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Leadership and Ideas for Tomorrow

The State of Pakistan's Economy 2026-27

Stagnation to Sustainability: Charting Pathways for a Transforming Economy

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Foreword

Some information from this year's Pakistan Economic Survey FY26 (PES26) stands out showing particularly disturbing trends. Pakistan's poverty rate now stands at 28.9 % of the population, below a very minimal Rs 8,484 per adult equivalent income per month. These figures in the PES26 are for 2024-25, which show an increase in the number and proportion of those living in poverty rising from 21.9 % in 2018-19, a mere six years ago. In terms of numbers, if we assume that the poverty rate has remained the same as it was in 2024-25, more than 72 million people currently live in poverty in Pakistan today. It is worth adding that given current birth rates, Pakistan is destined to have 390 million people in 2050 and be the third most populous country in the world.

Pakistan was ranked the world's 'most polluted country in the world', clearly as ignominious a distinction as Pakistan being the worst in the world amongst 148 countries reporting data according to the Global Gender Gap Report 2025. The PES26 shows that unemployment as reported by the Government of Pakistan is the highest in twenty-one years, with 5.9 million unemployed. Moreover, the highest unemployment is in Pakistan's youth, those aged 15-29. One should add that even for those who are fortunate enough to have a job, the real wages of workers has fallen by almost 20 % in the last three years. Finally, the PES26 reveals that government education spending has halved in the last two years and is a mere 0.8 % of GDP, the lowest in this region and substantially below the 4-6 % recommended by UN agencies.

One can clearly triangulate just these sets of very elementary and basic data – population growth, poverty, unemployment, women's social and economic status, education – and can underscore how precarious Pakistan's current predicament and future prospects look like. Without substantial social, economic and human development, Pakistan will continue to fall further in global Human Development Index rankings, falling from 161st in 2020-21 to 168th in 2025.

These very basic facts and figures speak volumes. They disclose what those in power prioritise and what they constantly ignore and shy away from. Pakistan's political economy is built on opportunistic alliances and immediate gratification and on extracting rents. Investment as a percentage of GDP is the lowest since 1972-73! Pakistan's basic economic and social indicators have been in decline for decades, both compared to other countries in the region and even to own historical trends. A dismal situation continues to worsen, yet those who have power focus primarily on self-interest and own benefits. It is not difficult to see where Pakistan is heading.

S Akbar Zaidi
Executive Director, IBA, Karachi

Chapter 1

Introduction

Aadil Nakhoda and Khadija Bari

Since independence, Pakistan's economy has moved in cycles rather than along a steady upward path. Episodes of growth have repeatedly given way to balance-of-payment crises, fiscal stress, and recourse to external assistance, while the deeper constraints such as political instability, weak institutions, a narrow tax base, and low productivity, have remained stubbornly in place. The result is an economy that has often achieved stability without achieving transformation. This year's volume of The State of Pakistan's Economy takes that distinction as its starting point. Its theme, Stagnation to Sustainability: Charting Pathways for a Transforming Economy, reflects a conviction that has guided the work of the School of Economics and Social Sciences at the Institute of Business Administration, Karachi. The central economic question facing Pakistan today is not how to stabilise, but how to convert hard-won stability into durable, inclusive, and sustainable growth despite the recent hiccups as a result of the US–Iran war.

That question has acquired fresh urgency. After three years of near-stagnation, provisional data for FY2025–26 point to a return of stability with growth rebounding to around 3.7 percent and the economy crossing the $450 billion mark, yet the recovery remains fragile. The renewed conflict in West Asia and the associated oil-price shock have widened the band of uncertainty around every forecast for the coming year. Against this backdrop, the editors believe a volume that maps the channels through which external shocks, fiscal choices, demographic pressures, and climate risks interact is not merely timely but necessary. Stability that is not translated into investment in people, energy systems, and resilience is, on the evidence of Pakistan's own history, unlikely to last. The chapters that follow set out, sector by sector, where those investments most need to be made and what the cost of further delay is likely to be.

The volume opens with a foreword by S. Akbar Zaidi and proceeds through ten substantive chapters, each combining fresh data with policy analysis. Each can be read on its own; together they form a connected argument about how Pakistan can move from a holding pattern toward a sustainable trajectory. The remainder of this introduction previews that argument chapter by chapter, noting in each case the motivation behind the analysis and the central conclusion the authors reach, with references to the relevant sections so that the reader can turn directly to the supporting evidence.

Chapter 2 — Current Challenges and Future Growth

The opening analytical chapter sets the macroeconomic stage. Motivated by the need to take stock of an economy emerging from three years of stagnation, it reviews the state of the economy in FY2025–26 and projects growth and inflation for FY2026–27. It records a provisional growth rate of 3.70 percent with the economy surpassing $450 billion, but also a fiscal position that deteriorated into a deficit of 0.7 percent of GDP over July–March. Its central conclusion is sobering: against official and multilateral projections ranging from 3.5 to 4.5 percent, the authors' own dynamic VAR baseline puts FY2026–27 growth at 3.47 percent with inflation near 7.8 percent, conditional on the regional ceasefire holding and energy supplies normalising. The message that frames the whole volume is that stability has returned but remains hostage to external shocks, especially as the US–Iran war rages on.

Chapter 3 — IMF Programs and Fiscal Priorities in Pakistan

Lubna Naz and Jazib Mumtaz ask why Pakistan has remained one of the IMF's most persistent clients with 25 programmes in 67 years and counting. They also ask what repeated stabilisation has done to the structure of public spending. Their key finding is that macroeconomic performance tends to weaken during programme years: average GDP growth falls to 4.09 percent against 5.53 percent outside programmes, while development expenditure is squeezed from 6.07 to 4.42 percent of GDP as debt servicing rises toward 45 percent of total spending. They conclude that adjustment has repeatedly crowded out development, with poverty rising to 28.9 percent and the Gini coefficient climbing to 32.7 by 2025. The chapter's contribution is to reframe fiscal consolidation as a question of priorities, not just totals.

Chapter 4 — The Pulse of Economic Transition: The IBA–SBP Business Confidence Survey

Qazi Masood Ahmed and Aadil Nakhoda use the IBA–SBP Business Confidence Survey to read the economy's pulse in near-real time. Motivated by the value of timely sentiment data in a volatile environment, they trace the Business Confidence Index from a trough of 36.5 in April 2023, through a sustained recovery above 50 from late 2024, to a sharp drop to around 47 in March–April 2026 as the US–Iran conflict began. They show that the index tracks large-scale manufacturing and trade closely, and that confidence plunged across major industries once conflict erupted. Their conclusion is that the survey is an excellent leading indicator of economic conditions, and they recommend that its findings receive far greater public and media attention.

Chapter 5 — Estimating and Projecting Poverty: Implications for BISP and Fiscal Policy

Adnan Haider documents a sharp reversal in poverty using HIES 2024–25 data, motivated by the recognition that poverty in Pakistan has become acutely sensitive to inflation and external shocks. National poverty has risen to 28.8 percent, with nearly 15 million additional people pushed below the line and the poverty line itself more than doubling since 2018–19. Scenario projections show that an oil-price shock could push the poor from 70.2 million toward as many as 131.6 million in the high-impact case. The chapter concludes that the Benazir Income Support Program must be scaled and inflation-indexed, recommending a monthly stipend of Rs. 6,000 and an envelope of roughly Rs. 950 billion for FY2026–27.

Chapter 6 — Population Growth, Human Capital Formation, and Fiscal Sustainability

Khadija Bari and Neelma Faraz argue that population growth, too often treated as a background social issue, is in fact a critical macroeconomic variable. With Pakistan's population reaching 241.49 million and growing at 2.55 percent annually—the fastest rate among major South Asian economies—and public spending on education and health remaining at just 0.8 and 0.9 percent of GDP, respectively, they identify a "low human capital trap" in which rapid population growth dilutes per-capita investment in people. The authors show that fertility declines sharply with female education, falling from 4.2 births among women with no schooling to 2.6 among those with higher education. The chapter's central conclusion is a powerful reframing: population policy is economic policy, and investments in family planning, girls' education, and primary healthcare are essential prerequisites for long-term fiscal sustainability and inclusive economic growth.

Chapter 7 — Child Labour, Human Capital Formation, and the Sustainability Trap

Muhammad Kazim Jafri and Muhammad Nasir examine child labour as a binding constraint on future human capital, drawing on evidence from all four provincial Child Labour Surveys. They report a national child labour rate of 11.41 percent, with more than four million children engaged in hazardous work, and note that Pakistan accounts for 7.53 percent of the world's hazardous child labour. Linking the phenomenon to household poverty, declining school attendance, and adverse health outcomes, they estimate an average future earnings penalty of approximately 15 percent for affected children. Their conclusion is clear: reducing child labour should be viewed not as a social protection footnote, but as a fundamental long-term investment in human capital formation and sustainable economic growth.

Chapter 8 — Distributed Solar Growth and the Erosion of Cost Recovery

Amir Jahan analyses Pakistan's consumer-driven solar boom and the strain it places on the power sector. Motivated by the divergence between private incentives and system efficiency, the chapter shows rooftop solar (around 5,900 MW) expanding far faster than utility-scale capacity (780 MW) as households flee high tariffs and unreliable supply. The result is a "missing money" problem: fixed system costs must be recovered from a shrinking grid-dependent base, raising tariffs and burdening lower-income consumers. The chapter concludes that incremental fixes will not suffice; it calls for tariffs that separate energy from network costs, grid modernisation, storage, and a redefined role for the national grid as a flexible, hybrid platform.

Chapter 9 — Air Pollution: Economic and Environmental Consequences of a Growing Crisis

Sahar Arshad Mahmood and Sumaira Ghafoor treat air pollution as an economic problem, not merely an environmental one. They document that Pakistani cities rank among the world's most polluted, with 194.6 pollution-attributed deaths per 100,000 people against fewer than nine in the Nordic countries, and estimate the cost at roughly 6.5 percent of GDP annually, with healthcare costs near $1.5 billion and crop losses of 0.76 percent of GDP. Drawing on a Karachi field study, they show that awareness campaigns shift behaviour only when paired with concrete improvements such as reliable transit. The chapter concludes that decades of environmental legislation have failed for want of enforcement, and that clean air and economic performance are the same priority, not competing ones.

Chapter 10 — From Mountains to Plains: Multi-Season Climate Drivers of Flood Risk

Ghamz E Ali Siyal links climate conditions in Gilgit-Baltistan to nationwide flood risk, motivated by the gap between Pakistan's repeated flood disasters and the limited evidence connecting them to upstream climate predictors. Using time-series data from 1981 to 2024, the chapter finds that higher monsoon precipitation in GB districts raises the odds of flooding nationwide as it increases damage by 19 percent, affected people by 23 percent, and deaths by 10 percent, while greater winter snow storage reduces these outcomes. The conclusion is practical: because climate anomalies in the north are leading indicators of national flood risk, monitoring them can give policymakers the lead time needed for disaster-risk reduction.

Chapter 11 — The National Tariff Policy 2025-2030: Charting a Pathway Towards Trade Liberalization

Aadil Nakhoda turns to trade policy as a lever for the transition the volume calls for, motivated by the divergence between Pakistan's inward-looking, high-tariff path and the export-led trajectories of East Asian economies. Benchmarking Pakistan against Vietnam, he shows Pakistan's weighted-average tariff stood at 7.2 percent in 2023 against roughly 1 percent for Vietnam, and that the National Tariff Policy 2025-2030 will sharply narrow this gap, with most significant changes in automobiles, iron and steel, and machinery. His central caution is that cascading tariffs will persist, with consumer goods still taxed more heavily than unfinished goods, blunting firms' incentive to export. The chapter concludes that the NTP is a foundational first step, not a destination, and must be paired with structural reforms such as competitive energy pricing, land reform, and better logistics to convert tariff rationalisation into sustainable growth.

From Diagnosis to Direction

Read in sequence, these chapters trace a single line of argument. The macroeconomic and fiscal analysis (Chapters 2 and 3) establishes that stability has returned but rests on fragile foundations and a spending structure tilted away from development. The confidence survey (Chapter 4) confirms how quickly that stability can be unsettled by external shocks. The chapters on poverty, population, and child labour (Chapters 5 to 7) then show what is at stake for Pakistan's people if growth is not made inclusive, and how investment in social protection and human capital is itself a condition for sustainable growth, not a competing claim on it. The final chapters on energy, air quality, and flood risk (Chapters 8 to 10) extend the same logic to the physical and environmental systems on which long-run resilience depends and the closing chapter on trade policy (Chapter 11) shows how tariff reform can open the productivity-driven and export-led path to growth.

The unifying theme is that Pakistan's recurring instability is not the product of any single failure but of treating interconnected problems as separate ones. Fiscal adjustment, demographic pressure, human capital, energy and trade reform, and climate vulnerability are, as these authors demonstrate, dimensions of the same challenge. The editors' conviction, signifying the reason we believe this volume matters at this particular moment, is that the path from stagnation to sustainability runs through exactly these linkages, and that the window for acting on them while stability holds is narrow. We invite the reader to engage with each chapter in turn, and to read them together as a shared agenda to chart the pathway for a transforming economy.

Khadija Bari and Aadil Nakhoda
Editors, The State of Pakistan's Economy 2026–27

Chapter 2

Current Challenges and Future Growth

Jazib Mumtaz

Pakistan's current economic landscape is defined by urgent realities that need to be addressed immediately. While growth has returned, it remains fragile, poverty is rising, and debt servicing increasingly crowds out development. Rapid population expansion, escalating climate vulnerabilities, and severe air pollution impose heavy economic costs. Furthermore, child labor threatens future productivity, energy reforms remain incomplete, and export competitiveness requires vital structural interventions, underscoring that economic stability alone is insufficient without inclusive growth.

These contemporary challenges compound historical constraints. Since independence, political instability, weak institutions, and low productivity have persistently hindered sustainable progress. Today, external shocks exacerbate this fragility. As an energy-import-dependent nation, Middle Eastern conflicts and global oil volatility widen current account deficits, drive inflation, and raise industrial costs. Ultimately, these intersecting domestic and global pressures weaken macroeconomic stability, severely complicating Pakistan's pathway toward sustainable development. Considering these challenges, the upcoming State of the Economy Report will chart the pathways to transform the economy from one of stagnation toward a more sustainable future.

2.1 State of Economy 2025-26

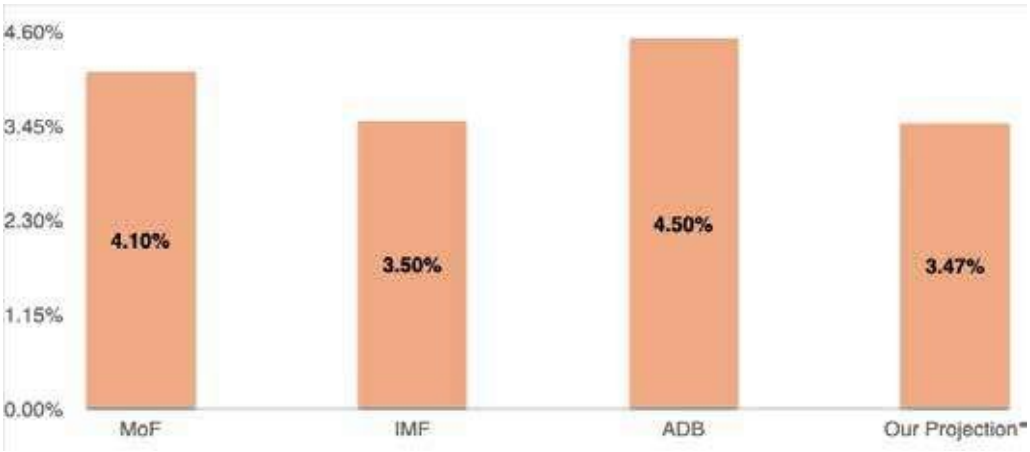
During the current fiscal year 2025–2026, Pakistan's economy reported a provisional growth rate of 3.70%, with the total size of the economy surpassing $450 billion. Based on population estimates from the 2023 Census, per capita income has increased to Rs533,629, or $1,901, indicating a significant improvement in living standards on paper. Additionally, quarterly estimates were updated. Growth for FY 2025–2026 was revised from 3.63% to 3.92% in the first quarter and from 3.89% to 4.05% in the second. Provisional data for the third quarter showed a steady and positive reading of 3.99%, which was fueled by widespread contributions from all three of the main economic sectors. During FY 2025–2026 provisionally, agriculture, which contributes significantly to Pakistan's economy and employment, grew at a rate of 2.89%., the industry grew by 3.51%, with large-scale manufacturing emerging as the top performer. All of Pakistan's subsectors contributed positively to the 4.09% growth in services, the country's largest economic sector.

According to budget document released by the Finance Division, Pakistan's fiscal situation improved in fiscal year 2025–2026 as the overall budget balance swung to a deficit of Rs3,778 billion, during the full year (July–June), compared to a budgeted deficit of Rs5,037 billion, for the fiscal year 2025-26. The data also showed that for full year 2025-26, the country's total revenues were Rs 18,067 billion, of which the FBR collected Rs 12,983 billion and non-tax revenue accounted for Rs 5,093 billion. In FY2025–26, total expenditure is budgeted at Rs 15,642 billion, of which current expenditure accounts for Rs 15,006 billion. Debt servicing remains the single largest expenditure item at Rs 6,937 billion, followed by defense affairs at Rs 2,588 billion. Other major spending components include grants and transfers amounting to Rs 1,971 billion, subsidies of Rs 1,157 billion, and pension payments of Rs 1,055 billion. These expenditure heads continue to dominate the federal budget, leaving limited fiscal space for development and growth-oriented initiatives.

2.2 Projecting Economic Growth 2026-27

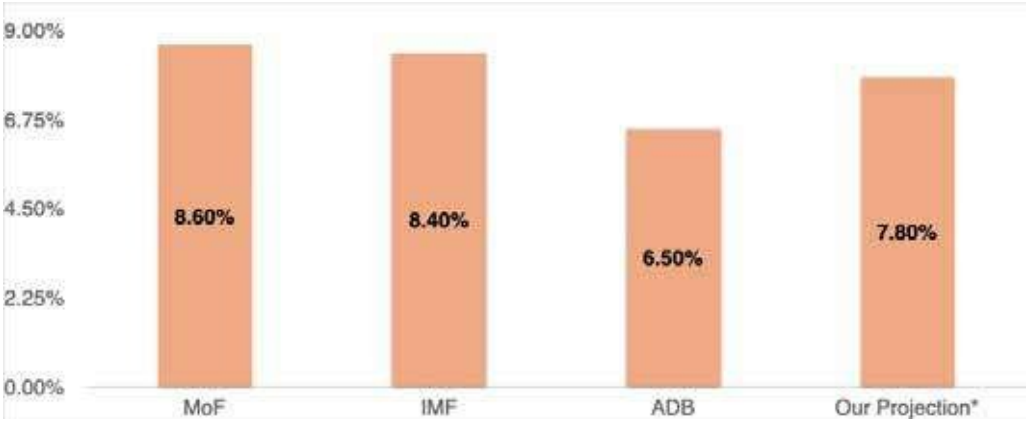
For the past three years, Pakistan's economy has been in a state of stagnation. Although this period was marked with significant challenges in terms of our economic activities, the recent numbers suggest that stability has returned. International oil prices have increased due to the supply shock caused by the conflict in West Asia. According to the International Monetary Fund's report, the ongoing disruptions brought on by the Iran War indicate that the world economy is headed towards an adverse scenario, with slower growth and higher inflation risks. According to the IMF's most recent assessment, Pakistan's economy will face more difficulties because of the conflict. Further, Pakistan is particularly vulnerable to the effects of the Middle East conflict, first in the form of increased energy import costs and, second, in the event of persistent disruptions in fuel import availability, which would have a major effect on economic activity. The IMF predicted that Pakistan's economy would expand by 3.5% in 2026–2027, with average inflation staying at 8.4%. The Ministry of Finance of the Government of Pakistan has set a target of 4.1 percent with an average inflation rate of 8.6 percent, while the Asian Development Bank projects economic growth of 4.5 percent, with an average inflation rate of 6.5 percent respectively. Our baseline estimates for real GDP growth in FY 2026–2027 would be 3.47 percent, while average inflation stays high at 7.8 percent. This forecast is based on the situation remaining peaceful and the ceasefire remaining in place for the upcoming year. It is assumed further that energy supplies would take full year to reach pre-war levels.

Figure:2.1 Real GDP Growth – Forecast FY2027



*Source: IMF Report 2026, ADB Report, Finance Ministry *Based on Author's estimates-Dynamic VAR Forecast*

Figure: 2.2 Inflation – Forecast FY 2027



*Source: IMF Report 2026, ADB Report, Finance Ministry. *Based on Author's estimates-Dynamic VAR Forecast*

2.4 Conclusion

Pakistan's economy has shown signs of recovery in FY 2025–26, with provisional GDP growth reaching 3.7 percent and the size of the economy exceeding $450 billion. Growth was supported by positive contributions from agriculture, industry, and services, while per capita income increased to $1,901. However, the recovery remains fragile as rising fiscal deficits, high debt-servicing costs, persistent poverty, climate vulnerabilities, energy sector inefficiencies, and weak export competitiveness continue to constrain sustainable development. Government finances remain under pressure, with debt servicing absorbing a significant share of public expenditure and limiting fiscal space for development priorities.

Looking ahead to FY 2026–27, Pakistan's economic prospects remain cautiously optimistic but subject to considerable external risks. Ongoing geopolitical tensions in the Middle East, rising energy import costs, and global inflationary pressures pose significant challenges to macroeconomic stability. Based on the Dynamic VAR forecast, real GDP growth is projected at 3.47 percent, while average inflation is expected to remain elevated at 7.8 percent, broadly consistent with international forecasts. These projections assume a stable geopolitical environment and gradual normalization of energy supplies. Sustaining higher growth will require structural reforms aimed at improving productivity, strengthening exports, enhancing energy security, broadening the tax base, and fostering inclusive development. Without addressing these long-standing challenges, economic stability alone will be insufficient to place Pakistan on a path of durable and sustainable growth.

Chapter 3

IMF Programs and Fiscal Priorities

Lubna Naz and Jazib Mumtaz

Key Highlights

1. Economic Growth and Industrial Performance Weaken During IMF Programs

The study finds that macroeconomic performance tends to deteriorate during IMF-supported periods. Average real GDP growth declined to 4.09% during IMF years, compared to 5.53% in non-IMF periods, while industrial growth fell from 6.68% to 4.41%. At the same time, inflation increased to 8.33%, unemployment rose to 5.5%, and interest rates averaged 10.94% during IMF engagements, indicating weaker economic conditions under stabilization programs.

2. Development Spending Declines While Debt Servicing Increases

The fiscal analysis reveals a major shift in expenditure priorities under IMF programs. Development expenditure declined from 6.07% of GDP in non-IMF years to 4.42% during IMF periods, while current expenditures—particularly debt servicing—rose sharply. Debt servicing accounted for nearly 45% of total expenditure in 2024, whereas PSDP spending fell to nearly 5% of total expenditure, demonstrating how fiscal adjustment increasingly crowds out long-term development investment

3. Social Conditions and Inequality Worsened Under Repeated Adjustment

The study highlights the social consequences of prolonged stabilization policies. Poverty headcount declined to 21.9% in 2019 but increased again to 28.9% in 2025 during continued IMF-supported adjustment periods. Similarly, inequality rose substantially, with the Gini coefficient increasing from 28.4 in 2019 to 32.7 in 2025, suggesting that fiscal tightening, indirect taxation, and reduced development spending disproportionately affected lower- and middle-income groups.

3.1 Introduction

IMF programs in Pakistan have primarily aimed to restore macroeconomic stability through fiscal consolidation, monetary tightening, and structural reforms. On the plus side, these actions have frequently helped stabilize foreign exchange reserves, strengthen fiscal discipline, and restore investor confidence. However, such schemes are subject to conditions such as subsidy rationalization, currency devaluation, increasing taxation, and expenditure compression. While these actions are intended to remedy short-term imbalances, they can have serious consequences for the structure of public spending, particularly by reducing fiscal flexibility for development-oriented investment.

A critical consequence of IMF-supported adjustment in Pakistan has been the reconfiguration of fiscal priorities, where the need to meet stabilization targets often shifts government focus toward controlling deficits rather than promoting long-term development. In this process, development expenditures such as spending on infrastructure, education, and health are often compressed due to their discretionary nature, while non-development expenditures, especially debt servicing and defence, continue to rise due to their rigid and obligatory character. This leads to a structural imbalance in public finances, which could jeopardise social welfare outcomes, human development, and economic growth . Examining how IMF programs affect Pakistan's fiscal behaviour over time in a methodical manner becomes essential in light of these dynamics.

Therefore, the purpose of this chapter is to examine how Pakistan's fiscal priorities have changed within the framework of IMF programs, with an emphasis on the distribution of development and non-development spending. The study aims to contribute to the policy discussion on how Pakistan can strike a balance between stabilisation goals and sustainable development, making sure that fiscal adjustment does not jeopardise the nation's long-term growth and welfare trajectory, by looking at several IMF episodes over

[1&4] Haque, Nadeem Ul & Khan, Mohsin (1998). Do IMF-supported programs work? A survey of the cross-country empirical evidence. IMF

3.2 Background

Pakistan continues to be one of the longest-term recipients[2] of IMF funding and has been a part of IMF-sponsored initiatives virtually nonstop. Pakistan has participated in 25 IMF programs over the course of 67 years, more than any other South Asian nation. Pakistan sought a Standby Arrangement (SBA)[3] fourteen times, an Extended Credit Facility (ECF)[4] three times, an Extended Fund Facility (EFF) seven times, and a Rapid Financing Instrument (RFI) for the first time. Pakistan began applying for IMF loans in 1958 and became one of the long-term beneficiaries of the organization's initiatives. Pakistan signed the first Standby Agreement in December 1958 in exchange for 25 million Special Drawing Rights (SDR), but it never took money out. The nation has become dependent on the IMF and has repeatedly requested programs. It withdrew SDR 112 million from two consecutive IMF programs in 1965 and 1968. A fall out of East Pakistan in 1971 severely damaged the nation's economy. In just five years, from 1972 to 1977, the incumbent government withdrew a total of SDR 314 million from IMF programs four times. In 1980 and 1981, the succeeding government sought assistance from the IMF twice, obtaining a total of SDR 1.08 billion. The most turbulent time in Pakistan's economic history, the 1990s are referred to as "the Lost Decade." In just twelve years, there were five political transitions as a result of a military coup and a power struggle between two democratic parties. During that time, Pakistan joined a record number of IMF programs and withdrew a total of SDR 1.634 billion over a nine-year period.

In the first ten years of the twenty-first century, Pakistan participated in three IMF programs (2001, 2004, and 2008). Pakistan entered the IMF's SBA program in 2008 with the largest amount of USD 7.6 billion (500 percent of the quota) due to the Global Financial Crisis, growing exogenous price shock, and political transition. From 2000 to 2004, the IMF's relationship with Pakistan remained unique because all sixteen of its reviews were completed by putting the recommended conditions into practice and the entire lending amount was drawn on time and without interruption (Hussain, 2010).

The new political regime in 2013 sought another IMF program to avoid the economic crisis amid twin deficits and entered a three-year EFF IMF program with an amount worth USD 6.64 Billion (425 percent of the quota). Pakistan took extended fund facility in 2019, Rapid financing instrument due to Covid-19 in 2020 signed another standby agreement in 2023 and enters in another extended fund facility in 2024. The table 3.1 below summarizes the IMF programs which Pakistan has taken so far and the reasons behind them:

[2] Long term recipients face external circumstances and have fiscal characteristics that are less conducive to swift adjustment. These include lower trend export growth and more volatile terms of trade, as well as more rigid structure of government expenditure, lower tax revenues, and a higher public debt burden.

[3] https://www.imf.org/en/About/Factsheets/Sheets/2016/08/01/20/33/Stand-By-Arrangement

[4] https://www.imf.org/en/About/Factsheets/Sheets/2016/08/02/21/04/Extended-Credit-Facility

Table 3.1 IMF Programs over the years

Sno	Facility	Date of Arrangement
25	Extended Fund Facility	01-Sept-24
24	Standby Arrangement	12-Jul-23
23	Extended Fund Facility	03-Jul-19
22	Rapid Financing Instrument	16-Apr-20
21	Extended Fund Facility	04-Sept-13
20	Standby Arrangement	24-Nov-08
19	Extended Credit Facility	06-Dec-01
18	Standby Arrangement	29-Nov-00
17	Extended Credit Facility	20-Oct-97
16	Extended Fund Facility	20-Oct-97
15	Standby Arrangement	13-Dec-95
14	Extended Credit Facility	22-Feb-94
13	Extended Fund Facility	22-Feb-94
12	Standby Arrangement	16-Sept-93
11	Structural Adjustment Facility	28-Dec-88
10	Standby Arrangement	28-Dec-88
9	Extended Fund Facility	02-Dec-81
8	Extended Fund Facility	24-Nov-80
7	Standby Arrangement	09-Mar-77
6	Standby Arrangement	11-Nov-74
5	Standby Arrangement	11-Aug-73
4	Standby Arrangement	18-May-72
3	Standby Arrangement	17-Oct-68
2	Standby Arrangement	16-Mar-65
1	Standby Arrangement	08-Dec-58

Source: IMF.org

3.3 Macroeconomic Indicators with or without IMF Program:

IMF programs promote internal reforms that IMF economists believe will bring growth and stability. However, macroeconomic indicators show significant decline during the IMF programs, and the program seems unnecessary in promoting Pakistan's sustainable economic growth. Key economic indicators with and without IMF programs are averaged in the table 3.2 below. It is evident that during programs, most macroeconomic indicators tend to decline. For example, industrial growth and average real GDP growth are lower in years when IMF programs are in place. Likewise, during IMF programs, unemployment, inflation, and interest rates are significantly higher than they would otherwise be.

Table 3.2 Key Indicators – Pakistan with or without IMF

Indicators	Average for years while undergoing IMF Programs	Average for years without IMF Programs
Industrial Growth (Real)	4.41	6.68
Real Gross Domestic Product Growth	4.09	5.53
Revenue Balance (% of GDP)	-1.71	-0.71
Fiscal Balance (% of GDP)	-5.91	-6.34
Primary Balance (% of GDP)	-1.13	-2.95
Tax Revenue (% of GDP)	11.35	11.37
Total Revenue (% of GDP)	14.53	14.53
Development Expenditure (% of GDP)	4.42	6.07
Total Expenditure (% of GDP)	20.63	21.26
Interest rate (Discount Rate)	10.94	9.38
USD/PKR (% change)	6.68	6.08
Current account balance (% of GDP)	-1.91	-3.95
Trade (% of GDP)	30.81	30.70
Inflation Rate	8.33	7.26
Total reserves (% of total external debt)	15.19	15.52
Unemployment Rate	*5.50*	*4.61*

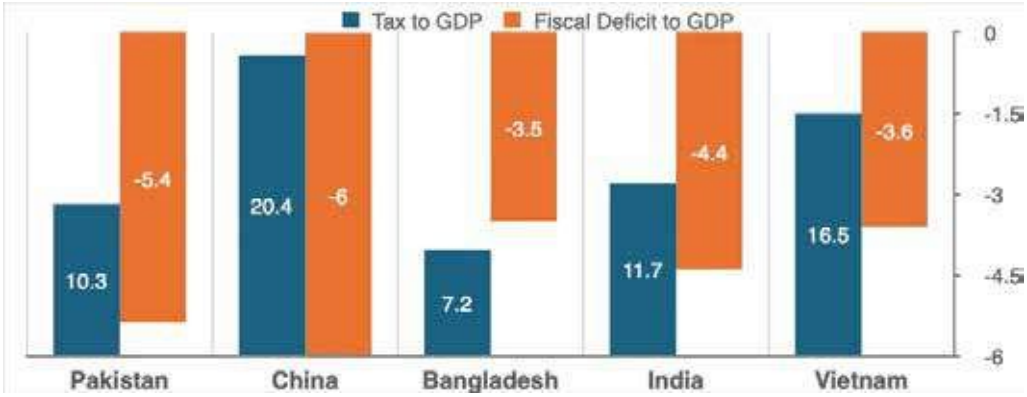
Source: Multiple Sources/FPCCI Report
Data for all variables except the unemployment rate were used over the period 1976-2021
**Data for the unemployment rate was available only for the period 1983-2021*

3.4 Reasons for Pakistan's Repetitive IMF Program

Mismanagement of Fiscal Resources

Pakistan is the most IMF- addicted country in the region as it has sought the highest number of IMF programs as compared to other South Asian economies. Bangladesh, Sri Lanka, and India have only entered 12, 16, and 7 IMF programs respectively since their membership whereas Pakistan has so far entered into 25 IMF programs. China never sought any of the IMF programs. Pakistan's tax-to-GDP ratio of 10.3% FY25[5] is lower than that of India, Bangladesh, China and Vietnam with excessive reliance on indirect taxes. Similarly, a fiscal deficit of 5.38% FY25 as a percentage of GDP in Pakistan is also substantially higher than the South Asian average as well as in comparison with peer countries including, India, Bangladesh, and Vietnam as presented in the figure 3.1 below.

Figure 3.1: Fiscal Position of Selected Asian Countries 2024-25



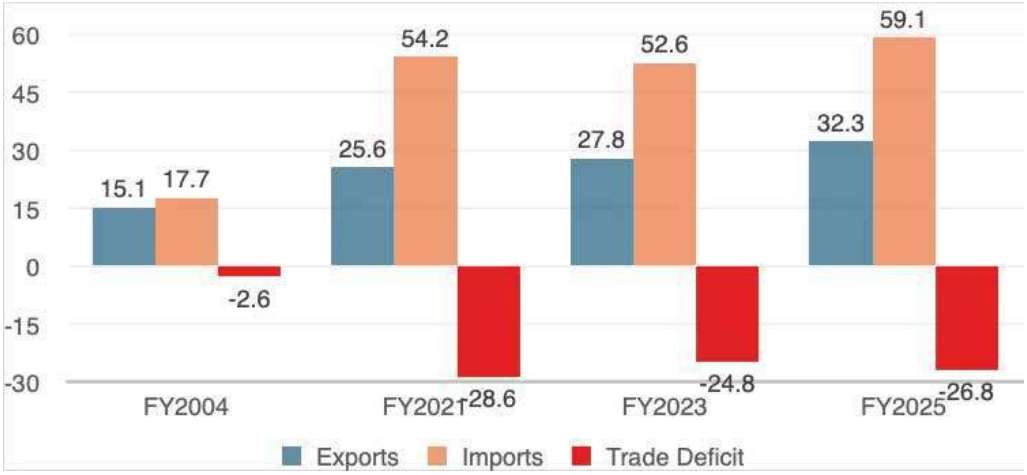
Source: World Bank & OECD

Current Account Deficits

Pakistan's imports have witnessed unprecedented growth since FY2004. Imports have increased almost three times from US$ 17.7 billion in FY2004 to around US$ 59 billion in FY2025. Exports growth has not matched the rampant imports, it posted a sluggish growth with an export value of US$ 15.1 billion in FY2004 now increased to around US$ 32.3 billion in FY2025. The current account deficit due to widening trade deficits has compelled the government to knock on IMF doors on multiple occasions.

[5] Ministry of Finance

Figure 3. 2: Exports and Imports US$ Billion



Source: State Bank of Pakistan

Rent-Seeking

Rent-seeking and political patronage are deeply ingrained in Pakistan's political economy. The political system unfairly distributes profits to some economic actors, which hinders fair competition and gives businesses the wrong incentives. For example, Khwaja and Mian (2005) contend that despite having 50% higher default rates, politically connected businesses in Pakistan receive more loans from government banks. Additionally, the fiscal and current account balances, as well as other macroeconomic indicators, are severely harmed by politically motivated sub-optimal economic decisions like artificially maintaining the exchange rate, implementing petroleum and other subsidies, and other such measures.

Oil Price Shocks

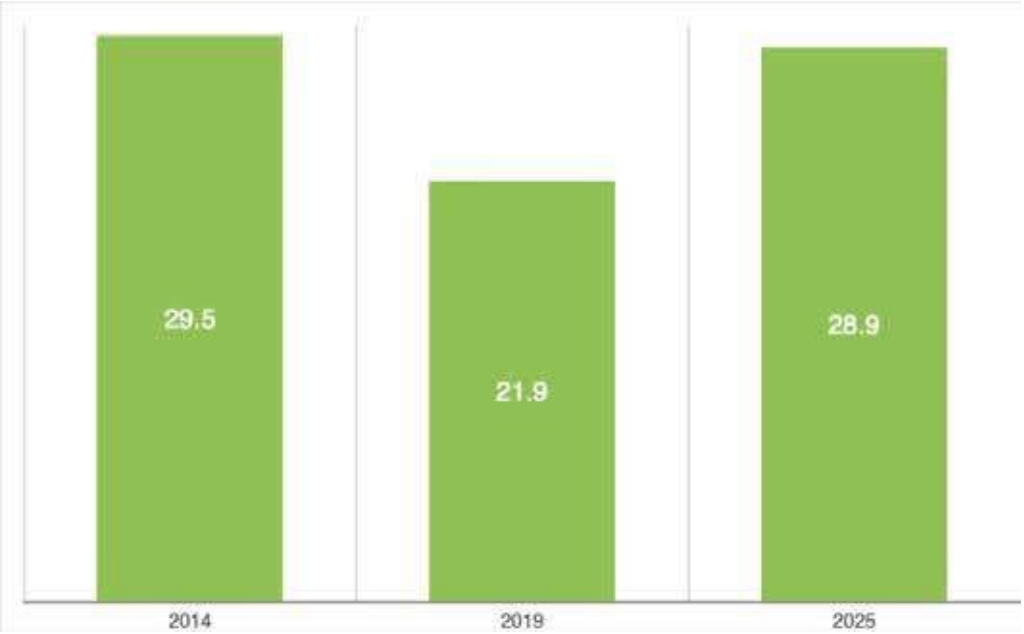
Historically, there seems to be a correlation between global oil price shocks and Pakistan's pursuance of IMF programs. It sought at least 15 out of 25 programs so far during the global surge in oil prices. Pakistan adopted three consecutive IMF programs during the 1970s Oil Crisis in 1972, 1973, and 1974. Another wave of global oil price shocks amid the Iranian Revolution compelled Pakistan to knock on IMF doors again in 1980. A similar trend can be observed with other IMF programs and more recently in 2008 (amid Global Financial Crisis), 2013, and 2019.

3.5 Social Consequences of Structural Adjustment Programs

3.5.1. Poverty Headcount

One of the most critical long-term consequences of IMF-supported adjustment is its impact on human development and economic capability. Poverty headcount ratio has remained elevated over the years. Since 2014 Pakistan has remained under various IMF program which has hampered social spending, and long-term poverty eradication programs. Figure 3.3 provides comparison of poverty headcount in 2014, 2019 and 2025 respectively.

Figure-3.3 Poverty Headcount Percentage



Source: Planning Commission of Pakistan

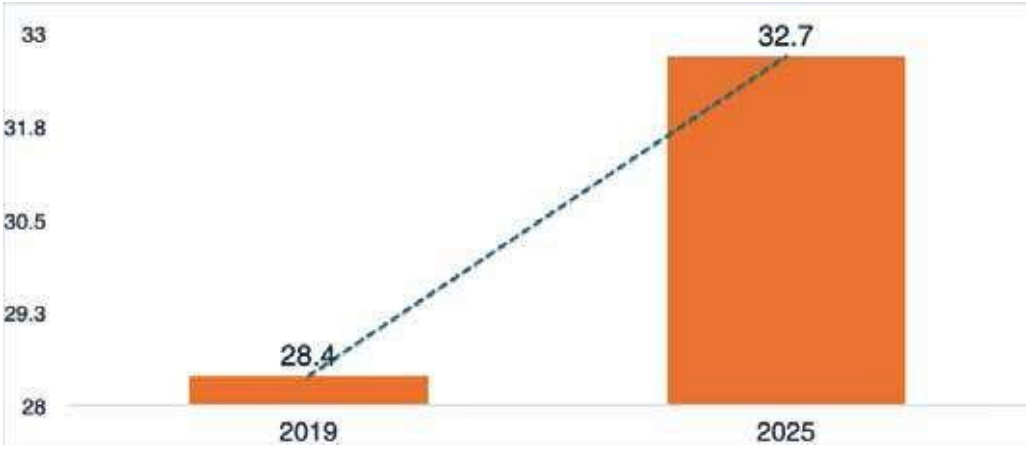
3.5.2. Inequality

Inequality is measured using Gini coefficients weighted by population. Trends indicate a rise in income inequality across Pakistan between 2018-19 and 2024-25. Both of these time periods saw Pakistan being run under IMF's structural adjustment programs. This clearly indicates that these programs have led to rise in inequality as fiscal priorities have turned towards higher taxes and cut in development expenditures.

[6] Zaidi, S. A. (2015). Issues in Pakistan's economy: A political economy perspective (3rd ed.). Karachi: Oxford University Press

[7] Poverty Estimation Report 2025. Planning Commission of Pakistan

Figure 3.4 Gini Coefficient



Source: Planning Commission of Pakistan

3.6 Impact of IMF Programs on Fiscal Priorities

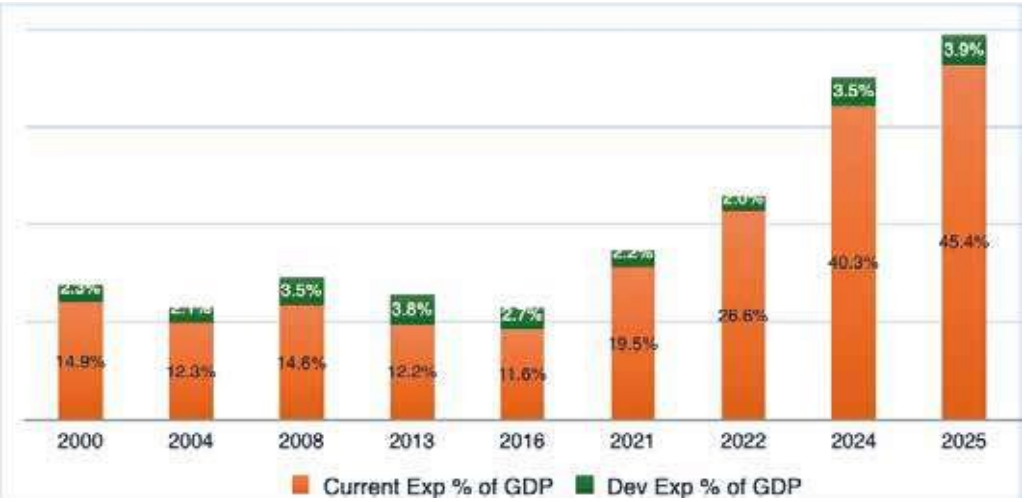
Public sector expenditures on the other hand are dominated by current expenditures including debt servicing, subsidies, pensions, and others. In addition, a substantial increase in current expenditures compelled fiscal managers to cut development expenditures. A critical consequence of IMF-supported adjustment in Pakistan has been the reconfiguration of fiscal priorities, where the need to meet stabilization targets often shifts government focus toward controlling deficits rather than promoting long-term development. In this process, development expenditures such as spending on infrastructure, education, and health are often compressed due to their discretionary nature, while non-development expenditures, especially debt servicing and defence, continue to rise due to their rigid and obligatory character. This leads to a structural imbalance in public finances, which could jeopardise social welfare outcomes, human development, and economic growth[8]. A central feature of IMF-supported programs is fiscal consolidation, which often involves increased taxation and reduced public spending. In Pakistan's case, adjustment efforts have disproportionately relied on indirect taxes such as sales tax, petroleum levies, and utility price adjustments—which place a heavier burden on lower- and middle-income households.

[8] Haque, Nadeem Ul & Khan, Mohsin (1998). Do IMF-supported programs work? A survey of the cross-country empirical evidence. IMF

3.7 Current and Development Expenditure

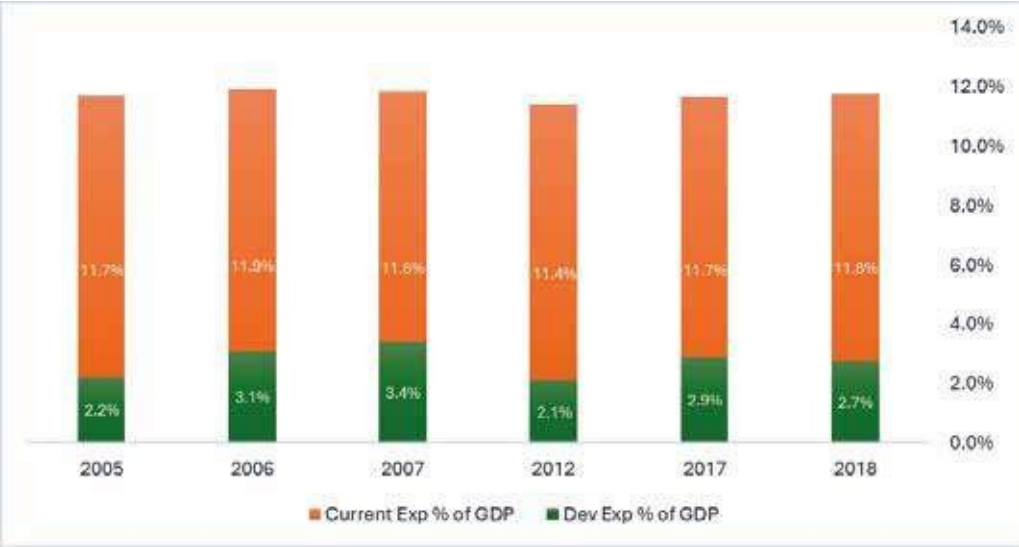
The contrasting trends in Pakistan's public spending composition over time in relation to IMF engagements are depicted in figure 3.5 and figure 3.6 respectively. The trend unequivocally demonstrates that current spending (as a percentage of GDP) is on the rise, especially during IMF program periods, reflecting higher allocations to non-development items like debt servicing, defence, and administrative costs. This increase has become more noticeable in recent years due to a sharp acceleration of current spending, which is indicative of tight spending commitments and mounting fiscal pressures. On the other hand, even during times of IMF assistance, development spending stays comparatively low and shows a stagnant or declining trend. Infrastructure, education, and health spending are examples of development outlays that are frequently compressed during fiscal adjustment phases, as indicated by the linear trend for development spending, which is either flat or slightly downward sloping. Over time, the difference between current and development spending grows considerably, indicating a structural imbalance in fiscal priorities. As governments prioritise fiscal consolidation and mandatory spending obligations over long-term investment, the data generally supports the conclusion that IMF programs are linked to an increase in current expenditure and a decrease or stagnation in development expenditure. This pattern highlights Pakistan's fiscal policy framework's trade-off between long-term development goals and short-term macroeconomic stabilisation.

Figure 3.5 Expenditure as % of GDP (Current vs Development) under IMF Program



Source: State Bank of Pakistan / Ministry of Finance

Figure 3.6 Expenditure as % of GDP (Current vs Development) without IMF Program



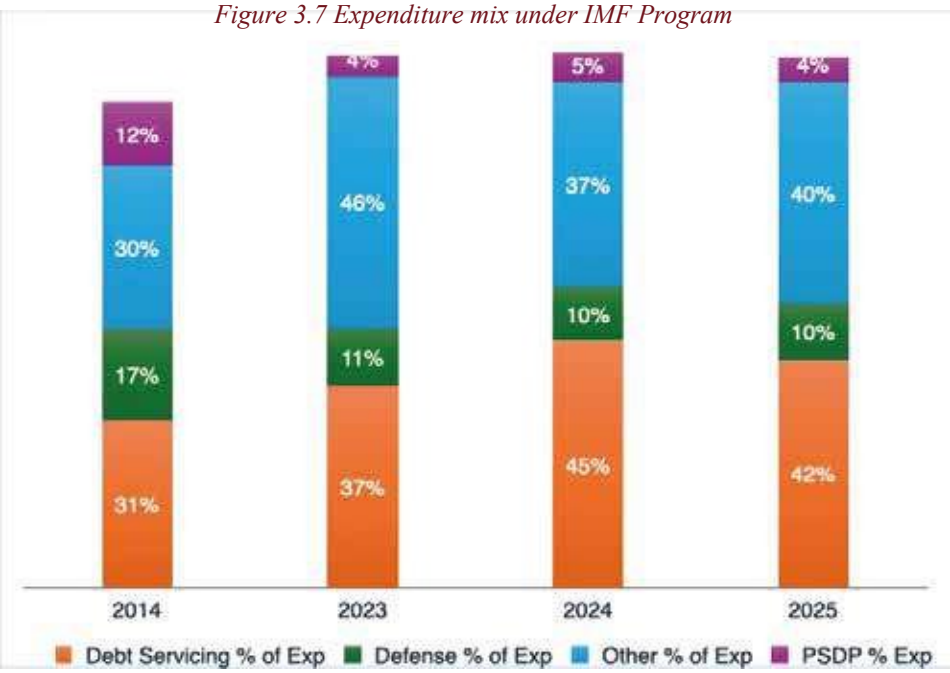
Source: State Bank of Pakistan / Ministry of Finance

3.8 Composition of Total Expenditures

Pakistan's overall public spending has changed over time. A distinct structural shift in fiscal priorities is evident in the data, especially during IMF program periods[9]. One of the most noticeable patterns is the steady rise in the percentage of debt servicing, which has increased dramatically over time and reflects both the burden of interest payments on the national budget and the expansion of public debt obligations. This increasing trend suggests that a greater percentage of public funds are being pre-committed to obligatory financial obligations. At the same time, the share of PSDP expenditure shows a declining trend, especially during IMF program periods, highlighting the compression of development spending. Since PSDP is an investment in long-term development projects and infrastructure, its reduction implies that efforts to make fiscal adjustments frequently come at the expense of spending that promotes growth. In the meantime, defence spending stays comparatively constant as a percentage of overall spending, demonstrating its strict and safeguarded status within the budget. In contrast to debt servicing, the category of other expenses varies but does not show a significant long-term upward trend.

[9] Ministry of Finance. Fiscal Policy Statements and Budget Documents.

Figure 3.7 Expenditure mix under IMF Program



Source: Ministry of Finance

Figure 3.8 Expenditure Mix Without IMF

Source: Ministry of Finance

Overall, the data clearly suggests that IMF programs are associated with a reallocation of fiscal resources away from development spending (PSDP) toward debt servicing, reinforcing the argument that stabilization policies tend to prioritize short-term fiscal discipline over long-term development investment. This pattern highlights the growing structural imbalance in Pakistan's expenditure framework and underscores the challenge of maintaining development spending amid rising debt obligations.

3.9 Conclusion

According to the study's findings, Pakistan's persistent reliance on IMF programs is a reflection of systemic flaws in development planning, external sector performance, and fiscal management. Pakistan participated in 25 IMF programs over a 67-year period, spending almost one-third of its economic history under IMF agreements. The empirical analysis demonstrates that macroeconomic performance remained relatively weaker during IMF periods, with industrial growth falling from 6.68% to 4.41% and average real GDP growth falling to 4.09% during IMF programs compared to 5.53% in non-IMF years.

Likewise, during IMF engagements, interest rates (10.94%), unemployment (5.5%), and inflation (8.33%) continued to be higher. Fiscal trends also show a structural shift from development to non-development spending, with debt servicing continuing to rise sharply while development spending fell from 6.07% of GDP in non-IMF periods to 4.42% during IMF programs. Social indicators also declined, with inequality rising under repeated stabilisation measures and poverty rising from 21.9% in 2019 to 28.9% in 2025.

By going beyond traditional macroeconomic evaluations and analysing the long-term effects of IMF programs on fiscal priorities, development spending, poverty, inequality, and economic capability in Pakistan, the study adds to the body of existing literature. It offers a political economy viewpoint on how stabilisation measures alter public spending patterns and strengthen the trade-off between long-term inclusive development and short-term macroeconomic adjustment.

Key Recommendations

- Diversification of exports. Pakistan's exports are concentrated in a small number of markets and have a small export base (primarily textiles and agricultural products). It is unavoidable to emphasise export diversification by investigating prospective markets like Africa and Central Asia through FTAs or PTAs. Turkiye successfully expanded its export markets from 90 to over 130 countries during the reform era.

- Prudence in Debt Management Policy. By implementing a prudent debt strategy, Pakistan could have avoided about 38% of the cost of debt servicing in 2018–19 and about 27% in 2019–20 (Pasha, 2021). Maintaining a prudent debt management strategy is imperative. To protect against any negative lock-in effects, long-term debt instruments should be given more weight when inflation is single-digit and short-term loans when inflation is double-digit.

- Energy Sector Reforms: Thirty percent of Pakistan's electricity comes from renewable sources. To lower import costs, it must switch from imported furnace oil to inexpensive, domestic sources of electricity production (like Thar coal). In an effort to stay away from IMF programs, Turkiye adopted a similar energy indigenisation strategy.

- State Owned Enterprises (SOEs). Either privatisation or public-private partnerships must be used to transform the losing SOEs into profitable enterprises. In FY2025, the net budgetary impact of SOEs was approximately Rs. 2 trillion, or 16% of federal revenue.
- Targeted and Direct Subsidies/Transfers. Subsidies to unproductive industries must be phased out, and they should only be given for a predetermined amount of time. Direct transfers must take the place of fuel subsidies. Even wealthy households receive subsidised rates under the current system[10].
- Local Decentralization. Evidence from around the world shows that fiscal consolidation was aided by the decentralisation of revenue and administrative duties to the local level of government. The local government is recognised as the legitimate third level of government under Article 140A of the Pakistani Constitution. To reduce the crippling fiscal deficit, "Big Bang" decentralisation akin to that of Indonesia is advised.

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[10] https://www.dawn.com/news/1691755

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Chapter 4

The Pulse of Economic Transition: Charting Insights from the IBA-SBP Business Confidence Survey

Qazi Masood Ahmed and Aadil Nakhoda

4.1 Introduction

Policymakers commonly use the Business Confidence Surveys (BCS) to guage 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 economic 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. More than 500 firms are surveyed in every 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 (in the next six months) performance of the economy via several different indicators. Although all indicators provide critical information to policymakers, this study 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 Manager 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[11]. In the analysis that follows, the trend in the above BCS indicators are compared to those of major indicators on economic activity that are easily available, namely Large Scale Manufacturing Index (LSMI) and exporting and importing activities.

4.2 The 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 gauged in a survey. The responses are collected on the basis of five options, ranging from 'very positive' to 'very negative'. The DI falls between 0 and 100, with 50 indicating a neutral perception, greater than 50 indicating a positive perception and less than 50 indicating a negative perception.

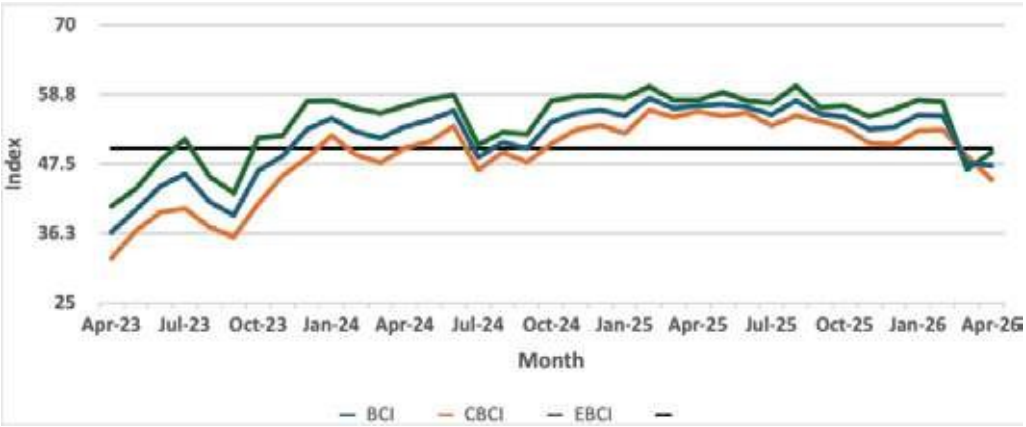
4.3 Main Results

Figure 4.1 presents the trend of the current and expected economic and business conditions using CBCI, EBCI and BCI. 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 level of production, i.e., LSMI and the exporting activities 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 April 2023, when the economy was in the midst of the balance-of-payment crisis that started in 2022, till April 2026, when the US-Iran war started a new wave of economic challenges for the policymakers[12]. This period also includes the phase when the measures, such as import controls, were undertaken to reduce the impact of the balance-of-payment related crisis in Pakistan in 2022 and 2023 and the subsequent phase involving the general elections in 2024 and the undertaking of yet another IMF program following the elections. As the bailout package by the IMF took effect, the economy showed signs of recovery in late 2024 and in 2025. However, the business confidence was once again hit hard in early 2026, with the start of the US-Iran conflict. 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, followed by a period of better economic certainty and confidence. This later decreased with the start of the regional conflict. The following analysis will chart the pulse of economic transition in Pakistan through the business confidence index and its main indicators.

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

[12] 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.

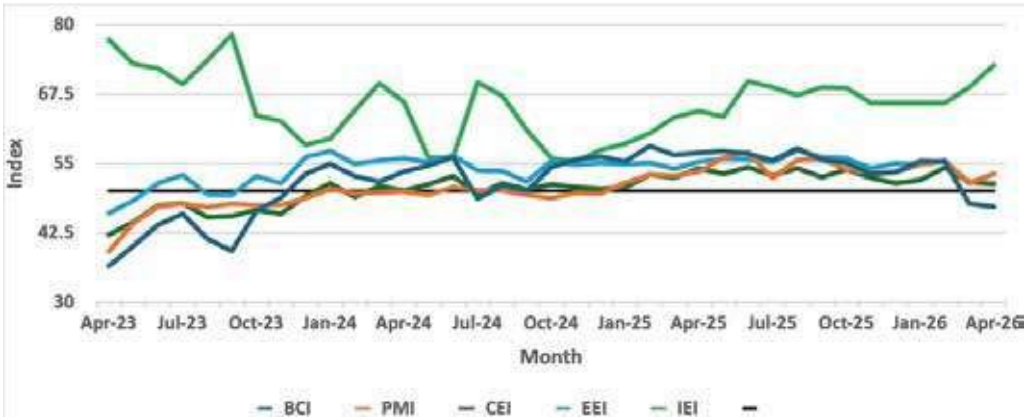
Figure 4.1: Business Confidence in Pakistan between April 2023 and April 2026.



Source: IBA-SBP Business Confidence Survey

The two components of the business confidence, the current and the expected business confidence, were below 50 in April 2023. There was an upward trend till July 2023 as the economic conditions recovered from the balance-of-payment crisis in 2022. The business confidence index increased from a low of 36.5 in April 2023 to 45.9 in July 2023. However, the recovery was shortlived as the caretaker government was sworn-in in August 2023. The BCI decreased to 39.2 in September 2023. Although, Pakistan was awarded a nine-month Stand-by Arrangement by the IMF of $3 billion in end of June 2023, several of the macroeconomic indicators showed signs of stabilization in the 2nd quarter of FY24 following a period of crisis and volatility. The upward trend in BCI continued till June 2024, where it peaked at 56.1. It decreased to 48.6 in July 2024. The IMF approved a 37 month Extended Fund Facility for Pakistan in September 2024. The BCI since then has remained above 50, peaking at 58.1 in February 2025. It remained above 55 from November 2024 to October 2025, showing a period of high business confidence and economic stabiltiy. The BCI did decrease to 53.1 in November 2025 and once again increased to beyond 55, at 55.4, in January 2026. However, the start of the US-Iran conflict has created significant economic challenges with the BCI dipping to 47.4 and 47.2 in March and April 2026. The dip in the index suggests that the economy is once again transitioning from a period of improved economic stability towards a period where uncertainty may give rise to the volatility in the index.

Figure 4.2: Recent trend in selected indicators suggesting the level of confidence in the economy

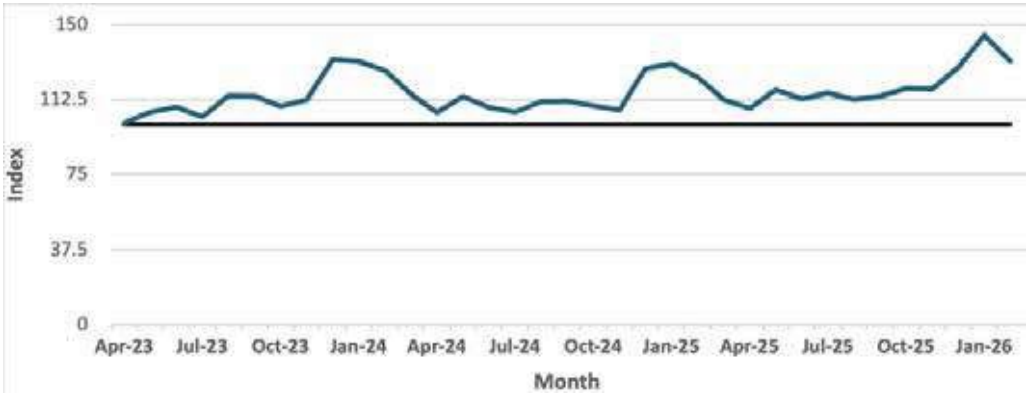


Source: IBA-SBP Business Confidence Survey

The recent trend in BCI, PMI, CEI, EEI and IEI is presented in Figure 4.2. 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 in the earlier part of the time period reported. Inflation expectations peaked at 78.2 in September 2023, when the other indicators reported a downward trend. Inflation expectations hit a trough of 56 in May and June 2024 as the other indicators started to achieve higher levels in those months. The inflation expectations increased in July 2024, hitting a peak of 69.6 and then following it up with a low of 55.3 in November 2024. This is again the period when BCI and EEI both showed an upward trajectory. BCI increased to more than 55 in November 2024, while EEI remained around that level for a considerable time period. PMI and CEI were more closely related as PMI peaked in June 2025 at 57.1 and CEI continued to remain above 50 since November 2024. In the latter portion of the time period, IEI has shown an upward trend as it increased from 55.9 in October 2024 to 69.8 in June 2025. It remained stable around 65.9 till February 2026, rising again during the US Iran conflict. It surpassed 72 in April 2026. Even before the region conflicts, the business community expected the inflation rates to increase in Pakistan. This upward trend in inflation expectations follows the improving trend in other indicators, suggesting that the business community expects inflation to start rising after achieving its trough in earlier months. The trend in the indicators during the latter portion of the period suggests an increase in economic activity which not only indicates an improvement in the business environment but also an increase in price levels vis-à-vis higher inflation expectations as demand conditions improve[13]. Therefore, lowering inflation expectations had to be a priority for policymakers even before the start of the US Iran conflict as rising inflation with an economic slowdown, as observed in 2022, can lead the economy into a tailspin again.

[13] This change in the direction in the relationship between inflation expectations and the other indicators in the survey needs further analysis.

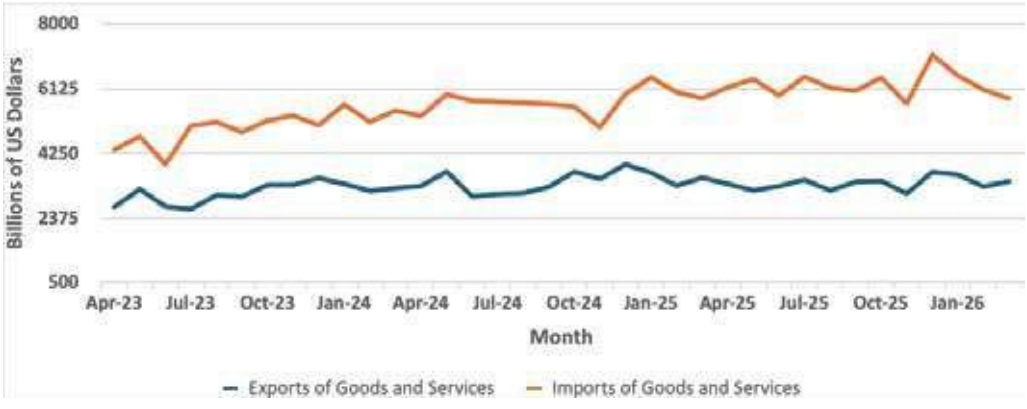
Figure 4.3: Large-scale manufacturing industries index between April 2023 and February 2026.



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

The trend for LSMI (base year 2015-2016) is reported in Figure 4.3. LSMI peaked in January 2026, at 144.5 and reported its lowest value of 100.6 in April 2023. It remained below 120 between March 2024 and November 2025, except for a brief spike between December 2024 and February 2025. BCI too showed an increasing trend in the earlier months of 2025. However, LSMI decreased again to 108 in April 2025, but then recovered back to 117.6 in November 2025. It increased to 144.5 in January 2026, falling to 131.5 in February 2026. It is expected that the US-Iran war will have negative implications on LSMI as supply chains are disrupted. LSMI follows closely with the business confidence, purchasing manager's and the employment indices reported in the earlier figures.

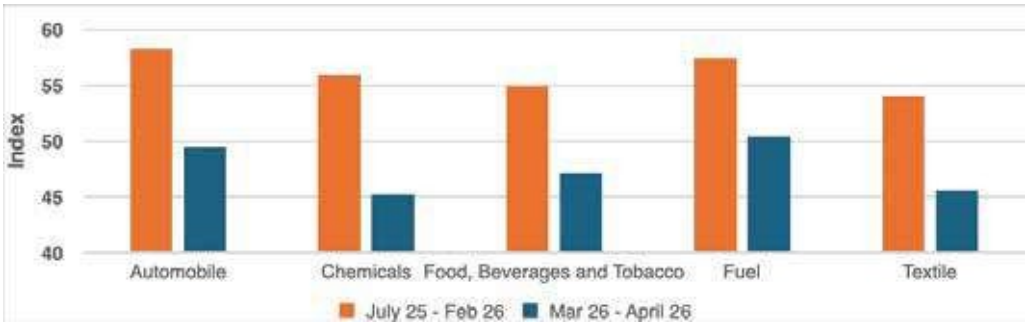
Figure 4.4: Exports from Pakistan and imports into Pakistan of goods and services between April 2023 and March 2026



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

The trend in the exports of goods and services from Pakistan and imports into Pakistan is reported in Figure 4.4. The imports into Pakistan peaked in December 2025, when $7.1 billion worth of goods were imported into Pakistan. Several of the indicators reported above had also shown an upward trend in their levels, suggesting an improvement in the confidence of the business sector. Starting from April 2023, the imports declined to $3.9 billion in June 2023, the lowest level in the three years reported. The trend of import compression continued into 2023 and into 2024 as imports did not increase beyond the $6 billion mark. The highest imports were reported at $5.95 billion in May 2024, which then again decreased to $5 billion in November 2024. However, the import restrictions were relaxed in 2025. Imports increased to $6.5 billion in January 2025. It remained above $5.5 billion in 2025, peaking at $7.1 billion in December 2025. It decreased to below $6 billion in March 2026. 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 ability of the country 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 of goods and services was $2.6 billion in July 2023, the lowest in the three years. It had decreased from $3.2 billion in May 2023, following closely with the slump in imports observed earlier. However, since then exports have increased to peak at $3.9 billion in December 2024, the highest in the three years reported. It decreased to below $3.5 billion in March 2025, remained closed to the level without much volatility, and increased to $3.7 billion in December 2025. This was once again the time when imports into Pakistan surged beyond $7 billion. Therefore, an increase in imports is reflected with an increase in exports, even though the growth in exports is much more subdued than the growth in imports. This is expected as trade of goods and services is a small percentage of GDP, and a larger proportion of imports are likely to be absorbed into domestic consumption. However, the rise or fall in imports are reflected in the volatility in exports. Also, the lack of economic activity in the first half of 2023, followed by a period of recovery in the second half of 2023 and in 2024 is following the trend of the indicators reported earlier. Therefore, the upward trend in exports and imports in late 2024 is correlated with the upward trend in other indicators on business confidence and LSMI.

Figure 4.5: Average BCI by manufacturing industry for selected time period



The BCI, disaggregated at the industry-level, is reported for the first eight months of FY26 and for March and April 2026 in Figure 4.5. This splits the time period based on the start of the US-Iran conflict on February 28th 2026, with the orange bars reporting the average BCI for the eight months in FY26 prior to the start of the conflict and the blue bars reporting the average BCI after the start of the conflict. Five of the more prominent manufacturing industries are selected, namely automobile, chemicals, food-related products, fuel and textile. The average BCI prior to the conflict in FY26 was above 54, indicating a positive level of confidence across the five industries. The auto industry reported the highest level of confidence at 58.3, followed by fuel at 57.4 and chemicals at 56. However, the confidence plunged after the start of the conflict. All the industries, except fuel, reported BCI below 50. Fuel reported a BCI of 50.4, while auto decreased to 49.4, and chemicals decreased to 45.2. This is clearly suggesting that the confidence of the business sector has plunged with the start of the regional conflict. Although, the increase in inflation expectations as reported in the earlier figures will have a severe impact on the business confidence as input sources become more expensive, the industries that rely on supply chains originating from the Persian Gulf are likely to be more adversely impacted as they face a disruption in the availability of critical supplies. Interestingly, the fuel industry may benefit from the rise in their output prices, better absorbing the cost shock and supply chain disruptions.

4.4 Conclusion

Pakistan's economy faced one of its most daunting challenges in recent years in 2023 as the balance-of-payment related pressures plunged the business confidence into one of its lowest levels. The result was not only that the different components constituting the business confidence decreased in much of 2023, the purchasing manager's index, and the employment index all reported values below 50 for most of 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 rates accompanied low business activities, while the lower levels of inflation expectation accompanied improvement in the confidence indicators. However, the trend in inflation expectations did change in 2025 when an upward trend was reported along with an improvement in the other indicators. This could suggest that the business sector was setting up for a period of higher growth as the economic conditions became more favorable, with higher confidence driving higher output prices. The large-scale manufacturing index in 2022 and 2023 also performed poorly but recovered at the end of 2024. Monthly exports and imports of goods and services remained steady for most of the period in 2023 and 2024, while imports in particular increased to higher levels in 2025 as the import restrictions imposed earlier were relaxed. The exports performance showed a sharp increase towards the end of 2024 and in 2025 as the business conditions improved as reported in the figures. **This clearly suggests that the business confidence index has done an excellent job to predict the economic conditions in Pakistan. It is recommended that the results of the business confidence index are highlighted by the media to get a better understanding of the economic conditions that are likely to prevail in Pakistan.**

Key points

- BCI (Business Confidence Index), which is the average of CBCI (Current Businss Confidence Index) and EBCI (Expected Business Confidence Index), was in the negative zone for most of 2023. It recovered into the positive zone by the end of 2023 and remained in it since then till the start of the US-Iran conflict in March 2026. EBCI has almost always performed more positively than CBCI.
- Other than BCI, the current employment index and the Purchasing Manager Index have both been in the negative zone for most of 2023. They plunged to their lowest level in mid 2023 and recovered close to the positive zone in early 2024. They continued to remain in the positive zone in 2025, suggesting improvement in business confidence. The business community felt less confident about their hirings and their purchases, suggesting poor business prospects in the economy for most of 2023. However, there was some signs of recovery around the general election period in 2024. The conditions improved towards the end of 2024 and continued into 2025, till the start of the US-Iran conflict.
- LSMI (large scale manufacturing index) and the trading activities from Pakistan performed relatively poorly in 2023, showed signs of improvement towards the end of 2023 and as the general elections in 2024 approached. However, the levels remained steady throughout much of 2024 with improvements in their levels towards the end of it. Later, the LSMI index once again remained stable most of 2025, with an upward trend towards the end of it. Imports of goods and services increased in 2025 over the level in in 2024, however exports have been relatively stable with little volatiltiy in 2025. This suggests that BCI does well in explaining the economic trend in Pakistan as it correlates well with the trend in LSMI index and exports, particularly in explaining the economic conditions as Pakistan recovers from one of its most daunting economic challenges in recent history.
- Considering the BCI at the industry-level, the average BCI prior to the conflict in FY26 was above 54 in FY26 in the five selected industries prior to the start of the US-Iran conflict, indicating a positive level of confidence across them. However, the confidence plunged after the start of the conflict, suggesting that the business confidence is highly sensitive to geopolitical volatility in the region.

Chapter 5

Estimating and Projecting Poverty in Pakistan: Implications for BISP and Fiscal Policy under Global Uncertainty

Adnan Haider

Key Highlights

- Sharp reversal in poverty trends: National poverty has risen significantly to 28.8%, with nearly 15 million additional people falling below the poverty line, reversing earlier gains and revealing heightened vulnerability to economic shocks.
- Inflation as the primary driver of poverty: Rising prices, especially for energy and essential goods, have emerged as the main channel through which macroeconomic instability and external shocks translate into increased poverty.
- Worsening inequality and poverty intensity: Poverty is deepening alongside rising incidence, with pronounced rural–urban disparities and a growing share of households falling into extreme and ultra-poor categories.
- Critical role of social protection (BISP): The Benazir Income Support Programme remains central to mitigating poverty, but requires higher transfers, expanded coverage, and inflation-indexed adjustments to remain effective in a high-inflation environment.
- Enhanced BISP support: The chapter recommends increasing the monthly stipend to Rs. 6,000 and allocating approximately Rs. 950 billion for FY2026–27 to ensure adequate support, maintain purchasing power amid inflation, and expand coverage to newly vulnerable households.

Abstract

This chapter analyzes recent poverty dynamics in Pakistan using HIES 2024–25 data based on Cost of Basic Needs framework. It finds a sharp reversal in poverty trends, with the national poverty rate rising to 28.8 percent and nearly 15 million additional people falling below the poverty line due to inflation and declining real incomes. The analysis highlights widening urban–rural disparities and increasing poverty intensity, reflected in growing shares of extreme and ultra-poor populations. Scenario-based projections show that external shocks, particularly global oil price increases linked to Middle East conflicts, could significantly worsen poverty, potentially pushing tens of millions further into deprivation. The chapter also evaluates the role of the Benazir Income Support Programme (BISP) as Pakistan's main social protection system, noting its expansion in coverage, scale, and fiscal importance. Using updated targeting methods and transfer simulations, it proposes increasing monthly stipends to Rs. 6,000 and allocating around Rs. 950 billion for FY2026–27. Budget projections emphasize reallocating resources toward direct cash transfers, human capital development, and system strengthening. Overall, the findings stress the need to align poverty reduction policies with economic realities and to invest in adaptive, well-targeted social protection to protect vulnerable populations.

Keywords: Poverty Dynamics; Inflation and External Shocks; Social Safety Nets; Benazir Income Support Programme (BISP)

5.1 Fresh Poverty Estimates and Projection Analyses

Poverty in Pakistan has never been merely an economic indicator; it has been a defining feature of the country's development trajectory, shaping the lives, opportunities, and vulnerabilities of millions. Over the decades, policymakers, researchers, and international institutions have grappled with the persistent challenge of reducing deprivation in a context marked by structural inequalities, demographic pressures, and recurring macroeconomic instability. Yet, despite periods of notable progress, poverty has proven to be deeply cyclical, rising and falling in response not only to domestic policy choices but also to global economic forces.

This chapter begins from the premise that understanding poverty today requires more than static measurement, it demands a dynamic analysis that connects household welfare to broader macroeconomic realities and policy responses. In recent years, the discourse on poverty in Pakistan has undergone a significant shift. What was once discussed in terms of gradual long-term decline is now increasingly framed in terms of reversal and vulnerability. The latest empirical evidence (see, Table 5.1) suggests that poverty is no longer receding but resurging, driven by a combination of high inflation, sluggish economic growth, and external shocks.[14] At the core of any meaningful poverty analysis lies the question of measurement. Pakistan's adoption of the Cost of Basic Needs (CBN) approach[15] provides a robust and internationally comparable framework for assessing deprivation. By anchoring the national poverty line to a fixed standard of living and adjusting it over time for inflation, this methodology ensures that observed changes in poverty reflect real shifts in welfare rather than arbitrary revisions in definitions.

Table 5.1: Poverty Incidence (Headcounts)

National / Urban, Rural	2015-16 (%age)	2018-19 (%age)	2024-25 (%age)
National	24.3	21.5	28.8
Urban	12.5	10.7	18.7
Rural	30.7	27.6	35.1
Poverty Line*	3250	3776	8508

* In PKR (per adult equivalent per month).

Source: Author's own estimates and Pakistan Economic Survey (Various Rounds, Government of Pakistan).

[14] See for instance, Poverty surges again (Opinion, written by, Syed Adnan Haider, Published in Business Recorder) available at: https://www.brecorder.com/news/40405048/opinion-poverty-surges-again

[15] See, Deaton and Zaidi (2002).

This consistency enables meaningful tracking of poverty across political and economic periods, linking policy shifts with household outcomes. Applying this framework to HIES 2024–25 data from the Pakistan Bureau of Statistics reveals a clear pattern aligned with recent history. In 2015–16, under PML-N, national poverty stood at 24.3 percent, declining to 21.5 percent by 2018–19 during early PTI years, reflecting stable growth, controlled inflation, and improved purchasing power. However, this progress has reversed. By 2024–25, under the Coalition Government, poverty rose sharply to 28.8 percent, meaning nearly three in ten Pakistanis now live below the poverty line. Urban areas, once relatively resilient, have seen significant deterioration. Poverty fell from 12.5 percent in 2015–16 to 10.7 percent in 2018–19 but surged to 18.7 percent in 2024–25 (Table 5.1), driven by rising food, housing, and energy costs alongside weaker labor markets. Rural poverty shows a similar but deeper pattern, declining from 30.7 to 27.6 percent before rising to 35.1 percent, with structural challenges in agriculture and climate shocks worsening conditions. A key pressure point is the sharp rise in the poverty line, from PKR 3,250 in 2015–16 to PKR 3,776 in 2018–19, and to PKR 8,508 by 2024–25, highlighting severe inflation and declining purchasing power. While poverty steadily declined between 2005–06 and 2018–19 (Table 5.2), recent data show a clear reversal. This shift reflects deeper economic stress, where inflation-driven income erosion has pushed many households into poverty, making it an urgent policy concern.

Table 5.2: Poverty Trends (based on National Poverty Line, 2013-14)

Years	Poverty Incidence (%age)			Change in Poverty (%age points)*		
	National	Urban	Rural	National	Urban	Rural
2005–06	50.4	36.6	57.4	–	–	–
2007–08	44.1	32.7	49.7	-6.3	-3.9	-7.7
2010–11	36.8	26.2	42.1	-7.3	-6.5	-7.6
2011–12	36.3	22.8	43.1	-0.5	-3.4	1.0
2013–14	29.5	18.2	35.6	-6.8	-4.6	-7.5
2015–16	24.3	12.5	30.7	-5.2	-5.7	-4.9
2018–19	21.5	10.7	27.6	-2.8	-1.8	-3.1
2024-25	28.8	18.7	35.1	7.3	8.0	7.5

* Positive values denote poverty increase; negative values denote poverty reduction.

Source: Author's own estimates and Pakistan Economic Survey (Various Rounds, Government of Pakistan).

A concerning feature of the recent rise in poverty is its broad-based nature. Unlike earlier periods when poverty was largely rural, the current surge affects both urban and rural populations. Urban households, once relatively better off, are increasingly vulnerable due to rising costs of food, housing, and energy, which have eroded the financial stability of lower- and middle-income groups. Rural areas, however, continue to bear a heavier burden, facing structural challenges such as high agricultural input costs, climate shocks, and limited access to services. These pressures have reduced incomes and increased uncertainty, widening the urban–rural divide and underscoring the need for targeted policies.

Table 5.3: Poverty Incidence (Province Wise)

National / Urban, Rural	2015-16 (%age)	2018-19 (%age)	2024-25 (%age)
Punjab	20.8	16.3	23.2
Punjab-Urban	9.9	8.8	15.4
Punjab-Rural	26.2	20.6	28.6
Sindh	32.2	24.6	35.5
Sindh-Urban	15.4	10.4	22.2
Sindh-Rural	49.1	40.0	51.0
Khyber-Pakhtunkhwa	18.1	27.0	33.4
KP-Urban	10.0	16.8	23.0
KP-Rural	19.9	29.0	35.2
Balochistan	42.2	40.7	41.7
Balochistan-Urban	26.4	24.7	32.2
Balochistan-Urban	48.2	46.7	46.0
Pakistan	24.3	21.5	28.8

Source: Author's own estimates and Pakistan Economic Survey (Various Rounds, Government of Pakistan)

Provincial trends in Table 5.3 further highlight uneven and evolving patterns of deprivation. In Punjab, poverty declined from 20.8 percent in 2015–16 to 16.3 percent in 2018–19 but rose again to 23.2 percent by 2024–25, with rural areas remaining more affected. Sindh shows a sharper reversal, with poverty increasing to 35.5 percent, and rural poverty exceeding 50 percent, indicating severe distress. Khyber Pakhtunkhwa experienced a steady rise in poverty over time, reaching 33.4 percent, reflecting persistent structural challenges. Balochistan remains the poorest province, with poverty consistently above 40 percent despite limited variation. Overall, the increase in national poverty to 28.8 percent is widespread, not region-specific. It reflects both chronic structural inequalities in poorer regions and emerging vulnerabilities in urban areas and relatively better-off provinces. This creates a dual policy challenge: addressing long-standing deprivation in regions like rural Sindh and Balochistan while responding to rising economic pressures in urban centers and provinces such as Punjab.

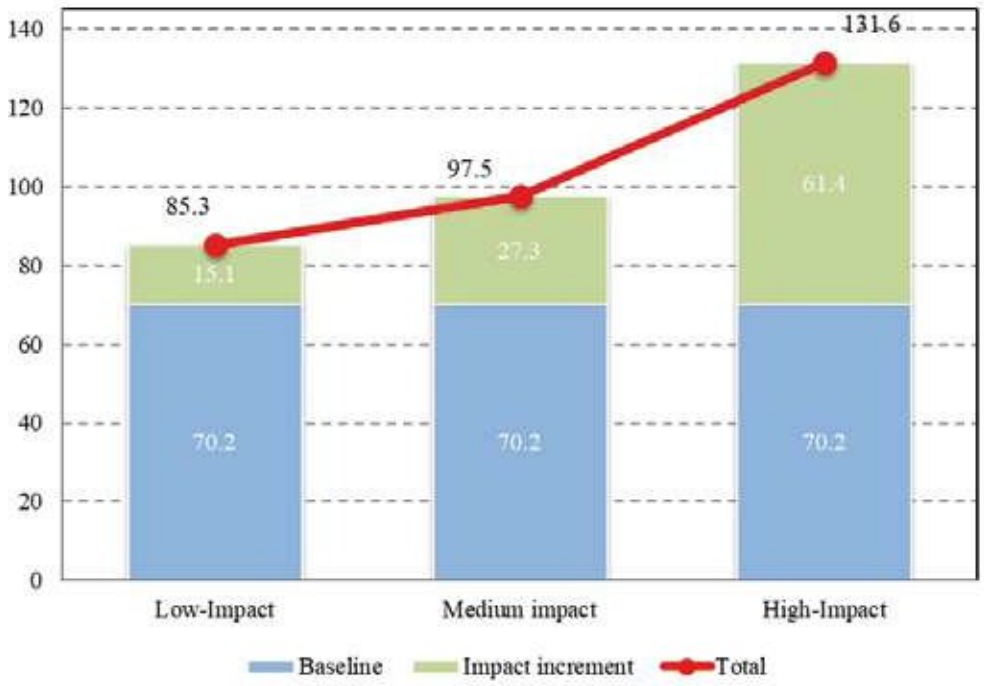
Table 5.4: Poverty Bands at National and Regional Level in Pakistan

Poverty Band	Survey Round	National	Urban	Rural	Punjab	Sindh	KP	Balochistan
Extreme Poor (< 50% of Poverty Line)	2018-19	0.3	0.1	0.4	0.2	0.4	0.2	0.5
	2024-25	1.7	0.9	2.3	0.9	3.5	1.9	1.8
Ultra-poor (> 50% and < 75% of Poverty Line)	2018-19	5.2	1.9	7.1	3.3	6.9	6.9	11.4
	2024-25	9.2	5.0	11.9	6.8	12.5	10.5	14.7
Poor (> 75% and < 100% of Poverty Line)	2018-19	16	8.7	20.2	12.8	17.3	20	28.8
	2024-25	17.8	12.9	21.0	15.5	19.4	21.0	25.2
Vulnerable (> 100% and < 125% of Poverty Line)	2018-19	20	14.3	23.2	18.2	19.8	22.8	28.3
	2024-25	18.2	15.9	19.7	17.6	16.9	20.7	21.9
Quasi Non-poor (> 125% and < 200% of Poverty Line)	2018-19	37.2	39.6	35.8	39.6	36.3	35.5	23.9
	2024-25	31.8	35.0	29.8	34.3	28.1	31.2	25.7
Non-poor (> 200% of Poverty Line)	2018-19	21.4	35.5	13.4	26.0	19.3	14.7	7.2
	2024-25	21.2	30.3	15.4	24.8	19.5	14.8	10.7

Source: Author's own estimates and Pakistan Economic Survey (Various Rounds, Government of Pakistan).

Table 5.4 shows worsening poverty dynamics in Pakistan beyond rising headcount ratios, indicating broad welfare deterioration. Extreme poverty rose from 0.3% in 2018–19 to 1.7% in 2024–25, higher in rural areas and Sindh (3.5%). Ultra-poverty increased from 5.2% to 9.2% nationally, reaching nearly 12% in rural areas and concentrated in Sindh and Balochistan. Moderate poverty rose from 16.0% to 17.8%, particularly in urban areas where inflation erodes resilience. The vulnerable group declined due to downward mobility, while the quasi non-poor share fell from 37.2% to 31.8%, signaling a weaker buffer. Overall, the distribution has shifted downward, reflecting rising poverty and severity driven by inflation, macroeconomic instability, and falling real incomes. Policy urgency includes stabilizing prices, protecting purchasing power, and strengthening targeted social protection. These trends are driven by a rising cost of living, reflected in a higher poverty line that captures persistent inflation. Increases in prices of essential goods have made basic living harder for low- and fixed-income households. External shocks, global oil price volatility, trade disruptions, and remittance fluctuations, add to domestic instability and inflationary pressures. Geopolitical tensions in the Middle East further affect energy prices and external balances. Together, these domestic and global channels weaken household welfare and deepen poverty outcomes.

Figure 5.1: Pakistan's Poverty projections
(due to Middle-East War)



Source: Author's own estimates based on HIES 2024-25 (Population in Million)

Recognizing the role of global shocks, this chapter adopts a forward-looking approach by projecting poverty under alternative macroeconomic scenarios, particularly focusing on global oil supply disruptions. By simulating their effects on inflation, real incomes, and consumption, the analysis captures uncertainty and offers policy-relevant insights. The projections in Figure 5.1 highlight how external shocks, especially escalating conflict in the Middle East, can translate into rising poverty in Pakistan. As an energy-importing country, higher global oil prices increase domestic fuel and energy costs, driving inflation and eroding purchasing power. This cost-push effect raises prices across the economy, worsening household welfare. Under the low-impact scenario, poverty rises to 85.3 million people, adding 15.1 million to the baseline of 70.2 million. In the medium-impact case, poverty reaches 97.5 million, with 27.3 million additional people falling below the poverty line. The high-impact scenario is most severe, with poverty surging to 131.6 million, an increase of 61.4 million people, highlighting the scale of vulnerability. These projections show that poverty increases are not temporary but reflect structural risks driven by external dependence and inflation transmission. As rising prices push up the poverty line, more households fall below it despite unchanged consumption levels. Figure 5.1 underscores a critical policy message: without effective measures such as inflation control, energy price management, and stronger social protection, external shocks can significantly deepen poverty. If global conflicts persist, the high-impact scenario may become increasingly likely, with long-term consequences for Pakistan's economic stability and welfare.

5.2 Budget Projections for Pakistan's Social Safety Net Program

Building on earlier poverty estimates and projections, this section shifts to policy response, focusing on Pakistan's social protection system. The Benazir Income Support Programme (BISP) emerges as the central mechanism for supporting vulnerable households, particularly as inflation erodes real incomes and increases poverty. In this context, cash transfers, both unconditional and conditional, are critical for consumption smoothing and mitigating welfare losses. The analysis evaluates the fiscal requirements for sustaining and expanding BISP, including maintaining real benefit levels and extending coverage to newly vulnerable groups during economic stress. The chapter situates poverty within a broader framework linking macroeconomic conditions with social protection, aiming to inform strategies that address immediate hardships while strengthening long-term resilience.

Table 5.5: BISP related Budget estimates

Fiscal Years	Total Yearly Releases (Rs in Billion)	Conditional Cash Transfer (Rs in Billion)	Un-conditional Cash Transfer (Rs in Billion)	Total Funds Transferred to Cash Grants (Rs in Billion)	Releases as % of Federal Revenues	Releases as % of GDP (MP)	Yearly Bene ficiaries (Nos. in Millions)	Project Phases	Cash Amount per month per beneficiary (In Pak Rupees)
2008-09	15.3	0.04	15.21	15.25	1.30%	0.10%	1.76	Phase I	1,000
2009-10	39.9	2.89	31.94	34.83	3.00%	0.19%	2.58	Phase I	1,000
2010-11	34.4	5.30	29.66	34.96	2.20%	0.19%	3.10	Phase I	1,000
2011-12	49.5	4.28	41.60	45.88	2.60%	0.25%	3.68	Phase I & II	1,000
2012-13	50.1	3.17	43.30	46.47	2.60%	0.22%	3.75	Phase II	1,000
2013-14	69.6	1.20	65.11	66.31	3.10%	0.28%	4.64	Phase II	1,200
2014-15	91.8	0.45	88.59	89.04	3.50%	0.33%	5.05	Phase II	1,500
2015-16	102.0	1.88	96.65	98.53	3.30%	0.35%	5.21	Phase II	1,567
2016-17	111.5	2.27	102.10	104.37	3.30%	0.35%	5.46	Phase II	1,611
2017-18	107.0	3.20	99.00	102.20	3.00%	0.31%	5.63	Phase II	1,611
2018-19	116.5	4.01	104.60	108.61	2.64%	0.31%	5.78	Phase II	1,611
2019-20	243.7	3.70	228.67	232.37	4.23%	0.54%	9.10	Phase II	1,667
2020-21	194.3	5.57	169.40	174.97	3.11%	0.37%	7.06	Phase II	1,667
2021-22	235.6	25.35	193.74	219.09	3.23%	0.37%	7.76	Phase II	2,333
2022-23	412.3	61.24	332.91	394.15	4.68%	0.52%	9.00	Phase II	3,500
2023-24	471.7	94.38	360.17	454.55	3.84%	0.47%	9.30	Phase II	3,500
2024-25	598.7	57.17	328.47	385.64	3.58%	0.56%	9.87	Phase III	4,500

Source: Pakistan Economic Survey, FY2024-25.

Table 5.5 traces BISP's evolution from a modest program into Pakistan's primary safety net. Launched in 2008–09 with Rs. 15.3 billion, 1.76 million beneficiaries, and a monthly stipend of Rs. 1,000, it initially focused on unconditional transfers. By 2013–14, allocations rose to Rs. 69.6 billion, beneficiaries to 4.64 million, and stipends to Rs. 1,200, marking improved targeting and consolidation. Between 2014–15 and 2018–19, BISP expanded steadily, reaching Rs. 116.5 billion and nearly 5.8 million beneficiaries, with stipends increasing to Rs. 1,611. Its fiscal share stabilized at around 3 percent of federal revenues and 0.3 percent of GDP. A major shift occurred in 2019–20, with allocations jumping to Rs. 243.7 billion and beneficiaries exceeding 9 million.

After a brief dip, the program scaled rapidly again, reaching Rs. 471.7 billion by 2023–24. Conditional transfers also grew significantly, reflecting a stronger focus on education and long-term human development. Equally significant is the sharp increase in the monthly cash transfer amount, which rose from Rs. 1,667 in 2019–20 to Rs. 3,500 by 2022–23 and further to Rs. 4,500 in 2024–25. This adjustment reflects the government's attempt to partially offset the erosion of real incomes caused by high inflation, although questions remain about the adequacy of these increases relative to the rising cost of living. By 2024–25, total yearly releases reached an unprecedented Rs. 598.7 billion, with nearly 9.87 million beneficiaries covered under what is now designated as Phase III of the program. Despite this substantial allocation, the actual funds transferred to cash grants (Rs. 385.64 billion) indicate a divergence between budgeted releases and effective disbursements, raising important considerations about efficiency, administrative costs, and program design.

Table 5.6: Program coverage, budgetary needs and targeting performance as respect to cut-off scores (Estimates for FY-2026-27 based on HIES 2024-25)

	Coverage (%)			Annual Budget Needs		
	Family			(Rs. Billion)		
cutoff scores	Percent	Million	percent of population	Rs. 4500/m	Rs. 5000/m	Rs. 6000/m
15.0	7.5	4.6	10.5%	246.1	273.4	328.1
15.8	8.3	5.0	11.6%	271.3	301.4	361.7
16.7	9.2	5.6	12.9%	302.4	336.0	403.2
17.5	10.4	6.3	14.5%	340.2	378.0	453.6
18.3	11.4	6.9	16.0%	374.4	416.0	499.2
19.0	12.5	7.6	17.4%	408.0	453.3	544.0
19.9	13.9	8.4	19.4%	453.9	504.4	605.3
21.0	15.6	9.4	21.8%	510.1	566.7	680.1
24.9	22.3	13.5	31.2%	730.1	811.2	973
25.5	23.3	14.2	32.7%	764.3	849.3	1019.1
26.5	25.4	15.4	35.6%	831.6	924.0	1108.8
27.5	27.6	16.7	38.6%	903.3	1003.7	1204.5
28.5	29.1	17.7	40.8%	953.7	1059.7	1271.6
29.5	31.3	19.0	43.9%	1025.7	1139.7	1367.6
30.0	32.2	19.5	45.1%	1054.4	1171.5	1405.8

Source: Author's own estimations based on HIES Datasets

From a macro-fiscal perspective, BISP's share in federal revenues and GDP has remained significant but relatively contained, fluctuating between 3 to 4.7 percent of revenues and around 0.3 to 0.56 percent of GDP. This suggests that while the program has expanded considerably, it has done so within a constrained fiscal envelope, highlighting the delicate balance between social protection needs and fiscal sustainability. At the same time, the steady increase in beneficiary numbers, from less than 2 million to nearly 10 million, underscores the growing reliance of households on BISP as a primary source of income support, particularly in the face of rising poverty and economic uncertainty. Taken as a whole, the table tells a story of both progress and pressure. BISP has undeniably become a vital lifeline for millions of poor households, playing a critical role in consumption smoothing and poverty mitigation. However, its rapid expansion in recent years, driven largely by worsening economic conditions, also signals increasing fiscal demands on the government. As poverty continues to rise and external shocks intensify, the challenge going forward will not only be to sustain this level of support but to enhance its effectiveness, ensure better targeting, and secure adequate financing without compromising macroeconomic stability. Building on updated Poverty Means Test (PMT) estimates from HIES 2024–25, the FY2026–27 budget projections propose a more responsive framework for the Benazir Income Support Programme (BISP). By recalibrating PMT cut-off scores using updated poverty indicators (see Appendix, Table A1–A6 and Figure A1 & A2), the analysis focuses on a policy range between 21.0 and 24.9 to better reflect current conditions and include newly vulnerable households. As shown in Table 5.6, higher cut-off scores expand coverage but increase fiscal requirements. At a cut-off of 21.0, covering about 21.8 percent of the population (9.4 million families), the annual budget ranges from Rs. 510 billion (Rs. 4,500/month) to Rs. 680 billion (Rs. 6,000/month). Expanding the cut-off to 24.9 increases coverage to 31.2 percent (13.5 million families), raising costs to Rs. 730 billion, Rs. 811 billion, and Rs. 973 billion under Rs. 4,500, Rs. 5,000, and Rs. 6,000 transfer scenarios, respectively. This reflects a shift toward a more inclusive and shock-responsive safety net. The comparison highlights two key insights. First, maintaining Rs. 4,500 is inadequate given persistent inflation. Second, Rs. 5,000 offers limited improvement but remains insufficient for meaningful consumption support. The Rs. 6,000 scenario emerges as the most effective, particularly under inflationary pressures. Combined with a 24.9 cut-off, it implies a budget of around Rs. 950 billion for FY2026–27, representing a strategic expansion to preserve real transfer value, broaden coverage, and strengthen BISP's role in mitigating economic shocks.

Table 5.7: BISP's Budget Estimates (disaggregated)

(Rs. In Million)

Sr. No.	Description	FY 2023–24	FY 2024–25	FY 2025–26*	FY 2026–27**
1	Benazir Kafaalat – UCTs	358033	461,063	556378	731580
2	Benazir Taleemi Wazaif - CCT	59716	77,181	93137	122465
3	Special Relied Package for Daily Wage Workers on Chaman Border, Balochistan	308	--	--	--
4	Prime Minister's Ramazan Relief Package	1827	--	--	--
5	Benazir Nashonuma - Nutritional Program	34665	42,140	50852	66865
6	BISP Scholarships for Undergraduates (BSU)	4098	1,706	2059	2707
7	Benazir Poverty Graduation / Skill Development Program	--	1,000	1207	1587
8	BISP's New Initiatives (Hybrid Social Protection Program & Digital Financial Literacy)	--	799	964	1268
9	NSER Project Cost	3183	2,744	3311	4354
10	Direct Cost of Cash Transfers	3426	4,083	4927	6479
11	Media, Communication & Outreach	25	225	272	357
12	Payments for Services Rendered	639	443	535	703
13	Policy Research Unit Cost	14	35	42	56
14	Procurement of Assets	66	1,064	1284	1688
15	ERE and Administrative & General Expenses	5149	6,235	7524	9893
	Total Budget	471,149	598,718	722,490	950000

Source: Pakistan Economic Survey and Federal Budget Documents.
** Gray shaded area reflect authors' projections for FY2026-27.*

Table 5.7 shows that the proposed expansion of BISP to Rs. 950 billion in FY2026–27 is not a uniform increase but a targeted reallocation toward core poverty reduction functions, with an additional fiscal effort of about Rs. 96 billion compared to FY2025–26 (Rs. 722 billion). The largest share of this increase goes to the Benazir Kafaalat programme, the main unconditional cash transfer component, which rises from Rs. 556 billion to Rs. 731.6 billion. This reflects higher monthly stipends and expanded coverage to better protect extremely poor households against inflation and shocks. The Benazir Taleemi Wazaif programme also increases from Rs. 93.1 billion to Rs. 122.5 billion, reinforcing investments in education through conditional cash transfers. Similarly, the Benazir Nashonuma programme rises from Rs. 50.9 billion to Rs. 66.9 billion, highlighting continued focus on nutrition and early childhood development. Smaller but important allocations for scholarships, skills training, and digital and financial inclusion programs also increase, supporting longer-term poverty reduction and graduation from assistance. At the same time, administrative and system costs, including the NSER database (Rs. 4.35 billion) and delivery operations, rise to support a larger and higher-value transfer system. Some temporary relief initiatives, such as the Ramazan Relief Package, are discontinued, indicating a shift toward permanent, structured interventions. Overall, the additional Rs. 96 billion is strategically concentrated in cash transfers, human capital development, and system strengthening rather than dispersed across programs. The FY2026–27 proposal, supporting a Rs. 6,000 monthly transfer and a total envelope of Rs. 950 billion, reflects an evidence-based, inflation-aware adjustment aimed at ensuring both immediate consumption support and long-term resilience for vulnerable households.

5.3 Conclusion and Recommendations

Poverty in Pakistan is no longer on a steady declining path but has become highly sensitive to macroeconomic instability, inflation, and external shocks. Using HIES 2024–25 data, this chapter confirms a sharp reversal in poverty reduction, with millions of households falling below the poverty line. The impact is uneven across regions and groups, with particularly severe effects in rural areas and Sindh. Poverty is not only increasing in incidence but also intensifying, as more households fall into extreme and ultra-poor categories. Scenario-based projections show that global oil price shocks can significantly worsen poverty, highlighting the role of external vulnerabilities. A key finding is that inflation has become the main channel through which shocks affect household welfare. Rising energy prices, exchange rate pressures, and supply disruptions have increased the cost of living, effectively pushing more households into poverty. This underscores that poverty in Pakistan is increasingly inflation-driven and closely tied to macroeconomic conditions.

The chapter also emphasizes the critical role of the Benazir Income Support Programme (BISP), which now supports nearly 9.8 million beneficiaries. However, inflation has eroded the real value of transfers, limiting their effectiveness. To address this, the chapter recommends increasing the monthly stipend to Rs. 6,000 and expanding coverage using updated targeting methods. It estimates that around Rs. 950 billion will be required for FY2026–27, with a focus on cash transfers alongside investments in education and nutrition. Three policy priorities emerge: controlling inflation as a core poverty reduction strategy, strengthening BISP through inflation indexation and adaptive design, and improving targeting via updated poverty databases. Overall, reducing poverty in Pakistan requires aligning macroeconomic stabilization with a responsive and well-funded social protection system.

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Appendix

Table A1: Comparison of Poverty Predictors

	2005-06		2007-08		2013-14	
Poverty Predictors	Mean	SD	Mean	SD	Mean	SD
1. Number of People in the HHs under the age of 18 or over the age of 65						
Less than or equal to 2 dependents	37.8	48.5	50.9	50.0	42.8	49.5
3 or 4 Dependents	31.0	46.2	30.7	46.1	32.9	47.0
5 or 6 Dependents	20.6	40.4	14.4	35.1	16.8	37.4
7 or more Dependents	10.6	30.8	4.0	19.5	7.4	26.3
2. Highest Education Level of the HH Head						
Household Never attended school	47.4	49.9	42.0	49.4	43.6	49.6
Household head attended up to class 5	16.7	37.3	16.7	37.3	15.6	36.3
Household head attended class 6 to 10	24.0	42.7	27.9	44.9	27.4	44.6
Household head attended class 11 or more	11.9	32.4	13.4	34.0	13.3	34.0
3. Number of Children in the HH b/w 5 and 16 years old currently attending schools						
No children b/w 5 and 16 years old in the HH	24.7	43.1	25.6	43.6	28.7	45.2
All 5 to 16-year-olds attending school	33.3	47.1	37.4	48.4	37.4	48.4
Only Some Children b/w 5 to 16 year olds attending school	26.1	43.9	24.2	42.8	23.8	42.6
None of the children b/w 5 to 16-year-olds attending school	15.9	36.5	12.8	33.4	10.1	30.1
4. Number of Rooms per person in a HH						
0 <= (Ratio of rooms to household members) <= 0.2	16.0	36.6	14.1	34.8	14.5	35.2
0.2 < (Ratio of rooms to household members) <= 0.3	27.1	44.4	24.9	43.3	25.7	43.7
0.3 < (Ratio of rooms to household members) <= 0.4	16.4	37.0	16.6	37.2	16.8	37.4
(Ratio of rooms to household members)>0.4	40.6	49.1	44.3	49.7	43.0	49.5

5. Toilet kind used by the HH						
Flush connected to public sewerage, pit or open drain	59.5	49.1	69.3	46.1	74.5	43.6
Dry raised latrine or dry pit latrine	10.8	31.1	9.7	29.6	8.9	28.5
There is no toilet in the HH	29.7	45.7	21.0	40.7	16.7	37.3
6. At least one refrigerator, freezer or washing machine	44.3	49.7	52.8	49.9	55.5	49.7
7. At least one AC, cooler, geyser or heater	14.1	34.8	16.2	36.8	12.0	32.5
8. At least one cooking stove, range, or microwave oven	32.2	46.7	40.4	49.1	43.8	49.6
9. Ownership of Engine Driver Vehicles						
At least one car/tractor AND at least one motorcycle/scooter	1.1	10.5	1.5	12.0	2.1	14.2
At least one car/tractor BUT no motorcycle/scooter	2.5	15.5	2.5	15.5	2.4	15.3
No car/tractor BUT at least one motorcycle/scooter	11.5	31.9	17.6	38.1	31.5	46.5
Neither car/tractor NOR motorcycle/scooter	84.9	35.8	78.4	41.2	64.0	48.0
10. At least one TV	48.0	50.0	57.5	49.4	56.0	49.6
11. Ownership of livestock						
At least one Buffalo or Bullock AND at least one Cow or Goat or Sheep	13.0	33.6	11.9	32.4	10.6	30.8
At least one Buffalo or Bullock BUT No Cow or Goat or Sheep	9.2	28.8	7.4	26.2	6.7	25.0
No Buffalo or Bullock but at least one Cow or Goat or Sheep	11.0	31.3	8.8	28.3	8.5	27.9
Neither Buffalo or Bullock NOR Cow or Goat or Sheep	66.8	47.1	71.9	45.0	74.2	43.8
12. Ownership of Agriculture Land						
Own No Agriculture Land	70.1	45.8	79.7	40.2	81.9	38.5
Agricultural land ≤ 12.5 acres	26.8	44.3	17.7	38.2	16.9	37.5
Agricultural land >12.5 acres	3.2	17.5	2.6	15.8	1.2	10.9

Source: Author's own estimations based on HIES Survey Datasets.
(Means and SDs are weighted by sampling weights)

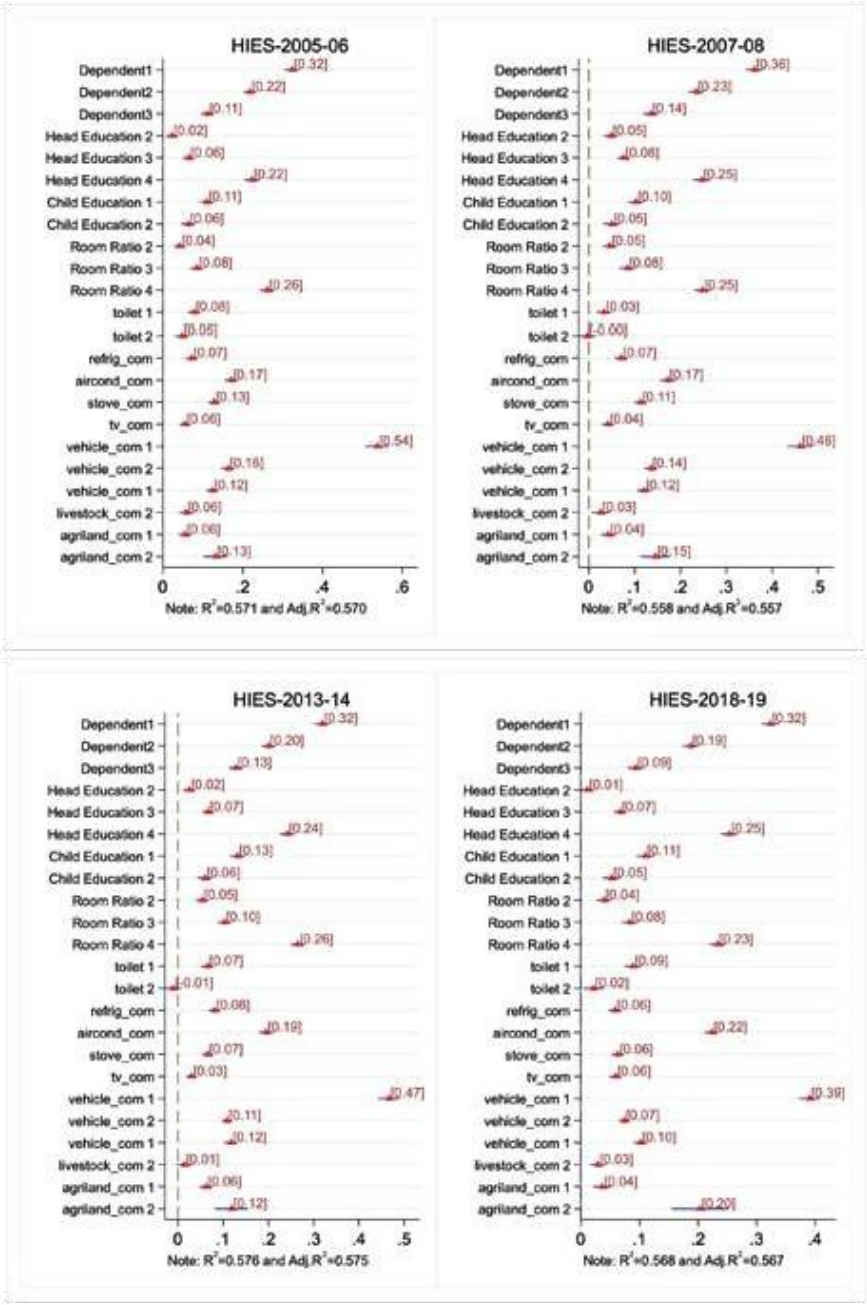
Table A2: Comparison of Poverty Predictors

	2018-19		2024-25	
Poverty Predictors	Mean	SD	Mean	SD
1. Number of People in the HHs under the age of 18 or over the age of 65				
Less than or equal to 2 dependents	44.6	49.7	47.5	49.9
3 or 4 Dependents	32.9	47.0	33.3	47.1
5 or 6 Dependents	15.6	36.3	13.7	34.4
7 or more Dependents	6.8	25.2	5.4	22.6
2. Highest Education Level of the HH Head				
Household Never attended school	41.5	49.3	36.3	48.1
Household head attended up to class 5	16.0	36.7	16.8	37.4
Household head attended class 6 to 10	28.9	45.3	29.6	45.6
Household head attended class 11 or more	13.5	34.2	17.3	37.8
3. Number of Children in the HH b/w 5 and 16 years old currently attending schools				
No children b/w 5 and 16 years old in the HH	29.0	45.4	30.1	45.9
All 5 to 16-year-olds attending school	40.5	49.1	40.8	49.1
Only Some Children b/w 5 to 16 year olds attending school	21.9	41.4	21.3	41
None of the children b/w 5 to 16-year-olds attending school	8.6	28.1	7.8	26.8
4. Number of Rooms per person in a HH				
0 <= (Ratio of rooms to household members) <= 0.2	13.5	34.1	10.4	30.6
0.2 < (Ratio of rooms to household members) <= 0.3	23.3	42.3	21.8	41.3
0.3 < (Ratio of rooms to household members) <= 0.4	16.5	37.1	15.7	36.4
(Ratio of rooms to household members)>0.4	46.7	49.9	52.1	50.0

5. Toilet kind used by the HH				
Flush connected to public sewerage, pit or open drain	80.5	39.6	88.4	32.0
Dry raised latrine or dry pit latrine	7.8	26.9	4.3	20.3
There is no toilet in the HH	11.6	32.0	7.3	26.0
6. At least one refrigerator, freezer or washing machine	66.1	47.3	69.0	46.3
7. At least one AC, cooler, geyser or heater	19.1	39.3	30.9	46.2
8. At least one cooking stove, range, or microwave oven	56.7	49.6	53.4	49.9
9. Ownership of Engine Driver Vehicles				
At least one car/tractor AND at least one motorcycle/scooter	3.8	19.1	5.0	21.7
At least one car/tractor BUT no motorcycle/scooter	2.4	15.4	2.2	14.8
No car/tractor BUT at least one motorcycle/scooter	50.0	50.0	51.9	50.0
Neither car/tractor NOR motorcycle/scooter	43.7	49.6	40.9	49.2
10. At least one TV	61.0	48.8	52.2	50.0
11. Ownership of livestock				
At least one Buffalo or Bullock AND at least one Cow or Goat or Sheep	8.2	27.5	6.6	24.8
At least one Buffalo or Bullock BUT No Cow or Goat or Sheep	5.0	21.8	3.4	18.2
No Buffalo or Bullock but at least one Cow or Goat or Sheep	9.8	29.7	8.7	28.3
Neither Buffalo or Bullock NOR Cow or Goat or Sheep	77.0	42.1	81.3	39.0
12. Ownership of Agriculture Land				
Own No Agriculture Land	92.3	26.6	87.0	33.6
Agricultural land ≤ 12.5 acres	7.1	25.7	12.4	32.9
Agricultural land >12.5 acres	0.6	7.6	.6	8.0

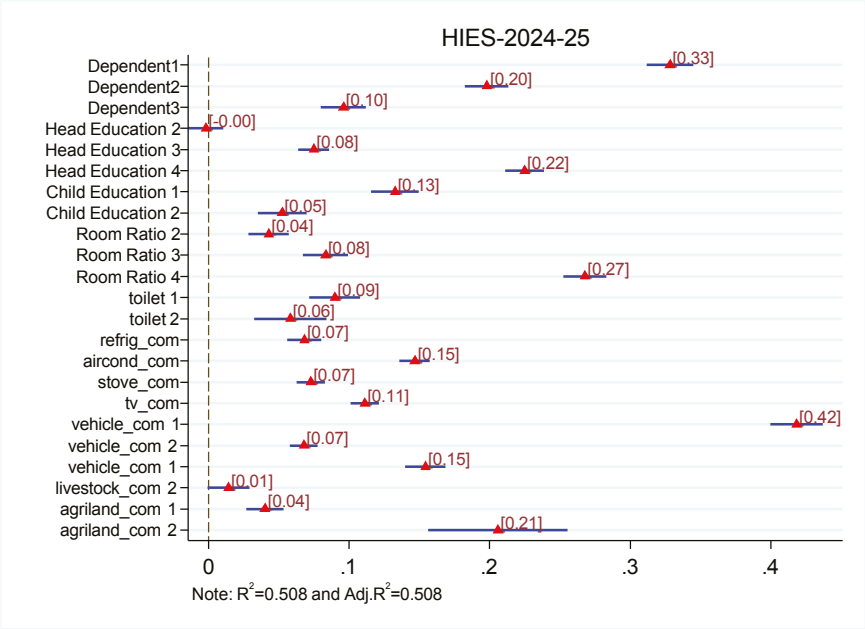
Source: Author's own estimations based on HIES Survey Datasets
Note: Means and SDs are weighted by sampling weights

Figure A1: PMT Regression Models Estimates (Poverty Predictors)



Source: Author's own estimations based on HIES Datasets
Note: Log of consumption per adult equivalence normalized by Paasche Index is taken as dependent variable in all regressions

Figure A2: PMT Regression Models Estimates (Poverty Predictors)



Source: Author's own estimations based on HIES Datasets
Note: Log of consumption per adult equivalence normalized by Paasche Index is taken as dependent variable in all regressions

Table A3: Performance Measure Ratios

	Target Group	Non-target group	Total
Eligible	Correctly Identi fied (S1)	Inclusion Error (E2)	Total Eligible (N3)
Non-Eligible	Exclusion Error (E1)	Correctly Identi fied (S2)	Total Non-Eligible (N4)
Total	Total Target Group (N1)	Total Non-Target Group (N2)	Total Population (N)

Note: Coverage ratio = S1/N1; Targeting Ratio=S1/N3; Leakage ratio (Inclusion Error) = E2/N3
Under-coverage Ratio (Exclusion Error) = E1/N1; Total Coverage Ratio = N3/N

Table A4: Program coverage, budgetary needs and targeting performance as respect to cut-off scores (Estimates for FY-2008-09 based on HIES 2007-08)

Coverage (%)				Budget Needs	Targeting Performance (%)					
Family				(Rs. Billion)	Poorest 17% as target group		Poorest 25% as target group		Poorest 40% as target group	
cutoff scores	Percent	Million	percent of population	Rs. 1000/ m	under-coverage	leakage	under-coverage	leakage	under-coverage	leakage
15.0	11.2	4.0	15.0	48.5	55.7	49.8	61.4	35.6	68.8	16.8
15.8	12.9	4.7	17.0	56.0	52.4	52.4	57.8	38.1	65.4	18.6
16.7	14.6	5.3	19.0	63.2	48.5	54.0	54.1	39.8	61.8	19.7
17.5	16.3	5.9	21.0	70.5	45.3	55.7	50.7	41.3	58.5	21.1
18.3	18.0	6.5	23.0	78.2	41.6	56.8	47.2	42.7	55.1	22.0
19.0	19.9	7.2	25.0	86.0	37.5	57.5	43.4	43.4	51.8	22.8
19.9	21.6	7.8	27.0	93.6	33.9	58.3	39.9	44.4	48.4	23.6
21.0	24.2	8.8	30.0	105.0	29.6	60.1	35.6	46.3	43.6	24.8
24.9	33.7	12.2	40.1	146.2	17.2	64.8	21.7	51.1	29.7	29.8

Source: World Bank staff estimation based on HIES 2007-2008.

Table A5: Program coverage, budgetary needs and targeting performance as respect to cut-off scores (Estimates for FY-2020-21 based on HIES 2018-19)

	Coverage (%)			Annual Budget Needs
	Family			(Rs. Billion)
cutoff scores	Percent	Million	percent of population	Rs. 2000/month
15.0	9.8	5.2	14.2	124.6
15.8	11.0	5.8	15.8	138.7
16.7	12.2	6.4	17.5	154.0
17.5	13.6	7.2	19.5	171.6
18.3	14.9	7.9	21.4	188.5
19.0	15.9	8.4	22.9	201.5
19.9	17.3	9.1	24.9	219.2
21.0	19.3	10.2	27.8	244.6
24.9	27.2	14.3	39.1	343.8
25.5	28.5	15.0	41.1	361.2
26.5	30.8	16.2	44.3	389.9
27.5	32.9	17.4	47.4	416.7
28.5	35.2	18.6	50.7	446.1
29.5	37.6	19.8	54.1	475.4
30.0	38.6	20.4	55.6	488.9

Source: Author's own estimations based on HIES Datasets

Table A6: Program under-coverage, leakage as respect to cut-off scores (three scenarios) (Estimates for FY-2026-27 based on HIES 2024-25)

Targeting Performance (%)										
	Poorest 20% as target group		Poorest 25% as target group		Poorest 30% as target group		Poorest 35% as target group		Poorest 40% as target group	
cutoff scores	under-coverage	leakage	under-coverage	leakage	under-coverage	leakage	under-coverage	leakage	under-coverage	leakage
15.0	74.0%	30.7%	76.9%	23.1%	79.4%	17.8%	81.5%	13.6%	81.5%	13.6%
15.8	71.8%	31.9%	74.9%	24.4%	77.6%	18.8%	79.8%	14.5%	79.8%	14.5%
16.7	69.0%	32.9%	72.3%	25.1%	75.2%	19.4%	77.5%	14.6%	77.5%	14.6%
17.5	66.2%	34.9%	69.5%	26.6%	72.5%	20.7%	75.1%	15.9%	75.1%	15.9%
18.3	63.4%	36.1%	66.9%	27.6%	70.1%	21.6%	72.8%	16.6%	72.8%	16.6%
19.0	60.6%	36.8%	64.3%	28.4%	67.8%	22.5%	70.6%	17.4%	70.6%	17.4%
19.9	57.6%	38.8%	61.3%	30.3%	64.8%	23.9%	67.7%	18.5%	67.7%	18.5%
21.0	53.6%	40.5%	57.5%	31.7%	61.1%	25.1%	64.3%	19.7%	64.3%	19.7%
24.9	40.3%	46.4%	43.8%	37.0%	47.6%	29.5%	51.2%	23.4%	51.2%	23.4%
25.5	38.7%	47.5%	42.1%	38.0%	46.0%	30.5%	49.5%	24.3%	49.5%	24.3%
26.5	35.9%	49.5%	39.0%	39.9%	42.7%	32.3%	46.3%	25.9%	46.3%	25.9%
27.5	33.0%	51.5%	35.9%	41.9%	39.6%	34.3%	43.0%	27.7%	43.0%	27.7%
28.5	30.6%	52.3%	33.5%	42.9%	37.2%	35.3%	40.6%	28.7%	40.6%	28.7%
29.5	27.6%	53.8%	30.3%	44.4%	34.0%	36.8%	37.4%	30.0%	37.4%	30.0%
30.0	26.7%	54.5%	29.3%	45.1%	32.9%	37.5%	36.2%	30.6%	36.2%	30.6%

Source: Author's own estimations based on HIES Datasets

Chapter 6

Population Growth, Human Capital Formation, and Fiscal Sustainability in Pakistan

Khadija Bari & Neelma Faraz

Abstract

Pakistan's population reached 241.49 million in 2023, growing at 2.55 percent annually—the highest rate among major South Asian economies. With 67 percent of the population under 30 and a dependency ratio of 78.92 percent, the demographic pressure on public services is already severe. Education spending stands at just 0.8 percent of GDP and health at 0.9 percent—among the lowest in the region. The result is a low human capital equilibrium: rapid population growth erodes per-capita public investment, weak outcomes sustain high fertility, and high fertility perpetuates the fiscal squeeze. Pakistan's Human Capital Index of 0.41 sits below the South Asia average of 0.48. The literacy rate is 60.65 percent, 38 percent of children are out of school, and female labour force participation is only 24% percent. A total fertility rate of 3.6—falling to 2.6 among educated women—shows that girls' education and family planning are not social issues but economic ones. This chapter argues that population policy must be treated as economic policy, and that investment in family planning, girls' education, and primary healthcare is a precondition for fiscal sustainability and long-run growth.

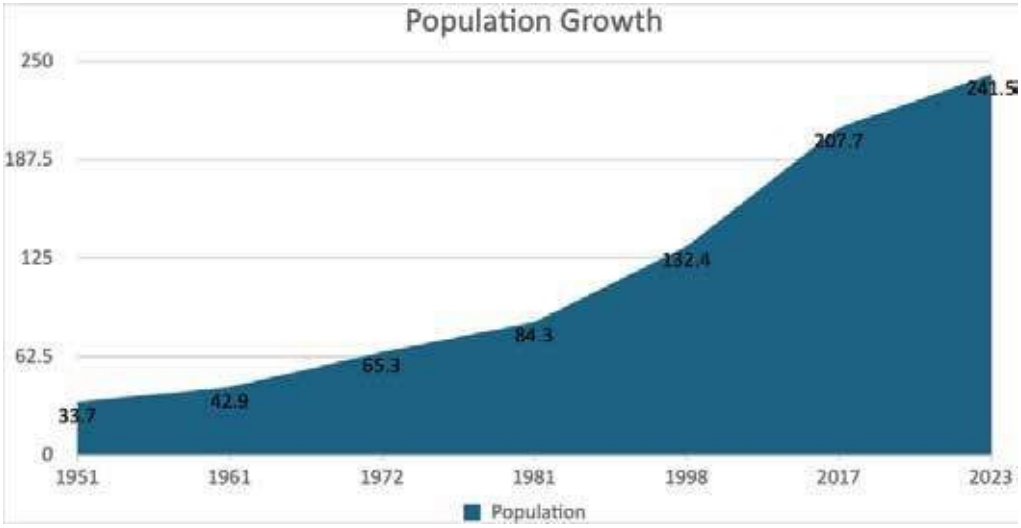
Keywords: population growth, human capital, fiscal sustainability, demographic transition, Pakistan

6.1 Introduction – Pakistan's Demographic Profile

Pakistan's economic debates tend to focus on the usual conventional indicators: fiscal deficits, inflation, debt servicing, external imbalances. These are real problems, but underlying all of them is a structural variable that receives far less attention than it deserves: population growth. How fast the population grows determines how far do public resources stretch, how quickly infrastructure gaps widen, how many jobs the economy must create each year, and how much can (realistically) be invested in each citizen's education, health, and skills. Population is not just a social statistic—it is a macroeconomic variable with direct implications for growth, poverty reduction, and long-run fiscal sustainability.

Economists have long studied how population growth affects development. Gary Becker (1960) explained that parents face a trade-off between the number of children they have and how much they can invest in each child—having more children usually means spending less on each one. Demographic transition theory suggests that as countries become more developed, birth rates tend to fall because people become more educated and more women join the workforce (Frank W. Notestein, 1945). Pakistan has not fully gone through this process yet, and its combination of high birth rates and low spending tends to reinforce itself.

Figure 6.1- Pakistan Population Growth Across Census Years



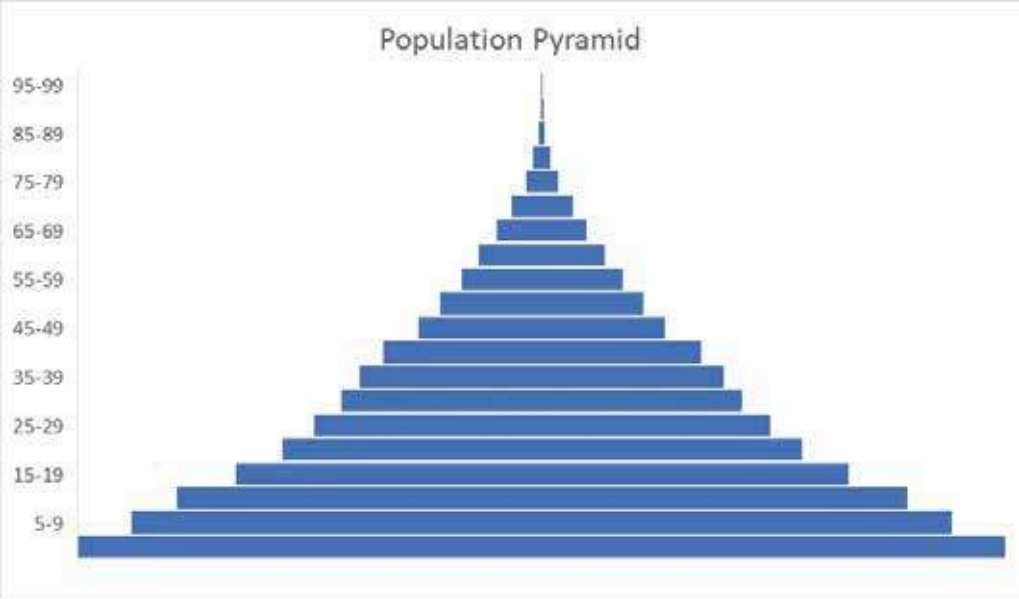
Source: Pakistan Bureau of Statistics, 7th Population and Housing Census 2023

Findings from the 2023 Population and Housing Census underscore the urgency of this issue. According to the latest census data the country's total population stands at 241.49 million, growing at 2.55 percent annually—the highest rate among major South Asian economies. Sixty-seven percent of the population is under 30, a large and potentially productive population—but also one where pressure on public finances, labour markets, and service delivery is growing every year. At this pace of growth, the state must absorb millions of additional children, students, and workers into public systems every year, simply to maintain existing levels of service—let alone improve them.

This chapter argues that Pakistan is caught in a low human capital trap. High population growth spreads limited public resources thinner each year, reducing investment in education, health, and skills. Weak human capital sustains high fertility and low female participation, which in turn maintains the demographic pressure that created the problem. Breaking this cycle requires treating population as a core variable in economic and fiscal planning, not a background social issue.

This rate of population growth has direct consequences for planning in education, health, housing, and labour markets. The country remains predominantly rural (about 61%), but the urban population has reached nearly 39% (around 93.88 million), as rural-to-urban migration accelerates due to inadequate rural infrastructure such as healthcare and education (Satterthwaite, 2007; UNDP, 2018) placing growing pressure on cities already stretched for housing, transport, and municipal services.

Figure 6.2- Pakistan Population Pyramid



Source: Pakistan Bureau of Statistics, 7th Population and Housing Census 2023

The age structure is the critical variable. Forty-point five six percent of the population is below 15, including 15.17 percent aged 0–4. Twenty-six percent falls in the 15–29 bracket and 53.8 percent is within the working-age range of 15 to 59. The dependency ratio of 78.92 percent—calculated from these age shares—means a large share of the population depends on household and public support.

A young population can produce a demographic dividend, but only if the economy successfully educates, skills, and employs this cohort. Without that investment, the youth bulge deepens unemployment and informality rather than generating growth.

Table 6.1 - Key Demographic Indicators - Pakistan (2023)

Indicator	Value	Source
Total Population	241.49 million	PBS Census 2023
Avg. Annual Growth Rate (2017–23)	2.55%	PBS Census 2023
Urban Population Share	38.88%	PBS Census 2023
Population below age 15	40.56%	Pak. Eco. Survey 2024–25
Population aged 15–29	26.0%	Pak. Eco. Survey 2024–25
Population under age 30	67.0%	Pak. Eco. Survey 2024–25
National Age Dependency Ratio	78.92%	PBS Census 2023
Balochistan Growth Rate (highest prov.)	3.20%	PBS Census 2023

Source: Pakistan Bureau of Statistics (2023); Pakistan Economic Survey 2024–25.

6.2 Population Growth and the Fiscal Squeeze

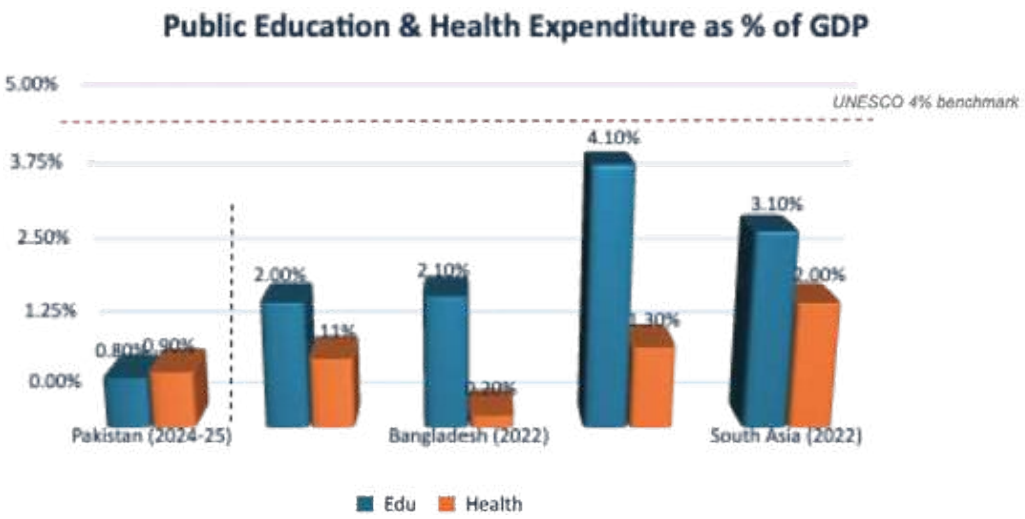
Gary Becker and H. Gregg Lewis argued that when a government has limited resources (fixed budget), rapid population growth forces a trade-off: Either support fewer people well (high "quality"), or Support more people poorly (low "quality"). In simple terms: If the number of children (or people) increases quickly but spending doesn't increase at the same pace, then each person gets less—less spending on education, healthcare, etc.

Even when nominal public spending rises, a fast-growing population can erode what each person actually receives. In education and health—where the state must absorb new citizens into schools, clinics, and labour markets every year—this dilution effect is especially damaging. Pakistan's fiscal problem is usually discussed in terms of low tax revenues and high debt. Both are real. But population growth creates a more basic problem: the denominator keeps growing faster than the numerator.

The numbers are stark. According to the Pakistan Economic Survey 2024–25 Education spending in FY2025 (July–March) was Rs 899.6 billion, only 0.8 percent of GDP. Health spending in FY2024 was Rs 924.9 billion, or 0.9 percent of GDP. Both figures are well below regional peers and the UNESCO benchmark of 4 percent for education. For a country where more than 40 percent of the population is under 15 and growing at 2.55 percent annually, these are critically inadequate commitments.

The problem is strategic as well as quantitative. A government chasing coverage cannot invest in quality. Instead of improving teaching standards or building preventive health capacity, it ends up doing reactive expansion — more classrooms, more beds, more recurrent spending — just to prevent outright deterioration. Rapid population growth traps the state in minimum provision, foreclosing the shift toward meaningful human capital formation that long-run fiscal sustainability requires (Becker & Lewis, 1973; Barro, 1991; World Bank, 2023).

Figure 6.3 - Public Education & Health Expenditure as % of GDP — Pakistan vs Regional Peers



Source: Panel A: Pakistan Economic Survey 2024–25 (Education Ch.10, Health Ch.11).
Panel B: World Bank World Development Indicators (2022, latest available year).
UNESCO 4% benchmark: UNESCO Institute for Statistics (2023).

6.3 Human Capital Outcomes

Pakistan's Human Capital Index[16] stands at 0.41, below the South Asia average of 0.48, Bangladesh (0.46), and Nepal (0.49). The World Bank's Human Capital Review (2023) states directly that Pakistan's outcomes are closer to Sub-Saharan Africa than to most regional peers, and that inequality across income groups, gender, and provinces has persisted or widened. This is not a marginal underperformance—it reflects decades of chronic underinvestment compounded by fast demographic growth.

[16] The Human Capital Index (HCI), developed by the World Bank, measures the human capital a child born today can expect to attain by age 18, combining data on child survival, quality-adjusted schooling, and stunting. It ranges from 0 to 1; Pakistan's score of 0.41 means a child here will reach only 41 percent of their full productive potential. (World Bank, 2023.)

The education data illustrate the problem concretely, the "twin crises" of access and equity. The national literacy rate is 60.65 percent, masking a female literacy rate of 52.84 percent and a rural literacy rate of 51.56 percent. Thirty-eight percent of school-age children are out of school nationally, rising to 69 percent in Balochistan. These figures reflect not only poverty and social barriers but chronic underinvestment in school infrastructure, teacher quality, and retention. When the school-age population keeps growing, even modest enrolment gains are hard to sustain.

Table 6.2 - Human Capital and Health Indicators

Indicator	Pakistan	South Asia Average
Human Capital Index (HCI)	0.41	0.48
Life Expectancy at Birth (years)	67.6	71.6
Maternal Mortality (per 100,000 births)	186	120
Infant Mortality (per 1,000 live births)	50.1	30.2
Child Stunting — Under 5 (%)	33.7%	32.3%
National Literacy Rate (%)	60.65%	n/a
Education Spending (% of GDP)	0.8%	~2–4%
Public Health Spending (% of GDP)	0.9%	~2%

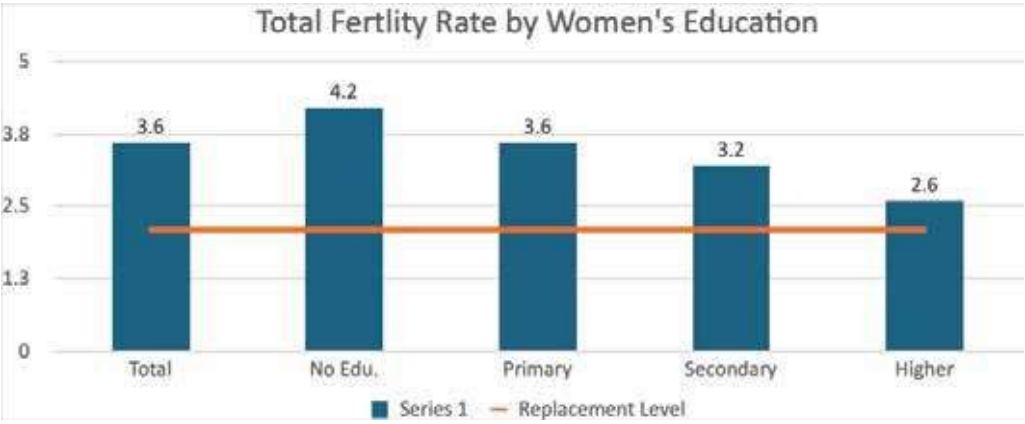
Source: World Bank Human Capital Review (2023); Pakistan Economic Survey 2024–25

Health outcomes follow the same pattern. Life expectancy is 67.6 years against a South Asian average of 71.6. Maternal mortality stands at 186 per 100,000 live births compared with a regional average of 120. Infant mortality is 50.1 per 1,000 live births and 33.7 percent of children under five are stunted. Stunting alone has lasting consequences—it impairs cognitive development, reduces future earnings, and raises long-run health costs. These are productivity losses built in before a child reaches school age.

6.4 Fertility, Women's Participation, and Provincial Disparities

Pakistan's total fertility rate is 3.6 births per woman nationally (PDHS 2017–18)—3.9 in rural areas, 2.9 in urban areas. The education gradient is significant: women with no formal education average 4.2 births; women with higher education average 2.6.

Figure 6.4 - Total Fertility Rate by Women's Education Level — Pakistan



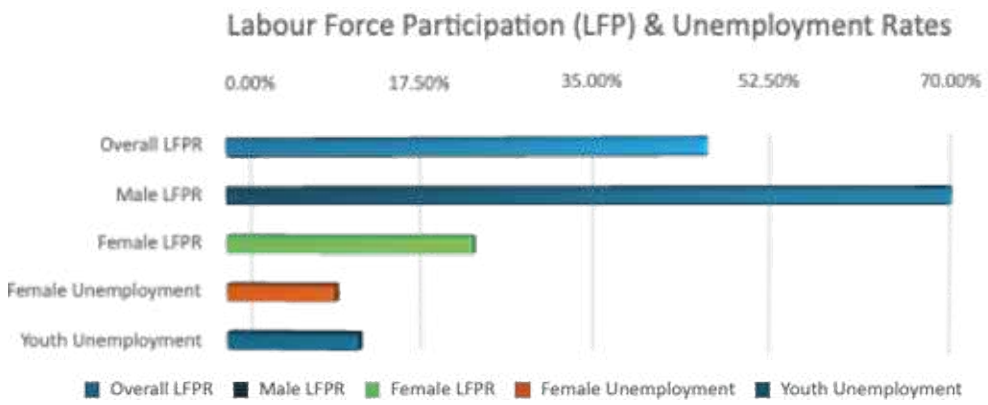
Source: Pakistan Demographic and Health Survey 2017–18

Replacement level (or replacement-level fertility) is the level of fertility at which a population exactly replaces itself from one generation to the next, without increasing or decreasing in size. In most countries today, it is estimated to be around 2.1–2.3 children per woman, depending on child mortality and demographic conditions.

Family planning access remains weak. Only 25 percent of married women use modern contraceptive methods and 17 percent have unmet need (PDHS 2017–18). The Pakistan Economic Survey 2024–25 estimates modern contraceptive prevalence at 19.6 percent and unmet need at 16 percent. Progress is slow and family planning remains poorly integrated into national development strategy.

Female labour force participation is 22.7 percent against 68.7 percent for men (Labour Force Survey 2024–25). Female unemployment is 10.5 percent; youth unemployment is 12.8 percent. Educated, economically active women tend to have smaller families and greater reproductive autonomy. Pakistan's exclusion of women from the formal economy is a double loss: fertility stays high and productive capacity stays low.

Figure 6. 5 - Labour Force Participation & Unemployment Rates (2024–25)



Source: Pakistan Labour Force Survey 2024–25 (PBS)

These pressures fall hardest on the provinces least equipped to handle them. Baluchistan has the fastest population growth (3.20 percent), the highest out-of-school rate (69 percent), and the lowest literacy rate (42.01 percent) against Punjab's 66.25 percent. High fertility, weak institutions, and poor education access form a cluster that makes demographic transition hardest to start where it is most needed. At the household level, poorer families face higher fertility, lower female education, and weaker access to services—concentrating demographic pressure in communities that cannot invest in human capital and entrenching intergenerational poverty.

The World Bank's Human Capital Review is clear on what this requires: prioritise family planning, strengthen girls' education and female teacher recruitment, and build integrated support from early childhood through productive employment. These are productivity, labour market, and fiscal interventions—not social programmes in isolation.

6.5 From Diagnosis to Direction

The preceding sections establish two compounding problems: Pakistan's public spending on education and health is among the lowest in South Asia, and its population is growing faster than any major economy in the region. Moving from diagnosis to reform is not straightforward — Rodrik (2006) argues that effective policy change requires sequencing interventions in ways that are both feasible and institutionally grounded. What has been missing in Pakistan's case is a framework that treats population growth, fiscal constraints, and human capital investment as a single connected problem rather than separate issues.

Neither problem alone fully explains Pakistan's human capital deficit, and neither can be solved in isolation. Higher spending on a rapidly expanding population produces limited per-person gains; slower population growth without better services leaves human capital weak. Progress requires movement on both fronts simultaneously.

Table 6.3 sets out what the status quo looks like against a realistic reform path across the indicators most relevant to this chapter's argument. The status quo column reflects current official data. The reform path column does not represent a forecast—it describes the direction and approximate scale of change that sustained policy commitment could achieve over a generation, consistent with transitions observed in comparable settings. Bangladesh, for instance, reduced its population growth rate from above 2.5 percent to below 1.5 percent over two decades through a combination of expanded family planning, girls' secondary education, and female labour force integration—while simultaneously increasing its education spending as a share of GDP from below 2 percent to above 2.5 percent.

Table 6. 3 – Status Quo vs Reform Path — Key Indicators

Indicator	Status Quo (Current)	Reform Path (Over a Generation)
Education spending (% of GDP)	0.8% (FY2025, Jul–Mar)	Toward ~2.5% (South Asia average)
Health spending (% of GDP)	0.9% (FY2024)	Toward ~2.0% (regional norm)
Population growth rate	2.55% pa (PBS Census 2023)	Declining toward ~1.8% pa
Modern contraceptive use	19.6% (PES 2024–25)	Substantially expanded
Unmet need for family planning	16–17% (PES / PDHS)	Significantly reduced
Female labour force participation	22.7% (LFS 2024–25)	Rising with girls' education
Out-of-school children	38% nationally; 69% in Balochistan	Declining with sustained investment
Per-capita human capital spending	Eroding in real terms	Improving year on year

Sources: Status quo figures from Pakistan Economic Survey 2024–25; PBS Census 2023; Labour Force Survey 2024–25; PDHS 2017–18. Reform path figures are directional targets, not forecasts, informed by regional comparators and cited benchmarks.

The contrast is not intended to be precise. It is intended to be honest about the direction and scale of change required. Pakistan's current trajectory—low spending, high fertility, low female participation, and weak provincial capacity—points toward continued erosion of per-capita human capital investment. The reform path points toward a virtuous cycle: more investment per person, better outcomes, lower fertility, and a gradually easing fiscal burden over time.

6.6 Policy Implications

Five priorities follow from the analysis.

First, population growth must be a planning variable in federal and provincial budgets—not a background assumption. Sectoral allocations for education, health, nutrition, and infrastructure should be benchmarked against population scale and growth, not just GDP targets.

Second, family planning must be repositioned as an economic priority. Modern contraceptive prevalence below 20 percent and persistent unmet need represent a direct fiscal and demographic cost. Expanding access through frontline health workers and integrating family planning into maternal and child health systems would generate returns across health, education, and labour market outcomes simultaneously.

Third, girls' education and women's labour force participation must be treated as macroeconomic strategy. Pakistan's own data show that fertility falls sharply with female education and that female labour force participation is less than a third of the male rate. Investments in girls' secondary schooling—transport, female teachers, sanitation, retention incentives—produce returns across fertility, child outcomes, household welfare, and labour supply.

Fourth, human capital investment needs a coherent life-cycle framework. Early childhood nutrition, primary healthcare, school quality, and labour market entry should be connected policy—not separate ministry mandates. Human capital is cumulative; gaps at any stage reduce returns at every other stage.

Fifth, provincial disparities require differentiated responses. A uniform national strategy will not work when Balochistan's out-of-school rate is 69 percent against a national average of 38 percent. Fiscal federalism must reflect demographic realities, and provincial plans must link population projections to resource allocation decisions.

6.7 Conclusion

Pakistan's demographic and human capital challenges are well documented. What this chapter has argued is that they are also structurally connected. High population growth dilutes per-capita public investment, weak investment sustains high fertility, and high fertility perpetuates the fiscal pressure that limits investment in the first place. This is not a vicious cycle that resolves itself—it requires deliberate policy to interrupt.

The evidence points in one direction. Fertility falls with female education. Human capital outcomes improve with spending. Per-capita investment improves when population growth slows. Provincial disparities narrow when fiscal allocations reflect demographic realities. None of these relationships is speculative—they are visible in Pakistan's own data and in the transitions achieved by comparable economies in the region.

Population policy is economic policy. Treating demographic change as a background social concern will keep reproducing this cycle. Integrating population planning into budgeting, expanding family planning access, investing seriously in girls' education, and building a coherent life-cycle approach to human capital are not separate agendas. They are the same agenda. The longer they are treated as peripheral, the more costly the course correction becomes.

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Chapter 7

Child Labour, Human Capital Formation, and the Sustainability Trap

Muhammad Kazim Jafri and Muhammad Nasir

Highlights

- The provincial Child Labour Surveys from 2020 to 2023 reported that the estimated child labour rate in Pakistan is around11.41%.
- According to the recent report of the ILO (2024-25), 54.0 million children are involved in hazardous child labour, and Pakistan shares 7.53 % of the total world hazardous child labour.
- More than 4 million children in Pakistan are involved in hazardous child labour to fulfil their families' basic needs, and this is our expected future human capital loss.
- Financial barriers are the primary driver of school non-attendance or dropout, which later enhances the probability of children getting involved in labour.
- Child Labour is a major constraint on human capital development by reducing educational attainment, weakening cognitive and physical ability, and reinforcing the intergenerational cycle of poverty and inequality.
- Policies and Investment in Child Welfare and Educational Retention should be considered and viewed as long-term human capital investments, which are essential for sustainability and social development.

7.1 Introduction

A country's transition from a sluggish economy towards sustainable growth significantly depends on the quality of its human capital. According to Pelinescu (2015), no country can achieve sustainable and inclusive growth without the major contribution of knowledge, skills, and better education. However, the high prevalence of child labour and its persistence create structural barriers to long-term, sustainable productivity. The recent reports of the Child Labour Surveys conducted by the provincial governments of Pakistan with the technical support of the UNICEF reveal that the issue of child labour in Pakistan is persistent. In the span of five years, from 2018 to 2023, child labour in Pakistan has increased from 10.42%[17] to 11.41%[18]. The Child Labour Survey (CLS) 2020-23 reported that the estimated child labour rate in Pakistan is 11.41%, with the highest rate in Punjab at 16.9% and the lowest in Balochistan at 3.73%. However, the situation in Sindh and Khyber Pakhtunkhwa reflects that one out of ten children is involved in child labour.

From the perspective of Becker's (1975) theory of human capital, early involvement in labour markets declines investment in education and reduces lifetime productivity. The findings presented by Edmonds & Pavcnik (2005) and Basu & Van (1998) show that educational attainment and cognitive development are reduced by child labour, which further affects long-term earnings.

The recent surveys confirm that the issue of child labour is persistent and prolonged, and according to the theoretical framework in economics, it is considered a serious challenge for human capital formation, which is an essential requirement of sustainable growth. By the current state of child labour, almost 10% of the future labour force would not be able to participate in human capital formation, and this significant expected reduction in the future would pose a big challenge for economic sustainability.

[17] Weighted average estimates from MICS

[18] Weighted average estimates from CLS

7.2 Child Labour in Pakistan and Global Burden

The child labour survey uses the standard definition of child labour based on the SIMPOC methodology. Any child who is below the age of 11 years and works is considered child labor. Other children 12-17 involved in hazardous working conditions (hazardous industries, or occupations, hazardous tools, etc.) or exposed to abuse at work are also considered child labor. Children above 14 are not considered child labor if they do not expose any hazardous work/ abuse and perform light work within a time limit of 42 hours weekly. Those children are called working children.

In this chapter, we explore in depth the association between child labor and human capital formation in Pakistan, using data from all four provincial surveys. To understand the overall situation of child labour in Pakistan, across provinces, child labour statistics are presented in Table 7.s1. According to the global report of the ILO (2024), 54.0 million children are involved in hazardous child labour, and Pakistan shares 7.53 % of the total world hazardous child labour.

Table 7.1: Province-wise Child Labor

Provinces	Punjab	Sindh	Khyber Pakhtunkhwa	Balochistan
Child Labor (5-17) CLS	16.9%	10.3%	9.0%	3.73%
Child labour count	6.036 million	1.610 million	0.745 million	0.201 million
Children in hazardous conditions	2.897 million	0.609 million	0.465 million	0.098 million
Survey Conducted	(2020)	(2023)	(2022)	(2023)
Sample Size (households)	71,584	62,678	54,270	25,072
Child Labor* (5-17) MICS	13.4%	10.4%	6.4%	9.1%
Sample Size (households)	53,840	20,540	32,740	21,840

Source: Child Labour Survey- CLS (2020-23) and Multiple Indicator Cluster Survey-MICS (2018-20)
**There is a minor difference in child labour computation between CLS and MICS methodology, as the CLS method is more detailed and incorporates hazardous industry, occupation, conditions, and interprovincial labour laws.*

More than 4 million children in Pakistan are involved in hazardous child labour to fulfill their families' basic needs. This is typical of a low-income country. However, as per the global ranking, the region of South Asia has the second-lowest number of child labour in the world, at around 17.0 million. However, 8.6 million out of 17.0 million are in Pakistan, the highest in the region.

7.3 Poverty and Child Labor

Following Basu & Van (1998), the key driver of child labour is household-level poverty. He used the utility maximization approach and concluded that the poor households send their children to work at an early age to maximize their aggregate utility.

Table 7.2: Household Economic Status, Child Labour versus Non-Child Labour

	Punjab		Sindh		Khyber Pakhtunkhwa		Balochistan	
Household (Average)	Involved in Child Labour	Not Involved in Child Labour	Involved in Child Labour	Not Involved in Child Labour	Involved in Child Labour	Not Involved in Child Labour	Involved in Child Labour	Not Involved in Child Labour
Expenditure	23,760	32,265	30,964	40,714	32,736	37,888	38,849	43,201
Income	29,998	41,664	32,424	42,334	33,051	40,766	42,371	47,948
Expected Savings	6,238	9,399	1,460	1,620	315	2,878	3,522	4,747
Savings are higher in non-child labour households	Ref.	1.51 Times higher	Ref.	1.11 Time Higher	Ref.	9.13 Times higher	Ref.	1.35 Time higher

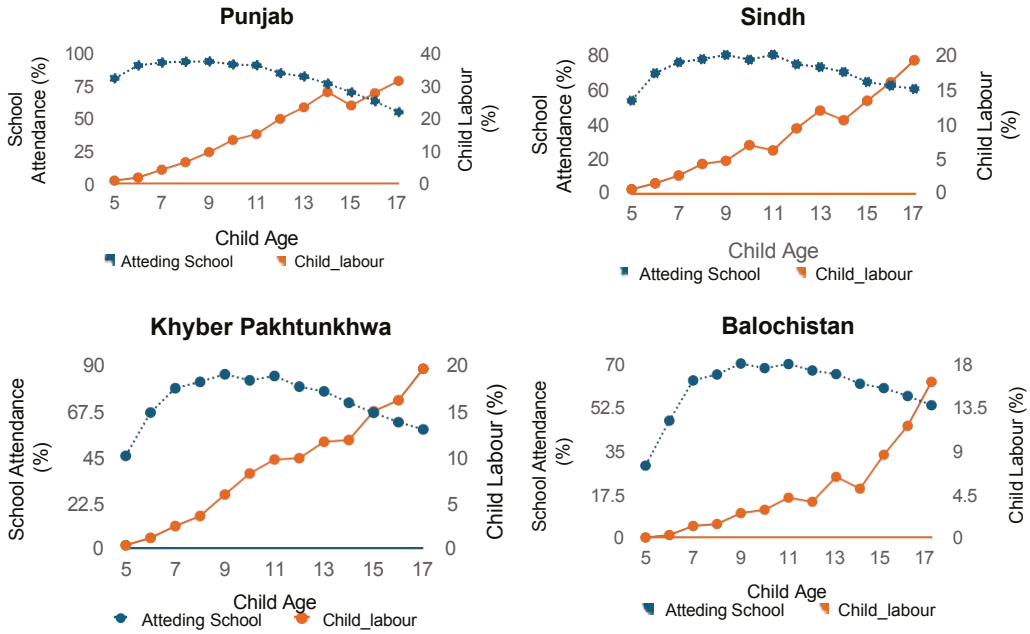
Source: Child Labor Surveys, Authors' computation from Microdata
Ref. shows Reference category

In this section, we try to explore from different angles how child labour is associated with poverty. In Table 7.2, we computed the household average expenditure and income and expected savings by using Child Labour Survey microdata sets and found that the provincial comparison reveals a consistent relationship between child labour and weaker household economic conditions. It is a very clear distinction; households not engaged in child labour report higher expenditure, income, and expected savings across all provinces. Taking Households engaged in child labour as the reference category, the expected savings of households not involved in child labour are nearly 1.5 times higher across provinces, except in Khyber Pakhtunkhwa, where the disparity is substantially larger. These findings reflect that financial insecurity and limited access to facilities and savings capacity are important covariates of child participation in the labour force.

7.4 Educational Attainment and Child Labour

Education is considered a main component of human capital theory presented by Becker (1975), and Edmonds & Pavcnik (2005) explored in their research that the early entry of a child into the labour force affects the child's education. From a human capital perspective, the existence of child labour imposes a penalty on future human capital. Results from child labour surveys show a clear age gradient in school attendance and child labour. The school attendance remains high in early ages, especially from 5 to 10 years, then it declines drastically thereafter, reaching 55% to 60% by the age of 17. In contrast, the rate of child labour increases steadily, increasing at an increasing rate that shows the shifting of children from school to the labour force. This is a critical transition during early adolescence (12-14), where children are increasingly withdrawn from school and pushed into the labour market.

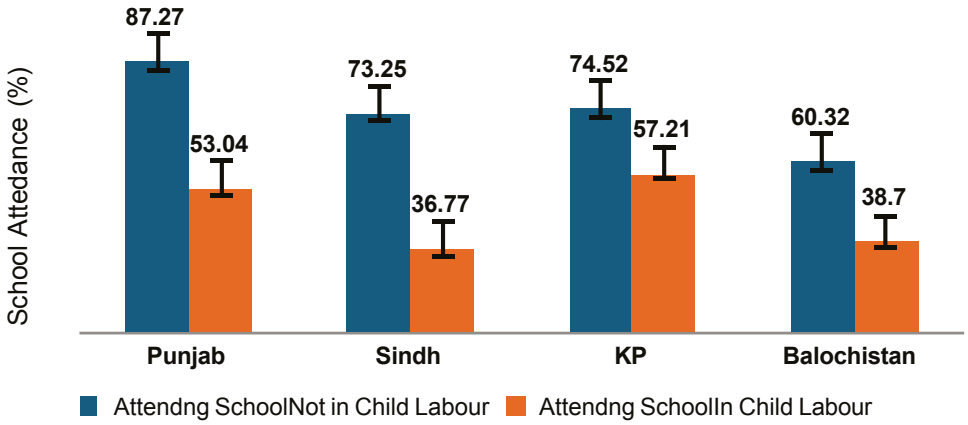
Figure 7.1: Age-wise Child Labor and Educational Attainment



Source: Child Labor Surveys, Authors' computation from survey data

According to Figure 7.1, at the primary level, such as ages 5 – 7, a small number of children are enrolled in school, and almost all of them are not engaged in child labour. With the passage of time, the schooling rate increases and then gradually decreases, especially for older children. This transition shows a clear shift from school to the labour market because of social pressure and increasing economic responsibilities.

Figure 7.2: School Attendance Gap between Child Labour and Non-Child Labour



Source: Child Labor Surveys, Authors' computation from survey data

Data tells us that it is difficult for children to continue their education along with labour work. In Figure 7.2, survey results clearly show there is a huge gap in school attendance between child labour and non-child labour children, and this pattern is almost consistent across provinces.

7.4.1 Reasons for never going to school or dropping out of school

We discussed some common reasons for children never attending school or parents pulling their children out of school. Among children who never attended or have dropped out, most households cite the inability to afford schooling as the primary reason. This percentage is quite high in Sindh (35.2%). These results suggest that initially, financial constraints are dominant drivers of school exclusion; further, this constraint compels the parents to send their children into the labour market.

Table 7.3: Major Reasons for never going to School or dropping out of School (in Percentage)

Reason	Punjab	Sindh	Khyber Pakhtunkhwa	Balochistan
Cannot afford schooling	29.37	35.16	19.77	18.25
To work for pay	2.53	4.27	6.45	5.31
Unpaid family work	0.73	0.36	0.36	1.47

Source: Child Labor Surveys, Authors' computation from survey data

The consistent dominance of financial barriers as the primary source of school exclusion, and the relative importance of labour-related reasons, as observed with the increase in particular subsamples, indicate a heterogeneous trade-off between schooling and labour.

7.5 Health Consequences of Child Labour

This section discusses different problems faced by children due to involvement in labour work. Most parents whose children are involved in labour work report that their children face mental health-related issues and extreme fatigue. Across all provinces, the issues of mental health and fatigue consistently emerge as the most prevalent work-related problems, followed by short-term illness or injury. The impact of these effects changes considerably across provinces. In contrast, the number of long-term health-related issues and cognitive or psychological problems, except for mental health, is very low.

Figure 7.3: Heatmap Shows the Problems Faced by Children due to Labour Work

Problems	Punjab	Sindh	Khyber Pakhtunkhwa	Balochistan
Short-term injury/illness	8.47	8.38	12.25	12.57
Long-term injury/illness	0.51	1.42	1.73	2.71
Problems concentrating/ learning	0.79	2.68	1.63	2.82
Communication dif ficulties	0.47	0.78	0.45	1.01
Anxiety/nervousness	1.36	1.34	1.67	2.18
Sadness/depression	1.42	1.42	2.86	2.78
Poor school grades	0.92	0.97	2.78	1.9
Extreme fatigue	10.71	18.11	29.11	25.41
Metal Health (Mild to Severe)	19.2	20.1	31.4	26

Source: Child Labor Surveys, Authors' computation from survey data

Findings suggest that the immediate burden of child labour is primarily physical rather than long-term, but exposure to these diseases by children at an early age due to involvement in labour can create long-term disorders and can affect their future performance badly.

7.6 Future Economic Losses of Child Labour: Based on Parents' Perception

Although the findings of this section are based on weak assumptions, the empirical results show some interesting conclusions. In the child labour survey, parents were asked to predict the future income of their youngest child, aged 5 – 12, based on whether they were involved in child labour.

Table 7.4: Economic Losses of Child Labor

	Punjab	Sindh	Khyber Pakhtunkhwa	Balochistan
	(Average Future Income*)			
Involved in Child Labour	36,572	60,516	43,983	39,875
Not involved in Child Labour	44,014	66,736	47,456	49,967
Absolute Expected Economic Loss	7,442	6,220	3,473	10,092
Relative Expected Economic Loss	20.3%	10.3%	7.9%	25.3%

Source: Child Labor Surveys, Authors' computation from survey data
**Their parents predict the expected future income of children if their child reaches the age of 30 years and completes higher education*

According to the parents' perceptions, if their children were involved in child labour and could not complete their education consequently, they would face significant economic losses in the future. These findings are consistent across provinces. However, this relative economic loss varies across provinces due to structural[19] thinking and the overall income level of the subnational population. The weighted average relative economic loss for the county is 14.8% that shows the todays' children of Pakistan would face around 15% penalty in their salaries due to the country's lack of human capital.

[19] Findings in this section are based on parents' thinking about their children's future. So, the thinking is derived based on some characteristics, such as households' consumption patterns, income levels, and education levels, and these characteristics vary across provinces.

7.7 Child Labour as a Human Capital Constraint

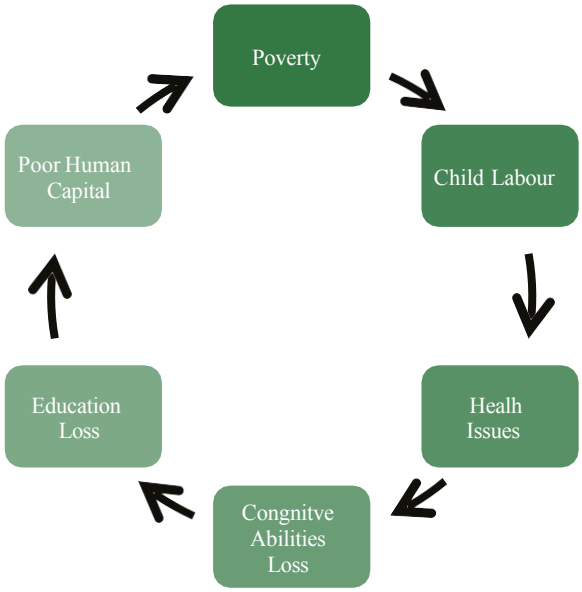
The World Bank's Human Capital Country Brief (2023) highlights that Pakistan's recent HCI is 0.41, which shows children born in Pakistan will be 41percent as productive on average when they grow up, given that they complete a good education and have good health. Another variant of the Human Capital Index, the utilization-adjusted HCI, considers how many adults are unemployed. Pakistan scores poorly at 0.20, which means that if a child is born today in Pakistan, he or she will be only 20 percent as productive in adulthood, given that he or she could enjoy good health and education. The average HCI of the South Asian Region and the Low Middle-Income countries is around 0.48; the number for Pakistan is lower than the average of the region and among the Low Middle-Income Countries.

Economists believe that human capital development is a central factor of long-term and sustainable economic growth, social success, and productivity. As per the theoretical framework, education, health, cognitive abilities, and skill sets are the fundamental components of human capital formation. However, the involvement of children in work at an early age creates barriers and diverts children's attention away from schooling, reducing learning, and exposing children to physical and psychological stress at an early stage of life.

In this section, we discuss the key findings of the above sections of this chapter as major constraints in human capital formation. The results of the recent statistics on child labour provide strong evidence that there is a significant negative correlation between child labour and components of human capital formation, like education and health.

Exploratory analysis reveals a strong adverse impact of child labour on child schooling across all provinces. Figure-7.1 depicts a steady decline in school attendance with age, while child labour participation rises in adolescents. It shows a transition from education to economic activity during their developmental period. When children leave schooling before their time, it imposes significant implications from a human capital perspective because they lose opportunities for better literacy, numeracy, and cognitive development.

Figure 7.4: Cycle from Child Labour to Poor Human Capital



From the health perspective, extreme fatigue and mental health issues consistently emerged as the most frequently raised problem related to child labour. Along with psychological issues, short-term illnesses or injuries also appeared as common problems in working children. As per the human capital framework, unhealthy children with poor mental health are excluded from the pool of skilled labour and cannot contribute to the country's human capital.

In the fundamental framework, poverty is considered a root cause of child labour. Child labour survey findings across all provinces reflect a strong association between child labour and household economic vulnerability. Households involved in child labour reported lower income, expenditure, and weaker saving practices as compared to the household those are not involved in child labour. That shows the households with limited financial resources rely on child labour as a coping strategy to supplement household income to reduce immediate financial pressures.

However, while child labour gives short-term economic benefits, it weakens long-term human capital formation by reducing investment in education and damaging children's health and development process. Households are trapped in a vicious cycle in which they sacrifice long-term human capital accumulation for short-term needs (as shown in Figure 04). Consequently, children from poorer households face a lack of opportunities to move their socioeconomic status upward. Resultantly, child labour contributes to the intergenerational transmission of poverty by undermining potential earnings in the future.

7.8 Conclusion and Policy Recommendations

The cumulative evidence from the exploratory analysis in Pakistan concludes that child labour imposes a major constraint on human capital accumulation. The provincial surveys of child labour show consistent findings regarding poverty status, educational attainment, health consequences, and expected future losses. This microeconomic activity, which is a decision of the households, affects macroeconomic variables in the long run and reduces economic growth, delays structural transformation, and increases regional and social inequalities.

In the last two decades, a significant legal framework has been established at the global level for the prevention of child labour. UN Convention on the Rights of the Child (1889) – ratified by Pakistan in 1990, ILO Minimum Age Convention (1973) – ratified by Pakistan in 2006, International Conference of Labour Statisticians (ICLS) – 2018 are international laws and regulations which are ratified by Pakistan. Along with some international commitments, we have province-wise acts such as the Punjab Restriction on Employment of Children Act (2016), Sindh Prohibition of Employment of Children Act (2017), Khyber Pakhtunkhwa Prohibition of Employment of Children Act (2015), and the recent one, Balochistan Prohibition of Employment of Children Act (2021).

Because of these commitments, the prevalence of child labour has been considerably decreased at the global level. ILO's recent publication "Global Estimates on Child Labor" reveals that around 137.6 million children are engaged in child labor (ILO, 2024), and Pakistan's share in world child labor numbers is approximately 6.3percent (CLS, 2022-23). While progress has been made at the global level, as per a recent report (2024), global estimates of child labor have been significantly reduced from 160.0 million to 137.6 million in the last four years. Despite the provisions of acts regarding the prohibition of employment of children in Pakistan, the number of child labourers is substantially large. This shows ineffective enforcement of related rules and regulations in Pakistan. Without getting institutional commitments on the matter of child labour, desired results cannot be achieved.

Further, descriptive analysis also suggests that the issue of child labour cannot be examined in isolation as a labour market issue, but rather it is a multidimensional phenomenon and linked with poverty, education exclusion, and social protection failure. Therefore, policy interventions aiming to address cross-cutting issues like improving education access, reduction in financial burden of schooling, reinforce household economic security are needed. Conclusively, the problem the child labour reduces the accumulation of human capital and constrains social and private benefits. Therefore, it is recommended that the objective of reducing child labour is not only a social protection priority, but also a critical long-term investment to produce human capital and boost economic development.

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Chapter 8

Distributed Solar Growth and the Erosion of Cost Recovery: Rethinking Capacity Mechanisms in Pakistan

Amir Jahan Khan

8.1 Introduction

The electricity sector in Pakistan is undergoing a structural transformation driven by the rapid expansion of solar energy, particularly rooftop solar. Unlike coordinated renewable transitions observed in places such as California and Spain[20], Pakistan's transition is largely bottom-up, driven by consumers responding to high tariffs, unreliable supply, and institutional inefficiencies. This decentralized expansion reflects a divergence between private incentives and system-level efficiency (Borenstein 2012).

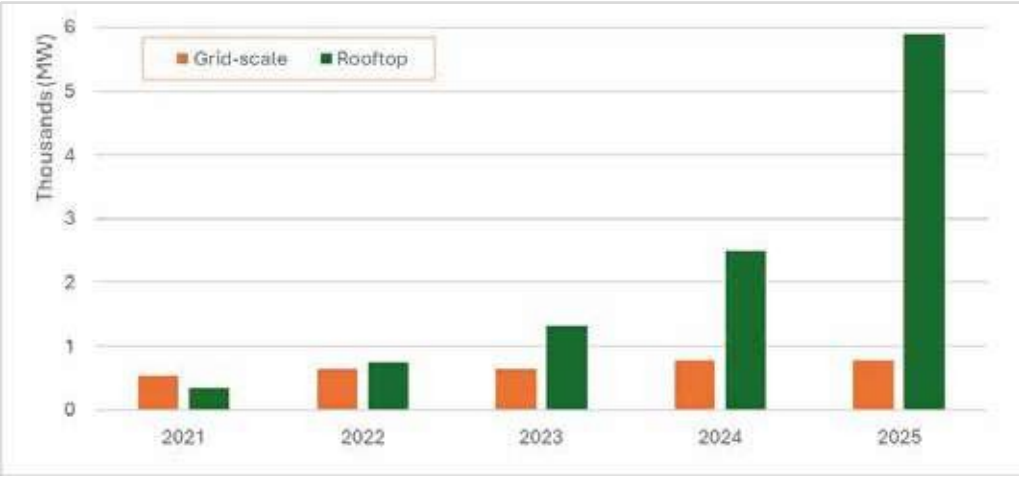
Electricity tariffs in Pakistan have increased sharply over time, with residential rates ranging from approximately Rs24 to Rs49 per kWh depending on consumption levels (NEPRA, 2025). Faced with rising costs and persistent load shedding, consumers have increasingly turned to rooftop solar as a means of reducing expenditure and improving reliability. While individually rational, this shift has system-wide implications.

Pakistan's solar transition is unfolding along two parallel tracks: grid-scale solar, developed under long-term contracts, and distributed rooftop solar, driven by consumer adoption. However, the key feature of this transition is the asymmetric growth of rooftop solar, which is expanding much faster than utility-scale capacity (see Figure 8.1). This imbalance is directly affecting cost recovery, tariff structures, and investment incentives in the power system. From an industrial organization perspective, this dynamic reflects the emergence of the "missing money problem", where revenues from energy markets become insufficient to cover fixed costs (Joskow, 2008). In Pakistan, this issue is exacerbated by a rigid cost structure dominated by capacity payments and declining grid demand.

[20] For consistency geographic examples with more sun exposure are close to large part of Pakistan (particularly in South) where sunlight is available round the year.

While this trend has accelerated decarbonization and reduced reliance on centralized infrastructure, it has also introduced new challenges related to grid stability, revenue recovery, and long-term planning. These developments underscore the need for a coherent and forward-looking policy framework capable of integrating distributed generation while preserving the financial and operational viability of the power sector.

Figure 8.1: Grid-Scale and Rooftop Solar Capacity



Source: NEPRA State of Industry Report, 2025.

8.2 Current Solar Penetration Landscape

As of June 30, 2025, Pakistan's total installed on-grid solar capacity stood at 6,680 MW, comprising contributions from both independent power producers (780MW) and on-grid rooftop systems (5900 MW). During fiscal year 2024–25, electricity generation from solar IPPs reached 1,515 GWh at an average tariff of Rs 37 per kWh, while rooftop systems exported 136 GWh to the grid at comparatively lower rates of Rs 23 per kWh. Overall, solar energy accounted for a growing share of the national electricity mix, although its precise contribution remains difficult to quantify due to data limitations.

A significant portion of solar capacity exists outside the formal grid in the form of distributed generation, often undocumented rooftop installations. This under-reporting creates substantial gaps in visibility, complicating system planning and demand forecasting. In contrast, grid-scale solar remains relatively under-developed, with only a limited amount of utility-scale capacity (780 MW) integrated into the national grid to date.

8.3 Drivers of Rooftop Solar Growth

The rapid expansion of rooftop solar in Pakistan is primarily driven by economic considerations and reliability concerns. Electricity tariffs have risen sharply in recent years, making grid-supplied power increasingly expensive for consumers across residential, commercial, and industrial segments. At the same time, global declines in solar panel prices have significantly improved the economics of self-generation, positioning rooftop solar as one of the most cost-effective sources of electricity. Retail electricity tariffs include not only energy costs but also fixed system costs such as capacity payments and network charges. As Borenstein (2012) argues, when retail prices exceed marginal cost, consumers have incentives to self-generate, even if this is inefficient from a system perspective.

Reliability issues have further accelerated adoption. Persistent load shedding and inconsistent supply have led consumers to prioritize energy security over dependence on centralized utilities. Rooftop solar systems, often combined with inverters or battery storage, offer a level of autonomy that the grid has struggled to provide.

NEPRA's Net metering policy has also played an important role by allowing consumers to export surplus electricity and improve the financial viability of their investments. Net metering allows consumers to export surplus electricity, often at favourable rates. This increases private returns and accelerates adoption. However, studies show, such policies can lead to over-adoption of rooftop solar relative to the social optimum, particularly when network costs are not properly priced (Borenstein 2017).

Together, these factors create a decentralized equilibrium where private incentives diverge from system efficiency, leading to rapid rooftop solar penetration largely outside traditional utility planning processes. This stands in contrast to global patterns, where grid-scale solar typically serves as the primary driver of renewable energy expansion.

8.4 Grid-Scale Solar: Role and Constraints

Despite the rapid growth of distributed solar, grid-scale solar projects remain essential for ensuring long-term system stability and efficiency. These projects benefit from economies of scale, lower per-unit costs, and greater predictability due to centralized monitoring and control. They are also better suited for integration with battery energy storage systems, which can enhance dispatch-ability and mitigate variability.

However, the development of grid-scale solar in Pakistan has been constrained by structural and financial factors. Many solar IPPs currently operating within the system are bound by legacy contracts characterized by relatively high tariffs. These tariffs often exceed those associated with distributed solar under newer net billing frameworks, creating a perception that grid-scale solar is less competitive.

The underlying causes of these higher costs include elevated initial capital expenditures, expensive financing structures, exposure to foreign exchange risk, and front-loaded debt repayment schedules. Additionally, capacity payments and guaranteed returns embedded in power purchase agreements contribute to the overall cost burden. Addressing these challenges will require a coordinated policy response aimed at aligning cost structures with current market realities and ensuring that grid-scale solar complements, rather than competes with, distributed generation.

8.5 System-Level Impacts of Rooftop Solar Growth

The expansion of rooftop solar has introduced significant changes to the operational and financial dynamics of the power system. One of the most notable effects is the suppression of daytime grid demand, as consumers increasingly rely on self-generation. This has led to the emergence of the so-called "duck curve," characterized by low demand during daylight hours followed by steep increases in the evening.

In some areas, particularly high-consumption residential zones, daytime demand has declined to near-zero levels. This shift has important financial implications for utilities, as high-paying consumers reduce their reliance on grid electricity. Fixed system costs, including capacity payments, must then be recovered from a smaller customer base, contributing to rising tariffs and raising concerns about long-term financial sustainability. Rising tariffs, driven by the need to recover fixed system cost from a shrinking customer base undermine financial sustainability and disproportionately burden lower-income consumers who remain grid-dependent, thereby creating cross-subsidization (Borenstein, 2017).

Operational challenges have also intensified. High penetration of rooftop solar can lead to voltage instability, reverse power flows, and reduced visibility for system operators, particularly in networks with outdated infrastructure. The absence of real-time data on distributed generation further complicates forecasting and planning.

At the same time, rooftop solar has provided important macroeconomic benefits by reducing dependence on imported fuels and mitigating exposure to global energy price volatility. In addition, on-grid rooftop solar has generated several operational and financial benefits for distribution companies (DISCOs). Surplus electricity exported to the grid effectively functions as a form of energy credit, which supports utility cash flows and improves short-term liquidity by offsetting procurement costs. It also reduces the immediate need for capacity expansion, thereby deferring investments in generation and network infrastructure. Moreover, localized generation decreases reliance on long-distance power transfers, contributing to lower transmission and distribution losses. Taken together, these effects ease pressure on the system during peak daylight hours and enhance overall network efficiency. This dual impact highlights both the opportunities and the complexities associated with rapid decentralized energy adoption.

8.6 Comparative Assessment grid-scale vs rooftop

Grid-scale and rooftop solar differ fundamentally in their structure, drivers, and system implications. Grid-scale solar is centralized, policy-driven, and fully visible to system operators, making it well-suited for long-term planning and system stability. In contrast, rooftop solar is decentralized, market-driven, and only partially captured in official data, enabling rapid deployment but creating operational challenges. While both forms of solar energy are essential, their coexistence requires careful coordination to ensure system efficiency and sustainability. As Borenstein (2012) emphasizes, distributed solar may be privately optimal but socially inefficient when network costs are not properly priced.

8.7 The Road Ahead and Risks

Rooftop solar is expected to continue expanding (see Figure 1), although at a slower pace due to recent policy changes and reduced buyback tariffs. The market is likely to shift toward self-consumption models, with increased adoption of battery storage to maximize on-site utilization of generated electricity.

Grid-scale solar is expected to grow under competitive procurement frameworks and national renewable energy targets, including ambitions to significantly increase the share of renewables in the energy mix by 2030. However, its growth is likely to remain more gradual, positioning it as a stabilizing component within an increasingly decentralized system.

These trends point toward the emergence of a hybrid energy architecture in which distributed solar dominates daytime supply while centralized generation sources, including thermal, hydro, and storage, meet evening demand.

The current trajectory of electricity supply and demand presents several risks. High levels of solar penetration without corresponding investments in storage and grid infrastructure could undermine system stability. The financial sustainability of utilities is increasingly at risk due to declining revenues and rising cost pressures. Regulatory frameworks have not kept pace with the rapid evolution of distributed energy, resulting in policy gaps and uncertainty. Furthermore, unequal access to solar technology raises concerns about widening socio-economic disparities.

8.8 Strategic Recommendations

Addressing the challenges explained above requires a comprehensive restructuring of the power sector. Distributed energy must be formally integrated into national planning processes to improve demand forecasting and investment decisions. Tariff structures should be reformed to ensure equitable cost recovery while encouraging efficient consumption patterns. Retail tariffs should separate energy and network costs to reduce inefficient self-generation incentives. Capacity payments should reflect system needs rather than legacy contractual obligations.

Grid modernization, including the deployment of smart technologies and real-time monitoring systems, is essential for managing decentralized generation. At the same time, scaling energy storage solutions will be critical for mitigating intermittency and enhancing system flexibility. Storage, demand response, and smart grids are critical to managing intermittency (Fabra 2021). Finally, reducing reliance on high-cost thermal generation will improve overall affordability and fiscal sustainability.

8.9 Concluding Remarks

The power sector in Pakistan continues to face deep-rooted structural inefficiencies, including high transmission and distribution losses, weak bill recovery, and rising service costs. Despite substantial government subsidies, service quality remains poor, and consumers continue to experience unreliable electricity supply. This has resulted in a significant economic burden without commensurate improvements in system performance.

Decentralized solar presents a viable solution for rural electrification, particularly in areas where grid extension is economically unfeasible. With abundant solar resources and favourable climatic conditions, Pakistan is well-positioned to leverage distributed systems and mini grids to provide affordable and reliable electricity. Such an approach can reduce subsidy burdens, lower system costs, and enhance energy access while empowering communities with greater independence.

In this evolving energy landscape, the role of the national grid must be redefined. Rather than functioning solely as a centralized delivery system, it should evolve into a flexible platform capable of integrating both centralized and distributed generation. This will require enabling bidirectional power flows, incorporating storage and demand-response mechanisms, and prioritizing investments based on economic efficiency. A gradual transition toward a hybrid model will be essential for ensuring long-term sustainability.

Pakistan's energy transition has reached a critical juncture. The rapid rise of rooftop solar reflects both consumer adaptation and systemic shortcomings within the power sector. Moving forward, incremental reforms will not be sufficient. A strategic shift toward a more decentralized, flexible, and integrated energy system is required.

By aligning policy frameworks, modernizing infrastructure, and promoting efficient market mechanisms, Pakistan can transform its energy sector into one that is more reliable, affordable, and sustainable.

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Chapter 9

Air Pollution in Pakistan: Economic and Environmental Consequences of a Growing National Crisis

Sahar Arshad Mahmood and Sumaira Ghafoor

Key Highlights

- Pakistan's major cities rank among the world's most polluted, with PM,., concentrations far exceeding WHO safe limits. The health burden is severe and inequitable, with 194.6 air pollution-attributed deaths per 100,000 people in Pakistan compared to 7.4 in Finland, 7.9 in Norway, and 8.1 in Sweden, disproportionately affecting newborns, the elderly, and low-income households.
- The economic damage is substantial. Air pollution costs Pakistan an estimated 6.5% of GDP annually, pollution-related healthcare costs reach nearly $1.5 billion per year, and crop losses from ground-level ozone amount to 0.76% of GDP. Transport is a major contributor, with sectoral emissions reach 49.19 Mt, while the average Pakistani vehicle emits 25 times more carbon and nearly 4 times more NOx per kilometer than vehicles meeting US standards.
- Evidence from Karachi suggests that awareness campaigns alone are insufficient to induce modal shift. Although Pakistan has developed environmental legislation over nearly three decades, enforcement has remained weak, indicating that without effective implementation, the crisis will deepen regardless of additional policy frameworks.

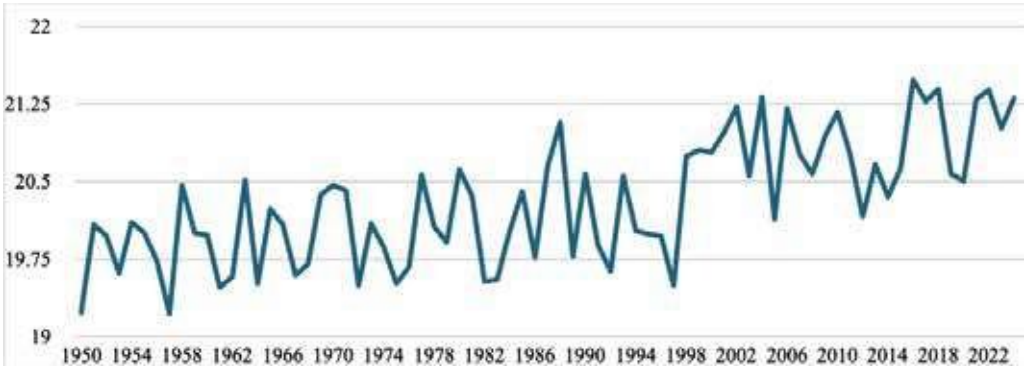
9.1 Introduction

Pakistan's macroeconomic performance in 2026-27 faces risks from inflation, currency volatility, and fiscal pressures. Conversely, air pollution remains a multidimensional national crisis extending beyond environmental or public health concerns. Recent heatwaves in Sindh, particularly Karachi, highlighted growing urban vulnerability, with temperatures exceeding 40°C during April-May 2026. The heat indices approaching 50°C in several areas, accompanied by warnings from the Pakistan Meteorological Department and reported cases of dehydration, heat exhaustion, and respiratory distress.

The rising temperatures (Figure 9.1) across Pakistan are closely linked with worsening air pollution and climate change. Emissions from fossil fuel, transport, industry, and biomass burning degrade air quality and global warming. Higher temperatures can worsen air pollution by increasing the formation of ground level ozone, reducing air movement, and keeping dust and pollutants suspended in the atmosphere for longer periods. They can also intensify the health effects of particulate matter exposure. In densely populated cities such as Karachi and Lahore, the combined effect of heat and pollution has emerged as a significant environmental and public health concern (Table 9.1). Evidence suggests that heatwaves and stagnant atmospheric conditions can lead to substantial increases in PM,.,[21] and ozone concentrations in urban areas (World Resources Institute, 2024).

Pakistan today faces dual environmental crisis: growing climate vulnerability through rising temperatures, erratic rainfall, flood, droughts, and heatwaves alongside deteriorating urban air quality driven by transport emission, industrial activity, crop and waste burning, poor fuel standards, and weak environmental governance. Although Pakistan contributes very little (approximately 1.01%) to global GHG emissions (Climate Promise UNDP, 2026), it remains among the most vulnerable countries to climate change impacts.

Figure 9.1: Pakistan's Average Mean Surface Air Temperature



Source: Author (World Bank Climate Change Knowledge Portal, (2026)

[21] Refers to fine particulate matter with a diameter of or less than 2.5. These microscopic particles are so small they can penetrate deep into your lungs and even enter your bloodstream, making them one of the most dangerous air pollutants (Clean air initiative, 2026).

Table 9.1: Trends in population growth, pollution levels, average summer temperature, and heat stroke-related deaths in Karachi (2010–2024).

Year	Population (millions)	AQI (annual avg)	Avg summer temp (°C)	Heat stroke deaths
2010	15.5	108	37.2	48
2012	16.2	114	38.1	65
2014	17.0	123	39.5	119
2015	17.5	130	41.1	1,200 *(Heatwave)*
2018	18.8	136	40.8	205
2020	19.5	145	41.6	367
2022	20.8	153	43.2	418
2024	22.1	161	49.7	568

Source: Saadat et al.(2025)

Air Pollution has evolved from being merely an environmental concern into major economic and development challenge. PM2.5, consists of very fine particles that can enter deep into lungs and bloodstreams, making it a major cause of early deaths and long-term diseases. The World Health Organization (WHO) recommends an annual average limit of 5 μg/m³, but Pakistan's major cities routinely exceed this threshold.

The impacts go beyond health. Air pollution lowers worker's productivity, increases spending on healthcare, and reduces learning and skill development. It also leads to economic losses following traffic congestion and increased sick leave. These burdens are more severe for low-income households, outdoor workers, and people living in densely populated informal settlements.

Figure 9.2: Trends in Mean Annual Exposure PM2.5, 2001-2020

Source: World Bank (2026)

Pakistan remains exposed to persistently high PM2.5 levels (Figure 9.2), with cities like Lahore, Faisalabad, Karachi, and Peshawar among the world's most polluted cities. Karachi records the highest total and per capita emissions (Table 9.2 and Table 9.3) due to dense population, industry and transportation demand.

Table 9.2: Total Annual Emissions in Kilotons in Four Major Cities in Pakistan

Airshed	Population	$PM_{2.5}$ (kilotons)	SO_2 (kilotons)	NO_x (kilotons)	CO (kilotons)	Total Emissions (kilotons)
Karachi	21 million	39.12	51.52	100.79	203.42	789.69
Lahore	17 million	26.68	39.81	52.65	207.07	326.21
Islamabad-Rwp.	8.5 million	12.04	11.35	21.86	90.7	271.92
Peshawar	7.5 million	16.04	12.91	31.1	83.26	143.31

Source: Omar (2025, p. 44)

Table 9.3: Emissions in Kilograms per Person per Year in Four Major Cities in Pakistan

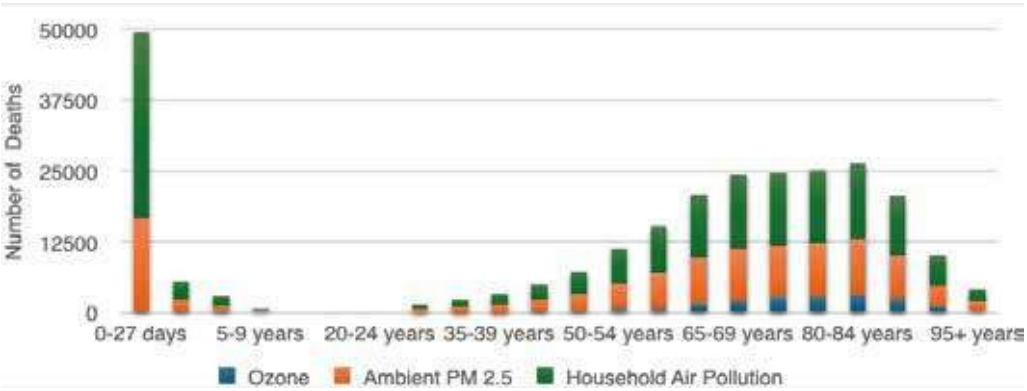
Airshed	Population	$PM_{2.5}$ (kg/ person/year)	SO_2 (kg/ person/year)	NO_x (kg/ person/year)	CO (kg/ person/year)	Total (kg/ person/year)
Karachi	21 million	1.86	2.45	4.8	9.69	37.6
Lahore	17 million	1.57	2.34	3.1	12.18	19.19
Islamabad -Rwp.	8.5 million	1.42	1.34	2.57	10.67	31.99
Peshawar	7.5 million	2.14	1.72	4.15	11.1	19.11

Source: Omar (2025, p. 44)

In 2019, Pakistan recorded 194.6 air pollution related deaths per 100,000 people compared to 7.4 in Finland, 7.9 in Norway, and 8.1 in Sweden, indicating much higher health burden.[22][2] Mortality is highest among newborns and older adults (Figure 9.3) with household air pollution and ambient PM2.5 playing major roles.

[22] Source: World Health Organization (WHO). Age-standardized mortality rate attributed to household and ambient air pollution (per 100,000 population) [Indicator E2FC6D7]. WHO Global Health data portal (data.who.int). Accessed 30 April 2026. https://data.who.int/indicators/i/80BEA0B/E2FC6D7?m49=586

Figure 9.3: Number of Deaths Attributable to Three Major Sources of Air Pollution by Age



Data source: Health Effects Institute (2025)

Moreover, the transport sector lies at the center of Pakistan's urban air pollution crisis (Mir et al., 2026). Rapid motorization, dependence on motorcycles and private vehicles, ageing diesel fleets, weak emissions testing, and inadequate public transport have collectively transformed urban mobility into one of the largest sources of environmental degradation in Pakistani cities.

This chapter examines the evolving air pollution crisis in Pakistan through the interconnected lenses of climate change, health, economics, and urban mobility.

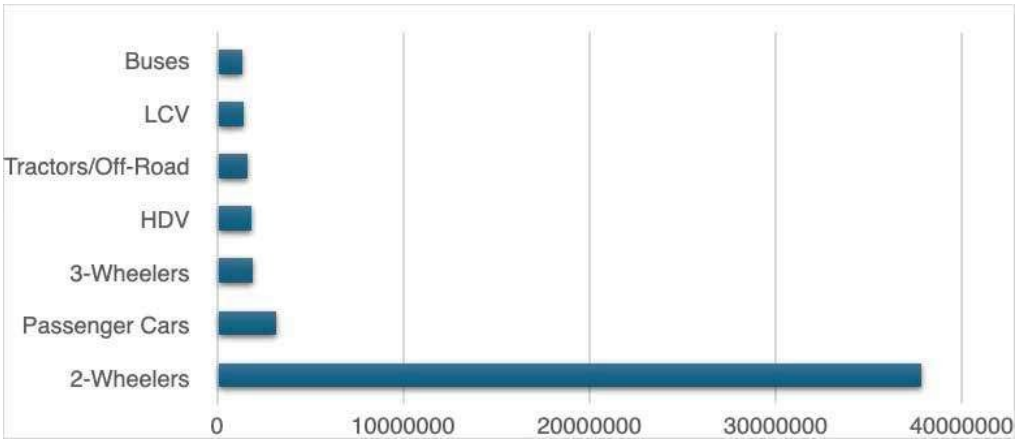
9.2 The Sources and Drivers of Air Pollution in Pakistan

Air pollution in Pakistan is mainly driven by vehicular emissions, industrial emissions, Brick Kilns, Agricultural Burning and Biomass Combustion, Urbanization and Energy Consumption, and Transboundary Pollution.

9.2.1. Vehicular Emissions

This sector is the dominant source of NOx (84%) and CO (87%), and it contributes approximately 38% of urban PM2.5 nationally. Diesel vehicles, though few, generate 65% of transport-related PM2.5 in cities like Lahore. While, transport accounts for 53% of PM2.5 in Islamabad-Rawalpindi and51% in Peshawar (Omar, 2025). Emissions are driven by outdated engines, poor maintenance, low-quality fuel, and congestion (Anjum et al., 2021), and worsen in winter due to temperature inversions.

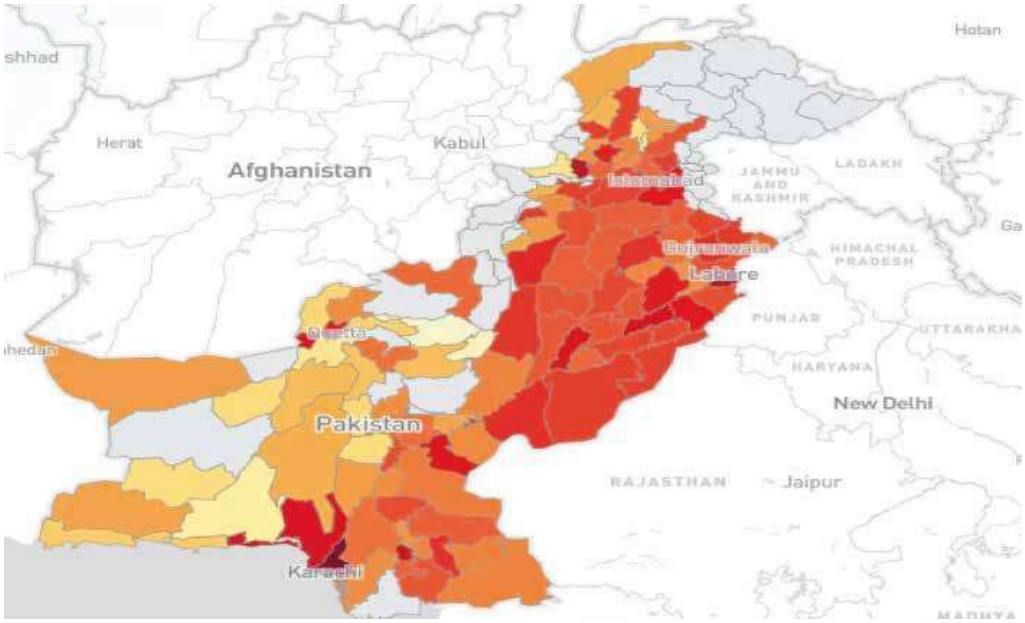
Figure 9.4: Pakistan's Transport Emissions (Tonnes)



Source: Pakistan Air Quality Initiative (n.d.)

Total emissions are equal to 49.19 Mt (mega tonnes) across 7 groups of vehicles. Where, major contributors are 2-wheeler and passenger cars. Vehicle registrations in Pakistan quadrupled between 2006 and 2018. An average vehicle in Pakistan produces 25 times more carbon and nearly 4 times more NOx per kilometer than U.S. standard vehicles (Anjum et al., 2021).

Figure 9.5: District-wise Mapping of Transport Sector Emissions in Pakistan



Source: Pakistan Air Quality Initiative (n.d.)

9.2.2. Industrial Emissions

Industry contributes 75.6% of national SO2 and 39.6% of NOx emissions and about 32% of urban PM2.5, rising to nearly 49% in Karachi (Anjum et al., 2021; Omar, 2025). Industrial hubs like Faisalabad, Kasur, and Sialkot are also heavily affected (Zahid et al., 2025). Major sources include steel, cement, textiles, and around 600 tanneries across three cities emitting H2S and SO2 (Anjum et al., 2021; Omar, 2025). Emissions are driven by high-sulfur fuels, coal, waste burning, and in some cases, increased nighttime operations to avoid monitoring.

9.2.3. Brick Kilns

Brick kilns contribute 10% of urban PM2.5 nationally, rising to 18–19% in rapidly expanding cities (Omar, 2025). Besides, also emitting CO2, SO2, and carcinogenic dioxins (Anjum et al., 2021). Punjab contains nearly 50% of Pakistan's 20,000 kilns, with dense clusters around Lahore and Peshawar (Jamal, 2024; Omar, 2025). Most use outdated Fixed Chimney Bull's Trench technology and polluting fuels such as low-quality coal, wood, and rubber tyres. Although major contributor to winter smog and subject to October-January shutdowns, the sector remains economically important, producing 45 billion bricks annually and employing 4.5 million people in Pakistan, the third-largest brick producer in South Asia, (Jamal, 2024).

9.2.4. Agricultural Burning and Biomass Combustion

Agricultural and biomass burning are major sources of PM2.5, black carbon, CO, and NO2 in Pakistan. Crop residue burning in Punjab and Sindh, mainly rice straw and sugarcane bagasse can contribute 25-50% of ambient pollution in affected regions. It peaks in June, February, and particularly November, and exceeding 90% of agricultural gaseous emissions, with 15,500 and 18,500 fires detected in a single season (Omar, 2025). Biomass Combustion for cooking and heating using firewood, crop residues, and dung is widespread in rural, peri-urban, and low-income areas, where PM2.5 levels can reach 600 times those in gas using homes. Reliance increases during winter and gas shortages, as about 78% of Pakistan's population lacks access to the natural gas network (Omar, 2025).

9.2.5. Urbanization and Energy Consumption

Rapid urban growth in cities such as Karachi, Lahore, and Islamabad have intensified air pollution through higher transport demand, energy use, and industrial activity. Major sources include construction dust, power generation, urban NMVOCs, open waste burning, and diesel backup generators during power shortages. In Karachi's, rising population density since 2000 has increased these pressures. Whereas, construction and open waste burning contribute about 16% and 7% of PM2.5 emissions, respectively (Omar, 2025; Sumair et al., 2024).

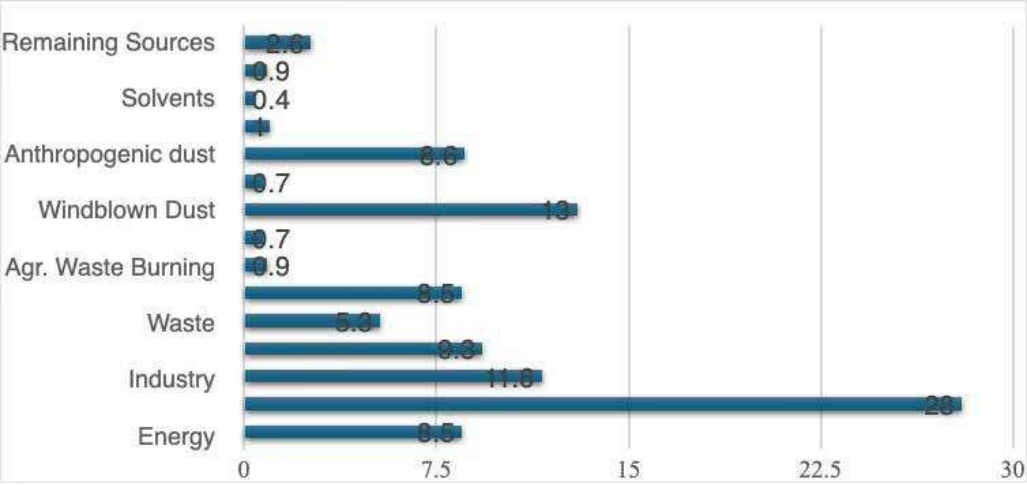
9.2.6. Transboundary Pollution

Air pollution in Pakistan is partly transboundary, as emissions from agricultural fires, power plants, and industrial clusters in neighboring countries are transported by wind. National officials have claimed that up to 70% of peak smog episodes may originate from external sources (Omar, 2025). While the World Bank (2023) estimates that more than 50% of air pollution in major South Asian cities is transboundary in nature.

9.3 Sectoral Contribution to National Emissions

The residential sector is the largest emission source, contributing 28% of total emissions, followed by windblown dust (13%), Industry (11.6%), transport (9.3%), anthropogenic dust (8.6%), agriculture (8.5%), and waste (5.3%). Commercial activities, shipping, solvents, open biomass burning, and other combustion sources each contribute less than 1%.

Figure 9.6: Pakistan's Emissions Breakdown by Sector Source Contributions (percent)



Source: Health Effects Institute (2025)

9.4 Economic Consequences

Air pollution generates substantial economic costs in Pakistan through healthcare spending, productivity losses, reduced agricultural output, and weaker human capital accumulation. All of which constrain long term growth. These impacts are further intensified by urban expansion, weak environmental enforcement, and limited public health capacity.

9.4.1. Direct Health Costs

The financial burden of air quality degradation is a "regressive tax" paid in reduced human longevity and increased expenditure. The treatment of illnesses directly related to air pollution costs Pakistan nearly $1.5 billion annually (Sumair et al., 2024). Chronic exposure to air pollution reduces the average life expectancy in Pakistan by 3.9 years. The health burden is more severe in big cities. Residents of Lahore lose an average of 7 years of life expectancy, followed by Peshawar at 5.8 years, Islamabad at 4.5 years, and Karachi at 2.7 years (Omar, 2025).

9.4.2. Productivity Losses and Labor Market Effects

Outdoor workers in construction, traffic management, and agriculture face high productivity losses due to prolonged exposure to pollution and heat. Productivity can decline by up to 20% during winter pollution episodes and by 30-50% in Karachi's informal settlements during heatwaves. Hospitalization, school closure during smog events, and child-care burdens further reduce productivity. While long term exposure among children impairs lung function and learning, weakening future human capital. Collectively, these losses are estimated at approximately USD 6,582 million (The World Bank, 2016).

9.4.3. Agricultural Economic Losses

Agricultural employs 37.4% of Pakistan's labor force (Ministry of Finance, 2024) but remains highly vulnerable to air pollution through ground-level ozone damage, soil acidification, and reduced photosynthesis. Major crops such as onion, cotton, potato, and wheat are affected (Ahmad et al., 2013), with implications for food security and export earnings. Crop losses from ozone pollution are estimated at 0.76 % of GDP. Whereas, effective pollution control could generate annual economic gains of about USD 2.79 billion through avoided agricultural losses (Ministry of Climate Change, 2023).

9.4.4. Impact on GDP and Economic Growth

Air pollution is not only an environmental issue but also a major economic and climate-related risk that can weaken Pakistan's macroeconomic performance. The World Bank's Pakistan Country Climate and Development Report (2022) estimates annual losses of about 6.5% of GDP due to rising healthcare expenditures and productivity declines, and long-term effects on human capital and investment. Air pollution may also contribute to skilled worker outmigration from heavily polluted areas (Xue et al., 2021). Thus, reducing productivity, firm performance, and long-run economic growth.

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[23] Cardiovascular and respiratory illnesses.

[24] Source: (Sumair et al., 2024)

[25] Source: (Khan & Israr, 2025)

9.5 Policy Recommendations

Despite a growing body of environmental and climate instruments, Pakistan's air pollution crisis remains poorly addressed due to persistent implementation gaps, fragmented institutional coordination, and weak enforcement capacity. Effectively tackling the crisis demands a coordinated, multi-sectoral response that moves beyond policy formulation toward credible, sustained implementation across environmental regulation, urban mobility, industrial governance, renewable energy, and public health.

9.5.1. Sustainable Urban Mobility and Behavioral Change

Urban transport and emissions remain on of the largest contributors to Pakistan's worsening air pollution crisis. Rapid motorization, dependence of motorcycles and private vehicles, inadequate public transport infrastructure, low quality fuel, old vehicles not tested for emissions, and growing traffic congestion have collectively intensified emissions and inefficiencies in major urban cities of Pakistan. Policies aimed at reducing air pollution not only require institutional level reform but also behavioral changes in urban commuting patterns.

A study (Ibrahim et al., 2026) conducted with author Sahar Arshad Mahmood argues that awareness interventions do not singularly produce uniform shifts in transport attitudes, but rather their effect operates through specific channel of increasing the salience of traffic congestion as a motivator for modal shift, while leaving abstract environmental concerns and affordability related outcomes largely unaffected. Drawing on data collected from 800 student respondents across Institute of Business Administration (IBA) and Institute of Business Management (IoBM), this study employed a treatment and control design in which an environment awareness session was administered as a treatment, followed up by recording of responses to assess whether their willingness to adopt[26] sustainable modes of transportation had increased or decreased.

Crucially, students were found to be more likely to consider switching to sustainable modes when the congestion problem was addressed alongside environmental messaging, reinforcing the study's central finding that the two concerns are most effective when presented in conjunction rather than in isolation (table A). In terms of policy, Ibrahim et al. (2026) conclude that environmental awareness campaigns achieve greater effectiveness when they explicitly connect environmental messaging to concrete, locally experienced conditions and are complemented by structural supports such as reliable public transit, carpooling schemes, and targeted outreach to reduce practical barriers to behavioral change. The study also cautions that generic climate messaging is unlikely to drive modal shift among this population, whereas framing sustainable transport as a direct response to the everyday frustrations of urban traffic congestion holds considerably more promise.

[26] Since this study is based on university students of Pakistan, hence the effect is mainly concentrated among male students and for those residing far from campus.

These findings carry important implications for urban transport and environmental policy in Pakistan. Public awareness campaigns alone are unlikely to generate substantial behavioral shifts unless combined with reliable and affordable alternatives to private vehicle usage. Consequently, investment in integrated public transport systems, bus rapid transit (BRT) infrastructure, non-motorized transport networks, carpooling incentives, and safer commuting environments remains essential for reducing transport related emissions in urban centers. Policies that frame sustainable mobility as an environmental objective, along with a solution to congestion, fuel costs, commuting inefficiencies, and urban stress may prove considerably more effective in encouraging behavioral change among urban populations.

9.5.2 Existing Legal and Regulatory Framework

Pakistan's environmental governance framework has evolved gradually through a series of laws, policies, and climate commitments aimed at reducing environmental degradation, improving air quality, and strengthening climate resilience.

Pakistan Environmental Protection Act (PEPA), 1997 established the legal framework for environmental protection, and pollution control at the federal and provincial levels. The Act included environmental impact assessments (EIAs), environmental tribunals, and regulations for industrial emissions and waste management. However, weak enforcement capacity and limited regulatory oversight have often reduced the effectiveness of implementation.

The National Environmental Policy (2005) integrated environmental considerations into development planning, identifying urban pollution, industrial emissions, and environmental degradation as key national concerns, though institutional fragmentation and weak inter-agency coordination limited its execution. The National Climate Change Policy (NCCP, 2012; updated 2021) further addressed climate vulnerability through renewable energy transition, sustainable urban planning, afforestation, and low-carbon development, explicitly recognizing the linkages between climate change, air pollution, and public health. To strengthen governance, the Pakistan Climate Change Act (2017) established the Pakistan Climate Change Council and the Pakistan Climate Change Authority to improve federal-provincial coordination, though governance overlaps, resource constraints, and implementation gaps continue to undermine institutional effectiveness.

National Electric Vehicle Policy (2019) targeted a shift towards electric motorcycles, buses, and cars, aiming for 30% EV sales by 2030. Given the rapid increase in motorcycles and private vehicles across Pakistani cities, successful EV adoption could substantially reduce particulate emissions and fossil fuel dependence over time. Later, followed by the New Energy Vehicle Policy (2025-30) to address earlier gaps. However, affordability issues, unreliable electricity, limited charging infrastructure, and weak incentive remain major barriers.

Alternative and Renewable Energy (ARE) Policy (2019) seeks to expand investment in solar, wind, hydropower, and other low-carbon energy sources to reduce dependence on fossil-fuels and associated pollution. Pakistan's Updated Nationally Determined Contributions (NDCs, 2021) under the Paris Agreement further commit to a 50% reduction in Greenhouse Gas emissions (GHG) by 2030, while also emphasizing the need for international climate finance. However, gaps between commitments and current standing regarding solar adaption may hinder these targets.

National Clean Air Policy (NCAP, 2023) directly targets air quality improvement. It aligns standards with the WHO's Air Quality Guidelines (AQGs) and seeks to reduce PM,., emissions by 38% by 2030. It further emphasizes industrial control, cleaner transport, monitoring networks, and inter-provincial coordination.

Despite the above-mentioned, environmental governance remain constrained by weak enforcement, fragmented institutional responsibilities, global political crisis, informal industrial activity, inadequate public transport infrastructure, and inconsistent monitoring. Consequently, the gap between environmental policy formulation and practical enforcement on federal and provincial level remains one of the central challenges.

9.5.3. Industrial Emission and Carbon Accounting

Industrial emission and its regulation is a critical area that needs to be looked at. Many industries in Pakistan operate with outdated technologies, and limited pollution control system. Provincial EPA's face technical, financial, and administrative limitations that further enhance this problem.

Greenhouse Gas (GHG) Protocol (WRI and WBCSD) is a carbon accounting protocol that provides guidelines and standards to industries for reporting of their GHG emissions. The framework categorizes emissions into: Scope 1 emissions (direct operational emissions), Scope 2 emissions (indirect emissions from purchased electricity), and Scope 3 emissions (indirect emissions across supply chains, logistics, transportation, and downstream activities).

Although Pakistan reports national GHG inventories and some corporate sustainability disclosure practices, comprehensive carbon accounting remains limited. Especially, Scope 3 accounting remain underdeveloped. As global trade increasingly incorporates sustainability disclosure requirements, Pakistani industries particularly export-oriented sectors such as textiles and manufacturing may face increasing pressure to demonstrate environmental compliance and transparency. Integrating GHG accounting into corporate governance could improve efficiency, reduce their costs and carbon footprints and enhance export competitiveness. This could also lead to Pakistan gaining access to many international climate related funds.

9.5.4. Tree Plantation and Urban Planning

Increased plantation can act as a carbon offsetting mechanism that may contribute toward achieving net-zero emissions in the long run. Programs like the Ten Billion Tree Tsunami aim to improve carbon sequestration, strengthen biodiversity, reduce urban heat, and air pollution. Mangrove restoration has also emerged as key component of Pakistan's climate adaption and protection strategy, particularly along coastal regions of Sindh and Balochistan. Mangroves act as natural carbon sinks, protecting coastal areas from floods, and supporting marine biodiversity. They are also called blue carbon ecosystems due to their carbon sequestration potential.

Urban planning reforms are equally important. Expanding green public spaces, improving waste management, reducing urban sprawl, strengthening zoning regulations, and investing in climate-resilient infrastructure can simultaneously improve air quality, reduce heat stress, and enhance long-term urban sustainability.

9.5.5. Strengthening Monitoring, Enforcement, and Public Health Systems

Pakistan's environmental governance remains constrained by weak monitoring systems and inconsistent enforcement mechanisms. Expanding air quality monitoring infrastructure and improving public access to environmental information are therefore essential for evidence-based policymaking and regulatory accountability.

Vehicle inspection and certification systems similarly require substantial strengthening. Improved compliance monitoring, better fuel standards and strengthening emissions testing could significantly reduce urban particulate emissions.

Public health adaptation strategies should also become increasingly integrated with climate and pollution policy. As heatwaves and pollution jointly increase health risks for outdoor workers, low-income populations, children, and the elderly. Heat action plans, early warning systems, occupational safety measures, and improving waste management through reduced open waste burning, promoting recycling and circular economy practices may additionally help reduce the environmental and public health risks.

Addressing Pakistan's air pollution crisis requires a long-term transition toward cleaner transport, renewable energy expansion, stronger environmental governance, sustainable industrial practices, and climate-resilient urban development. Policies aimed at improving air quality should not be viewed merely as environmental expenditures but rather as investments in economic productivity, public health, urban livability, and long-term national resilience.

9.6 Conclusion

Pakistan stands at a crossroads where the consequences of decades of environmental neglect have become impossible to ignore. The path forward demands more than awareness. It requires coordinated action across governance, infrastructure, industry, and individual behavior, sustained by the recognition that cleaner air and stronger economic performance are not competing priorities but the same priority.

The choices made in the next few years will determine whether Pakistan's cities become more livable and its economy more resilient, or whether pollution continues to quietly undermine both.

Appendix:

Table A. DID Estimates for willingness to adopt sustainable transport modes in response to traffic congestion

Details	DiD Only	Addition of Control Blocks to Original DiD Equation				
		DiD + University Fixed Effects	Eq 1 + Demographic	Eq 2 +Attitudinal	Eq 3 + Structural	Eq 4 + Env
Willingness (Congestion) Outcome Variable						
Treatment x Post (DiD)	0.425**	0.425**	0.428**	0.295*	0.304*	0.286*
Treatment	-0.065	-0.065	-0.063	-0.026	-0.031	-0.054
Post	-0.045	-0.045	-0.045	-0.006	-0.016	-0.013
Observations	800	800	800	800	800	800
Post (Time)	YES	YES	YES	YES	YES	YES
University Fixed Effects		YES	YES	YES	YES	YES
Demographic			YES	YES	YES	YES
Attitudinal				YES	YES	YES
Structural					YES	YES
Environmental						YES

Source: Ibrahim et al., (2026)

Key:

Equation 1 = DiD + University Fixed Effects

Equation 2 = DiD + University Fixed Effects + Demographic

Equation 3 = DiD + University Fixed Effects + Demographic + Attitudinal

Equation 4 = DiD + University Fixed Effects + Demographic + Attitudinal + Structural

Control Blocks Breakdown:

1. University Fixed Effects = Binary Variable (IoBM=0, IBA=1)
2. Demographic = Age, Gender, Distance and Employment Status
3. Attitudinal = Peer Engagement, Mode Switching, Response to Climate Change and Environmental Engagement
4. Structural = Vehicle Ownership, Reliability of Current Mode, Fare Affordability, Mode Flexibility and Average One Way Trips to University
5. Environmental = Weather Impact, Traffic Congestion, Environmental Friendliness, Environment Satisfaction and Transportation Infrastructure

Chapter 10

From Mountains to Plains: Multi-Season Climate Drivers of Flood Risk in Pakistan

Ghamz E Ali Siyal

Highlights

- The Indus Basin, located in the northern region of Pakistan, is a key source for livelihood and water supply for downstream regions across the country.
- Rising climate changes in the northern region has increased flood vulnerability due to higher meltdown of glaciers and snow across Pakistan.
- Increase of winter and monsoon precipitation, and winter temperature anomalies in Gilgit-Baltistan (GB) districts raise the likelihood of flood occurrence nationwide.
- Increase of monsoon precipitation in GB districts lead to higher total flood damage, a greater number of affected people, and increased fatalities nationwide.
- In contrast, higher winter storage or snowfall can reduce total flood damage, a greater number of affected people, and increased fatalities due to floods nationwide.

10.1 Introduction

South Asian water towers, such as Indus Basin, has experienced climate change phenomena, such as variability of monsoon and winter rains, glacier melting, loss of natural reservoirs. These climatic changes are responsible for higher inter-annual and intra-annual variability of Indus River flows which may lead to serious floods in future (Qureshi, 2011). The monsoon rains further aggravate flooding risk by adding water to the reservoirs and catchment areas of different rivers (Yaqub and Beytullah Eren, 2015).

These climate changes have also led to increase glacier meltdown over time in the Gilgit-Baltistan (GB) region such as Chitral, Hunza, Gilgit, and Shigar (Lutz et al., 2016). These climate changes have increased flood vulnerabilities of communities in GB and downstream regions in Pakistan (Qaisrani et al., 2018, Siyal et al., 2018). The community based or household-based vulnerability assessments confirm higher exposure, and sensitivity and lower adaptative capacities are leading to rising flood vulnerabilities in these regions. These flooding events increase food insecurity in GB, as more than one-fifth (22%) remained vulnerable to future insecurity. In contrast, income diversification, literacy, and higher non-food spending reduced vulnerability (Fahim, 2024, Pervaiz, et al., 2025).

Historically, floods have occurred more than forty times, and that's why it caused huge billions of economic, human, agricultural, infrastructure and non-economic losses to economy (Babar, & Liaqat, 2025, Manzoor et al., 2013, GoP, 2022). Despite several evidence from each disaster, there is lack of studies which assess association between nationwide flood occurrence, total damage, number of affected people, and total deaths due to floods with climate predicators, for instance temperature anomaly, winter storage, and monsoon and winter precipitation in GB districts. Therefore, there are two main objectives of this chapter. First, what is likelihood of major flood nationwide due to changes in climate predictors of GB district? Second, what is association of total damage, fatalities, and number of people affected by floods with climate predictors of GB?

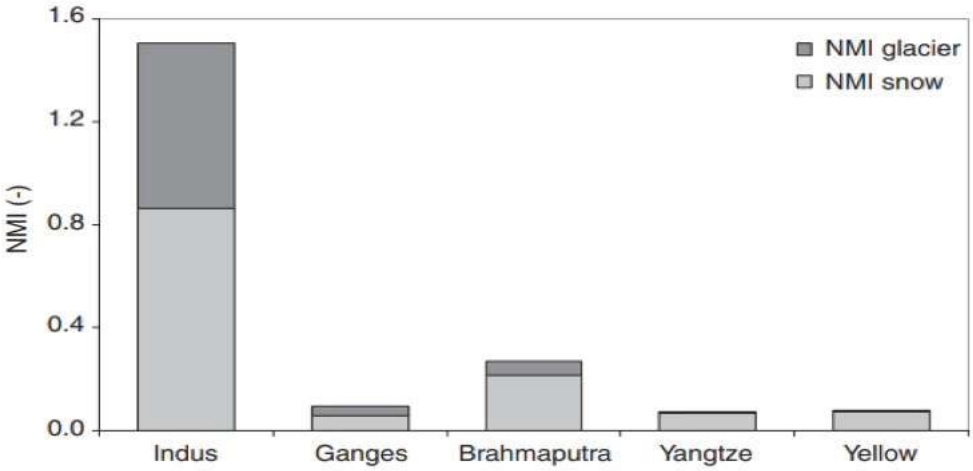
Results from this chapter have found considerable evidence of increase in likelihood of flood occurrence, rise of total damage, fatalities, and number of affected people nationwide due to changes in climate predictors of GB districts. This chapter proceeds to section 2 that provides connection of flood nationwide with GB climate anomaly, section 3 provides methodology and data description, section 4 provides results, and conclusion given in section 5.

10.2 Connecting Flood Nationwide with Gilgit Baltistan Climate Anomaly

This section provides a background and outcomes of climate change phenomena in the northern region of Pakistan, namely, Gilgit-Baltistan (GB). The South Asian rivers experience significant glacier and snow meltdown, but Indus river comparatively has higher rate than others. Based on following figure 10.1, one can conclude that soon Indus river will become seasonal river as Normalized Melt Index (NMI)[27] is significantly higher for Indus river as compared to others (Immerzeel et al., 2010). Following this figure 10.2 from Lutz et al., (2016) provides hydrological details of GB as it shows rivers, dams, digital elevation, discharge locations and boundaries. This figure 10.2 helps to understand projection of snow meltdown, glacier meltdown, and river runoff given in figure 3.

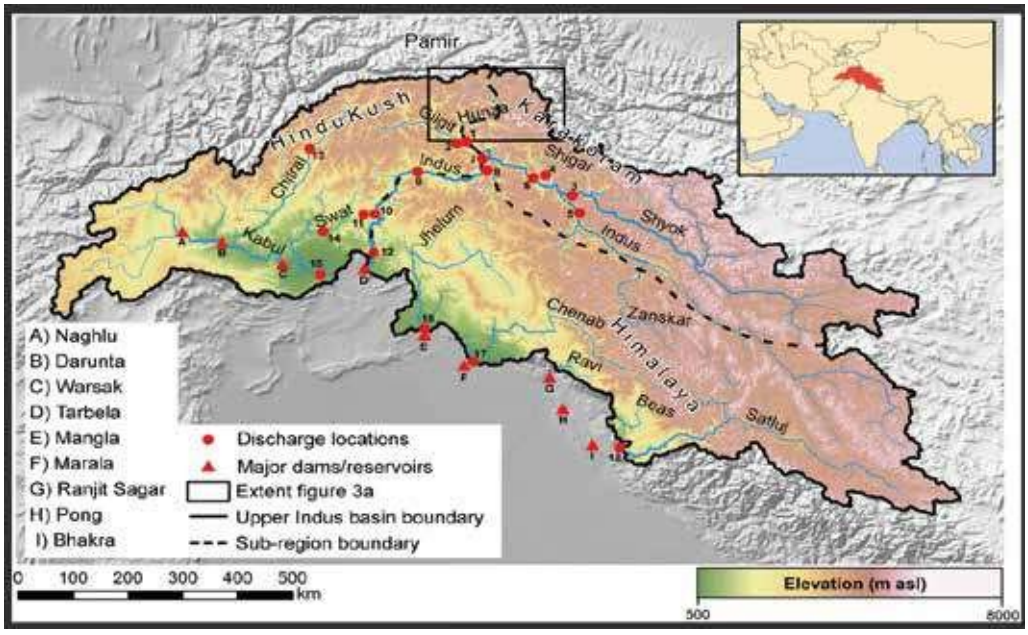
[27] Normalized Melt Index (NMI) is measured by dividing upstream meltwater discharge to downstream natural discharge (Immerzeel et al., 2010).

Figure 10.1: Glacier and Snow Normalized Melt Index (NMI) in the South Asian Region for time period of 2000 to 2007



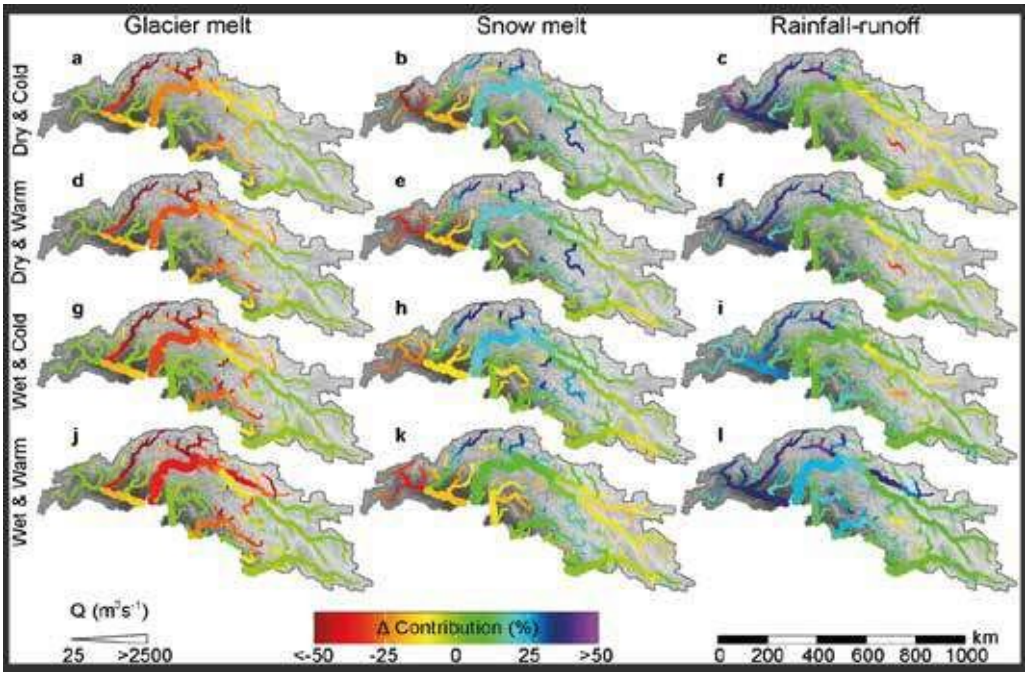
Source: Immerzeel et al., (2010)

Figure 10.2:Hydrological Map of Gilgit Baltistan Region



Source: Lutz et al., (2016)

Figure 10.3: Projection of Contribution to total flow for 2071-2100 based on 1971-2000t



Source: Lutz et al., (2016)

As given in figure 10.3, one can observe that contribution of rivers runoff in different rivers will increase between 0 to 25% due to significant snow and glacier meltdown. These projections are based on data from 1971-2000 to forecast for year 2071-2100. Apart from these projections, Pakistan Meteorological Department (PMD) January 2026 Outlook reports rainfall departure and temperature anomaly given in table 10.1.

Table 10.1: Pakistan Meteorological Department January 2026 Outlook

Region	Total Rainfall (mm)	Normal* Rainfall (mm)	Rainfall Departure (%)	Mean Temp (°C)	Anomaly (°C)
Pakistan	10.3	15.8	-34.8	13.8	1.2
AJK	28.2	46.8	-39.7	11.6	0.1
Balochistan	11.8	13.2	-11.0	15.0	1.2
Gilgit-Baltistan	8.1	10.9	-25.9	5.9	2.3
Khyber Pakhtunkhwa	15.5	25.7	-39.7	11.5	1.5
Punjab	3.7	13.8	-73.2	14.4	0.9
Sindh	7.9	4.6	71.7	18.5	0.7

* Normal Period (1991 – 2020)

Based on table 10.1, the GB region is most vulnerable due to temperature anomaly and lower rainfall in winters which leads to higher snow and glacier meltdown. This phenomenon aligns with findings from figure 10.1 and 10.3. It means more meltdowns this year can increase river flow before monsoon. Further addition of monsoon precipitation increases climate risk in the form of floods in 2026. However, we cannot determine the exact probability from this data given in the figures and tables. Therefore, this chapter explores relationship between winter and monsoon precipitation and temperature anomaly on probability of flood occurrence. Along with that, this chapter also explores relationship between flood outcomes such as total damages, number of people affected, and fatalities in Pakistan with climatic change variables of the GB districts.

10.3 Methodology and Data

In this chapter we use time series analysis based on time frame of 1981 to 2024. The Gilgit-Baltistan (GB) districts data sources for climate related variables of monsoon precipitation, and winter storage is collected from NASA Power[28]. Secondly, World Bank Group Climate Change Knowledge Portal is used to collect national data of total damages, number of affected people, and deaths due to floods.

The monsoon precipitation is sum of precipitation for the months of June to September, and winter storage is sum of precipitation for the month of December to March for the GB region. The winter anomaly is based on minimum and maximum temperature anomaly for the GB region. The flood damage is given in thousand USD dollar; number of affected people and deaths are given in number.

For empirical strategy Ordinary Least Square (OLS) methodology is used for exploring relationship between weather conditions in the GB region on flood outcomes, such as flood occurrence, total damage, number of people affected, and number of deaths in Pakistan. There are four key empirical models denoting '' as district of Gilgit Baltistan (GB), 'n' as national level outcome, and '' as year as given below:

Model 1: Relationships between Flood occurrence across Pakistan and Climate Predictors in District of GB

$$P(Flood_{it} = 1) = \Lambda\left(\beta_0 + \beta_1 MonsoonPrec_{it} + \beta_2 WinterPrecit + \beta_3 WinterAnom_{it} + \beta 4\left(WinterAnom_{it} \times WinterPrec_{it}\right) + \mu_i\right)$$

(1)

[28] For further details: https://power.larc.nasa.gov/data-access-viewer/

Where, $flood_{nt}$ is a binary indicator equal to 1 if a flood occurs in Pakistan in year t, and 0 otherwise; $MonsoonPrec_{it}$ denotes total monsoon precipitation (June–September) in district i at time t; $WinterPrec_{it}$ represents total winter precipitation (December–March) in district i at time t; $WinterAnom_{it}$ is the deviation of winter precipitation from its long-term mean (winter anomaly) in district i at time t; $(WinterAnom_{it}\ X\ WinterPrec_{it})$ captures the interaction between winter anomaly and winter precipitation; μ_i denotes district fixed effects; λ_t represents time (year) fixed effects; and $\Lambda(\bullet)$ is the logistic cumulative distribution function.

Model 2: Relationship between Total Damage across Pakistan from Floods across Pakistan and Climate Predictors in District of GB

$$\ln(TD\_Flood_{nt}) = \beta_0 + \beta_1 MonsoonPrec_{it} + \beta_2 WinterStorage_{it} + \mu_i + \varepsilon_{it}$$

(2)

Where, TD_Flood_{nt}= total flood damages across Pakistan, and $MonsoonPrec_{it}$= monsoon precipitation (Jun–Sep), $WinterStorage_{it}$= winter hydrological storage proxy (Dec–Mar), μ_i = district fixed effects, and ε_{it} = idiosyncratic error term

Model 3: Relationship between Number of Affected People from Floods across Pakistan and Climate Predictors in District of GB

$$\ln(NAP\_Flood_{nt}) = \delta_0 + \delta_1 MonsoonPrec_{it} + \delta_2 WinterStorage_{it} + \mu_i + \varepsilon_{it}$$

(3)

where, $NAP_{Flood\ nt}$ shows number of people affected by floods across Pakistan and $MonsoonPrec_{it}$= monsoon precipitation (Jun–Sep), $WinterStorage_{it}$= winter hydrological storage proxy (Dec–Mar), μ_i = district fixed effects, and ε_{it} = idiosyncratic error term.

Model 4: Relationship between Total Deaths from Floods across Pakistan and Climate Predictors in District of GB

$$\ln(Deaths_{nt}) = \theta_0 + \theta_1 MonsoonPrec_{it} + \theta_2 WinterStorage_{it} + \mu_i + \varepsilon_{it}$$

(4)

Where, $Deaths_{nt}$ shows number of deaths occurred due to floods across Pakistan and $MonsoonPrec_{it}$= monsoon precipitation (Jun–Sep), $WinterStorage_{it}$= winter hydrological storage proxy (Dec–Mar), μ_i = district fixed effects, and ε_{it} = idiosyncratic error term

10.4 Results

In this section, we discuss results from models given in Methodology and Data section. Table 1 in Appendix 1 provides logistic model results in column 1 and marginal effects in column 2 as dependent variable is a binary variable, namely, flood occurrence. The logistic model provides logit coefficients in log-odds unit. Table 2 in Appendix 1 provides us with three regression models using three different dependent variables namely total damage, number of affected people, and number of deaths occurred due to floods. To have effect of percentage changes in predicators on dependent variables, therefore, we applied log to each dependent variable. That is why, these models 2, 3, and 4 are log-linear models. Although dependent variables are different, based on AIC, BIC, and R-square values from table 2 we can conclude that model 4 is better performing than other models. Because, AIC, and BIC are lower and R-square is comparatively higher than other models.

(5) $P(Flood_{it}=1) = \Lambda\left(-2.488 + 0.051\ MonsoonPrec_{it} + 0.019\ WinterPrecit - 0.254\ WinterAnom_{it} + 0.010\left(WinterAnom_{it} \times WinterPrec_{it}\right) + \mu_i\right)$

Results from column 1 in Table 1 describe that one unit increases of winter and monsoon precipitation increases the log-odds of flooding by 0.019 and 0.051. Monsoon precipitation in GB district has stronger effect on flood occurrence nationally as compared to winter precipitation. About 5.2% higher odds of flooding due to monsoon precipitation in GB district as compared to 1.9% odds due to winter precipitation. However, the effect of winter precipitation depends on the anomaly level as well. When there is increase in winter anomaly, i.e., rise in temperature, the impact of winter precipitation on flooding becomes stronger. Such results have moderating effects. Model 1 also includes district dummies that tell about odds of flooding as compared to base category of Astore district. There are higher odds of flooding in all GB districts except for Diamer as compared to the base category of Astore. Results from column 2 describe marginal effects transformed to probability changes. One unit increase of winter and monsoon precipitation increases probability of flooding by 0.4% and 1.13%, respectively. The winter anomaly interaction tells us that one unit increase of winter precipitation with winter anomaly increases flooding probability by 0.22 percentage points.

(6) $\ln\left(TD_{Flood_{it}}\right) = 0.479 + 0.198 MonsoonPrec_{it} - 0.397\ WinterStorage_{it} + \mu_i + \varepsilon_{it}$

(7) $\ln\left(NAP_{Flood_{it}}\right) = 4.019 + 0.237 MonsoonPrec_{it} - 0.166 WinterStorage_{it} + \mu_i + \varepsilon_{it}$

(8) $\ln\left(Deaths_{it}\right) = 2.233 + 0.106 MonsoonPrec_{it} - 0.012\ WinterStorage_{it} + \mu_i + \varepsilon_{it}$

Results from table 2 describe relationships between stronger associations of monsoon precipitation and winter storage with total damage, number of affected people, and deaths due to floods. Within one district of GB, a one-unit increase of monsoon precipitation increases flood-related damage by 19%, number of people affected by 23%, and 10% flood related deaths across country. Similarly, within one district of GB, a one-unit increase of winter storage decreases flood-related total damage by 40%, number of affected people due to floods by 17%, and flood-related deaths by 1.2%.

10.5 Conclusion

The Gilgit-Baltistan (GB) is the key source of water which supports livelihoods of households not only in the northern region but also downstream across different provinces. This chapter focuses on relationship of climate change in GB region to flood occurrence and negative outcomes of floods. Finding such relationship is important because it can guide policymakers to predict and plan disaster risk reduction actions in advance. Therefore, this chapter contributes by exploring relationships of changes in climate predictors such as monsoon & winter precipitation, winter storage, winter anomalies in districts of Gilgit Baltistan (GB) lead to nationwide risk of flood occurrence, total damages, number of people affected and fatalities across Pakistan.

The analysis is based on two data sources, namely NASA Power provides data related to monsoon precipitation, and winter storage in Gilgit-Baltistan (GB) districts, and World Bank Group Climate Change Knowledge Portal provides national data of total damages, number of affected people, and deaths due to floods. The data sample comprises 387 observations as we have data sample from 1981 to 2024 for nine districts of GB, namely, Diamear, Ghanche, Hunza, Nagar, Gilgit, Diamer, Shigar, and Skardu.

Results provide useful insights about flooding probabilities national due to changes in climate predictors in districts of Gilgit Baltistan (GB). Results found that monsoon precipitation dominates winter precipitation in increasing likelihood of flooding nationally. Importantly, winter precipitation effect is dependent on levels of winter anomalies. If there is significant increase in winter anomalies of temperatures in the GB districts along with rise in winter precipitation can lead to significantly higher chances of flooding nationally. Results about flood related damage, number of affected people, and deaths due to floods nationally are significantly dependent on monsoon precipitation and winter storage in districts of GB region. Increase of monsoon precipitation increases floods related damage, a greater number of floods affected people, and higher deaths nationwide. However, increase in winter storage or in other words snowfall will decrease nationwide flood damage, number of affected people, and deaths due to floods. Based on above results, this chapter concludes that changes in climate predictors can lead to nationwide flood risk across Pakistan. Therefore, it is important for policymakers to consider climate anomalies in GB region and forecast for upcoming flooding. It would help to design and implement disaster risk reduction actions to save life and economic losses across country.

After concluding, it is important to discuss key limitations and future work. This analysis skipped one of the important districts of GB namely Kharmang. Secondly, this chapter uses limited number of climate predictors. For future work, researchers may include all districts of GB and increase number of climate predictors such as seasonal shifts of El-Nino and La Lina. Although this work is focused on floods, researchers can extend this work by considering remaining climate-induced disasters such as droughts and landslides.

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Appendix 1

Table 2: Descriptive Statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
Winter temp	387	-10.959	4.144	-19.83	-1.045
Summer temp	387	9.167	4.402	-1.175	17.08
Winter precipitation	387	25.872	13.216	4.96	75.68
Monsoon precipitation	387	23.674	11.312	4.24	71.84
Winter storage	387	0	1.288	-3.426	3.399
TD Flood	388	1055608	3100509.7	0	15617461
NAP Flood	388	2307982.4	6049175.1	0	33012865
Deaths Flood	388	346.809	464.911	0	2113

Table 3: Logistic Regression Results of Model

VARIABLES	Logit Model Flood Occurrence	Marginal Effects Flood Occurrence
Winter precipitation	0.019***	0.004***
	(0.004)	(0.0009)
Monsoon precipitation	0.051***	0.0113***
	(0.008)	(0.0016)
Winter anomaly	-0.254***	-0.057***
	(0.059)	(0.0133)
Winter anomaly × precipitation	0.010***	0.0022***
	(0.002)	(0.0003)
District-speci fic Intercept Shifts		
Diamaer	-0.084***	
	(0.027)	
Ghanche	0.321***	
	(0.039)	
Ghizer	0.912***	
	(0.112)	
Gilgit	0.709***	
	(0.086)	
Hunza	1.080***	
	(0.132)	
Nagar	1.188***	
	(0.145)	
Shigar	0.563***	
	(0.071)	
Skardu	0.170***	
	(0.022)	
Constant	-2.488***	
	(0.261)	
AIC	503.8296	
BIC	519.6633	
Observations	387	

Robust standard errors in parentheses, and Marginal effects uses standard errors based on Delta method (*** p<0.01, ** p<0.05, * p<0.1).

Table 4: Regression Results with District Fixed Effects for Model 2,3, and 4

VARIABLES	Model 2 Log(Total Damage FLOOD)	Model 3 Log (Number of Affected Peoples)	Model 4 Log (Deaths)
Monsoon precipitation	0.198***	0.237***	0.106***
	(0.026)	(0.017)	(0.009)
Winter storage	-0.397**	-0.166**	-0.012
	(0.137)	(0.055)	(0.015)
Constant	0.479	4.019***	2.233***
	(0.609)	(0.393)	(0.212)
AIC	2506.479	2366.568	1525.402
BIC	2514.396	2374.485	1533.319
Observations	387	387	387
R-squared	0.097	0.162	0.243
District Fixed Effect	Yes	Yes	Yes
Number of District ID	9	9	9

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Chapter 11

The National Tariff Policy 2025-2030: Charting a Pathway Towards Trade Liberalization

Aadil Nakhoda

Abstract

Over the last few decades, East Asian and Pacific economies have outperformed their South Asian counterparts in terms of economic growth. This has been driven by tariff liberalization and adoption of export-led and productivity-enhancing policies. However, countries like Pakistan with a more inward-looking approach have applied high tariffs on their imports to encourage import substitution industrialization, which has inadvertently reduced its global competitiveness and economic output relative to the export powerhouses to the east. This study analyses the National Tariff Policy 2025-2030, by comparing the tariff structure of Pakistan with that of Vietnam across different industries and product categories. The NTP will significantly lower the tariff gap as it rationalizes the import tariffs. However, a major problem concerning cascading tariffs will persist as consumer goods will continue to face higher tariffs than unfinished goods. This reduces the willingness of businesses to participate in exporting activities. To truly initiate sustainable economic growth, Pakistan must consider NTP as a foundational step rather than a final destination. Therefore, the policy must be complemented with comprehensive structural reforms that lower cost of doing business and lead to productivity-enhancing industrialization.

11.1 Introduction

Over the last few decades the economic trajectories, as measured using key indicators, of many larger Asian economies have diverged significantly from that of Pakistan. South-east and East Asian countries have experienced rapid economic expansion while many of the South Asian countries, in particular Pakistan, have reported a relatively subdued performance. The strategic utilization of trade policies, especially the liberalization of import tariffs, are key to this divergence. High import tariffs have been applied on various imports across different industries by India and Pakistan to protect their domestic industries from foreign competition. However, high tariff rates that protect domestic businesses from foreign competition have not only reduced the ability of domestic producers to export but also hindered their productivity growth, leading to stagnation and economic slowdown. The economic conditions in eastern Asian countries such as China, Thailand and Vietnam contrast sharply as they have pursued export-led, tariff liberalization strategies that have successfully put them on a path to economic stability.

A comparative analysis of key indicators on economic and industrial performance, such as GDP per capita, industrial value addition per capita and imports per capita, suggest a positive correlation between economic growth and tariff liberalization across the selected Asian countries. Further, as Pakistan's share of GDP and total imports shrink in total GDP and total imports of all middle-income countries and the corresponding share of Vietnam surges, the importance of trade reforms that lead to tariff liberalization increases. Vietnam reports one of the lowest tariff rates amongst major Asian economies. Therefore, the National Tariff Policy 2025-2030 (NTP henceforth) is a major pivot in its trade strategy, with the purpose of fostering sustainable economic growth by rationalizing the tariff structure and lowering domestic costs of production. The following analysis studies the historical disparities in import tariffs across the selected Asian economies, namely, Pakistan, India, China, Thailand and Vietnam. It then compares the differences in tariffs on imports applied by Pakistan and Vietnam across major industries and product categories. It determines the implications of not only applying high tariff rates in Pakistan but also the cascading nature as higher rates are applied on consumer goods relative to the unfinished goods across industries. In essence, the following analysis projects the comprehensive impact of NTP on the competitiveness of Pakistan's industry by comparing the tariff rates with Vietnam, which has displayed stellar trade performance in recent years, before and after the program.

11.2 Data and Methodology

The data on weighted average tariffs for all products imported into a reporting country is borrowed from World Bank's World Development Indicators. The data on GDP per capita at purchasing power parity (constant 2021 international dollars), GDP at purchasing power parity (constant 2021 international dollars), industry value added at constant 2015 US dollars, imports of goods and services at current US dollars, population, and imports of goods and services as a percentage of GDP are extracted from World Bank's World Development Indicators. The import tariffs of Pakistan and Vietnam are borrowed from World Bank's World Integrated Trade Solution, which reports imports tariffs at both HS two-digit level and HS six-digit level. The weighted average tariff rates are calculated for each product at the HS six digit by multiplying the tariff rates applied to the share of imports of the specific products at either HS two-digit level or in product category within its industry based on the requirement. The weighted average before the start of NTP is calculated using weighted average tariff rates as provided by the World Bank's World Integrated Trade Solution. The weighted average tariff rates are average for the years between 2019 and 2023 in order to suppress bias due to sharp volatility in trade volumes not only during and after the COVID-19 time period but also due to the balance-of-payment crisis in Pakistan in 2022. The tariff slabs at the start of NTP and at the end of NTP are provided in Table 1. While the tariffs at the start of the program are provided in the World Bank's World Integration Trade Solution, the tariffs at the end of NTP are adjusted as per the relevant slab and are incorporated to calculate the tariff rate differences applied by Pakistan and Vietnam at the end of NTP.

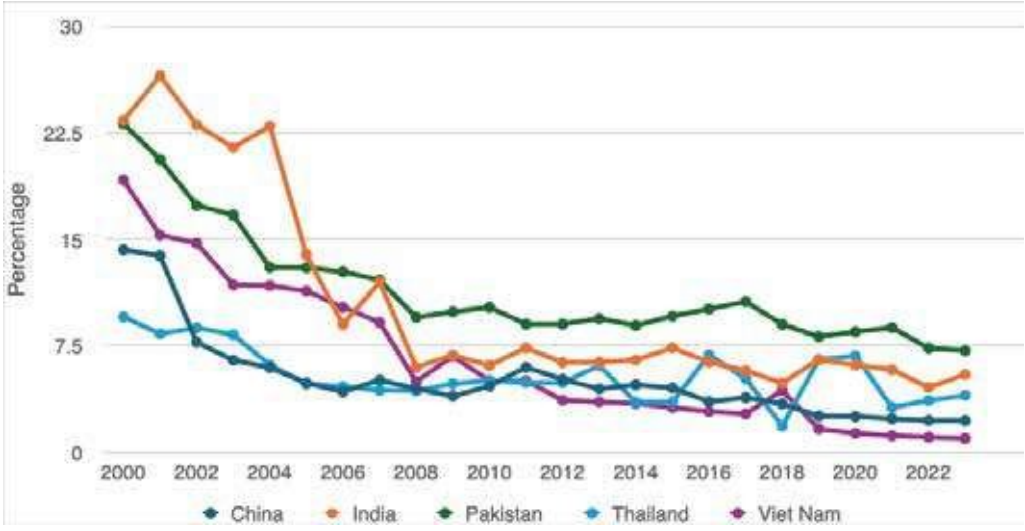
The products are categorized according to the level of production stage, such as capital goods, unfinished goods (include raw materials and intermediate goods) and consumer goods. The classification is borrowed from the reference data available at World Bank's World Integrated Trade Solution. The industries are defined according to their respective HS sections. The middle-income countries are considered as classified by the World Bank.

Table 11.1: Tariff slabs at the start of the program and at the end of NTP

Start	End
0	0
3	0
11	0
16	5
20	10
Above 20	15

11.3 Analysis

Figure 11.1: Weighted average tariffs for all products cross selected Asian countries



Source: World Integrated Trade Solution

The weighted average tariffs for all products imported into the selected Asian countries, namely China, India, Pakistan, Thailand and Vietnam, are reported for between 2000 and 2023 in Figure 11.1. The trade weighted average tariff rate is calculated by multiplying the value of trade for each product imported into the respecting country at HS two-digit level (HS chapter) by the average tariff applied on it. India and Pakistan reported tariff rates of 23 percent in 2000. Vietnam, China and Thailand reported an average tariff rate between 20 percent and 9.5 percent in 2000. The weighted average tariff rate dropped to 5.5 percent for India and 7.2 percent for Pakistan in 2023. It had dropped to 4 percent for Thailand, 2.2 percent for China, and 1 percent for Vietnam in 2023. India reported the highest weighted average tariff rate till 2005. However, since then, Pakistan has reported the highest weighted average tariff rate among the selected countries. India experienced its sharpest decline between 2004 and 2006, as its weighted average tariff rate decreased from 23 percent in 2004 to 9 percent in 2006. It further dropped to 6 percent in 2008 and has reported a milder variation in the tariff rates since then. Pakistan, on the other hand, has reported a much more gradual decline, as it reported a weighted average tariff rate of 9.5 percent in 2008. It decreased to 8.8 percent in 2021, albeit very gradually. The East Asian counterparts, reported lower tariff rates than the South Asian countries. Vietnam has reported the lowest tariff rates for most of the years since 2012. Its weighted average tariff rate decreased from 10 percent in 2006 to 5 percent in 2008. Since then, it has gradually decreased to less than 1 percent. Therefore, all the selected countries have reported tariff liberalization in the last two decades. However, the South Asian countries, both Pakistan and India, have maintained higher tariff rates than their eastern counterparts even though they have reduced their tariff rates. As Pakistan continues to report higher tariff rates than its eastern counterparts, the question remains whether the tariff liberalization programs in the past have sufficiently eliminated tariff rates in comparison to the programs adopted by other Asian countries. The following analysis in the figures below emphasizes on the differences in tariff rates applied by Pakistan and Vietnam, the country that has liberalized the most, as Pakistan implements NTP over the next few years.

Table 11.2: Variables on economic performance and import patterns of selected Asian countries

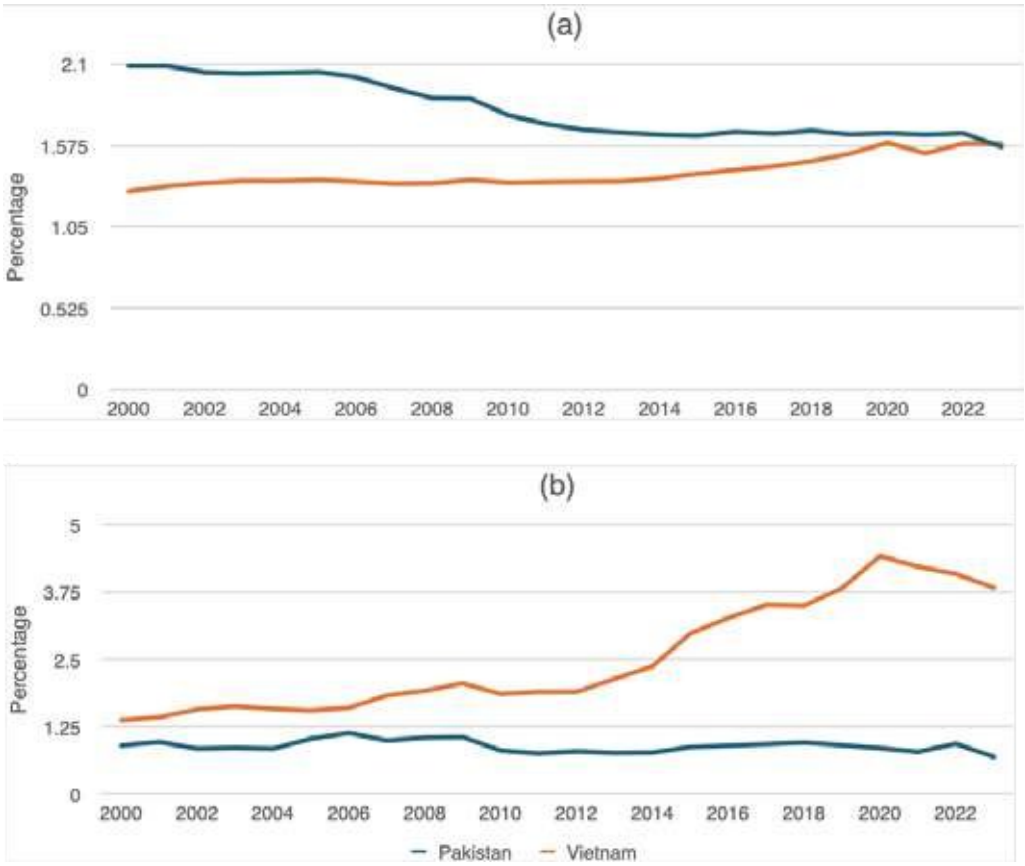
Variable	Metric	Pakistan	India	Thailand	Vietnam	China
GDP per capita PPP (Constant Int. $)	2000	3,532	3,100	11,623	4,349	4,066
GDP per capita PPP (Constant Int. $)	2023	5,419	9,302	21,191	13,546	22,687
GDP per capita PPP (Constant Int. $)	**Growth (%)**	**53**	**200**	**82**	**211**	**458**
Industry value added per capita (Constant US$)	2000	179	197	1,260	436	816
Industry value added per capita (Constant US$)	2023	303	601	2,108	1,360	4,692
Industry value added per capita (Constant US$)	**Growth (%)**	**69**	**205**	**67**	**212**	**475**
Imports per capita (Current US$)	2000	76	62	1,133	232	178
Imports per capita (Current US$)	2023	245	596	4,560	3,387	2,202
Imports per capita (Current US$)	**Growth (%)**	**222**	**868**	**303**	**1,358**	**1,140**
Imports (% of GDP)	2000	12	14	56	58	18
Imports (% of GDP)	2023	18	24	63	78	17
Imports (% of GDP)	**Growth (pp)**	**6**	**10**	**7**	**21**	**-1**

Source: World Bank's World Development Indicators)

Selected variables indicating the economic performance and import patterns of Pakistan, India, Thailand, Vietnam and China are presented in Table 11.2. Pakistan had a GDP per capita of $3,532 in 2000, higher than India with a GDP per capita of $3,100 but lower than its East Asian counterparts. GDP per capita of Thailand, Vietnam and China was $11,623, $4,349 and $4,066 respectively. The GDP per capita of Pakistan increased to $5,419 in 2023. It reported the lowest growth rate of 53 percent in 23 years, compared to 200 percent reported by India, 82 percent reported by Thailand, 211 percent reported by Vietnam and 458 percent reported by China. The East Asian economies are celebrated for their miracle growth levels.

The growth in the value addition per capita in the industrial sector, an indicator on the improvement in productivity of the industrial sector, was the highest for China between 2000 and 2023 and the lowest for Pakistan. The growth rate for the value addition per capita in the industrial sector was similar to the growth rate for GDP per capita across the countries, suggesting that the increase in both variables was correlated. Imports per capita, measuring the flow of imports of goods and services per person into the country, at $76 and $62 for Pakistan and India in 2000, was lower than that reported for the eastern counterparts. This increased to $245 and $596 respectively for Pakistan and India in 2023. The growth rate of imports per capita for Pakistan was 222 percent and for India was 868 percent. Vietnam and China, both experienced significantly higher growth rates, exceeding 1,100 percent. The import per capita for China increased from $178 in 2000 to $2202 in 2023, while the import per capita for Vietnam increased from $232 in 2000 to $3387 in 2023. Imports as a percentage of GDP, a measure indicating the prominence of imported goods and services within an economy, was at 12 percent for Pakistan and at 14 percent for India in 2000. This increased to 18 percent for Pakistan and 24 percent for India in 2023. The eastern counterparts, particularly Vietnam and Thailand, reported higher levels in both 2000 and 2023 than Pakistan and India. It was 56 percent for Thailand and 58 percent for Vietnam in 2000, which increased to 63 percent and 78 percent respectively in 2023. Vietnam reported a 21-percentage point increase, while Thailand reported a 7-percentage point increase. Interestingly, imports as percentage of GDP decreased for China in the 23 years, albeit by 1 percentage point. The main finding in Table 2 is that the South Asian counterparts not only had higher weighted average tariff rates throughout the two decades between 2000 and 2023, the growth rates in GDP per capita as well as value addition in the industrial sector was much lower than that reported by their eastern counterparts. Therefore, the performance of GDP per capita and value addition in the industrial sector is positively correlated with tariff liberalization as well as growth in imports per capita across the selected countries.

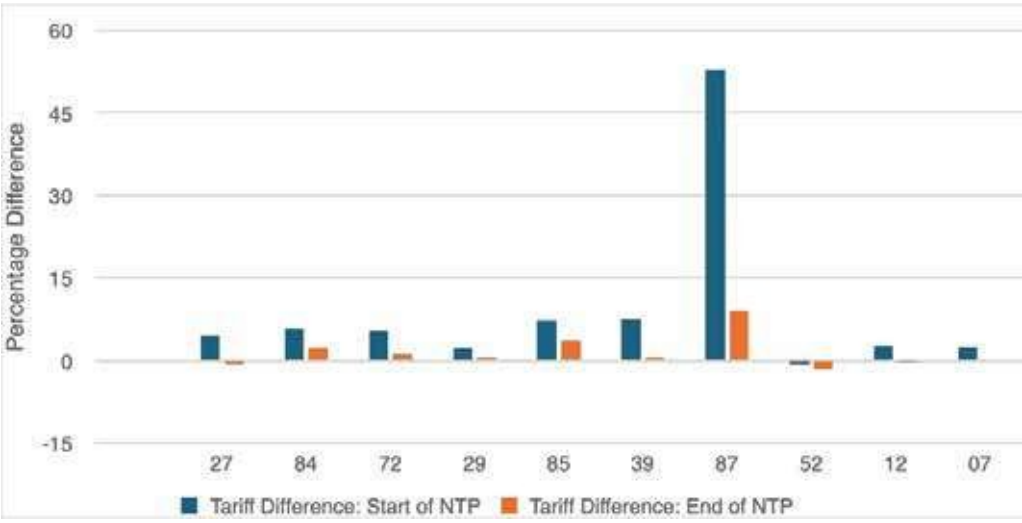
Figure 11.2: (a) GDP of Pakistan and Vietnam as a percentage of total GDP of all middle-income countries, (b) Imports of goods and services into Pakistan and Vietnam as a percentage of total imports into all middle-income countries



Source: World Bank's World Development Indicators

The GDP at purchasing power parity (constant 2021 international dollars) of Pakistan and Vietnam as a percentage of total GDP in middle-income countries between 2000 and 2023 as well as the total imports of goods and services into Pakistan and Vietnam as a percentage of total imports of goods and services in middle-income countries between 2000 and 2023 is reported in Figure 11.2. The GDP of Pakistan as a percentage of total GDP in middle-income countries has declined between 2000 and 2023, from 2.1 percent to 1.6 percent. However, the percentage for Vietnam has increased from 1.3 percent to almost 1.6 percent. While Pakistan's size of the economy has shrank relative to the size of the economy of all middle-income countries, Vietnam's relative size of the economy has expanded. Further, the total imports into Pakistan as a percentage of total imports into all middle-income countries has decreased from 0.9 percent to 0.7 percent between 2000 and 2023, it has increased by almost three times for Vietnam during the same time period. Vietnam reported a share of 1.4 percent in 2000, which increased 3.9 percent in 2023. Therefore, while Vietnam has surged as an export destination within the group of middle-income countries, Pakistan has lost its share to its counterparts. One of the main purposes of NTP is to foster economic sustainable economic growth by not only reversing the high tariffs imposed across products but also lower production costs. Therefore, the shrinking size of Pakistan's economy and the shrinking share of total imports into Pakistan relative to that of the middle-income countries, while the expanding size of Vietnam's economy and the increasing share in total imports of total imports into Vietnam suggests a deeper look at the differences in the tariff rates imposed by the two countries.

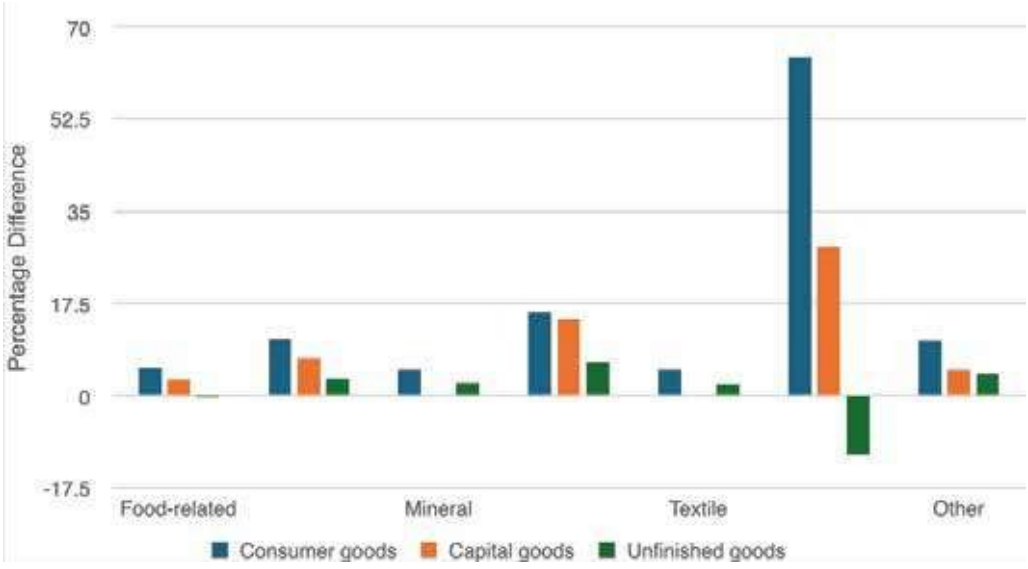
Figure 11.3: Difference in weighted average tariff rates applied by Pakistan and Vietnam before the start of NTP and at the end of NTP.



Source: World Bank's World Integrated Trade Solution and NTP 2025-2030

The difference in trade-weighted average tariff rates applied by Pakistan and Vietnam before the start of the NTP and at the end of NTP across the top-ranking HS chapters based on the import value into Pakistan is reported in Figure 3. The higher the difference, the greater the cost of importing into Pakistan relative to that into Vietnam. The imports into Pakistan in HS 87 (Vehicles other than railway), a vital chapter for the automotive industry, face a difference of more than 53 percent on the tariff rates applied by Pakistan and Vietnam at the start of NTP, while imports into HS 84 (machinery and mechanical appliances), HS 72 (iron and steel), HS 85 (electrical machinery) and HS 39 (plastics) face a tariff difference of between 5 and 10 percent. HS 27 (mineral fuels), HS 29 (organic chemicals), HS 12 (oilseeds) and HS 07 (edible vegetables) face a tariff difference of less than 5 percent, Pakistan imposes lower tariffs on the import of HS 52 (cotton). The difference will fall drastically at the completion of the policy. HS 84, HS 29, HS 85 , HS 39 and HS 72 will maintain a positive difference, even though it will be less than 5 percent. Pakistan will apply lower tariffs than Vietnam on the imports of HS 52, HS 27, HS 12 and HS 07. The difference will be between 0.18 percent and 1.6 percent. The tariff difference for HS 87 will be 9.2 percent, a drastic decrease from 52 percent before the implementation of NTP. Therefore, the NTP will lower the tariffs and consequently the costs of importing goods into Pakistan, with tariff rates across major HS sections becoming more comparable to those applied by Vietnam.

Figure 11.4: Difference in weighted average tariff rate applied on imports into Pakistan and Vietnam by Major HS Sections and Product Categories at start of NTP

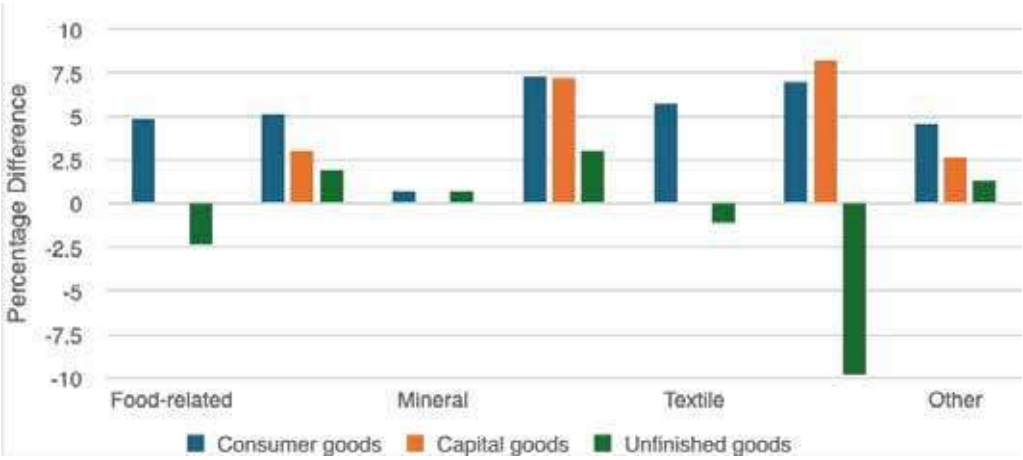


Source: World Bank's World Integrated Trade Solution and NTP 2025-2030

The difference in weighted average tariff rate applied on imports into Pakistan and Vietnam at the start of NTP by major HS sections and product categories is presented in Figure 11.4. The consumer goods (typically motor cars less than 1500cc) and the capital goods (typically buses and lorries) belonging to transportation vehicles category report the highest difference in their tariff rates, at 64 percent and 28 percent respectively. On the other hand, the imports of unfinished goods (typically parts and accessories) into Pakistan face lower tariff rates, by 11 percent, relative to the tariff rates imposed by Vietnam. This suggests the tariff rates are cascading, where Pakistan imposes higher tariffs on consumer goods and lower tariffs on unfinished goods to promote domestic production. However, it also creates an anti-export bias as the high costs to import the consumer goods into Pakistan protects domestic producers from competition in the final goods market. The consumer goods in the iron and steel industry (for instance threaded screws and bolts) face a tariff difference of 16 percent and the capital goods (containers for compressed or liquified gas) face a tariff difference of 15 percent, while the unfinished goods (for instance ferrous waste and scrap) face a tariff difference of 6.3 percent. The consumer goods in the machinery and electrical equipment (insulated electric conductors) face a tariff difference of 10.8 percent, the capital goods (electric generating sets) face a tariff difference of 7.2 percent and the unfinished goods (parts of electrical transformers) face a tariff difference of 3.3 percent. The food-related products, mineral products and textile products face a tariff difference of 5 percent and less across their product categories. The tariff difference in the 'other' product category is 10.5 percent for consumer goods, 5.1 percent for capital goods and 4.1 percent for unfinished goods.

In summary, the tariff differences across product categories within all the specified HS sections suggests the presence of cascading tariffs, as Pakistani importers of consumer goods face a significantly higher tariff than their Vietnamese counterparts, while the difference reduces especially on unfinished goods. Not only does this protect the domestic industries against foreign competitors in the output market but also reduces their incentives to export as their propensity to earn higher profit markups in the domestic industry increases. Therefore, such cascading tariffs create an anti-export bias, reducing the willingness of domestic firms to undertake exporting activities. Further, the tariff differences are starker in the automotive, steel and machinery industries. These industries are more dependent on imports of consumer goods, capital goods and unfinished goods than the food-related and textile industries, which are more export-oriented in their nature. Therefore, the higher differences in tariff rates in highly import-dependent industries suggests the preference of trade policies that promote import substitution industrialization rather than policies that favor either export-led or productivity-enhancing industrialization and economic growth.

Figure 11.5: Difference in weighted average tariff rate applied on imports into Pakistan and Vietnam by Major HS Sections and Product Categories at the end of NTP



Source: World Bank's World Integrated Trade Solution and NTP 2025-2030

The difference in weighted average tariff rate applied on imports into Pakistan and Vietnam at the end of NTP by major HS sections and product categories is presented in Figure11. 5. The difference in tariffs for consumer goods of transportation vehicles will be 7 percent and for capital goods will be 8.2 percent. The difference for unfinished goods will be 9.8 percent, with Pakistan setting lower tariffs than Vietnam. Although, there is a sharp decline in the difference in tariffs between Pakistan and Vietnam across different categories of transportation vehicles, the cascading tariffs are likely to remain in Pakistan as the difference in tariffs on consumer goods is higher than the difference in tariffs on unfinished goods. The difference in import tariffs on consumer goods and capital goods of iron and steel will be 7.2 percent and 3 percent on unfinished goods of iron and steel. The difference will be 5.1 percent on the consumer goods of machinery and electrical equipment, 3 percent on the capital goods, and 1.9 percent on unfinished goods. The difference in tariffs on consumer goods of textile products and food-related products will be similar before the start and after the end of NTP at around 5 percent. The tariffs on unfinished goods of both textile products and food-related products will be lower on the imports into Pakistan than imports into Vietnam. The different in tariffs on consumer goods of 'other products' will be 4.6 percent, on capital goods will be 2.7 percent and on unfinished goods will be 1.3 percent. Therefore, the cost difference incurred due to the customs duties on Pakistani importers relative to the Vietnamese importers will significantly decrease across the major industries specified above, particularly in the more import-dependent industries such as transportation vehicles, iron and steel and machinery and electrical equipment. However, the results clearly indicate that Pakistan will have lower import tariffs on the imports of unfinished goods, while imposing higher tariffs on the imports of capital goods and consumer goods relative to Vietnam. The implication of such a policy needs to be better studied.

The two figures, Figures 11.4 and 11.5, provide critical information to policymakers on how the NTP will shape the tariff structure in Pakistan by comparing the differences on import tariffs applied by Pakistan and Vietnam. It will lower the tariff rates applied by Pakistan across all the products and in effect lowering the difference in import tariffs between those applied by Pakistan and Vietnam. This will likely impact the cost of doing business. The largest decreases are likely in the automative sector, iron and steel and machinery and electrical equipment. Although, the lower tariffs will benefit the businesses, the cascading tariffs, which reduce the willingness of businesses to participate in exporting activities, still remain. Therefore, the next policy must address this concern by further eliminating tariffs on consumer goods, while encouraging lower tariffs to foster investments in more productive activities. Thus, the next tariff policy should be designed taking into account industry-specific requirements as policymakers reduce the distortionary role of import tariffs on the economy.

11.4 Conclusion

The tariff structure in Pakistan highlights an unfortunate economic reality. High tariffs are not only flaunted by policymakers as key revenue instruments but are also key factors in Pakistan's lack of global competitiveness. The implementation of the NTP brings a crucial transition from economic stagnation to economic sustainability. By narrowing the tariff differences between Pakistan and a successful trade powerhouse in the region, Vietnam, the NTP will seek to reduce the exorbitant costs of importing in Pakistan relative to fast growing economies in the world. This reduction is critical for import-dependent industries such as transportation vehicles, iron and steel, machinery and electrical equipment as they will benefit from available of imports of capital goods and unfinished goods at more competitive prices, while the output market will benefit from more competitively priced products.

However, as NTP introduces a key reform which reduces the difference in tariff rates between Pakistan and its counterparts, the data suggests that the cascading tariffs, which diminishes the incentives of domestic businesses to participate in export markets, are likely to persist. Therefore, it is essential to maintain unwavering momentum by lowering import tariffs on consumer goods. The NTP must not be considered a final destination, but rather a stepping stone towards greater industrial competitiveness and deeper economic integration. It is imperative to continue this journey of tariff rationalization as future policies must dismantle remaining distortionary tariff policies and decisively transform the mindset of policymakers from encouraging import substitution industrialization and towards embracing an export-led productivity-enhancing roadmap for economic transition.

As a concluding statement, it is crucial to mention that tariff rationalization by itself cannot guarantee a vibrant economy. To capitalize on the benefits of the NTP, it is crucial to introduce complementary structural reforms. For instance, there are several factors that lower the cost of doing business, such as competitive energy pricing, land reforms, improved logistical infrastructure, and cultivating a regulatory environment that supports business growth. Therefore, the harmonization of key reforms with tariff liberalization will provide a comprehensive roadmap towards domestic reforms that can overcome the historical economic stagnancy and transform the economy into one that is more sustainable as well as more competitive in the global stage.

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Highlights

- The findings in terms of the correlation between selected variables suggest that the East Asian economies have achieved rapid growth through export-led strategies and tariff liberalization, while Pakistan's reliance on high import tariffs for domestic protection has hindered its global competitiveness and economic output.
- Pakistan's National Tariff Policy (NTP) 2025-2030 marks a strategic pivot to rationalize import tariffs, aiming to lower domestic production costs and foster a competitive business environment and pursue sustainable economic growth by aligning the tariff policy with successful counterparts like Vietnam.
- The NTP will drastically reduce the difference in imports tariffs between Pakistan and Vietnam across highly import-dependent industries, including transportation vehicles, iron and steel, and machinery, thereby lowering the broader costs of doing business.
- Despite the NTP's reductions, problematic cascading tariffs will persist, with consumer goods facing higher import duties than unfinished goods. This structure protects domestic output markets and inadvertently compels firms to produce for the domestic market instead of increasing participation in the export markets.
- To truly capitalize on the NTP, Pakistan must implement complementary structural reforms. Improving competitive energy pricing, bringing in land reforms, enhancing logistical infrastructure, and the broader regulatory environment is essential to transform the economy from stagnation to one that is characterized by sustainable economic growth.

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The State of Pakistan's Economy 2026-27 arrives at an urgent moment. Its eleven chapters trace a connected argument, moving from fragile macroeconomic stability and IMF dependence through poverty, population, and child labour, into the energy and environmental systems on which Pakistan's long-run resilience depends. It is heartening to see this volume engage seriously with issues of national concern, and particularly areas such as energy, air pollution, and flood risk, that remain largely neglected in mainstream development discourse on Pakistan despite being among the country's most pressing challenges. Throughout the volume, arguments are rooted in current, granular data; it is only by measuring problems precisely, for example from city-level emissions to district-level rainfall, that policymakers can move past impressions to real diagnosis and design solutions built to last. Indeed, this volume is essential reading for anyone thinking seriously about Pakistan's immediate priorities and its longer growth trajectory.

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This volume aims to shift the focus of Pakistan's economic future from short-term crisis management to long-term structural transformation. Based on rich empirical analysis with practical policy recommendations, the contributors make a strong argument that converting temporary macroeconomic stability into sustained gains in productivity, human capital, institutional quality, environmental resilience, and international competitiveness requires coordinated structural reform rather than isolated policy interventions. This volume makes an important contribution to the national policy debate and should become a required reading for policymakers and practitioners.

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