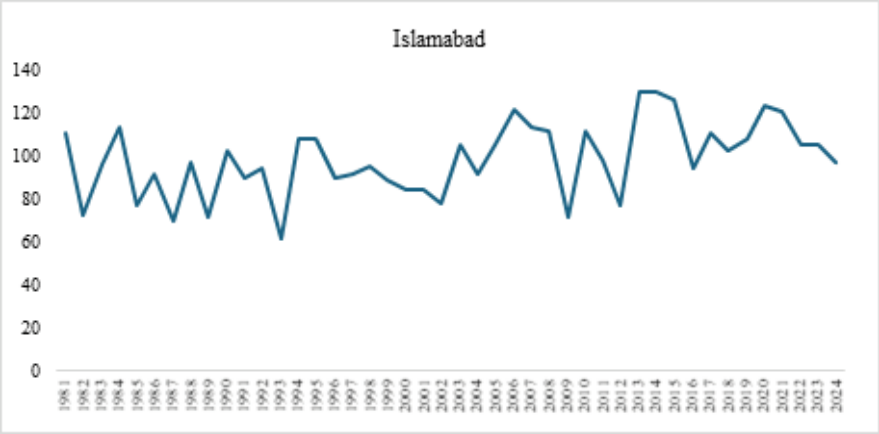
Pakistan's annual temperature has increased by 0.6 Celsius since early 1900s and is expected to rise by 1.3 to 4.9 Celsius by 2100 (IMF, 2021). Evaporation leads to water losses and a study indicated that 20 percent of dams' storage capacity in Pakistan is lost due to evaporation (Ashraf, 2005). Similarly, increase in air temperatures can raise drinking water temperature, organic compound, microorganism, nutrients, and heavy metals (Zhang et al., 2011). Meanwhile, the precipitation pattern has become very erratic (Figure 9.7). Monsoon rainfall has shifted in intensity, and distribution leading to either excessive floods or droughts. This unpredictable pattern has led to devastating impacts on citizens of Pakistan and on the agriculture sector as well, along with water waste due to inadequate reserves.

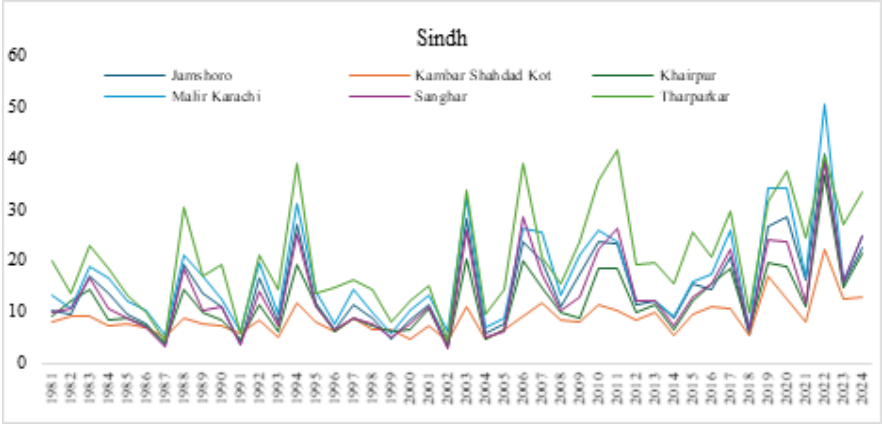
Table 9.1: Change in total glacier area of Lidder Watershed

Year	Total Glacier Area (sq. km)
1962	46.098
1992	41.884
2000	37.824
2013	33.433

Source: Shakil et al. (2015)

Figure 9.7: Rainfall (1 month rolling aggregation mm) across Pakistan's provinces

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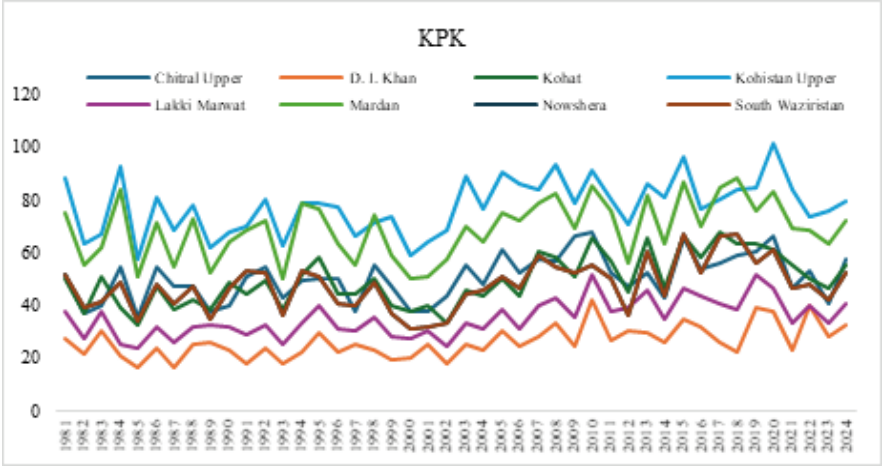
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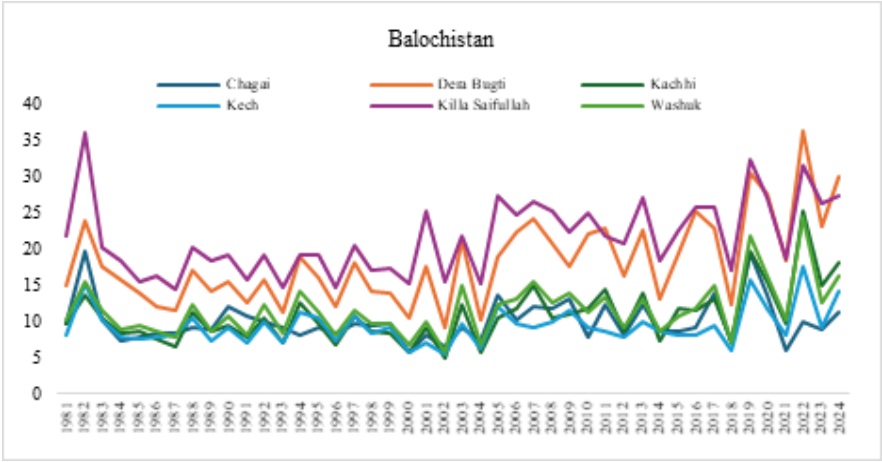
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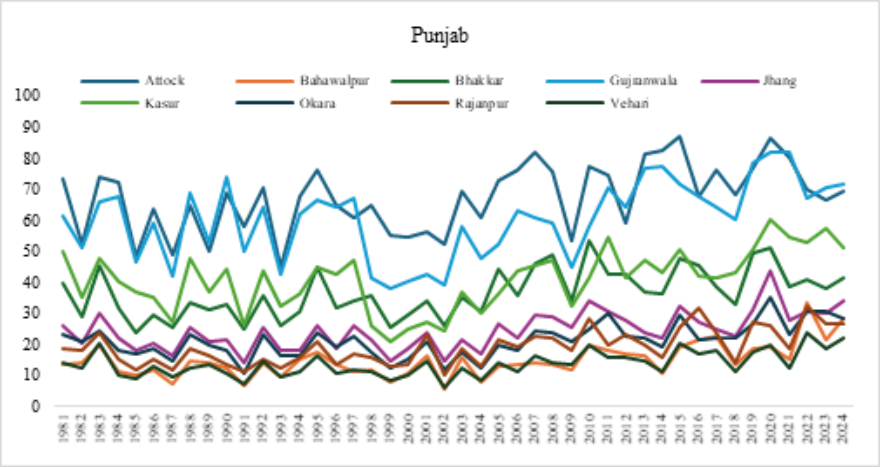


Source: Author's calculation using Humanitarian Data Exchange, 2024

9.4 Inadequate Water Storage, Infrastructure, and Low Efficiency

Pakistan's water storage is critically low, standing at only 30 days' worth of storage, compared to the recommended global standard of 120 days. Recently two of the country's major dams (Tarbela and Mangla) hit a dead level and recovered due to some needed rainfall spell and glacier melting in March. The inflows increased the water level in Mangla Dam on Jhelum River from 1,066.25 feet to 1,086.70 feet, while for Tarbela dam it increased from 1402 to 1410 feet (Ahmed, 2025). Pakistan meteorological department is still skeptical of a drought. Adding to this, Pakistan also lost more than 120 billion cubic meter (BCM) of water during the flood of 2010, 2012, and 2014 due to inadequate storage (Baocheng et al., 2024).

Sedimentation decreases the reservoirs capacity, and a study suggested about 8.1 BCM of reservoir's storage capacity was lost for Pakistan by 2010 (Qureshi & Ashraf, 2019). Topsoil erosion, which threatens the longevity of dams and destroys aquifers negatively impacting agricultural production (Qureshi et al., 2008). Tarbela and Mangla dam are at risk of losing 8.36 BCM due to topsoil erosion over a period of years and the total losses due to topsoil erosion have been estimated to be 16.258 BCM (Baocheng et al., 2024).

Outdated canal system and seepage account for nearly 40 percent of water losses from source to farm, contributing to low agricultural yield and poor water use efficiency. It was estimated that only 55 BCM of the available 143 BCM water available at canal head work is used by crops (Commission, 2008). Almost 61 percent was lost during transportation through canals. Although this lost water can be pumped back, making it a temporary loss but energy is needed to pump the water accounting for energy loss. However, there is a permanent loss in the region with underlying saline groundwater as it cannot be used for irrigation or drinking, leading to waterlogging and salinity (Ashraf et al., 2000).

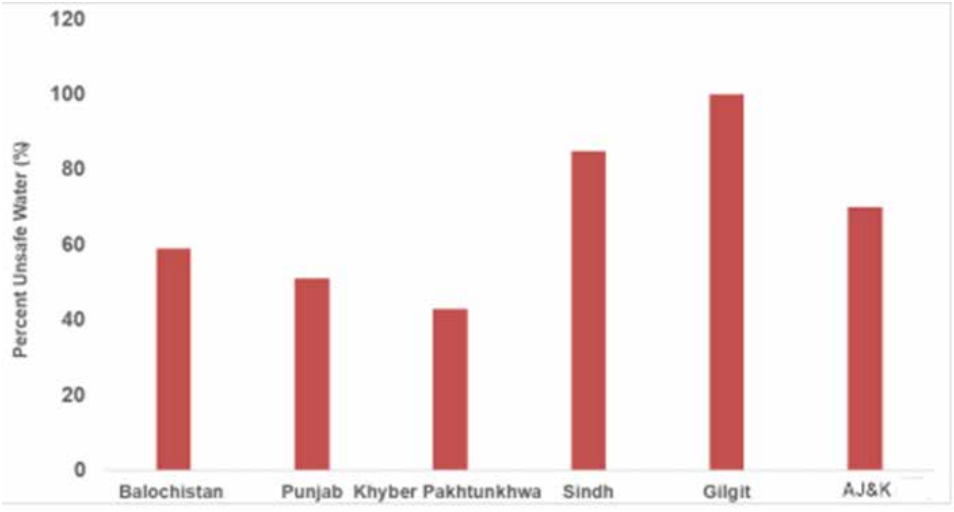
9.5 Water Losses, Groundwater Depletion, and Contamination

Faulty and ageing water pipelines are susceptible to damage and lead to a huge amount of water loss on a yearly basis. PCRWR (2018) estimated that 40 percent of water is wasted due to pipeline leaks and poor maintenance. It was also estimated that non-revenue water (water lost before reaching customers) is around 30-40 percent in major cities like Karachi and Lahore (World bank, 2021).

Ground water is another major source of water i.e. 60 percent for irrigation, 93 percent drinking water, and almost 100 percent industrial water (PCRWR, 2018). However, the lack of a regulatory framework has allowed unregulated groundwater extraction (Bhutta & Alam, 2006). Ashraf et al. (2007) reported that out of 43 canal commands, 26 saw a decline in water level due to an increase in groundwater exploitation. Figure 9.4 above also shows the water stress level due to withdrawal of freshwater compared to available freshwater resource. This situation is worst in Balochistan with 62 percent of its population facing acute water scarcity due to the added high temperatures and dry climate of that region, along with water table dropping by more than 3m in several of its river basins (UNDP, 2017).

Moreover, nitrate, fluoride, arsenic, and salinity contamination in water has made it unfit in many parts of Pakistan for human or agricultural use. A report stated that 70 percent of water samples taken from urban centers were found unsafe for drinking (PCRWR, 2018). Increased temperatures, water pollution, lack of maintenance of ageing pipeline also leading to mixing of sewerage water with clean water cause contaminated water, unsafe for drinking. Drinking water quality monitoring program results are displayed in figure 9.8 for 2020-2021, and it conveyed that almost 61 percent of water sources were unfit for human consumption.

Figure 9.8: Unsafe drinking water in the provinces (2020-2021)



Source: PCRWR (2023)

9.6 Geopolitical Tensions

The 1960s Indus Water Treaty (IWF) governs water sharing between Pakistan and India. Indus river water is responsible for 80 percent of agriculture and about third of hydropower generation. Under the treaty, Pakistan gained Western rivers (Indus, Jhelum, and Sutlej), while India gained Eastern rivers (Ravi, Beas, and Sutlej). Table 9.2 shows the water received by Pakistan under the treaty during Kharrif and Rabbi seasons. The overall slight decline can be attributed to climate change. While lauded as a successful water-sharing model, it faces growing strains. Climate change, population growth, accusation of reduced downstream flow, military conflicts and reduced seasonal flows have led to rising tensions (Immerzeel et al., 2020; Swain, 2020). Pakistan has repeatedly raised concerns over India's Kishanganga and Ratle hydropower projects before the world bank.

Table 9.2: Western and Eastern River inflows (BCM) at Rim station

Period	Western Rivers			Eastern Rivers			Total		
	Kharif	Rabi	Annual	Kharif	Rabi	Annual	Kharif	Rabi	Annual
1961–70	141.3	27.0	168.3	23.6	3.4	27.0	163.5	30.5	194.0
1971–80	135.5	27.1	162.7	16.8	2.4	19.2	152.3	29.5	181.8
1981–90	141.2	32.4	173.0	6.1	2.5	8.6	147.4	34.9	182.3
1991–00	149.9	32.0	182.0	8.3	1.9	20.2	158.2	33.9	192.0
2001–10	127.8	29.4	157.2	1.6	0.4	2.0	129.4	29.8	159.2
2011–18	130.0	29.6	159.3	4.6	1.4	6.0	134.4	30.9	165.3

Source: Habib & Wahaj (2021)

Now after the Pahalgam attack 2025, India has announced the suspension of IWF. This can be a serious blow to the country's already feeble economic and water scarcity situation. This suspension means that India could limit the flow of water from Indus, Jhelum, and Chenab into Pakistan, potentially impacting agricultural yields and water availability. This could lead to water shortage of up to 35 percent for agriculture in Punjab and Sindh (NY times,2025). However, it is not possible for India to stop the water flow right away as Pakistan's share of western rivers carry high flows during May-September, and India does not have the infrastructure to store it (Al Jazeera, 2025). But Pakistan might feel the impacts during the seasons when water level is low. Similarly, flash flood could follow without any warning from India, which could lead to losses. Since, Pakistan does not have sufficient water storage infrastructure either, it won't be able to benefit from that or store the excess flood water for future use.

9.7 Demographic Pressures and Agricultural Demand

Pakistan is the 5th highest population country and has a current population of almost 240.5 million, with a growth rate of 1.98 percent annually. Urbanization, industrial expansion, and increased domestic consumption have all heightened water demand. As stated above, per capita water availability reached almost 930 m^3 in 2023 (WWF, 2023).

The agriculture sector remains a major water consumer (Figure 9.2), using a majority of freshwater available resources. This reliance on irrigation-intensive farming for crops such as wheat, rice, and sugar, exacerbates water scarcity. These crops are also sensitive to changes in water availability and climate variability. Table 9.3 shows potential water requirements of major crops (1990-2014) using CROPWAT model, where sugarcane seems to have the highest demand for water.

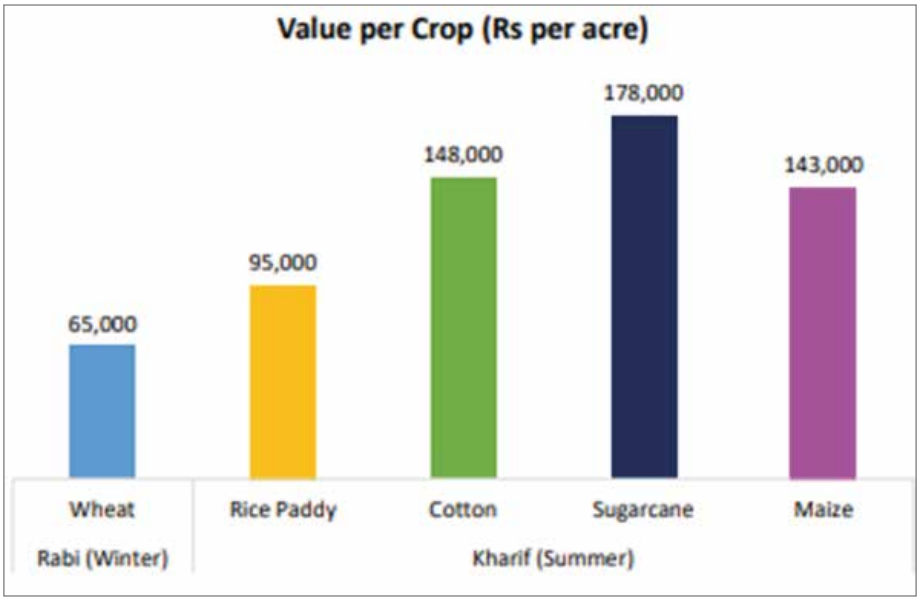
Table 9.3: Potential water requirements of major crops (1990-2014)

Crop	Crop water requirements (mm) North (temperate) – South (arid)	Average CWR (mm)
Wheat	290 - 520	402
Cotton	587 - 1000	714
Sugarcane	1000 - 1900	1512
Rice	540 - 1156	931

Source: Amir & Habib (2015)

Pakistan allocates nearly 75 percent of its water resource to water-intensive crops like wheat (23 percent), sugar (19 percent), cotton (14 percent), and rice (21 percent) (Muzammil et al., 2021). Traditional crops such as bajra, barley have been replaced by these water-intensive crops. Figure 9.9 shows that farmer preference for sugarcane is highest (Pakistan Agriculture Council, 2023). Due to this change in cropping pattern, the sustainability of Pakistan's water supply has come under scrutiny.

Figure 9.9: Farmers' preference



Source: Pakistan Agriculture council (2023)

9.8 Impact on Crop Yields and Economy

Water scarcity has and will have major impacts for Pakistan. Table 9.4 shows basic data on agriculture from 2010-2023, with a declining trend for water availability. This contrasts with the increasing population whose food demand will obviously be higher but a decrease in water availability will mean a decline in available yield and food shortages in the future.

Table 9.5 shows production of important crops from 2010-2023. Cotton production has gone down drastically, almost by 41 percent due to flooding, shifts of farmers to sugarcane, and pink bollworm. This not only impacts the farmers' but also impacts the textile industry, which contributes 60 percent to Pakistan's exports. This decline led to unemployment for people in textile industry (State bank of Pakistan, 2023). Wheat seemed to have a yield growth but less than the global average of 2.5 percent annually. This is due to water scarcity along with reasons like late sowing but can lead to food insecurity as the yield is barely enough to meet the domestic demand. Sugarcane has increased drastically, which is a heavily water-intensive crop and can further worsen the water scarcity issue if not regulated.

Table 9.4: Basic data on agriculture

Fiscal Year	Cropped Area (million hectares)	Improved Seed distribution ('000 Tonnes)	Water Availability (MAF)
2010-11	22.72	331.02	137.16
2011-12	22.50	346.38	135.86
2012-13	22.56	327.08	137.51
2013-14	23.16	359.18	137.51
2014-15	23.26	481.30	138.59
2015-16	24.04	431.79	133.00
2016-17	23.01	554.95	132.70
2017-18	23.45	604.88	133.40
2018-19	23.45	654.13	131.00
2019-20	24.10	550.77	130.00
2020-21	23.50	616.76	131.50
2021-22	23.90	778.22	131.02
2022-23 P	-	655.89	-

Source: Pakistan economic survey (2022-2023)

Along with this, the 2022 flood led to 2.4 million hectares of crops being destroyed and canal water declined as well adding to water insecurity. This underscores the point that climate change, leading to erratic rainfall and monsoon, along with rising geopolitical tensions puts Pakistan currently in a more vulnerable state than before. SBP (State Bank of Pakistan, 2025) reported a deceleration in agriculture growth due to decrease in production of important crops. The reason for the low productivity has been attributed to the high temperature and erratic rainfall pattern, leading to late sowing of kharif crops.

A deceleration of real GDP in the first half of 2025 was also seen with a decline in large scale manufacturing sector by 1.9 percent (SBP, 2025). Water scarcity can impact industrial production and growth due to reduced input and many industries require water in their production process as well. Floods/droughts can lead to added pressure on the government budget due to crops and livestock being destroyed, aiding the displaced, and health risks leading to major deficits. The dry spell of the winter season (2024-2025) led to temporary closure of many water-reliant businesses in the Federal and Punjab area, leading to economic losses.

Table 9.5: Production of important crops

Fiscal Year	Wheat	Rice	Bajra	Jowar	Maize	Barley	Total Food Grains	Gram	Sugarcane	Rapeseed and mustard	Sesame	Cotton (000 Tonnes)	Cotton (000 Bales)	Tobacco
2010-11	25214	4823	346	141	3707	71	34302	496	55309	188	31	1949	11460	103
2011-12	23473	6160	304	137	4338	66	34478	284	58397	164	30.2	2310	13595	98
2012-13	24211	5536	311	123	4220	67	34468	751	63750	205	29.2	2214	13031	108
2013-14	25979	6798	301	119	4944	67	38208	399	67460	203	32.4	2170	12769	130
2014-15	25086	7003	294	115	4937	63	37498	379	62826	196	33.1	2372	13960	120
2015-16	25633	6801	300	161	5271	61	38227	286	65482	185	31.8	1688	9917	116
2016-17	26674	6849	305	148	6134	58	40168	330	75482	181	34.1	1815	10671	100
2017-18	25076	7450	339	153	5902	55	38975	323	83333	225	35.2	2032	11946	107
2018-19	24349	7202	350	149	6826	55	38931	447	67174	302	35.7	1677	9861	104
2019-20	25248	7414	384	120	7883	48	41097	498	66380	488	64.4	1556	9148	133
2020-21	27464	8420	266	96	8940	42	45228	234	81009	296	102.2	1202	7064	168
2021-22	26209	9323	226	64	9525	38	45385	316	88651	402	128	1417	8329	134
2022-23	27634	7322	256	49	10183	37	45481	238	91111	796	152.3	835	4910	134

Source: Pakistan economic survey (2022-2023)

9.9 Government Strategies and Proposed Solutions

Government of Pakistan has taken some steps to resolve issues such as National water policy (2018) focused on equitable distribution of water and conservation. Similarly, dam construction like Diamer-Bhasha and Mohmand dams are under development, which are expected to add 10 MAF (million acre-feet) of storage capacity. Additionally, the government has been trying to promote drip and sprinkler irrigation through subsidy schemes to avoid water wastage. A project called Recharge Pakistan has also been initiated with aim of restoring wetlands and groundwater recharge. Chashma right bank canal project in KPK in collaboration with CPEC is a step to solve water irrigation problem (Kouser et al., 2020)

Water and Power Development authority (WAPDA) identified potential of over 59 BCM of water storage on Indus and its tributaries. Inter-provincial conflicts have hindered the development of large dams, but these conflicts need to be resolved on a priority basis to increase storage capacity through large dams (PCRWR, 2018).

Rainwater storage system can be built to store rainwater during monsoon instead of wasting it. India's "Jal Shakti Abhiyan" (2019) built 1 million rainwater harvesting structures increasing groundwater recharge by 20 percent in drought prone areas (Ministry of Jal Shakti, 2020). Build hill torrent storage systems, like China's 'sponge cities', use permeable pavement and reservoirs to capture 70 percent of urban rainwater (world bank, 2022).

New sustainable agricultural practices like cover cropped, drip irrigation needs to be introduced in Pakistan to avoid water pollution and wastage. Similarly, there needs to be a shift away from water-intensive crops and more traditional crops need to be planted to ensure water security. Climate change needs to be tackled by implementing proper carbon taxing policies, and reforestation. Pollution control though proper waste management, curbing of emission through control over vehicular emission, crop residue burning and industrial emission. A shift towards enviro-friendly technology and more reliance on solar along with wind power is needed.

Regulatory framework for groundwater withdrawal should be formulated and implemented, along with monitoring to make sure no excessive water is withdrawn. Proper infrastructure development of water pipelines and maintenance in urban areas needs to be conducted to limit water wastage and water contamination due to leakage in pipes. Wastewater generated from 16 major cities is almost equal to 5BCM. This wastewater can be treated using modern techniques instead of being discharged untreated into major water bodies, which leads to contamination. Using it for irrigation without treatment poses serious health risks. Mass awareness campaigns for people need to be conducted through various media outlets, encouraging people to conserve water, pay water bills, and avoid polluting water bodies.

The 1991 water accord needs to be updated to ensure transparency and comprehension, which will to some extent reduce inter-provincial disputes as well over dams' construction. Geo-political tension over IWT needs to be resolved on priority to ensure water security. A climate resilience and humanitarian response program has been launched in Pakistan, but the current shifting global dynamics and policies can pose uncertainty about future. For instance, US withdrawal from Paris agreement is a severe blow for a vulnerable country like Pakistan that depend on internation cooperation to mitigate climate disasters. Developed nations have only till now paid Pakistan 2 percent for loss and damage from COP27 pledge (Oxfam, 2023). This withdrawal can embolden other high emission nations to slow their decarbonization, which can have severe impacts for Pakistan. Pakistan needs to come up with strategies and prioritize its environmental sustainability along with growth, otherwise natural disasters due to climate change can pose a major threat to economic growth of Pakistan. The government needs to prioritize environmental policies and fund programs and research activities that ensure sustainable economic growth over just economic growth.

9.10 Conclusion

Water scarcity in Pakistan is not merely an environmental issue – it is a national security challenge with implications for economic stability, food security, and public health. The convergence of climate change, geopolitical tensions, and poor water governance has created a multi-dimensional crisis. However, the success of the policy response hinges on swift implementation, regional cooperation, and evidence-based decision making. Achieving sustainable water security in Pakistan will require technical innovation, public participation, conflict resolution and institutional reforms.

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Chapter 10

Climate Vulnerability of Fishing Sector in Pakistan

Ghamz E Ali Siyal

Highlights

- With the global projections of greenhouse gas (GHG) emissions scenarios, there is an expected rise in air and sea surface temperature, sea level, the number of marine heatwaves days, and ocean heat content, along with a decrease in surface and ocean oxygen levels. Such deteriorating conditions of the marine ecosystem not only pose challenges to fishers in coastal communities but also presents a serious threat to life underwater in future.
- Climate change and climate-induced disasters have increasingly posed disproportionate threats to Pakistan's fishing industry, which relies on marine, in-land, and freshwater capture.
- Based on Livelihood Vulnerability Index (LVI), from 1950- 2019, industrial fishers have faced significant livelihood vulnerabilities due to climate change and climate-induced disasters, followed by artisanal and subsistence fishers in Pakistan.

10.1 Introduction

Climate risk has been preeminent, with inescapable effects on humans as well as natural resources in-land, coastal or marine resources globally. The Intergovernmental Panel on Climate Change (IPCC) Sixth Assessment Report highlights that global warming and geochemical changes are likely to have determinantal effects on fish stock in marine ecosystems. Based on 1986-2005 climate data, projected changes under low (RCP 2.6) and high (RCP 8.5) greenhouse gas emissions scenarios validate increase in global mean surface air and sea surface temperature, rise in global mean sea level, marine heatwaves days, ocean heat content, and decrease in surface and ocean oxygen (IPCC, 2023). These negative effects over time, along with expected projections, could substantially affect growth of global fisheries sector. This sector is important not only for contributing to the economy but also for supporting food security and reducing poverty especially in marginalized communities in developing countries. As such, this sector plays a vital role in advancing two crucial developmental goals, namely, life underwater (SDG 14) and Zero Hunger (SDG 2) from Sustainable Development Goals (SDG).

There is substantial evidence from global case studies highlighting rising vulnerabilities of fishers against climate change and climate-induced disasters. For instance, Mulyasari et al., (2020) found that increased climate variability results in higher livelihood vulnerability among fishermen in Bengkulu city, Indonesia. It happened primarily due to decline in fish production. Similarly, Jakariya et al., (2020), and Saha et al., (2024) highlight significant threats posed by climate change and climate-induced disasters to coastal communities in various parts of Bangladesh that rely heavily on fishing. It is also important to consider vulnerability assessment studies of India, which share borders of coastline along with the Arabian Sea with Pakistan. Jeevamani et al., (2021) and Umamaheswari et al., (2021) inform increasing vulnerabilities of fishers and coastal communities along the west and south-coast of India.

Pakistan, blessed with a large population and natural resources, starting from mountain ranges in the north to rivers, canals, plateaus, deserts, and coasts, Pakistan also faces the severe impacts of climate change. The country has a 990 Kilometer (Km) of coastline that extends to 350 nautical miles and spans the provincial boundaries of Sindh and Balochistan (MFF Pakistan, 2016). This ecosystem is home to marine and coastal fisheries, sea turtles, and seabirds, supported by mangroves, and patches of coral reefs. The fisheries sector includes marine capture, in-land capture, and freshwater capture which is responsible for food security, income, and poverty reduction of coastal communities. Although the fisheries sector's share is smaller than other sectors, 0.31 percent in Gross Domestic Product (GDP), it has huge potential to support the national economy if properly developed. According to recent statistics from the Pakistan Economic Survey (2024), marine capture contributed to 57 percent of total fish production (i.e., 721 thousand MT) that provides share in total EU and Non-EU exports of fisheries with value of $ 530 Million (GoP, 2024).

Unfortunately, this ecosystem is vulnerable to both, direct and indirect human-induced activities. Direct activities include overfishing, deforestation of mangroves, land reclamation, and dredging. Indirect effects stem from pollution from solid waste and sewage in Karachi. In year 2020 Karachi generates daily 16000 to 1800 tons approximately that still lacks proper solid waste management (MFF Pakistan, 2016, World Bank, 2018). Additionally, Siyal & Zulfiqar (2024) found a substantial amount of macro-plastics items floating on the sea surface and seafloor, which could potentially cause billions of dollars in losses to Pakistan's fishing and tourism industries. Using empirical tools and models to analyze macro-level data, numerous studies have confirmed that carbon emissions and temperature rise negatively affect fish production in Pakistan, both in the short and long run (Shahzad, 2023). These changes reduce catches of fish, shrimp and other valuable marine biodiversity, thereby increasing livelihood challenges for fishermen (Ayub, 2010, Afreen et al., 2023, Shahzadi et al., 2020).

World Bank report (2018) also points out the heightened vulnerability of small-scale fishermen in the southern parts of Indus River due to climate stresses, lower educational levels, and huge gender inequality. In Sindh province, the inland fishing industry was traditionally supported by Kenjhar and Manchar Lakes, both have suffered from pollution and salinity. The decline in water quality, caused by reduction of freshwater inflows and increase of huge agricultural and industrial runoff, has not only threatened the livelihood of fishermen but also compromised these lakes as key source of drinking water for Karachi. Similarly, there has been a gradual reduction in the livelihood of in-land fishermen in other provinces as well, such as Khyber Pakhtunkhwa and Sindh (Qasim et al., 2019, Xu et al., 2023). The effects of climate change and climate-induced disasters are uneven across marginalized communities, with women being vulnerable. In Sindh province, despite women participating in pre-harvest activities such as repairing fishing gears, participation in preparing aquaculture ponds, as well as in post-harvest activities like cleaning, processing, and distributing catch, women face huge income inequality, workplace segregation, and health risk (World Bank, 2018).

Focusing on climate stressors affecting coastal communities, Mohsin et al., (2024) discusses the challenges faced by Pakistan's seafood industry. The study uses primary data collection from stakeholders from fishing industry in Sindh and Balochistan to explore the impacts on the seafood sector. Based on stakeholder responses, the study ranked environmental risks as the leading challenges faced by fishers, followed by a lack of infrastructure and logistics support in the seafood market. However, there are limited studies that investigate on which specific factor or component increases the vulnerability of coastal communities. For instance, is it exposure to climate change that affects fish capture, or are lower levels of sensitivity and poor adaptive capacities more responsible for the worsening livelihood of fishers? A few studies, for example, Salik et al., (2015), have applied the Intergovernmental Panel on Climate Change (IPCC)-Livelihood Vulnerability Index (LVI) to assess the vulnerability of fishers in coastal communities of Sindh. Their findings concluded that climate change and frequent climate-induced disasters have increased the exposure and sensitivity of these communities. Despite having strong family networks and ability to migrate, these communities continue to struggle due to low adaptive capacities to cope with the impacts.

Beside this, another important gap exists in exploring the vulnerability of sub-groups of fishers living in coastal communities over time. Addressing this gap is crucial because exposure to climate change and disasters, as well as sensitivity and adaptive capacity, may vary substantially among different subgroups within fishing communities. To our knowledge, no existing study has conducted a vulnerability assessment of different types of fishers, namely subsistence, artisanal, and industrial overtime in Pakistan. The main contribution of this chapter is that this study presents the first application of the IPCC-based Livelihood Vulnerability Index (LVI-IPCC) framework to Pakistan's fisheries sector using long-term data with sample size of 1950–2019. By integrating climatic exposure indicators, such as sea surface temperature and storm frequency, with sector-specific sensitivity and adaptive capacity variables, this study provides a novel, disaggregated analysis of vulnerability trends among artisanal, subsistence, and industrial fishers.

Using the Intergovernmental Panel on Climate Change (IPCC)- Livelihood Vulnerability Index (LVI), this study found that industrial fishers had the highest vulnerability scores, followed by subsistence, and artisanal groups. These results point out the heterogeneous effects of climate change and disasters across coastal communities. Insights from this chapter strongly call huge attention of policymakers to implement aimed reducing vulnerabilities of coastal communities.

10.2 Methodology and Data

This section discusses key data sources, indicators of sub-indices, methodology related to construction of Livelihood Vulnerability Index (LVI). This chapter applies the Livelihood Vulnerability Index (LVI) based on the Intergovernmental Panel on Climate Change (IPCC) vulnerability framework. This model is adapted from different studies for instance from Salik et al., (2015), Panthi et al., (2016), Siyal et al., (2018). This chapter is focusing on LVI overtime using secondary data which lacks coastal communities' sociodemographic variables. It assesses the climate vulnerability of Pakistan's fisheries sector across three distinct groups, namely, artisanal, subsistence, and industrial fishers. The analysis spans the period from 1950 to 2019.

The data sources to construct IPCC-LVI index is based on three key databases. Firstly, fisheries data comprises of annual catch and value data were obtained from the Food and Agriculture Organization (FAO) Fish Statistics database, specifically the Global Capture Production dataset. It comprises of species-level records of tonnage landed, landed value, gear types, functional groups, and end-use classification, based on fishing sector and year.

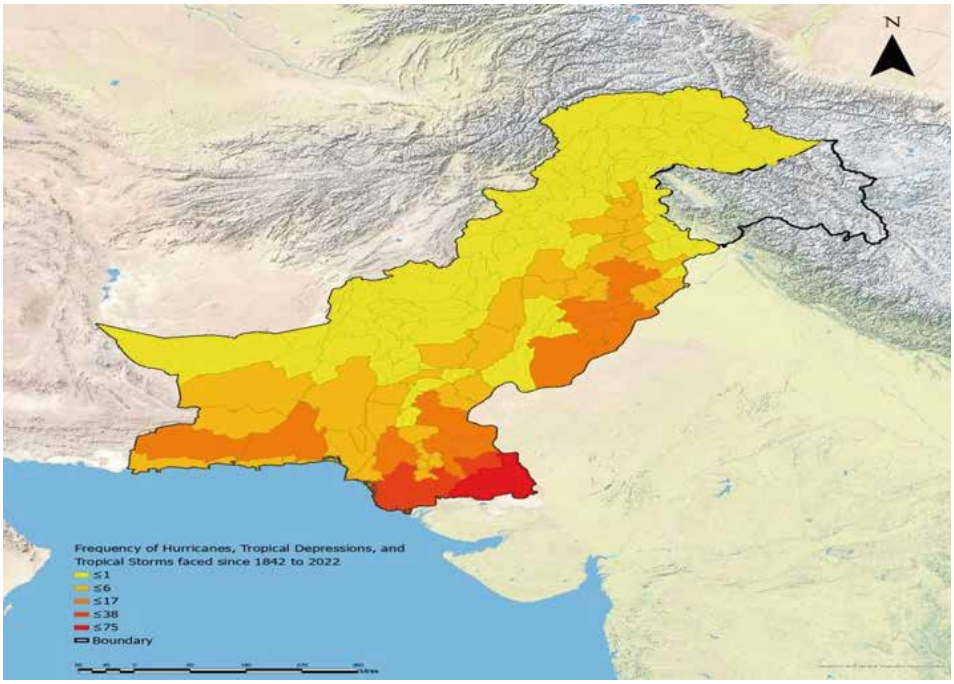
For storm exposure data, we used data from the National Oceanic and Atmospheric Administration (NOAA) hurricane database of historical tropical storms and cyclones affecting the coastal regions of Pakistan from 1842 to 2022. Based on this dataset, we derived a spatially averaged storm exposure score for coastal districts. Since the severity of storm varied for each coastal districts from Sindh and Baluchistan. The sea surface temperature (SST) annually data is extracted from NOAA's Extended Reconstructed Sea Surface Temperature (ERSST) v5 dataset. Using monthly SST format files in ASCII format from 1950–2019 to extract average SST for Pakistan's coastal region i.e., 22°N–26°N latitude, 61°E–68°E longitude. Finally, SST annual averages were then computed by normalizing.

Indicator Construction

The IPCC-LVI comprises of three sub-indices, namely, exposure, sensitivity, and adaptive capacity. The exposure component can be defined as how much climate stress the group of fishers' faces. The sensitivity component can be defined as how strongly these groups depend on climate affected resources, for instance annual catch. The adaptive capacity can be defined as how well these fishers can adapt using gear diversity, etc.

For the exposure sub-index, two variables were used, namely, storm exposure score and sea surface temperature. The storm exposure score is based on the frequency of historical cyclones in Pakistan's coastal districts, assigned uniformly across years and sectors. Figure 10.1 provides historical records for hurricanes, tropical storms, and depressions for Pakistan from 1842 to 2022. The districts neighboring coastline of Pakistan has faced many hurricanes and tropical storms since 1842 till 2022. Secondly, sea Surface temperature (SST) is defined as annual SST values were normalized to reflect thermal stress on marine ecosystems. A combined exposure index was created by averaging the normalized SST and storm score.

Figure 10.1: Historical record for Hurricanes, Tropical storms, and Depressions for Pakistan from 1842 to 2022.



Source: Author used ArcPro; Downloaded from National Oceanic and Atmospheric Administration.

For the sensitivity sub-index, catch dependence is measured using annual landed tonnage per sector. It helps to reflect that greater reliance on climate-affected assets implies higher sensitivity. Finally, for constructing sub-index of adaptive capacity two key proxies are used, namely, gear diversity and value per ton. The gear diversity is the number of unique gear types used by each sector per year. Secondly, value per ton is also calculated as the ratio of landed value to tonnage, reflecting economic efficiency and market access.

LVI-IPCC Calculation

To calculate the livelihood vulnerability index, we need to follow the Intergovernmental Panel on Climate Change (IPCC) conceptual model (Panthi et al., 2016). This model explains mathematically we need to take use following formula:

$$LVI=(Exposure-Adaptive\ Capacity)\times Sensitivity \quad (1)$$

Where, each sub-index of exposure, sensitivity and adaptive capacity comprises of different variables that are normalized to a 0–1 scale using min-max normalization. Sector-year level aggregation and LVI-IPCC values were computed per fishing sector and year using Stata software. Finally, the time series charts are generated to explore trends in vulnerability over time for fishers.

Limitations

This study faces three key limitations that need to be addressed by future research to improve overall understanding against threats from climate change and disasters on fishing industry of Pakistan. First, this study used secondary data that is focused on fishing activity indicator but lacks sociodemographic indicators of communities. Second, the fisheries datasets from FAO used in this chapter may also face data limitations and measurement errors. Third, it is also possible few communities are more vulnerable than others due to geographic factors. Fourth, it is important to consider all other non-climatic challenges faced by each fisher type, for instance oil spills, and marine plastics, that also effect livelihood vulnerability of these groups.

10.3 Results

This section briefly discusses results of livelihood vulnerability overtime for three subgroups of fisheries, namely, subsistence, artisanal, and industrial. Secondly, it dissects components of vulnerability index and finally insights from combined results for each type of fishers are discussed in this section.

Livelihood Vulnerability Overtime

The scores of Livelihood Vulnerability Index (LVI-IPCC) provide crucial insights to understand how artisanal, subsistence, and industrial fishers of Pakistan have experienced climate-induced vulnerability over the past seven decades. This index is constructed by three sub-indices, namely, exposure to climate stress using SST and storms exposure, sensitivity component using catch dependence and adaptive capacity, measured through gear and economic diversification. This index is based on the IPCC framework. This multidimensional approach reveals both temporal trends and sectoral disparities in vulnerability.

Artisanal Fishers: Volatility and Rising Vulnerability

Among the three sectors, artisanal fishers displayed the most volatile and dynamic vulnerability trends. Starting from the 1950s through the late 1980s, LVI-IPCC values for this group remained largely below zero which indicates that their adaptive capacity may have outperformed exposure. However, after 1990s and specifically post-2000 there is a rising trend. It shows values are higher or positive that continue to rise through 2019. This trend suggests that artisanal fishers are increasingly prone to climate stress. It could potentially be driven by warming sea temperatures and potentially declining gear diversity or economic resilience. These fluctuations also indicate high sensitivity to climate shocks. It means higher dependence on nearshore resources and could be limited access to institutional support.

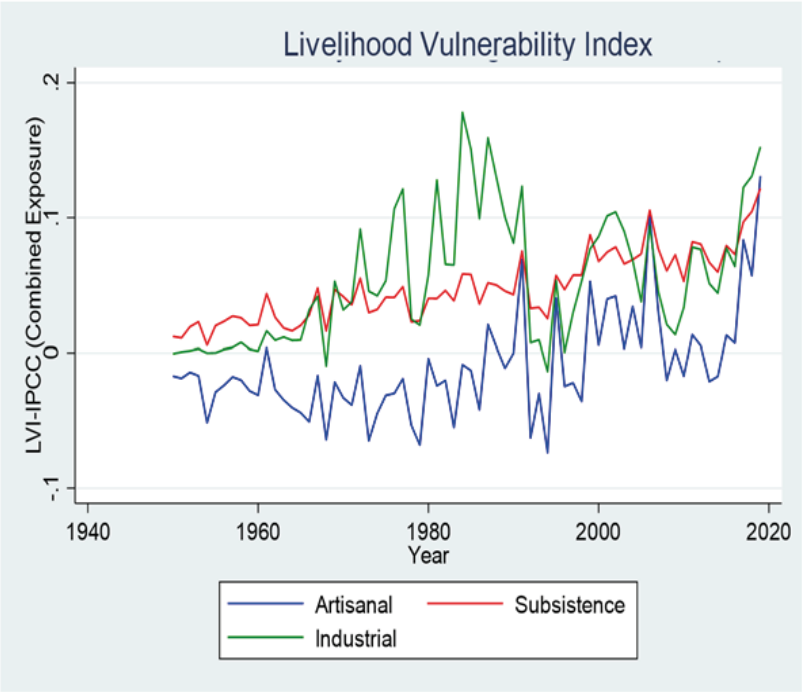
Subsistence Fishers: Consistently High Vulnerability

For subsistence fishers trends display the highest and most stable LVI-IPCC scores since 1950-2019. Unlike other fishers, subsistence fishers depicted relatively little fluctuation but remained in a positive score that shows their vulnerability overtime. This reflects prolonged exposure and sensitivity, with limited adaptive capacity. Most likely their reliance on fishing for food and basic income, combined with limited access to improved gear, market structures, or diversification strategies, puts them as structurally vulnerable to both acute events and long-term climate trends. Along with that the modest upward trend in recent decades indicates that vulnerability is getting worse, though at a more gradual rate than in the other fishers.

Industrial Fishers: Emerging Vulnerability

For industrial fishers trends began with relatively low LVI-IPCC score but has increased in vulnerability since the 1970s which got severe fluctuations during the 1980s and 1990s. After 2000, their LVI scores reduce and relatable with those of the subsistence sector. It indicates that even well-capitalized, larger-scale fishers are not unaffected to climate risks. Additionally, rising sea surface temperatures (SSTs), reduction in catches, and regulatory pressures may be reducing their adaptive capacity. Despite diversified operations, their increasing sensitivity points out the ecological limits of industrial-scale fishing in a warming ocean.

Figure 10.2: Livelihood Vulnerability Index (LVI) of Fishers Overtime



Source: Author's estimation

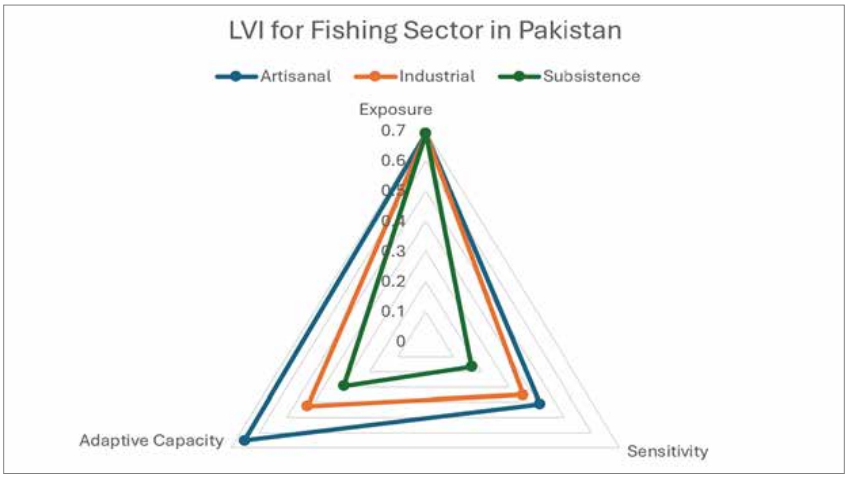
Overall Inference

Despite differences in severity, vulnerability score of each fisher group depicts rising climate vulnerability overtime. The leading scores belong to artisanal fishers who face growing threats with high volatility, followed by industrial and subsistence fishers. These findings point out the necessity of sector-specific adaptation planning, investment in resilience, for example gear upgrades, early warning systems, along with differentiated policy responses. A complementary approach can address both severe and emergent vulnerabilities in coastal Pakistan.

Subcomponent Analysis of LVI For Fishing Sector

Based on sub-index analysis, figure 10.2 shows that each sector has different score for sensitivity, and adaptive capacity except for exposure. Based on sub-indices, it is observed that artisanal sector has higher adaptive capacity but higher sensitivity towards climate change and climate-induced disasters than industrial and subsistence one.

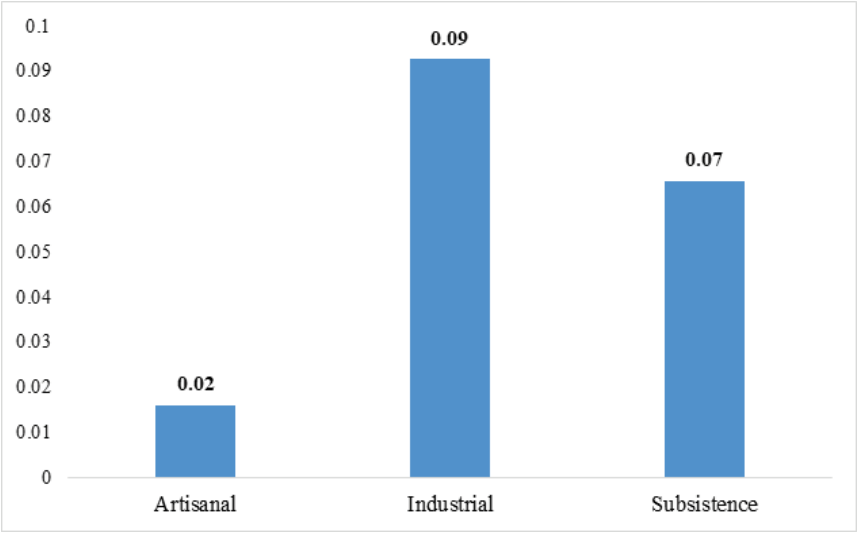
Figure 10.3: Livelihood Vulnerability Index (LVI) for Fishing Sector Based on Sub-indices



Source: Author's estimation

After combining all three sub-indices using IPCC frameworks, it is observed that industrial sector has highest vulnerability than subsistence and artisanal fishers. This is an important insight because climate change and climate-induced disasters raise vulnerability heterogeneously across coastal communities.

Figure 10.4: Livelihood Vulnerability Index (LVI)-IPCC Combined Score for fishers



Source: Author's estimation

10.4 Discussion and Conclusion

Climate change and climate-induced disasters have increased the risks and vulnerabilities of coastal communities at different scales overtime. Pakistan is blessed with a substantial coastal boundary that supports the livelihoods of coastal communities. It helps to reduce poverty and enhance food security across the coastal communities. Extensive studies have accounted for negative effects of climate change and disasters on fish production in marine-capture, in-land, and freshwater capture. The combined impact may cost Pakistan's fishing and seafood industry billions of dollars. However, there is still limited discussion on how these effects vary across different segments of the fishing community.

The fishing community can be sub-divided into three main groups. First, subsistence fishers are individuals who rely solely on fishing activities to support their families. Second, artisanal fishers operate at small scale, using traditional methods and equipment to engage in local trading activities. Finally, industrial fishers conduct large-scale commercial fishing operations using advance technology, capital-intensive equipment, and large vessels to harvest for global markets. Although it is hard to have exact capture data from artisanal and subsistence sector as compared to industrial sector. The share of subsistence fishers is 21 percent, artisanal sector has 37 percent and industrial have around 41 percent based on total reconstructed catch years from 1950 to 2010 (Hornby et al., 2013). Considering climate-induced threats and the varying shares of different fisheries, it is important to assess their livelihood vulnerability both, overtime and in combination. Therefore, this study adapts the conceptual frameworks of Intergovernmental Panel on Climate Change (IPCC) to construct a Livelihood Vulnerability Index (LVI). Using data from 1950 to 2019 sourced from the Food and Agriculture Organization (FAO), and the National Oceanic and Atmospheric Administration (NOAA), the LVI is constructed for subsistence, artisanal, and industrial fishers.

Analysis of LVI confirms that, despite having differences in vulnerabilities each fisher type faced increasing exposure from climate change and disasters post 1980s. Based on the sub-indices of exposure, sensitivity, and adaptive capacity, results show that although the artisanal sector has the highest adaptive capacity, it also faces the risk of highest sensitivity to climate-related risks. Using the combined LVI, findings confirm that industrial fishers have experienced the highest overall vulnerability to climate change and disasters as compared to the other groups. This study concludes that all fishers are becoming increasingly vulnerable over time.

Among them, artisanal fishers show the highest fluctuations in vulnerability, and subsistence fishers exhibit constant but with gradually increasing vulnerability. Finally, industrial fishers show increasing vulnerability with moderate fluctuations. These key insights highlight the heterogeneous effects of climate change and disasters across different fishers' groups. From results, we infer that despite having better technology, and vessels industrial fishers are more vulnerable to climate change and disasters as compared to other fishers. Secondly, if these challenges from climate change persist and worsen overtime then it could lead to reducing income, local and international conflicts of fishers' communities, or drive migration to other areas.

After discussing results briefly, it is important to highlight limitations of this study. First, the study relies on secondary data focused on fishing activity indicators, which lack detailed sociodemographic information of communities. Secondly, the datasets used in this chapter may be subject to data limitations and measurement errors. Third, some communities may be more vulnerable than others due to geographic factors. Fourth, it is essential to consider all other non-climatic challenges faced by different fisher types, such as oil spills, and marine plastics, which also affect their livelihood vulnerability. Therefore, future research should aim to address above limitations to provide more realistic and valuable insights that can better support fishers in the coastal communities of Pakistan.

Based on findings of this chapter and previous literature (Salik et al., 2015, Jeevamani et al., 2021 and Umamaheswari et al., 2021, Jakariya et al., 2020, Saha et al., 2024, and others), it is recommended that a climate-related policy be developed particularly for fishers. This policy should aim to provide temporary financial assistance, location-specific training programs, and logistical support with updated gear types across all fishers to reduce their vulnerability against climate change and disasters over time. To devise such policy, it is crucial to conduct a baseline study that includes a benefit cost analysis of introducing a climate policy. This analysis should account for direct and indirect cost in the form of losses, as well as the expected benefits to the fishing industry. Furthermore, spatial variations in communities' sensitivity to health, food and nutrition, water, and land, should be considered, along with their adaptive capacity based on their socio-demographic characteristics.

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I congratulate IBA on coming up with a nice and comprehensive publication on "Status of Pakistan's Economy 2025-26". The publication puts several scholarly pieces on jigsaw of Pakistan's economic history of fragile equilibria. We all know that re-attaining equilibrium has become progressive difficult on account of many lost chances, some of them cogently presented in this document. Starting from stark difference in Pakistan's human capital investment vis-à-vis regional trends, it is not surprising that why we are lacking in health and education and damaging our future. The same article presents the collective damages country took on account of floods since 1952 to 2022. These damages cumulate to a monumental total of USD 50 billion that could have built several reservoirs like Kala Bagh dam. In 2008, it was costing only 6 billion US$ to make this dam. Other articles touched upon equally important aspects of competing water uses and increasing water scarcity and also on climate induced reduction in fishes' breeds and numbers.

One of the articles shows various growth trajectories of the nation's economy under varying sets of assumptions. In all of the scenarios, one of the key assumptions is of no severe flood and rain. It will be interesting if authors may redo their simulation after factoring in the damages due to recent rains and floods. The report also talked about some of the emerging opportunities Pakistan may capitalize upon due to Trump's reciprocity in tariffs. Only predictable aspect of his policy is uncertainty and Pakistan should do its best to capitalize and not let it turn into another missed opportunity.

Another heartening aspect is that IBA has developed a critical mass of economists. This resource, supplied with graduate students, will strengthen IBS's position in country's policy arena. I hope that IBA will put more endeavors to sharpen policy research in social, economic, governance, and disaster for mutual good of institution and country.

Dr. Naeem Uz Zafar (SI)
Chief Statistician, Pakistan Bureau of Statistics

What makes this volume remarkable is not only the breadth of issues it tackles, from fiscal imbalances to climate vulnerabilities, but the discipline of grounding every argument in evidence. For Pakistan, where policy debates are too often driven by rhetoric or short-term exigencies, this report offers a rare chance to pause, interrogate our choices, and consider the long view. It compels the reader to see the economy not as a series of disconnected crises, but as an evolving system shaped by governance, institutions, and global currents. For practitioners like myself, this is more than a book, it is an invitation to think critically, to question easy answers, and to embrace the rigour of analysis in charting a sustainable economic future.

Dr. Zehra Farooq
Secretary Revenue Operations & Analysis, Federal Board of Revenue

This report offers a timely and rigorous examination of Pakistan's current and future economic landscape, shedding light on the consequences of key policy decisions and missed opportunities. It addresses longstanding structural issues as well as emerging threats, from institutional weaknesses and social protection to tariff structures and climate vulnerabilities. Given that many of the explored challenges extend well beyond Pakistan, the insights it provides are not only vital for the country itself but also highly relevant to other economies facing similar development hurdles. I believe this is essential reading for anyone seeking to understand the complex realities shaping economic progress today.

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