

The Office of the  
Chief Economist of  
the South Asia Region

APRIL 2024

# South Asia Development Update

Jobs for Resilience



WORLD BANK GROUP





# South Asia Development Update



*The Office of the  
Chief Economist of  
the South Asia Region*

APRIL 2024

# South Asia Development Update

Jobs for Resilience



© 2024 International Bank for Reconstruction and Development / The World Bank  
1818 H Street NW, Washington, DC 20433  
Telephone: 202-473-1000; Internet: [www.worldbank.org](http://www.worldbank.org)

Some rights reserved

1 2 3 4 27 26 25 24

This work is a product of the staff of The World Bank with external contributions. The findings, interpretations, and conclusions expressed in this work do not necessarily reflect the views of The World Bank, its Board of Executive Directors, or the governments they represent. The World Bank does not guarantee the accuracy, completeness, or currency of the data included in this work and does not assume responsibility for any errors, omissions, or discrepancies in the information, or liability with respect to the use of or failure to use the information, methods, processes, or conclusions set forth. The boundaries, colors, denominations, links/footnotes and other information shown in this work do not imply any judgment on the part of The World Bank concerning the legal status of any territory or the endorsement or acceptance of such boundaries. The citation of works authored by others does not mean the World Bank endorses the views expressed by those authors or the content of their works.

**Nothing herein shall constitute or be construed or considered to be a limitation upon or waiver of the privileges and immunities of The World Bank, all of which are specifically reserved.**

#### Rights and Permissions



This work is available under the Creative Commons Attribution 3.0 IGO license (CC BY 3.0 IGO) <http://creativecommons.org/licenses/by/3.0/igo>. Under the Creative Commons Attribution license, you are free to copy, distribute, transmit, and adapt this work, including for commercial purposes, under the following conditions:

**Attribution**—Please cite the work as follows: World Bank. 2024. *Jobs for Resilience*. South Asia Development Update (April 2024). World Bank, Washington, DC. doi: 10.1596/978-1-4648-2103-5. License: Creative Commons Attribution CC BY 3.0 IGO

**Translations**—If you create a translation of this work, please add the following disclaimer along with the attribution: *This translation was not created by The World Bank and should not be considered an official World Bank translation. The World Bank shall not be liable for any content or error in this translation.*

**Adaptations**—If you create an adaptation of this work, please add the following disclaimer along with the attribution: *This is an adaptation of an original work by The World Bank. Views and opinions expressed in the adaptation are the sole responsibility of the author or authors of the adaptation and are not endorsed by The World Bank.*

**Third-party content**—The World Bank does not necessarily own each component of the content contained within the work. The World Bank therefore does not warrant that the use of any third-party-owned individual component or part contained in the work will not infringe on the rights of those third parties. The risk of claims resulting from such infringement rests solely with you. If you wish to re-use a component of the work, it is your responsibility to determine whether permission is needed for that re-use and to obtain permission from the copyright owner. Examples of components can include, but are not limited to, tables, figures, or images.

All queries on rights and licenses should be addressed to World Bank Publications, The World Bank, 1818 H Street NW, Washington, DC 20433, USA; e-mail: [pubrights@worldbank.org](mailto:pubrights@worldbank.org).

ISBN (electronic): 978-1-4648-2103-5

DOI: 10.1596/978-1-4648-2103-5

*Cover design:* David Spours (Cucumber Design).

The cutoff date for the data used in the report was March 15, 2024.

# Summary of Contents

Acknowledgments.....	xiii
Foreword .....	xv
Executive summary.....	xvii
Abbreviations.....	xix
<b>Chapter 1</b>	<b>Deceptive Strength..... 1</b>
	Box 1.1 Accelerating Private Investment ..... 7
<b>Spotlight</b>	<b>Who Bears the Burden of Climate Adaptation and How? A Systemic Review..... 35</b>
	Box SL.1 Climate Shocks and the Poor ..... 41
<b>Chapter 2</b>	<b>Jobless Development ..... 61</b>





# Contents

Acknowledgments.....	xiii	
Foreword .....	xv	
Executive Summary .....	xvii	
Abbreviations.....	xix	
<b>Chapter 1</b>	<b>Deceptive Strength .....</b>	<b>1</b>
	Introduction.....	3
	Economic activity.....	4
	Global developments.....	4
	Regional developments.....	5
	Inflation .....	12
	Global developments.....	12
	Regional developments.....	12
	Financial conditions .....	14
	Global developments.....	14
	Regional developments.....	14
	Outlook.....	16
	Regional outlook.....	16
	Country outlooks .....	17
	Risks and vulnerabilities .....	19
	Renewed currency crises.....	19
	Trade fragmentation .....	21
	Climate change .....	22
	Policy challenges.....	23
	Increasing and shifting government revenue collection.....	23
	Building climate resilience and greening the economy.....	25
	Creating jobs.....	26
	Removing distortions in the financial system.....	28
	References .....	31
<b>Spotlight</b>	<b>Who Bears the Burden of Climate Adaptation and How? A Systemic Review.....</b>	<b>35</b>
	Introduction .....	37
	Differing exposure to, and impact of, climate shocks.....	39
	Households .....	39
	Firms.....	40

## Spotlight

Adaptation strategies by households, firms, and farms .....	40
Methodology .....	40
Household adaptation strategies .....	46
Effectiveness of household adaptation.....	47
Firm adaptation.....	47
Effectiveness of firm adaptation .....	48
Farmer adaptation .....	48
Effectiveness of farm adaptation .....	49
Comparing adaptation strategies .....	49
Policy implications.....	51
Annex SL.B1.1 Methodology .....	52
References.....	56

## Chapter 2

<b>Jobless Development .....</b>	<b>61</b>
Introduction .....	63
Questions .....	65
Contributions to the economic research literature.....	66
Main findings.....	66
Data and definitions .....	67
Trends in employment and labor productivity .....	67
Conceptual framework.....	73
Correlates of employment ratios.....	74
Methodology and data.....	74
Long-run employment ratios .....	75
Correlates of long-run employment ratios.....	76
Correlates of economy-wide long-run employment ratios .....	76
Correlates of sector-specific long-run employment ratios .....	78
Policy options to boost employment .....	85
Annex 2.1 Summary of literature on growth elasticity of employment.....	87
Annex 2.2 Data.....	88
Annex 2.3 Econometric methodology .....	88
Annex 2.4 Interpretation of country fixed effects .....	91
Annex 2.5 Proxies for correlates of long-run employment ratios .....	91
References.....	97

**Boxes**

1.1	Accelerating private investment .....	7
SL.1	Climate shocks and the poor .....	41

**Figures**

1.1	Overview .....	4
1.2	Economic activity .....	5
1.3	Inflation .....	13
1.4	Financial conditions .....	14
1.5	Trade and capital flows .....	15
1.6	Outlook for output growth .....	17
1.7	Risk of renewed currency crises .....	20
1.8	Effects of currency crises .....	21
1.9	Risk of shifts in global trade .....	22
1.10	Climate risks .....	23
1.11	Increasing revenues .....	24
1.12	Building climate resilience .....	26
1.13	Creating jobs .....	27
1.14	Removing distortions in the financial system .....	28
B1.1.1	Private investment in South Asia .....	8
B1.1.2	Features of private investment accelerations in EMDEs .....	10
B1.1.3	Correlates of the probability of a private investment acceleration starting ..	11
SL.1	Vulnerability to climate change and fiscal constraints .....	38
SL.2	Distributional implications of climate shocks .....	40
SL.3	Effectiveness of climate adaptation .....	46
SL.4	Effectiveness of different climate adaptation strategies .....	49
SL.5	Effectiveness of climate adaptation strategies, by region and income .....	51
SL.B.1.1	Description of the literature.....	42
SL.B.1.2	Types of natural disasters .....	43
SL.B.1.3	Disproportionate exposure of the poor to climate shocks .....	44
SL.B.1.4	Disproportionate impact of climate shocks on the poor .....	44
SL.B.1.5	Disproportionate income and human capital losses for the poor .....	45
2.1	South Asia's growth prospects .....	64
2.2	South Asia: Migration .....	64
2.3	Growth models.....	65
2.4	Employment .....	68
2.5	Employment ratios of men and women .....	70
2.6	Sectoral employment ratios .....	71
2.7	Sectoral employment composition .....	72

## Figures

2.8	Labor productivity growth .....	73
2.9	Engines of output growth in EMDEs .....	73
2.10	South Asia: Long-run employment ratios .....	76
2.11	Correlates of long-run employment ratios: Tax regimes and policy uncertainty .....	77
2.12	Correlates of long-run employment ratios: Establishment size .....	78
2.13	Correlates of long-run employment ratios: Trade openness .....	79
2.14	Correlates of long-run employment ratios: Access to finance .....	81
2.15	Correlates of long-run employment ratios: Product, labor, and land markets .....	82
2.16	Correlates of long-run employment ratios: Education .....	83
2.17	Correlates of women's long-run employment ratios .....	84
2.18	Women's employment in non-agriculture .....	85
2.19	Policy priorities for South Asia .....	86
A2.1.1	Estimates of output elasticity of employment .....	88
A2.3.1	Correlates of the evolution of employment ratios over time .....	89

## Tables

1.1	Growth in South Asia .....	18
B1.1.1	Correlates of the likelihood of private investment accelerations starting .....	30
SL.B.1.1	Marginal probability of study documenting above-average effect for poor households .....	53
A2.1.1	Studies included in the literature review .....	93
A2.3.1	Baseline regression .....	94
A2.3.2	Baseline regression: Robustness tests on total employment ratio .....	95
A2.3.3	Baseline regression: Robustness tests on female employment ratio .....	95
A2.5.1	Regressions with correlates: Trade and access to finance .....	96
A2.5.2	Regressions with correlates: Firm characteristics and constraints .....	96
A2.5.3	Regressions with correlates: Worker characteristics and protection of women's rights.....	97

# Acknowledgments

*This report is a product of the Office of the Chief Economist for the South Asia Region (SARCE). The report was managed by Franziska Ohnsorge (Chief Economist, South Asia Region), under the general guidance of Martin Raiser (Regional Vice President, South Asia Region).*

Chapter 1 was written by Patrick Kirby with contributions from Jonah Rexer, Siddharth Sharma, Margaret Triyana, and Zoe Leiyu Xie. Nikita Perevalov (DECPG) provided scenario analysis. Box 1.1 was prepared by Patrick Kirby and Kersten Stamm (DECPG).

Colleagues from MTI provided country forecasts and other inputs to the country analysis in Chapter 1, including Abhishek Anand (India), Erdem Atas (Maldives), Kanika Bhatnagar (India), Derek Hung Chiat Chen (Pakistan), Souleymane Coulibaly (ESADR), Sebastian Essl (Nepal), Rangeet Ghosh (Bangladesh), Tobias Akhtar Haque (ESADR), Bernard Haven (Bangladesh), Nayan Krishna Joshi (Nepal), Nazmus Sadat Khan (Bangladesh and Bhutan), Aurelien Kruse (India), Shruti Lakhtakia (Maldives and Sri Lanka), Ran Li (India), Tanvir Malik (India), Abdoul Ganiou Mijiyawa (Nepal), Sayed Murtaza Muzaffari (Pakistan), Dhruv Sharma (India), Gregory Smith (ESADR), Muhammad Waheed (Afghanistan), and Richard Walker (Maldives and Sri Lanka). Helpful comments were provided by FCI, SSADR, and ISADR colleagues.

Chapter 2 was prepared by Franziska Ohnsorge, Richard Rogerson (Princeton University), and Zoe Leiyu Xie, with contributions from Lynn Hu.

Gaurav Nayyar (EFICE) reviewed the chapter. Helpful comments were provided by Nina Arnhold and Javier Sanchez-Reaza (HSADR); Margaret Arnold, Patricia Fernandes and Robin Mearns (SSAS1); Isis Gaddis and Anna O'Donnell (SSADR); Ximena Del Carpio, Jon

Jellema, Nandini Krishnan, Nethra Palaniswamy, and Lokendra Phadera (ESAPV).

The spotlight was prepared by Siddharth Sharma and Jonah Matthew Rexer. Box SL.1 was prepared by Margaret Triyana.

Stephane Hallegatte (GGSVP) and Teevrat Garg (University of California San Diego) reviewed the spotlight. Helpful comments were also provided by colleagues in SSADR.

All sections were reviewed by Graham Hacche, Graeme Littler, Christopher Towe, and James Rowe.

Research assistance was provided by Juan Felipe Serrano Ariz, Yurui Hu, Andy Weicheng Jiang, Mohammad Shah Naoaj, Rully Prassetya, Biying Zhu, and Xiao'ou Zhu.

Rana Al-Gazzaz facilitated the report's preparation, production, and dissemination. Quinn Sutton Austin was responsible for the layout and typesetting. David Spours (Cucumber Design) designed the graphics and layout. Peter Milne and Graeme Littler copyedited the chapters. Elena Karaban, Diana Ya-Wai Chung, Trishna Thapa, and Adnan Javaid Siddiqi (all ECR) coordinated the dissemination. Ahmad Khalid Afridi provided administrative support.

South Asia as used in this report includes Afghanistan, Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan, and Sri Lanka.

The cutoff date for this report was March 15, 2024.



# Foreword

Ten years ago, Northern Bangladesh was hit by severe and relentless monsoon rains. The rivers burst their banks, hundreds of villages went under water, entire crops were lost, half a million people were made homeless, and millions more were affected. Households in the affected regions faced rising food insecurity. The rural poor migrated but this helped them recover only 22 percent of their lost household consumption.

Such disasters have been increasingly frequent and more intense in South Asia due to climate change. On average, 60 million people per year have been affected by natural disasters since 2010. Disasters like these can wash away a country's ability to unlock its potential in a matter of weeks.

Weak job creation and fragile fiscal positions constrain South Asian countries' ability to prevent and recover from such shocks. Weak labor markets prevent households from shifting out of agriculture as climate shocks take their toll. Fiscal constraints make it difficult to finance necessary public sector investments in climate adaptation. And although growth in the region is likely to remain strong in the short run, growth has been below pre-pandemic averages except in India.

How can South Asia build greater resilience and sustained growth? This report will focus on the three keys to unlock a brighter future: robust private investment, vigorous job creation, and an environment that facilitates climate adaptation by households, farmers, and firms.

More than elsewhere, growth momentum in South Asia has been driven by the public sector while private investment growth has been weak. Without a thriving private sector, job creation is likely to continue on a weaker path than in other emerging market and developing economies, especially in the non-agricultural sector. Employment growth has not kept pace with working-age population growth. The region employs only 59 percent of its working-age population compared with 70 percent in other emerging market and developing economies. It is

the only region in which men's employment-to-working-age population ratio has fallen since 2000, and all but two South Asian countries rank in the bottom quartile by women's employment-to-working-age population ratios.

Demographic trends have created a youthful workforce in the region. If South Asia could employ as large a share of them as other emerging market and developing economies, without losing productivity momentum, its output might be 16 percent higher.

The key to unlocking inclusive, resilient, and strong growth lies in the potential of the private sector. Ultimately, private investment and robust firm growth are needed to create the jobs required to absorb a growing working-age population. They are also needed to spur the adoption of new technologies for climate change adaptation.

This report offers a policy agenda for shaping prosperous and resilient economies in the decades to come.

- *Improve fiscal positions.* Current growth may become less sustainable in the long run given growing debt burdens and high interest rates. Low revenues severely constrain government spending on critical priorities, including climate change adaptation. Increasing tax revenues and pivoting towards less distortionary taxation is essential to freeing up fiscal space to meet upcoming challenges.
- *Spark private investment accelerations.* Private investment growth still has not reached its pre-pandemic averages across South Asia. A sustained private investment acceleration is needed to meet development and climate objectives. Increased openness to trade and capital flows and improved institutional quality can make such an acceleration more likely.
- *Spur firm growth.* Demographic trends offer the possibility of a “demographic dividend”—provided the growing working-age population can be productively employed. More dynamic non-agricultural

sectors are needed to reallocate labor into more productive activities. Weak employment trends, in part reflect long-standing obstacles to firm growth: a challenging business environment, inefficient land markets, labor market and product market restrictions, and gender inequality.

- *Invest in adaptation.* Governments must adopt adaptation strategies today to improve resilience to future climate disasters. These include investments as well as supportive policy environments. One of the most

effective adaptation strategies is the provision of broad public goods: connective infrastructure, robust social protection, and effective public services in critical sectors like water and health. Roads and bridges, local clinics, piped water—these and other investments generate double dividends, improving productivity in good times while building resilience in bad times.

The quest for broad-based prosperity and resilience will take time and effort. But the right investments and policies will pay out over decades.

*Martin Raiser*  
*Vice President, South Asia Region*



# Executive Summary

*South Asia is expected to continue to be the fastest-growing emerging market and developing economy (EMDE) region over the next two years. This is largely thanks to robust growth in India, but growth is also expected to pick up in most other South Asian economies. However, growth in the near term is more reliant on the public sector than elsewhere, whereas private investment, in particular, continues to be weak. Efforts to rein in elevated debt, borrowing costs, and fiscal deficits may eventually weigh on growth and limit governments' ability to respond to increasingly frequent climate shocks. Yet, the provision of public goods is among the most effective strategies for climate adaptation. This is especially the case for households and farms, which tend to rely on shifting their efforts to non-agricultural jobs. These strategies are less effective forms of climate adaptation, in part because opportunities to move out of agriculture are limited by the region's below-average employment ratios in the non-agricultural sector and for women. Because employment growth is falling short of working-age population growth, the region fails to fully capitalize on its demographic dividend. Vibrant, competitive firms are key to unlocking the demographic dividend, robust private investment, and workers' ability to move out of agriculture. A range of policies could spur firm growth, including improved business climates and institutions, the removal of financial sector restrictions, and greater openness to trade and capital flows.*

**Chapter 1: Deceptive strength.** Output growth in South Asia, projected at 6.0–6.1 percent in 2024–25, continues to exceed that in other emerging market and developing economies, but this is largely due to strong growth in India. In the rest of the region, while picking up, it is expected to remain mostly well below pre-pandemic averages. More than in other emerging market and developing economies, growth is being driven by the public sector. Many of the underlying vulnerabilities that had previously caused balance-of-payments pressures remain, and point to downside risks to growth. Stronger job creation and the easing of financial market restrictions could help boost growth, private investment, and government revenues and put in place conditions conducive to climate adaptation.

**Box 1.1: Accelerating private investment.** Private investment growth has slowed sharply from pre-pandemic averages in all South Asian countries, hampering the region's efforts to meet development and climate objectives. Historically, sustained accelerations in private investment were most likely to occur when institutional quality was strong, the real exchange rate was competitive, and economies were more open to trade and capital flows.

**Spotlight: Who bears the burden of climate adaptation and how?** South Asia is highly vulnerable to climate change. However, severely constrained fiscal positions will limit the scope for

public policies to facilitate climate change adaptation. This means that the burden of adaptation will fall disproportionately on firms, farmers, and households and, especially, poor households, which typically suffer greater damage from climate shocks. A comprehensive and systematic review of climate change research identifies a variety of adaptation strategies used by households, firms, and farmers, which have offset 46 percent of climate damage, on average. Firms have access to the most effective adaptation strategies, typically technology-related, whereas the least effective strategies are employed by households and farmers, often in the form of labor market adjustments. Adaptations that involve public support tend to be more effective than purely private strategies. The analysis suggests that policy should be guided by three principles: (i) implementing a comprehensive package of policies; (ii) prioritizing policies that generate “double dividends”; and (iii) designing policies that target non-climate goals in a manner that does not set back climate-related goals.

**Chapter 2: Jobless development.** South Asia's labor markets stand out among EMDEs for having suffered for decades from declining employment ratios (that is, employment relative to the total working-age population) and exceptionally low shares of women in employment. While agriculture has shed labor, as it has in other EMDEs, the non-agriculture sector has been unusually slow in creating jobs. This

partly stems from challenging institutional and economic environments that have held back firms' growth. As a result, the region has relied on labor productivity and population growth as engines of output growth. However, working-age population growth is expected to slow, and labor productivity growth has already slowed sharply since the COVID-19 pandemic. Sustaining growth will require increasing employment ratios,

especially in the non-agriculture sector and among women, through measures to remove obstacles to growth for businesses, increase openness to international trade, ease labor market and product market restrictions, build human capital, and strengthen equality of women's rights.

# Abbreviations

AEs	advanced economies
AFG	Afghanistan
ATM	Automated teller machines
Avg	Average
BGD	Bangladesh
BTN	Bhutan
CCDRs	World Bank's Country Climate and Development Reports
CO <sub>2</sub>	carbon dioxide
COVID-19	Coronavirus disease 2019
CPI	consumer price index
CSA	Climate-smart agriculture
DGE	Dynamic General Equilibrium
EAP	East Asia and Pacific
ECA	Europe and Central Asia
EFTA	European Free Trade Area
EFW	Economic Freedom of the World
EM-DAT	International Disaster Database
EMDE	emerging market and developing economy
ETD	Economic Transformation Database
FAO	Food and Agriculture Organization
FAT	Firm Adoption of Technology
FDI	foreign direct investment
FY	fiscal year
GDP	Gross Domestic Product
GGDC	The Groningen Growth and Development Centre
GovTech	government use of technology
GST	Goods and Services Tax
HIC	high-income country
ICRG	International Country Risk Guide
IDA	Industrial Disputes Act
IFAD	International Fund for Agricultural Development
ILO	International Labour Organization
IMF	International Monetary Fund
IND	India
IQ	institutional quality
LAC	Latin America and the Caribbean
LIC	low-income country
LKA	Sri Lanka

## Abbreviations (continued)

LMIC	lower-middle-income country
MDV	Maldives
MGNTREGS	Mahatma Gandhi National Rural Employment Guarantee Scheme
MNA	Middle East and North Africa
MPO	Macro Poverty Outlook
ND-GAIN	the University of Notre Dame's Global Adaptation Initiative
NPL	Nepal
NREGA	National Rural Employment Guarantee Act
OECD	Organisation of Economic Co-operation and Development
PAK	Pakistan
PMI	Purchasing Managers' Index
PPP	purchasing power parities
RePEc	Research Papers in Economics
RHS	Right-hand side
SAR	South Asia, South Asia Region
SSA	Sub-Saharan Africa
UMIC	upper-middle-income country
UN	United Nations
UN DESA	United Nations Department of Economic and Social Affairs
UNICEF	United Nations International Children's Emergency Fund
UNU	United Nations University
UNU-WIDER	United Nations University-World Institute for Development Economics Research
U.S.	United States
WAP	Working-age population
WBL	Women, Business and the Law
WDI	World Development Indicators
WEO	World Economic Outlook
WFP	World Food Programme
WHO	World Health Organization
WTO	World Trade Organization



## CHAPTER 1

# DECEPTIVE STRENGTH



## Chapter 1. Deceptive Strength

*Output growth in South Asia, projected at 6.0–6.1 percent in 2024–25, remains stronger than in other emerging market and developing economies, largely due to strong growth in India. Growth in the rest of the region is picking up, but in most countries is expected to remain well below pre-pandemic averages. More than in other emerging market and developing economies, growth is being driven by the public sector. Many of the underlying vulnerabilities that had caused earlier balance-of-payments pressures remain and point to downside risks to growth. Stronger job creation and the easing of financial market restrictions could help boost growth, private investment, and government revenues, and also facilitate climate adaptation.*

### Introduction

Global economic growth has slowed as monetary policies remain restrictive. The slowdown has been orderly so far, with output growth gradually converging to its potential growth rate and inflation returning toward target levels.

In South Asia, output growth has surprised on the upside and remains stronger than in other emerging market and developing economies (EMDEs). This is largely a consequence of India's robust economic expansion (figure 1.1).

Since peaking in mid-2022, inflation in both South Asia and the rest of the world has eased significantly. Supply chains have been resilient to intermittent tensions affecting shipping around the Red Sea and drought in the Panama Canal. The decline of inflation in South Asia has been less rapid than in other EMDEs because of persistent increases in food prices and the lingering effects of past currency depreciations.

Most EMDEs weathered tightening financial conditions around the world with few signs of financial stress. About one in four EMDEs faced difficulties, however, including Afghanistan, Maldives, Pakistan, and Sri Lanka in South Asia. To ease balance-of-payments pressures, several South Asian governments tightened macroeconomic policies, imposed capital controls and import restrictions, and undertaken economic adjustment and reform programs supported by the International Monetary Fund (IMF).

South Asia was the fastest growing EMDE region in 2023, a distinction that is expected to continue this year and next largely due to strong growth in India. As global growth is projected to ease this year, growth in South Asia is also expected to moderate to 6.0 percent—faster than projected in the Fall 2023 edition of the South Asia Development Update, due to the strength of India—and gradual recoveries in countries that had faced recessions in 2022–23. Growth in South Asian economies other than India and Bhutan is projected to remain well below pre-pandemic averages, and growth in South Asia's financially stressed economies is expected to pick up somewhat more slowly than in their peers. Growth in the region is more reliant than elsewhere on the public sector. This may be difficult to sustain given weak fiscal positions around the region.

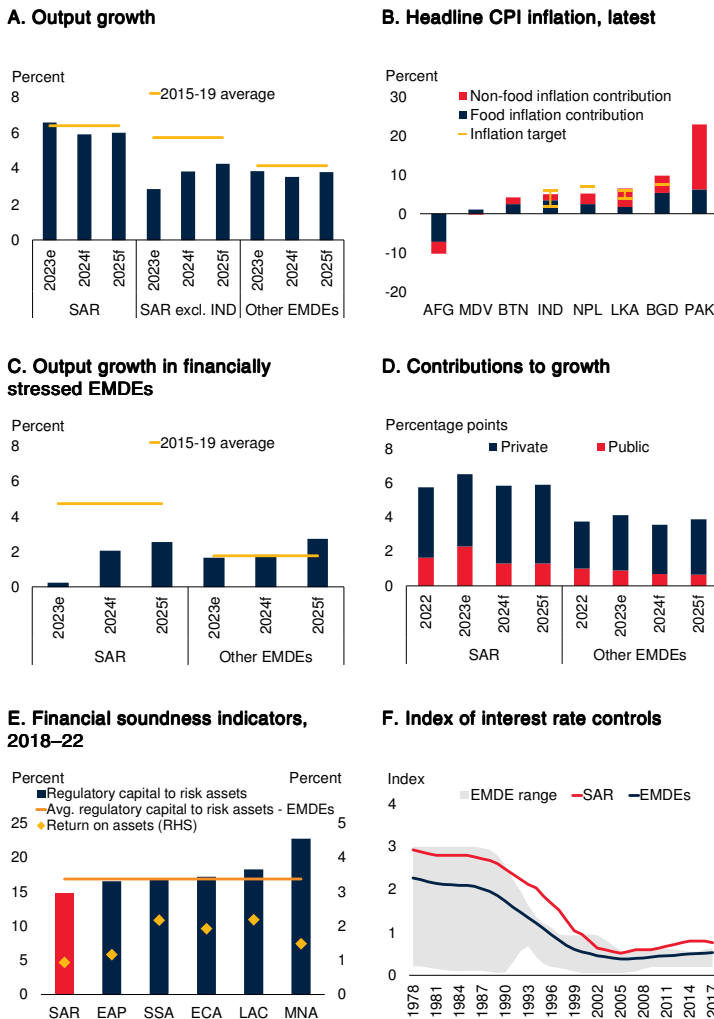
More than any other EMDE region, South Asia was buffeted by sharp currency depreciations after the pandemic. Because of fragile fiscal positions and weaker financial systems than elsewhere, several South Asian countries have limited buffers to respond to financial market disruptions or persistent balance-of-payments pressures. This leaves these countries at risk of further currency crises if, for example, monetary policy loosening in major advanced economies is delayed or domestic policy reforms are postponed. A further risk to the region is the possibility that broader global geopolitical and other tensions lead to an increase in trade barriers and other protective measures. This would depress global trade, particularly in services, on which South Asia relies more than other regions and which is highly sensitive to geopolitical developments. Climate change and the increased prevalence of weather extremes also present a particular, growing risk to the region.

---

*Note:* This chapter was prepared by Patrick Kirby, with contributions from Jonah Rexer, Siddharth Sharma, Margaret Triyana, and Zoe Leiyu Xie.

**FIGURE 1.1 Overview**

Output growth in South Asia is expected to continue to outperform other emerging market and developing economies (EMDEs), but this is mainly attributable to India. In several South Asian countries, inflation remains above recent historical norms, largely owing to rising food prices. Growth in South Asia relies more than elsewhere on the public sector. Some of the region's financial sector policies, including interest rate and other controls, risk distorting the allocation of capital.



Sources: Haver Analytics; International Monetary Fund; Jafarov, Maino, and Pani (2019); Moody's; World Bank MPO (database); World Bank.

Notes: e = estimate; f = forecast; AFG = Afghanistan; BGD = Bangladesh; BTN = Bhutan; EAP = East Asia and Pacific; ECA = Europe and Central Asia; EMDEs = emerging market and developing economies; IND = India; LAC = Latin America and the Caribbean; LKA = Sri Lanka; MDV = Maldives; MNA = Middle East and North Africa; NPL = Nepal; PAK = Pakistan; SAR = South Asia; SSA = Sub-Saharan Africa.

A. C. D. Bars show real GDP growth. Regional aggregate is a weighted average using annual U.S. dollar GDP (at average 2010–19 prices and market exchange rate).

B. Yellow whiskers denote inflation target bands of central banks. Bars show year-on-year inflation rates. Last observation is February 2024 for India and Pakistan and January 2024 for all others.

C. Financially stressed EMDEs includes 58 EMDEs (in South Asia Maldives, Pakistan, Sri Lanka) that are rated by Moody's ratings agency C or below or are considered in, or at high risk of, debt default by the IMF-World Bank Low-Income Country Debt Sustainability Analysis (November 2023).

D. Contributions in SAR assume that half of India's forecasted discrepancy in FY2023/24 is due to public sector. SAR excludes Maldives and Sri Lanka for lack of data.

E. Blue bars show the average regulatory capital-to-risk-weighted assets using constant GDP weights at average 2010–19 prices and market exchange rates

F. Figure shows trend interest rate control index (5-year moving average) for 90 countries from 1973 to 2017. Aggregates are unweighted averages. The index represents the presence, and importance, of administrative or legal controls on interest rates that commercial banks apply to the deposits and loans of their customers. The index ranges from 3 (strictest controls) to 0 (representing a situation in which banks are essentially free to set their own interest rates, subject at most to nonbinding consumer protection limits forbidding usury). For details, see Jafarov, Maino, and Pani (2019).

Slowing global growth and heightened risks to the outlook will make it more difficult for governments to implement the policies needed to address long-standing development challenges. Unless government revenues can be raised substantially, government spending will be severely constrained, including on public goods, which can provide the most effective way to adapt to climate change. Households, in particular, will struggle to adapt to climate change because their ability to shift toward nonagricultural sectors is hindered by weak job creation. To sustain growth, reforms are needed to spur firm growth, improve competitiveness, ensure level playing fields among firms, and achieve a more efficient allocation of capital.

## Economic activity

Output growth in South Asia has continued to exceed that in other EMDEs, largely reflecting a strong expansion in India. Capital flows in several countries remain weak while import compression has improved current account balances.

## Global developments

Global economic growth has slowed as monetary policy has remained restrictive in many countries in efforts to lower inflation. Fiscal positions have generally deteriorated, not only because of higher interest rates and the build-up of debt during the pandemic but also because of fiscal policy relaxation in advanced economies.

Thus far, the slowdown in global growth has been orderly. Output growth is gradually converging to its potential rate and inflation is returning toward targets or pre-pandemic levels without triggering recessions in many countries (figure 1.2). The slowdown has been less severe than expected; growth in 2023 has surprised on the upside for several major economies. Even so, geopolitical risks have risen as a result of conflicts in the Middle East.

In the United States, output and employment have grown rapidly, partly reflecting a significant fiscal boost to demand in 2023. Estimated growth in 2023 has been upgraded significantly from projections at end-2022, and economic sentiment



indicators have risen sharply since the end of 2023. Meanwhile inflation has slowed substantially.

In contrast, the euro area economy has shown multiple signs of weakness. GDP growth stalled in 2023 and activity contracted in its largest economy, Germany. The manufacturing sector is struggling with continued high costs and anemic domestic and international demand. Financial conditions remain tight and confidence is low.

China's economy is experiencing a downturn in the property sector, as major property developers have defaulted on their debts. Policymakers have provided some support to stabilize activity. Both imports and exports contracted steadily for much of 2023, but have rebounded more recently.

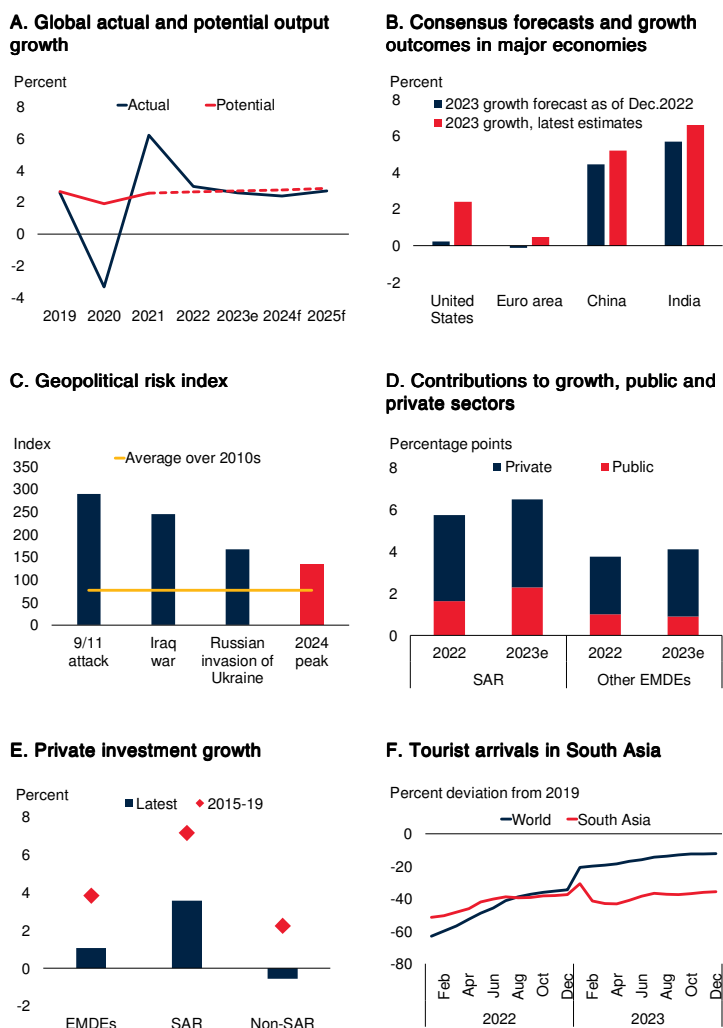
For other EMDEs, growth has been stable but weak. Commodity exporters face particularly strong headwinds from weak global manufacturing activity and declining commodity prices. A substantial minority—about one in four EMDEs, including Afghanistan, Maldives, Pakistan, and Sri Lanka in South Asia—are struggling to adjust to restrictive financing conditions. These EMDEs have weak credit ratings and high financing costs. Several have been forced to default on sovereign debts because they have lost access to market-based financing. These countries remain vulnerable to new interest rate shocks, which could trigger a renewed period of capital outflows, currency depreciation, and surging inflation.

## Regional developments

The South Asian economy (excluding Afghanistan) grew by 6.6 percent in 2023, 1.0 percentage point faster than projected in the October edition, reflecting better-than-expected growth in India. This was the fastest growth rate of any EMDE region. In most countries, earlier large current account deficits have narrowed, in part due to import compression, but capital inflows have continued to be subdued. In several countries, the measures used have continued to impede growth. As a result, growth has mostly been weaker than pre-pandemic averages in South Asian countries other than India.

## FIGURE 1.2 Economic activity

*Global output growth has converged to its potential and growth surprised on the upside for some major economies. Geopolitical risks have risen, but have remained lower than in previous periods of turmoil. In South Asia, too, growth is estimated to have been higher than anticipated, largely due to the public sector. Investment in all South Asian countries remains below pre-pandemic averages. The recovery in international travel has provided some support but travel has yet to return to pre-pandemic levels.*



Sources: Caldara and Iacoviello (2022); CEIC; Consensus Economics; Haver Analytics; Kilic Celik et al. (2023); WDI (database); WEO (database); World Bank MPO (database); World Bank.

Note: EMDEs = emerging market and developing economies; SAR = South Asia.

A. Red dashed line is computed as the interpolation between the 2021 value from Kilic Celik et al. (2023) and WEO 2028 GDP forecasts.

C. Based on Caldara and Iacoviello (2022). Last observed date for 2024 peak is January 2024. Latest data available is January 2024.

D. Contributions in SAR assume that half of India's forecasted discrepancy in FY2023/24 is due to public sector. SAR excludes Maldives and Sri Lanka due to lack of data.

E. Panel shows real private fixed investment growth. "Latest" data refers to geometric average of 2020-21. South Asia includes Bangladesh, Bhutan, India, Nepal, and Pakistan. Non-SAR EMDEs include 44 economies.

F. Cumulative number of tourist arrivals in South Asia since January of each year. Last observation for 2023 is December. Sample includes Maldives, Nepal, and Sri Lanka. Bhutan stopped publishing tourism statistics during the pandemic and has not resumed.

Growth of government consumption and total investment remained robust amid election campaigns in almost all South Asian economies over 2023–24. Government consumption and total investment grew by 6.2 percent and 8.5 percent, respectively, in 2023—more than double the growth of private consumption. Private investment growth in all countries remained well below pre-pandemic averages, however. Robust private investment accelerations that were underway in several South Asian countries before the pandemic have since subsided (box 1.1).

The recovery in international travel to South Asia has been slower than the global average. However, a pickup around the middle of last year has provided some support to growth in tourism-dependent countries such as Maldives, Nepal, and Sri Lanka.

In *Bangladesh*, growth slowed from around 7 percent in FY2021/22 to 6.1 percent in 2023Q3, according to the provisional estimate of Bangladesh's Bureau of Statistics. Trade and foreign exchange restrictions put into place in response to balance-of-payments pressures in 2022–23 contributed to a severe import contraction that narrowed the current account deficit. Shortages of imported intermediate goods impeded domestic activity.

In *Bhutan*, growth was stronger than expected in 2023 and forecasts have been upgraded for 2024–25, largely reflecting strong exports of hydroelectricity and the re-opening of borders in late 2022. The government has partially relaxed the tourism levy imposed on non-Indian foreign visitors, but the number of visitors is still well below pre-pandemic levels. Imports of crypto-mining equipment widened the current account deficit to more than 30 percent of GDP in 2022–23.

In *India*, economic activity surprised on the upside in 2023Q4, with growth of 8.4 percent from a year ago. The expansion was supported by rapid increases in investment and government consumption. More recent survey data point to continued strong performance. In February, India's composite purchasing managers index (PMI) stood at 60.6, well above the global average

of 52.1 (a value above 50 indicates expansion). Growth in FY2023/24 is estimated to have exceeded earlier forecasts.

In *Maldives*, the economy grew by 2 percent year-on-year in 2023Q3, a significant slowdown from the 13.9 percent growth of 2022. Tourism activity contracted by 5 percent in the year to 2023Q3, the second consecutive quarterly contraction, as tourists increasingly shifted from high-end resorts to lower-end guesthouses. Fiscal policy began to tighten.

In *Nepal*, following the lifting of import controls, economic growth has shown signs of recovery as expected from its dip in 2023, especially in the services sector. Remittance inflows grew at a double-digit pace between July 2023 and January 2024, which has helped rebuild foreign reserve buffers to 12 months of imports but has not yet translated into strong private consumption growth.

*Pakistan's* growth strengthened to 2.1 percent in 2023Q3 after two consecutive quarters of contraction, propelled by 5 percent growth in agriculture and 3 percent growth in manufacturing. Nevertheless, growth remains less than half its pre-pandemic average and industrial production remains well below its pre-recession level. The current account deficit narrowed in 2023Q4, with both imports and exports recovering.

*Sri Lanka's* economy is also returning to growth, as expected. Activity increased by 1.6 percent year-on-year in the year to 2023Q3, ending an extended recession that started in early 2022. A recovery in tourism has boosted growth while also contributing to a substantial improvement in the current account balance. Remittances have also recovered after plummeting in 2021 and 2022, although they remain below pre-pandemic levels.

*Afghanistan* is struggling with drought and deflation. In 2020–22, nearly 80 percent of the population was food insecure and 30 percent undernourished, on average (FAO, IFAD, UNICEF, WFP, and WHO 2023). An extended period of unusually dry weather will worsen conditions. The economy is likely to be

## BOX 1.1 Accelerating Private Investment <sup>a</sup>

*Private investment growth has slowed sharply from pre-pandemic averages in all South Asian countries, hampering the region's efforts to meet development and climate objectives. Historically, sustained accelerations in private investment were most likely to occur when institutional quality was strong, the real exchange rate was competitive, and economies were more open to trade and capital flows.*

### Introduction

Private investment growth has slowed sharply from pre-pandemic (2015–19) rates in all countries in South Asia (figure B1.1.1). South Asia's private investment weakness is part of a broader phenomenon in emerging markets and developing economies (EMDEs), although it is less pronounced in South Asia than elsewhere.

Thus far in the 2020s, South Asia's private investment growth (3.5 percent per year) averaged about half its pace in the five years preceding the pandemic (7.2 percent per year during 2015–19). Notwithstanding this slowdown, South Asia's private investment growth has remained above that in other EMDEs, where the deceleration has also been pronounced.

Although private investment has grown more quickly than elsewhere, it still makes up a smaller share of output in South Asia than in other EMDEs. Private investment has accounted for 23 percent of GDP since 2020, down from its pre-pandemic share of 24 percent and well below the 31 percent share of GDP among other EMDEs.

With weak private investment, several South Asian countries have relied heavily on public investment for growth (World Bank 2023a). This is unlikely to be sustainable given weak fiscal positions, with high debt-to-GDP ratios and poor revenue collection in most countries in the region.

The shortfall of private investment is an obstacle to achieving both development and climate goals. Achieving those goals will require substantial investment to accelerate fill infrastructure gaps, adapt to climate change, facilitate the energy transition, accelerate poverty reduction, catch up to advanced-economy incomes, and advance shared prosperity (G20 and IEG 2023; Rozenberg and Fay 2019; Stamm and Vorisek 2023; UNEP 2023b).

Private investment can lay the foundation for future growth. It increases the capital stock available to workers and it contributes to technological progress, as it often embodies productivity-enhancing technologies and facilitates the reallocation of resources toward more productive uses (Dieppe, Kilic Celik, and Okou 2021; Syverson 2011). Progress on these fronts is essential to raise labor productivity in South Asia, which is about one-third of other EMDEs. The region consumes twice as much energy per unit of output as the global average, in part because firms lag in adopting advanced energy-efficient technologies (World Bank 2023a).

A sustained acceleration of private investment should be a policy priority for South Asia. Investment accelerations are typically periods of rapid growth in output, employment, and productivity, accompanied by improvements in fiscal positions, poverty, and inequality (World Bank 2024a). This box investigates two questions.

- What have been the features of private investment accelerations?
- What have been the preconditions associated with starts of private investment acceleration?

**Contribution.** This box extends the analysis of aggregate investment accelerations in World Bank (2024a) to private investment, which is a more pressing concern for South Asia. Earlier research has examined output accelerations in event studies (Berg, Ostry, and Zettelmeyer 2012; Hausmann, Pritchett, and Rodrik 2005; Jones and Olken 2008; Jong-A-Pin and de Haan 2008) and the correlates of aggregate investment in panel regressions (Anand and Tulin 2014; Caselli, Pagano, and Schivardi 2003; Kose et al. 2017; Qureshi, Diaz-Sanchez, and Varoudakis 2015; World Bank 2019). None of these studies has identified the correlates of private investment accelerations.

**Main findings.** The main findings of this box include the following.

- Private investment accelerations have lasted about eight years, with private investment growth

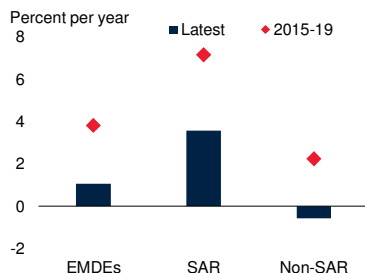
<sup>a</sup> This box was prepared by Patrick Kirby and Kersten Stamm.

## BOX 1.1 Accelerating Private Investment (*continued*)

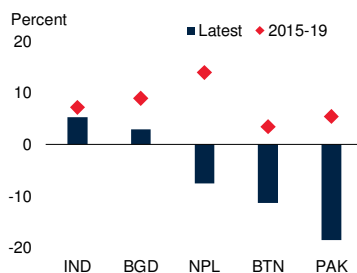
### FIGURE B1.1.1 Private investment in South Asia

Private investment growth has slowed from pre-pandemic averages in all South Asian countries, as in other emerging market and developing economies (EMDEs). Whereas private investment has recently accounted for an increasing share of output in other EMDEs, its share has fallen in South Asia. Strong private investment is critical to boosting labor productivity and improving energy efficiency.

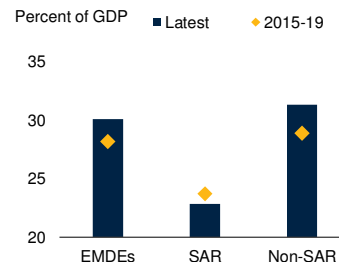
#### A. Private investment growth



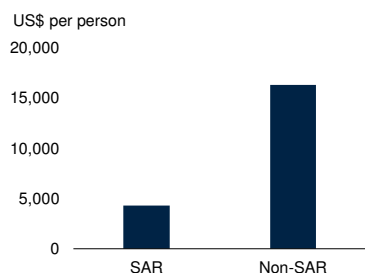
#### B. Private investment growth



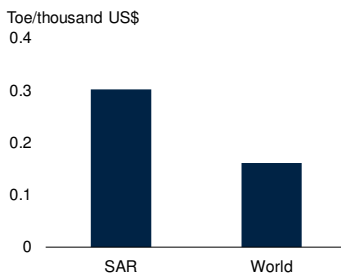
#### C. Private investment



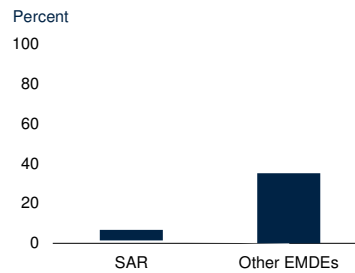
#### D. Labor productivity in EMDEs, 2010-19



#### E. Energy intensity of GDP, 2020



#### F. Share of firms adopting programmable thermostats, 2023



Sources: Haver Analytics; OECD, Green Growth database; UN Population Division database, WDI (database); World Bank: Firm Adoption of Technology (FAT) Surveys Wave 2; World Bank (2023a).

Note: BGD = Bangladesh; BTN = Bhutan; EMDEs = emerging market and developing economies; IND = India; NPL = Nepal; PAK = Pakistan; SAR = South Asia. Geometric annual averages. Aggregates computed using GDP in U.S. dollars (at 2010–19 average prices and exchange rates) as weights.

A. B. C. Charts show real private fixed investment growth (A and B) or in percent of GDP (C). 2015–19 is the annual average. "Latest data" in A refers to geometric average of 2020–21 because of limited data and to even out the deep contractions of 2020 and strong rebounds of 2021. "Latest data" in B refers to 2023, except for Bhutan, which is based on the 2020–21 average, and for India, which is based on 2022. "Latest data" in C refers to 2020–21 average.

D. Labor productivity is GDP per employee in U.S. dollars (at 2010–19 average prices and exchange rates).

E. Data on energy consumption in South Asia are available only for Bangladesh, India, Pakistan, and Sri Lanka. Latest available data are for 2020. Energy intensity is defined as energy consumption (in tons of oil equivalent, toe) relative to nominal GDP (in thousand U.S. dollars) in 2020.

F. Includes data from World Bank's FAT Surveys of 10,090 firms in seven EMDEs (Bangladesh, Brazil, Cambodia, Chile, Ethiopia, Georgia, and India). The charts depict the range of country-level averages of the percent of firms adopting programmable thermostats in South Asia and other EMDEs. For each country, the average percent of firms adopting a technology is estimated using sampling weights.

averaging 12 percent a year during these episodes. Hence, episodes of private investment acceleration have been somewhat shorter and shallower than episodes of total investment acceleration. Accelerations in South Asia have been somewhat stronger and shorter than those in the average EMDE.

- Most private investment accelerations in EMDEs have tapered off gently rather than ending in crisis.

Only about one-tenth of private investment accelerations in EMDEs ended in financial crises and one-fifth in recessions (although mostly coinciding with global recessions).

- Private investment accelerations have been more likely to start when institutional environments were strong, when countries were more open to global trade and finance, and when real exchange rates were competitive.

### BOX 1.1 Accelerating Private Investment (*continued*)

- The probability of initiating a private investment acceleration in South Asia could be almost two-thirds higher if the region moved to the EMDE average in its openness to global trade and finance and if its institutional quality was brought in line with the top quartile of EMDEs.

**Data.** Private investment is defined as real gross fixed capital formation by the private sector, as reported by the IMF. This study focuses on growth in private investment per capita because it parallels growth in GDP per capita, the most basic measure of growth in living standards and central to the analysis of long-term economic growth (Libman, Montecino, and Razmi 2019). The dataset covers up to 105 EMDEs over 1960–2022.

**Definitions and methodology.** Following World Bank (2024a), an event study approach is used to identify private investment accelerations. The approach follows earlier studies on accelerations of output and capital stock, and imposes rules to ensure that the identified episodes feature *sustained increases in private investment growth to a rapid rate*. Each episode is defined by the following characteristics: 1) it must be sustained for at least six years; 2) average annual per capita growth of private investment in the acceleration must be at least 4 percent; 3) the average annual growth rate of private investment per capita must be at least 2 percentage points higher than the average of the previous six years to ensure that the episode is an acceleration; and 4) the private capital stock per capita at the end of the episode must exceed its pre-episode peak. These rules help exclude purely cyclical rebounds in investment growth (Barro and Sala-i-Martin 1992; Christiano and Fitzgerald 2003).

An acceleration is deemed to conclude when private investment growth turns negative, or when inclusion of the current year lowers the average annual per capita investment growth rate since the acceleration's start to below 4 percent. This approach yields 126 episodes of private investment accelerations in EMDEs and 82 episodes in advanced economies during 1960–2022. Twelve accelerations have occurred in South Asia: two in Bangladesh (1976–1981, 1992–2019), two in India (1987–93, 1995–2001), three in Nepal (1973–78, 1991–96, 2013–19), one in Pakistan (1982–87), and four in Sri Lanka (1976–82, 1990–2000, 2002–07, 2010–18).

### Features of private investment accelerations

**EMDEs.** The average private investment acceleration in EMDEs lasted 8.1 years, somewhat shorter than the average total investment acceleration (figure B1.1.2). During accelerations, private investment grew by 12.2 percent per year, on average—somewhat more slowly than during the average total investment acceleration. Private investment accelerations were often accompanied by strong public investment. Most accelerations tapered off smoothly; few ended in financial crises. Specifically, only 11 percent of the 187 private investment accelerations in the sample ended in a currency, banking, or debt crisis—as defined by Laeven and Valencia (2020)—within one year of the end of the episode. Nor did these episodes end in recessions: only one-fifth of private investment accelerations were followed by a recession in the two years following the end of the episode, with more than half of these recessions coincided with global recessions.

**South Asia.** Countries in South Asia have had more investment accelerations over the past 50 years than other EMDEs, experiencing an average of 2.4 acceleration episodes per country compared with 1.8 in other EMDEs. Although private investment accelerations became less common in EMDEs generally in the 2010s, they became more frequent in South Asia. In South Asia, as in EMDEs generally, private investment growth averaged 12.0 percent per year during acceleration episodes. Accelerations in South Asia tended to start stronger, but fade more quickly than in EMDEs generally—75 percent of accelerations in South Asia lasted 6–7 years, compared with 60 percent in EMDEs overall. As with EMDEs generally, private investment accelerations in South Asia rarely turned into crises: Only one of the 12 private investment accelerations in South Asia culminated in a banking, currency, or debt crisis in the following year—in line with the 11 percent of accelerations that ended in crisis in EMDEs generally.

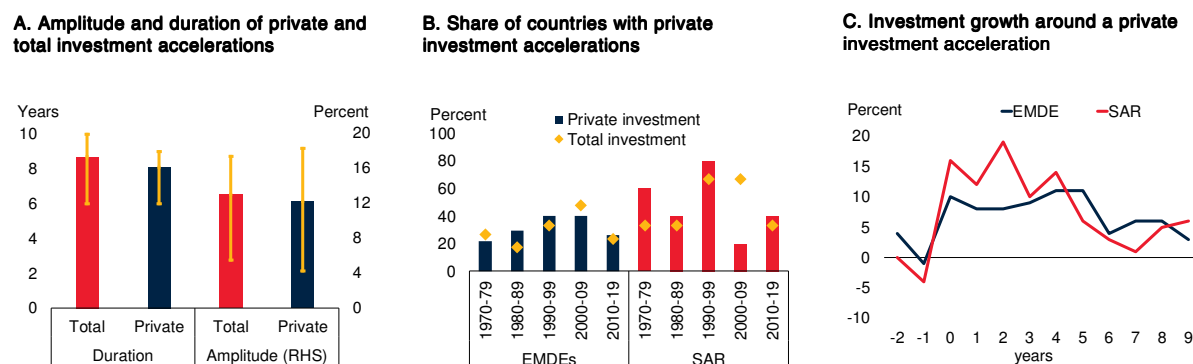
### Correlates of starts of private investment accelerations

A rich body of empirical research has shown that investment growth is affected by economic policies, including those related to the institutional environment, monetary frameworks, exchange rate competitiveness, and macroeconomic stability. An

## BOX 1.1 Accelerating Private Investment (*continued*)

### FIGURE B1.1.2 Features of private investment accelerations in EMDEs

The average private investment acceleration was somewhat shorter and shallower than the average total investment acceleration. In the pre-pandemic decade, the number of South Asian countries in a private investment acceleration increased, in contrast to other emerging market and developing economies (EMDEs). Private investment accelerations in South Asia have tended to start stronger but fade more quickly than those in other EMDEs.



Sources: Chinn and Ito (2008); Haver Analytics; WDI (database).

Note: EMDEs = emerging market and developing economies; SAR = South Asia. Sample includes up to 105 EMDEs, of which five are in South Asia.

A. Bars show the average duration and investment growth rate during accelerations for total and private investment growth in EMDEs.

B. Bars show the share of EMDEs and economies in SAR that started a private investment acceleration in a decade. Diamonds show the share of total accelerations.

C. Lines show the median annual private investment growth rate around the start of private investment acceleration episodes. Year 0 refers to the start year of an acceleration.

econometric exercise can help identify the factors that have helped spark private investment accelerations in EMDEs.

**Econometric approach.** A panel logit regression is used to estimate the correlates of the onset of a private investment acceleration episode, including currency overvaluation (measured by the index developed by Rodrik 2008); institutional quality (as captured by the law and order index of the International Country Risk Guide ICRG); trade openness (measured as in Alesina et al. 2020); and capital account openness (measured in the index developed by Chinn and Ito 2008). These correlates are the same as those used to estimate the probability of an aggregate investment acceleration in World Bank (2024a). Table B1.1.1 shows the estimation results.

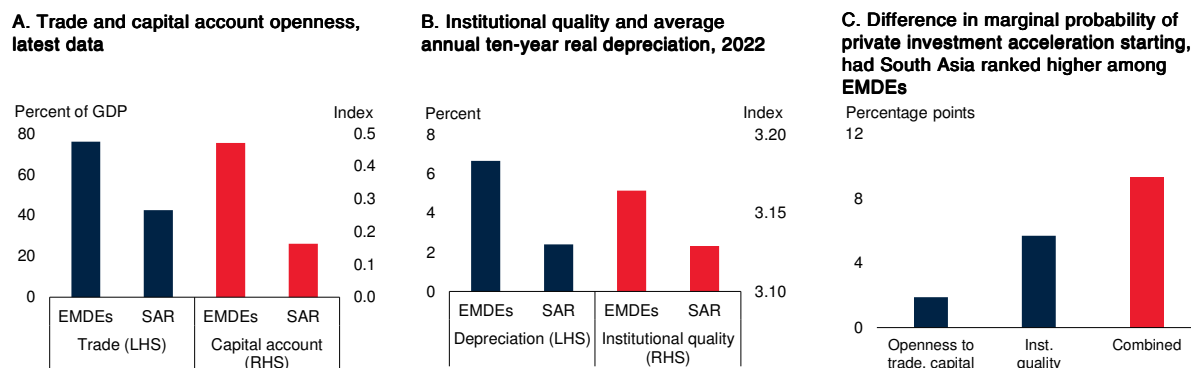
**Estimation results.** Private investment accelerations started in 4.5 percent of the country-year pairs in the sample; this can be interpreted as the unconditional probability of a private investment acceleration starting in the average country in an average year. Several factors increased this probability significantly.

- *Openness to trade and international capital.* A reduction in restrictions on trade or capital flows coincided with about 60 percent and 20 percent of the starts of private investment accelerations, respectively.
- *Institutional quality.* The probability of an investment acceleration starting in the average EMDE in the bottom quartile of ICRG's law and order index (for example, Guatemala) was three-quarters that of the average EMDE in the top quartile (for example, Vietnam). Also, institutional quality amplified the benefits of trade openness (as captured by the interaction term in table B1.1.1).
- *Real exchange rates.* A larger deviation of the real exchange rate from its predicted level based on the cross-country pattern of per capita incomes—a larger “overvaluation” as measured by Rodrik (2008)—was associated with a statistically significantly lower probability that a private investment acceleration takes off in the subsequent year. For every 10 percentage-point deviation, the probability of the start of a private investment

### BOX 1.1 Accelerating Private Investment (*continued*)

#### FIGURE B1.1.3 Correlates of the probability of a private investment acceleration starting

*Weaker-than-average institutional quality and less trade and capital account openness reduce the likelihood of a private investment acceleration starting in South Asia. Reforms that open trade and capital accounts and improve institutional quality could make sustained private investment accelerations more likely.*



Sources: Haver Analytics; WDI (database).

Note: SAR = South Asia. EMDEs = emerging market and developing economies.

A. Latest available data are from 2022 for trade in percent of GDP and from 2021 for capital account restrictions.

B. Latest available data are from 2022. Blue bars show the pace of average annual real effective exchange rate depreciation ("Depreciation") from 2013 to 2022, as measured by the deviation of the logarithm of the real exchange rate from its predicted value in a cross-country regression on the logarithm of per capita GDP (in percentage points)

C. Panel based on regression results shown in table B1.1.1. "Inst. quality" = institutional quality. Bars show the impact of improvements in economic policies on the probability of initiating a private investment acceleration. Policies consist of raising the trade and capital account openness in SAR to the EMDE average over ten years and moving institutional quality to the top quartile of EMDEs. The combined reform impact estimates the effect of implementing all policies concurrently.

acceleration in the subsequent year was reduced by 1.3 percentage points.

**Implications for South Asia.** On average, South Asian countries rank below the average EMDE in trade and capital account openness and in the ICRG's law and order index (figures B1.1.3). The estimation results suggest that private investment accelerations might be more likely to start in South Asia if the region was more open to trade and finance, and had stronger institutional quality.

- *Trade and capital account openness.* Were South Asia to move to the level of trade and capital openness of the average EMDEs, it would have a 1.9-percentage-point higher probability of sparking a private investment acceleration in any year, over a decade.
- *Institutional quality.* Were the average South Asian country's law and order index at the level of the best-rated quartile among EMDEs, a private investment acceleration would be 5.7 percentage points more likely to start.

Because of limited data, the econometric exercise examined only a subset of factors. Beyond this perimeter of the regression, the probability of starting an investment acceleration in South Asia would likely be higher still if combined with public investment in physical and human capital, regulatory streamlining, reduced government support for state-owned enterprises, and improved access for the private sector to credit. For example, public infrastructure projects—such as the construction of the Padma Bridge in Bangladesh and various railways and road projects in India—can spur private investment and economic activity more broadly in the surrounding area (World Bank 2023b, 2023c).

### Conclusion

Economic development is rarely a smooth, linear process. Countries have often transitioned from poverty to wealth through a series of sustained accelerations, during which per capita GDP grows and poverty declines rapidly as entire sectors are transformed. Increasing the probability of these accelerations can help

### BOX 1.1 Accelerating Private Investment (*continued*)

fill infrastructure gaps, enable adaptation to climate change, facilitate the energy transition away from fossil fuels, accelerate poverty reduction, and advance shared prosperity. Several policy options are available to increase the likelihood of a private investment acceleration.

**Supportive institutions.** Public institutions also tend to attract more private investment and foreign direct investment (Ali, Fiess, and MacDonald 2010; Gwartney, Holcombe, and Lawson 2006; Heilbron and Whyte 2019). Surveys of firms regularly show that policy and regulatory uncertainty, followed by taxation and burdensome regulations, are the most critical barriers to private sector investment (OECD 2015). Public institutions can also provide critical complementary services to enable efficiently functioning markets and allow greater scope for competition that can help unleash private investment.

**Business environment.** Spurts of reforms to improve the investment climate, especially in EMDEs, have been associated with an increase in real investment growth of about 6 percentage points per year (Stamm and Vorisek 2023). In Pakistan, tax policies discourage investment

in the tradable sector, and investment laws discriminate against foreign investors (World Bank 2023d). Reducing subsidies or budgetary support to state-owned enterprises in Bhutan, Nepal, and Pakistan could allow greater private sector participation, while also increasing the room in state budgets for other programs (World Bank 2022a, 2023d, 2023e). Similarly, in Pakistan, state-owned enterprises tend to have low investment rates, while consuming government resources equivalent to about 23 percent of the fiscal deficit in FY2023 (World Bank 2023f). Better governance of state-owned enterprises and a more level playing field could improve the allocation of capital (World Bank 2023g).

**Other factors.** In addition to the variables identified by the regression, other factors are likely to facilitate private investment, in particular improved access to finance or land. Adverse liquidity shocks caused by troubled banks can hinder investment (Kalemli-Ozcan, Kamil, and Villegas-Sanchez 2016). Unclear or difficult-to-enforce ownership rights to assets such as land can limit the collateral available to potentially successful small companies, which could be an important engine of vigorous private investment growth (Zhang et al. 2020).

experiencing a third consecutive year of recession in 2024 and is struggling to provide work for migrants returning from Iran and Pakistan.

## Inflation

*Since peaking in mid-2022, inflation in both South Asia and the rest of the world has receded rapidly. In most countries, however, it remains above its pre-pandemic pace and the midpoint of central bank targets.*

### Global developments

Median global consumer price headline inflation peaked at 9.4 percent (year-on-year) in July 2022. It has since steadily declined to 3.4 percent in January 2024 (figure 1.3). The fall in inflation can be attributed to the effects on global demand of monetary policy tightening since 2021 and easing

supply disruptions in commodity markets. Supply chains appear to have recovered from pandemic-related disruptions and seem resilient despite tensions around the Red Sea and drought that has limited shipping in the Panama Canal.

### Regional developments

Inflation has also declined in South Asia, but not as quickly as in other EMDEs. Consumer price inflation in the median EMDE peaked at 10 percent (year-on-year) and has fallen to 4.2 percent in the most recent data. Meanwhile, in South Asia, median inflation peaked at 8.9 percent and has fallen to 5.9 percent in January 2024.

Persistently higher regional food inflation is an important reason that inflation has receded more slowly in South Asia. On global markets, most food prices have been declining or stable in recent



years. In South Asia, however, food inflation has remained elevated because of local supply disruptions, some of which may be related to climate change. Food inflation is responsible for at least half of headline inflation recently recorded in Bangladesh, Bhutan, India, and Maldives.

In Bangladesh, Pakistan, and Sri Lanka, exchange rate depreciations have been a major driver of inflation since 2021.

Inflation is expected to slow across the region as a result of the fading impact of previous currency depreciations, falling commodity prices, and previous central bank tightening. After raising policy rates during 2022 and part of 2023, monetary policy rates for most countries in the region have either been held steady at high levels or started to be cut.

In *Bangladesh*, inflation has been persistently above the central bank's target of 6 percent since early 2022, when prices were pushed up by the commodity price spike caused by Russia's invasion of Ukraine, significant currency depreciation, and an increase in administered domestic prices of fuel, gas and electricity. Recently, core inflation (excluding food and energy prices) and inflation expectations have declined, but headline inflation remains close to 10 percent. The central bank has responded to elevated inflation by increasing its policy rate by 300 basis points since April 2022.

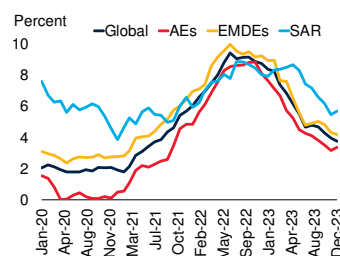
In *India*, inflation has remained within the Reserve Bank of India's 2–6 percent target range since a spike in mid-2023, and the policy rate has remained unchanged since February 2023. Food price inflation has been elevated, partly reflecting a weak harvest due to El Niño.

In *Pakistan*, headline inflation was 23 percent in the year to February 2024, down substantially from its peak of 38 percent in May 2023. The decline in inflation has reflected the stabilization of the currency and falling global commodity prices. Agricultural production has recovered from the effects of last year's floods, reducing the country's reliance on costly imports. The State Bank of Pakistan has kept its policy rate unchanged at 22 percent since June 2023.

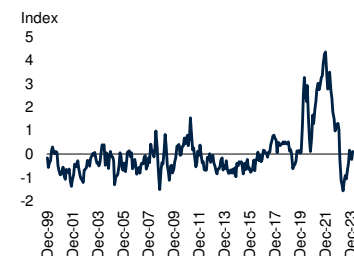
## FIGURE 1.3 Inflation

Global inflation has declined since mid-2022. Supply chains have been resilient to recent disruptions around the Red Sea. In Bangladesh and Pakistan, inflation remains above recent historical norms. Inflation in South Asia is expected to continue declining, and monetary policy has started to loosen in some countries.

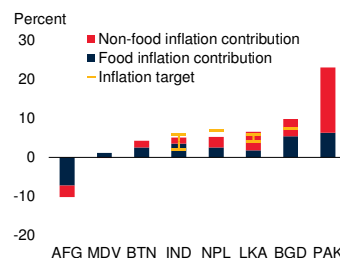
### A. Headline CPI inflation



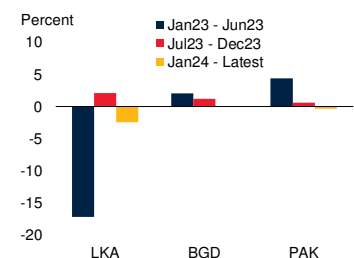
### B. Global supply chain pressure index



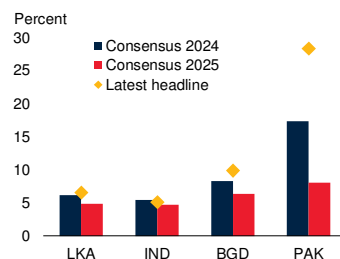
### C. Headline CPI inflation in South Asia, latest



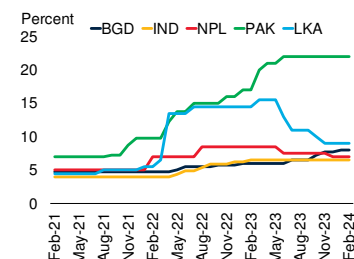
### D. Change in exchange rates against the U.S. dollar



### E. Consensus inflation forecast for South Asian countries



### F. Monetary policy rates



Sources: CEIC; Consensus Economics; Haver Analytics; Federal Reserve Bank of New York; World Bank.

Note: AEs = advanced economies; AFG = Afghanistan; BGD = Bangladesh; BTN = Bhutan; EMDEs = emerging market and developing economies; IND = India; LKA = Sri Lanka; MDV = Maldives; NPL = Nepal; PAK = Pakistan; SAR = South Asia.

A. Solid lines show median of year-on-year headline inflation. Last observation is January 2024.

B. Global Supply Chain Pressure Index integrates transportation cost data and manufacturing indicators.

C. Yellow whiskers denote inflation target bands of central banks. Last observation is February 2024 for India and Pakistan and January 2024 for all others.

D. Positive values denote year-on-year depreciation of monthly average exchange rates against the U.S. dollar.

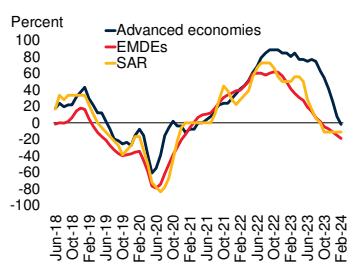
E. Bars show inflation forecasts from Consensus Economics surveys for March 2024. Latest actual headline Consumer Price Index is January 2024.

F. Solid lines show the policy rate for each country. Last observation is February 2024.

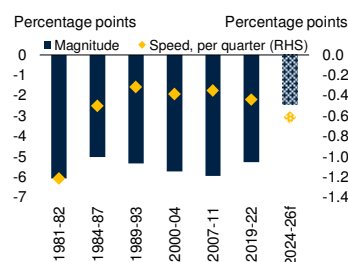
## FIGURE 1.4 Financial conditions

The global monetary tightening episode appears to have ended. The pace of loosening is expected to be more gradual than after previous episodes. Monetary tightening across the region has contributed to slowing private credit growth. Market risk perception of most South Asian countries has declined but remains high.

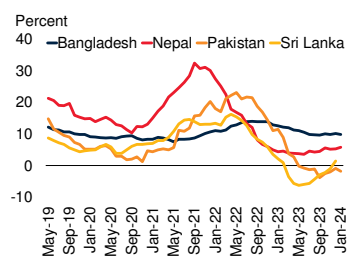
### A. Balance of countries with monetary policy rate increases



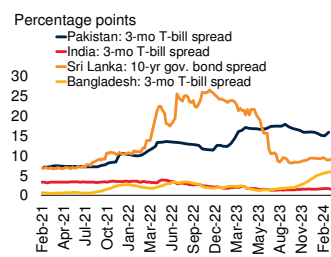
### B. Changes in U.S. real monetary policy rates during loosening episodes



### C. Private sector credit growth



### D. Interest rate spread against U.S. rate



Sources: CEIC; Federal Reserve Bank of St. Louis; Haver Analytics; World Bank.

Note: EMDEs = emerging market and developing economies; SAR = South Asia.

A. Tightening/loosening is percent of central banks raising policy interest rates minus the percent lowering policy rates in the prior three months, 3-month-moving average. Sample includes 17 advanced economies and 58 EMDEs, six of which are in South Asia.

B. "Magnitude" is the peak-to-trough change and "speed" is the average change per quarter during periods of loosening real rates. Real rate is the U.S. monetary policy rate minus one-year-ahead expected inflation from consumer surveys, adjusted for persistent errors. The shaded bar shows the market policy rate expectations for the 2024-26 period.

C. Year-on-year growth of private sector credit.

D. Difference (spread) between interest rates on treasury bills and bonds issued by SAR countries and those with similar maturities issued by the U.S. Treasury. The instruments are, for Bangladesh three-month Treasury bill (compounded rate), for India three-month Treasury bill yield, for Pakistan three-month treasury bill auction yield, for Sri Lanka 10-year government bond yield, and for United States three-month treasury bill yield or 10-year Treasury bond yield.

In *Sri Lanka*, inflation has swung widely, peaking around 70 percent (year-on-year) in September 2022, then falling to around 6 percent in February 2024. Many factors—such as increased availability of fertilizers, fewer shortages of essential goods, gradual economic stabilization, the phasing out of monetary financing of the budget, and the fading effects of the sharp depreciations in 2022—have contributed to disinflation. The Central Bank of Sri Lanka started to reduce its policy rate in June 2023, earlier than other monetary authorities in the region, and has since brought it down by 6.5 percentage points from its peak to 9.0 percent.

## Financial conditions

Financial conditions remain restrictive but most central banks' monetary policy rates seem to have peaked.

### Global developments

Restrictive monetary policies in major advanced economies are continuing to contribute to elevated borrowing costs, slowing credit growth, and rising corporate bankruptcies. Most EMDEs have weathered this period with few signs of financial stress, with many countries that in the past suffered crises in similar contexts apparently benefiting from improved monetary, fiscal, and financial policy frameworks (Ha, Kose, and Ohnsorge 2019).

Around the world, monetary policy rates appear to have peaked, with an increasing number of central banks loosening policy, particularly in EMDEs (figure 1.4). In light of still-elevated inflation in many countries, the pace of loosening is expected to be more gradual than in past episodes.

### Regional developments

In the first half of 2023, several South Asian countries experienced balance-of-payments crises with significant capital outflows, widening credit spreads, exchange rate depreciations, and declines in foreign exchange reserves. These pressures were stemmed by a combination of monetary policy tightening, capital controls, import restrictions, and agreements on IMF-supported policy programs. In the second half of 2023 and beginning of 2024, current account balances improved in most South Asian countries, helped by rising remittance inflows, recovering tourism, and continued import compression due to previous import restrictions (figure 1.5).

However, capital inflows remain subdued. Foreign direct investment (FDI) inflows are persistently below pre-pandemic levels and, in some cases, declining. Net portfolio flows rebounded in India but remained low in Bangladesh and Pakistan. In Pakistan, the easing of exchange rate restrictions has helped reduce the premium between informal-market and official exchange rates, but in

Bangladesh the premium remains sizable. Despite some accumulation, foreign currency reserves in several South Asian countries remain barely at, or below, 3 months of imports.

Restrictive central bank policy has contributed to tight financial conditions and sharp slowdowns in private sector credit growth, particularly in Bangladesh, Nepal, and Pakistan. That being said, the latest domestic monetary policy tightening episodes in the region tended to be considerably shorter than previous ones.

In *Bangladesh*, there are signs of growing risks in the financial system: 9 percent of outstanding loans were nonperforming in late 2023, with a particular concentration in state-owned banks. Interest rate spreads have risen, even as they have declined elsewhere in the region, with the interbank borrowing rate recently above 9 percent, an 11-year high. The stock market has also been underperforming relative to global and regional stock markets. Private sector credit growth has slowed considerably, while public sector credit growth remained strong at 20 percent in January, primarily from domestic banks. Rising remittance inflows channeled through the banking system and import compression contributed to a narrowing in the current account balance in the second half of 2023. However, in part as a result of foreign exchange restrictions, a spread of more than 10 percent has persisted between the official interbank exchange rate and the kerb rate. Net commercial bank assets and short-term lending have declined. As a result, gross foreign reserves stood at about 3 months of import cover in January 2024.

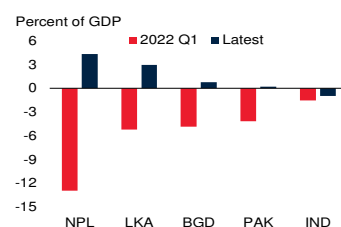
In *Bhutan*, private sector credit grew by 19 percent in FY23, the highest growth rate in the past three years. Nonperforming loans in the banking sector decreased to about 4 percent of total loans in September 2023, and other financial soundness indicators, such as regulatory capital and liquidity, also improved. However, official statistics may overstate financial sector soundness because of ongoing forbearance measures.

In *India*, financial conditions have remained accommodative. Domestic credit issuance to the commercial sector (including public and private

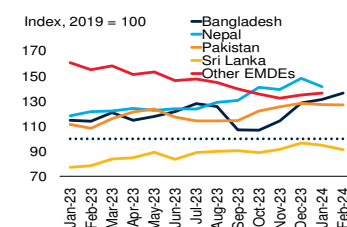
## FIGURE 1.5 Trade and capital flows

Current account balances improved in many South Asian countries, helped by recovering remittance inflows. Financial account flows remain depressed as inward foreign direct investment (FDI) as a percent of GDP remains substantially lower compared to other EMDEs, and in many cases has fallen further in 2023 compared with 2022. International reserve positions remain low in Bangladesh, Sri Lanka, and Pakistan.

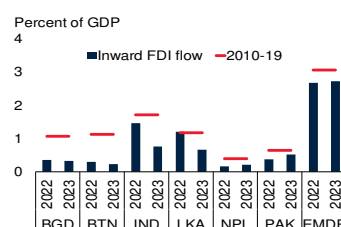
### A. Current account balances



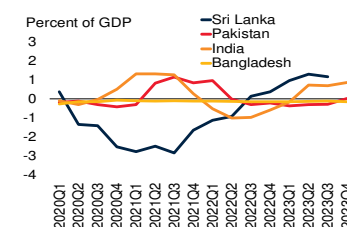
### B. Selected South Asian countries: Remittance inflows



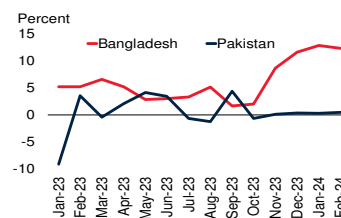
### C. Inward foreign direct investment



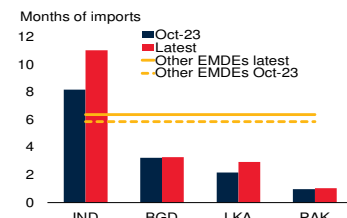
### D. Net portfolio investment flows



### E. Kerb market exchange rate premium



### F. International reserves



Sources: CEIC; Haver Analytics; IMF Balance of Payments and International Investment Position Statistics (database); Karachi Stock Exchange; World Bank MPO (database); World Bank.

Note: BGD = Bangladesh; BTN = Bhutan; EMDEs = emerging market and developing economies; FDI = foreign direct investment; IND = India; LKA = Sri Lanka; NPL = Nepal; PAK = Pakistan.

A. The latest is 2023Q3 for Nepal, Sri Lanka and India, 2023Q4 for Bangladesh and Pakistan.

Bangladesh's 2023Q4 GDP is assumed the same as 2023Q3. Quarterly GDP for Nepal and Pakistan are derived from annual data.

B. Dotted line indicates 100. Other EMDEs include six remittance-dependent countries. Three-month moving average.

C. EMDE bars show the median of 57 non-South Asian EMDEs. Red lines represent the simple average of the annual median inward FDI flows in percent of GDP over 2010-19. All economies use the first three quarters of 2023 FDI flow data. When quarterly GDP is not available, it is assumed to be 75 percent of estimated annual GDP for 2023.

D. Figure shows four-quarter moving average of quarterly net portfolio investment flows, as a percent of lagged GDP.

E. Premium calculated as the difference between interbank and kerb market exchange rates.

F. Other EMDEs include 43 countries. Last observation is January 2024 for SAR countries. For other EMDEs, last observation is December 2023. Number shows total reserves for Sri Lanka; usable reserve was about 2 months of imports by end-January.

borrowers) grew by 14 percent (year-on-year) in December 2023, the fastest pace since 2013. Financial soundness indicators continued to improve. The nonperforming-loan ratio fell to 3.2

percent last year, well below its recent peak, in March 2018, of about 11 percent. Regulatory capital totaled 17 percent of bank assets in the second quarter of 2023, surpassing both regulatory requirements and peer averages. FDI as a share of GDP fell in 2023, but a rebound in foreign portfolio investment inflows in FY2023/24 contributed to foreign reserves rising 8 percent in the year to January 2024, reaching a level sufficient to cover about 11 months of imports.

In *Nepal*, credit to the private sector slowed in FY23, reflecting weak demand and monetary policy tightening. Nonperforming loans held by commercial banks tripled from 1.2 percent of all loans in June 2022 to 3.7 percent as of December 2023, reflecting higher lending rates and the unwinding of forbearance measures (IMF 2023a). The central bank put a counter-cyclical capital buffer in place in mid-2023, is tightening its regulatory practices, and introduced new liquidity lending facilities to effectively peg the interbank borrowing rate to the policy rate. Starting in mid-February 2024, the central bank began implementing a standing deposit facility to absorb excess liquidity.

In *Pakistan*, after a sharp tightening between late-2021 and mid-2023, the State Bank of Pakistan has held its policy rate steady at 22 percent. Monetary policy transmission continues to be impeded by the central bank's use of multiple financing facilities with substantially different interest rates, and the gap between the policy interest rate and the rates charged by two concessional financing facilities—the Export Finance Scheme and Long-Term Financing Facility—has been reduced from 500 to 300 basis points. The gap between the open-market exchange rate and the administered exchange rate has meanwhile been narrowed. These measures have helped stabilize financial markets, improved stock market performance, and encouraged a modest appreciation of the currency following the substantial depreciation in 2023. Foreign reserves increased slightly, but are still not sufficient to cover 2 months of imports. Borrowing spreads remain high and private sector credit contracted by 2 percent in the year to January 2024, down sharply from growth of 22 percent around the middle of 2022.

In *Sri Lanka*, as remittances and tourism recovered and imports remained compressed, the current account turned into surplus in 2023. Foreign reserves began to be rebuilt as a result of continued external debt service suspension, inflows from development partners, large purchases of foreign exchange, and delayed repayments on credit lines. Nevertheless, reserves were sufficient to cover less than 3 months of imports by January 2024. Almost all import restrictions imposed at the height of the currency crisis in 2022 and 2023 have been lifted, foreign exchange restrictions are gradually being phased out, and the country is negotiating with its external creditors to alleviate its debt burden, with agreements in principle already having been reached with official creditors (IMF 2023b).

## Outlook

*The growth outlook has improved in several South Asian countries, with domestic demand more resilient than expected. Growth remains unusually dependent on government spending.*

### Regional outlook

South Asia is expected to remain the fastest-growing EMDE region in 2024–25 (figure 1.6). After the upward surprise in growth in 2023, growth in South Asia is projected to moderate to near-potential growth rates. Growth in 2024 is expected to be 6.0 percent as growth in India remains robust, and Pakistan and Sri Lanka continue to recover from balance-of-payments challenges (table 1.1).

The public sector is expected to remain a larger driver of growth than in other EMDEs. During 2023–25, government spending in South Asia—including both consumption and investment—is expected to contribute more than twice as much to growth as in other EMDEs.

South Asia's growth outlook is somewhat stronger than in the previous edition of this report, by 0.4 percentage points for 2024 and 0.3 percentage points for 2025. This primarily reflects upward revisions to investment growth in India and somewhat faster-than-anticipated rebounds from last year's recessions in Pakistan and Sri Lanka.

Much of the strength of output growth in the region is attributable to India, where projected growth is 7.5 percent in FY2023/24 and 6.6 percent in FY2024/25. In the rest of the region, growth this year is expected to be weaker than in other EMDEs, and is not fast enough for significant progress in convergence toward advanced-economy per capita incomes.

Four countries in South Asia are among the one-quarter of EMDEs that have recently been financially stressed, being rated as near or in debt default either by ratings agencies or by the IMF-World Bank Low-Income Country Debt Sustainability Analysis. Growth prospects in three of these South Asian countries with available data are somewhat weaker than in similarly financially stressed EMDEs elsewhere.

Fiscal policies in the region are expected to tighten over the forecast horizon as several countries implement fiscal consolidation as part of IMF-supported programs. Average fiscal deficits are expected to narrow only slowly, however. The median fiscal deficit is expected to reach 6.5 percent of GDP in 2024, down from the peak deficit of 7.4 percent in 2022, but still some distance from the 2015–19 average of 4.5 percent. In India, government revenues are expected to increase on the back of continued efforts to broaden the tax base and improve tax administration, and current expenditures are likely to decrease as pandemic-related measures are wound down.

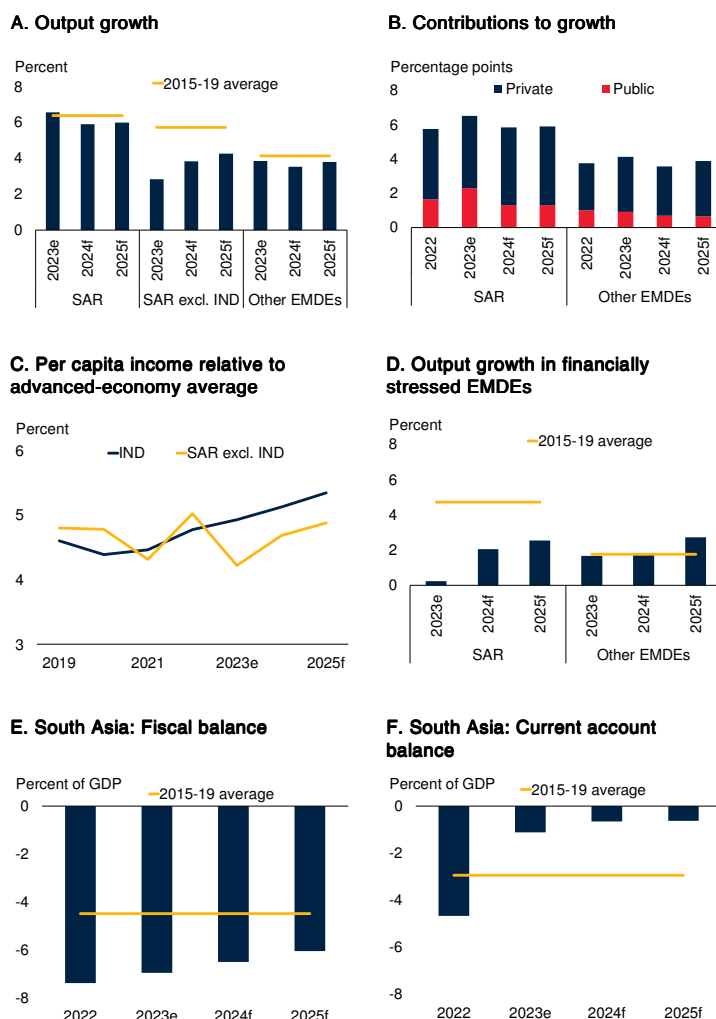
Current account balances in the region are generally in small or moderate deficit. These are expected to remain essentially unchanged for most countries over the projection horizon. Both imports and exports are rebounding as most South Asian countries have lifted trade restrictions. Domestic demand is expected to remain more resilient in South Asia than in the rest of the world, but persistent weakness in financial inflows will restrain import demand.

## Country outlooks

In *Bangladesh*, output is expected to grow 5.6 percent in FY2023/24 and 5.7 percent in FY2024/25, a marginal downgrade from the

## FIGURE 1.6 Outlook for output growth

*Output growth in the region is expected to continue outperforming other emerging market and developing economies, but this is mainly attributable to India. Government spending contributes more to growth in South Asia than elsewhere. The region is not making rapid progress in converging toward per capita incomes of advanced economies. Fiscal deficits are expected to narrow but remain wider than pre-pandemic levels. Current account deficits are expected to narrow as financial inflows remain weak.*



Sources: WEO (database); World Bank MPO (database); World Bank.

Note: e = estimate; f = forecast; EMDE = emerging market and developing economies; IND = India; SAR = South Asia.

A. The regional aggregate is weighted using annual U.S. dollar GDP (at average 2010–19 prices and market exchange rate).

B. Contributions in SAR assume that half of India's forecasted discrepancy in FY2023/24 is due to the public sector. SAR excludes Maldives and Sri Lanka due to lack of data.

C. Lines represent the GDP per capita at current prices in U.S. dollars relative to advanced economies average GDP per capita. Sample excludes Maldives. Unweighted averages.

D. Financially stressed EMDEs include 58 EMDEs that are rated by Moody's ratings agency C or below or are considered in, or at high risk of, debt default by the IMF-World Bank Low-Income Country Debt Sustainability Analysis (November 2023). In South Asia, it includes Maldives, Pakistan, and Sri Lanka.

E. F. Bars represent median fiscal balance (E) or median current account balance (F), in percent of GDP. Sample includes six countries for overall fiscal balance and seven countries for current account balance.

TABLE 1.1 Growth in South Asia

Country fiscal year		Real GDP growth at constant market prices (percent)				Revision to forecast from October 2023 (percentage point)	
		2022	2023(e)	2024(f)	2025(f)	2024(f)	2025(f)
Calendar year basis							
<b>South Asia region (excluding Afghanistan)</b>		<b>5.7</b>	<b>6.6</b>	<b>6.0</b>	<b>6.1</b>	<b>0.4</b>	<b>0.3</b>
Maldives	January to December	13.9	4.0	4.7	5.2	-0.5	-0.3
Sri Lanka	January to December	-7.3	-2.3	2.2	2.5	0.5	0.1
Fiscal year basis		21/22	22/23(e)	23/24(f)	24/25(f)	23/24(f)	24/25(f)
Bangladesh	July to June	7.1	5.8	5.6	5.7	0.0	-0.1
Bhutan	July to June	4.8	4.6	4.9	5.7	0.9	1.1
India	April to March	9.7	7.0	7.5	6.6	1.2	0.2
Nepal	mid-July to mid-July	5.6	1.9	3.3	4.6	-0.6	-0.4
Pakistan	July to June	6.2	-0.2	1.8	2.3	0.1	0.0

Sources: World Bank Macro Poverty Outlook and World Bank staff calculations.

Note: (e) = estimate; (f) = forecast. GDP measured in average 2010-19 prices and market exchange rates. Pakistan is reported at factor cost. National accounts statistics for Afghanistan are not available. To estimate forecasts for regional aggregates in the calendar year, fiscal year forecasts are converted to the calendar year by taking the average of two consecutive fiscal years for Bangladesh, Bhutan, Nepal, and Pakistan because quarterly GDP forecasts are not available.

previous forecast. In the short term, persistently high inflation and import compression associated with trade and foreign exchange restrictions are expected to weaken demand and constrain economic activity. Financial markets' anticipation of a future devaluation may continue to limit capital inflows and downward pressures on foreign reserves are expected to persist. Efforts by the central bank to stabilize the exchange rate may continue to drain liquidity from local banks and contribute to tighter credit conditions.

*Bhutan's* economy is expected to grow 4.9 percent in FY2023/24, 0.9 percentage points more than previously projected, boosted by higher electricity production, increasing mining and manufacturing output, and stronger tourism-related service activities after the reduction of the tourism levy. Growth is expected to pick up further to 5.7 percent in FY2024/25 amid recoveries in industrial activity outside the hydropower sector and in services. The ending in December 2023 of the moratorium on housing loans is expected to increase imports and contribute to current account pressures. The main risks to the growth forecast are further delays in hydropower projects, delayed

fiscal consolidation, and rising and volatile commodity prices due to geopolitical tensions.

In *India*, output growth is projected to reach 7.5 percent in FY2023/24 on the back of robust growth in Q3 of FY2023/24. Growth is expected to moderate to 6.6 percent in FY2024/25 before picking up in subsequent years as a decade of robust public investment yields growth dividends. The expected slowdown in growth between FY2023/24 and FY2024/25 mainly reflects a deceleration in investment from its elevated pace in the previous year. Growth in services and industry is expected to remain robust, the latter aided by strong construction and real estate activity. Inflationary pressures are expected to subside, creating more policy space for easing financial conditions. Over the medium term, the fiscal deficit and government debt are projected to decline, supported by robust output growth and consolidation efforts by the central government.

Output growth in *Maldives* is expected to rise to 4.7 percent in 2024, a 0.5 percentage point downgrade from previous forecasts that partly reflects a shift in tourism activity from high-end

resorts toward lower-cost guesthouses. Growth is expected to strengthen further to 5.2 percent in 2025, on the assumption that the extension of the Velana International Airport will be completed. The extension is expected to also result in continued wide current account deficits, at around 20 percent of GDP, and a double-digit fiscal deficit in 2024. Government debt well in excess of GDP and a significant external debt service burden continue to raise concerns about debt sustainability.

In *Nepal*, growth is expected to pick up to 3.3 percent in FY2023/24, 0.6 percentage points lower than previously forecast, as economic activity outside the hydropower sector recovers slowly after the lifting of trade and foreign currency restrictions in 2023. Growth is expected to strengthen further, to 4.6 percent, in FY2024/25. Hydropower exports are expected to pick up on the back of robust growth of the Indian economy. Services sector activity is expected to strengthen amid a recovery in goods imports, an expanding hotel sector, and increased tourism arrivals.

Following the contraction in FY2022/23, *Pakistan's* economy is expected to grow by 1.8 percent in FY2023/24, as foreign reserves rise and business confidence improves. Growth is expected to pick up further to 2.3 percent in FY2024/25. Inflation is expected to remain high, however, as reforms to lower energy subsidies drive up domestic energy prices and transportation costs. The projected recovery assumes that the IMF-supported reform program and planned fiscal consolidation remain on track, boosting investor confidence and ensuring capital inflows are sufficient to finance fiscal and current account deficits.

In *Sri Lanka*, growth is expected to turn positive, to 2.2 percent in 2024, a 0.5 percentage point upgrade from the previous forecast, with modest recoveries in reserves, remittances, and tourism. Inflation is expected to remain within the central bank's target range and the exchange rate is expected to stabilize. Growth is anticipated to strengthen to 2.5 percent in 2025. The forecast assumes that debt restructuring negotiations are

concluded successfully, vulnerabilities in the financial sector ease, and structural reforms continue to be implemented.

No forecast has been produced for *Afghanistan*, as official statistics are unavailable. The country's economy remains fragile, with widespread food insecurity and high unemployment (World Bank 2024b). Depleted household savings, reduced public spending, weather- and policy-related shocks to farmers' income, and the aftermath of the earthquake in October 2023 are expected to continue depressing economic activity.

## Risks and vulnerabilities

*Risks to the growth forecasts are tilted to the downside. Several South Asian countries have limited buffers to respond to financial market disruptions. In the short term, there is a danger that a longer-than-anticipated period of restrictive monetary policy in major advanced economies triggers currency depreciation and currency crises in the region. Increased trade fragmentation could depress global trade, particularly in services, which is sensitive to geopolitical considerations and on which South Asia relies more than other regions. Climate change and the increased frequency of weather extremes present growing risks.*

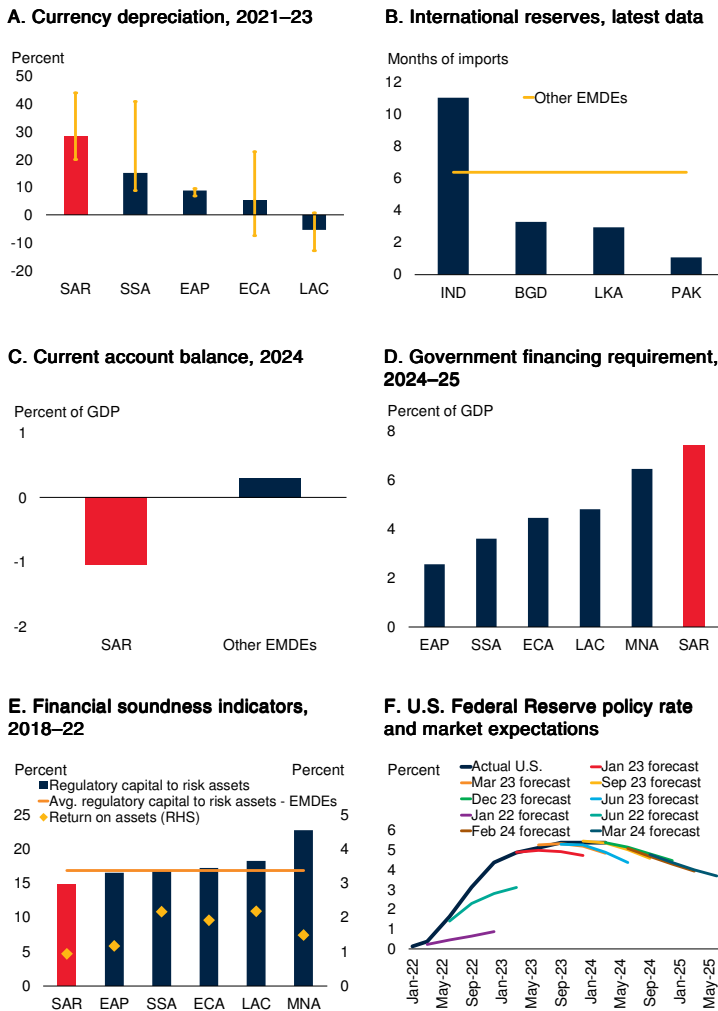
### Renewed currency crises

More than any other EMDE region, South Asia has been buffeted by sharp currency depreciations in the aftermath of the pandemic (figure 1.7). In 2022–23, Bangladesh, Pakistan, and Sri Lanka all experienced severe economic disruptions as a result of balance-of-payments problems.

The economic conditions that contributed to previous turbulence largely remain. Foreign currency reserves, which provide a buffer against sudden capital outflows, remain below 3 months of imports in two countries. South Asia's current account deficits have narrowed since 2022, but remain above the EMDE average. The double-digit current account deficits of the region's two small states (Bhutan and Maldives) are expected to rank among the decile of EMDEs with the widest deficits relative to GDP.

**FIGURE 1.7 Risk of renewed currency crises**

More than any other region, South Asia was buffeted by sharp currency depreciations in the aftermath of the pandemic. In several South Asian countries, reserves remain low or financial system buffers are limited. Markets have repeatedly underestimated the future path of the U.S. Federal Reserve's policy rate.



Sources: AREAER (database); Consensus Economics; Haver Analytics; IMF; World Bank MPO (database); World Bank.

Note: BGD = Bangladesh; EAP = East Asia and Pacific; ECA = Europe and Central Asia; EMDEs = emerging market and developing economies; IND = India; LAC = Latin America and the Caribbean; LKA = Sri Lanka; MNA = Middle East and North Africa; PAK = Pakistan; SAR = South Asia; SSA = Sub-Saharan Africa.

A. Sample includes 35 countries with floating exchange rate arrangements, of which 4 are in EAP, 11 in ECA, 10 in LAC, 3 in SAR, and 6 in SSA. Bars show the median end-of-period currency depreciation (local currency per U.S. dollar). A positive value means depreciation of the local currency against the U.S. dollar. Whiskers indicate interquartile ranges. Last observation is December 2023.

B. Chart shows the number of months of imports that foreign reserves can cover. Last observation is January 2024 for SAR countries. For other EMDEs last observation is December 2023.

C. Bars show the projected average current account balance in percent of GDP. Regional aggregates computed using GDP-weighted averages (at current U.S. dollars).

D. Bars show the projected average of government financing requirements in percent of GDP for 2024–25. Regional aggregates computed using GDP-weighted averages (at current U.S. dollars).

E. Bars show the average regulatory capital-to-risk-weighted assets using constant GDP weights at average 2010–19 prices and market exchange rates.

F. Dark blue line shows the mid-point of the U.S. Fed Funds Rate target range.

In addition, South Asia is the EMDE region with the largest government financing needs for short-term debt and debt service (relative to GDP). For 2024, financing needs are equivalent to about 8 percent of GDP in India and 5 percent in Bangladesh. The latest data suggest that, in all South Asian countries other than Afghanistan and India, two-fifths to one-half of government debt is owed to external creditors, typically denominated in foreign currency. This exposes governments to rising debt service costs if there are further depreciations.

Buffers in the financial system are also thin across the region, again with the notable exception of India. South Asia has the lowest average ratio of regulatory capital to risk assets of any region. This in part reflects low rates of return and elevated shares of nonperforming loans in the region.

In these circumstances, even a moderate negative shock to the region could trigger substantial capital outflows, renewed currency depreciation, and an acceleration of inflation. The three South Asian countries with weak credit ratings are particularly at risk. Sudden stops in capital flows to EMDEs typically start broad-based across countries but investors soon begin to differentiate by country characteristics. As a result, capital flight from EMDEs with weaker institutions or macroeconomic fundamentals tends to be significantly more persistent (Fratzscher 2012; Wang and Yan 2022).

Shocks to financial and currency markets could arise from either domestic or global developments. One possible risk scenario would be characterized by higher U.S. interest rates than currently assumed in the baseline scenario. Financial markets currently expect the U.S. Federal Reserve to begin lowering its policy rate in June 2024 to reach 3.5 percent by the end of 2025. But markets have repeatedly under-estimated the future path of the federal funds rate. If this pattern holds and the Federal Reserve keeps monetary policy tighter for longer than anticipated, South Asia could face severe spillovers.

In such a scenario, greater inflation persistence in the United States would force the Federal Reserve



to maintain its policy rate above 5 percent through 2025, 175 basis points above current market expectations. A shift in market expectations could happen suddenly (by assumption in the second quarter of 2024) and cause a spike in global uncertainty, risk aversion, and capital outflows from vulnerable countries.

In several South Asian countries, the spillovers from such a shock would be magnified by limited buffers and financial sector weaknesses, possibly resulting in currency crises. Historically, currency crises have been more frequent during periods of tight U.S. monetary policy and tended to result in modest output losses and substantial increases in inflation (figure 1.8).

The growth impact of such a shock on South Asia overall would likely be limited because of the resilience of India. However, in the rest of the region, financial disruptions could substantially lower output growth. Cumulatively by 2025, in the assumed scenario, output in South Asian countries other than India could be 1.6 percentage points below the baseline as a result of import disruptions and monetary tightening, compared with twice as much as the average for other EMDEs (0.8 percentage points below baseline).

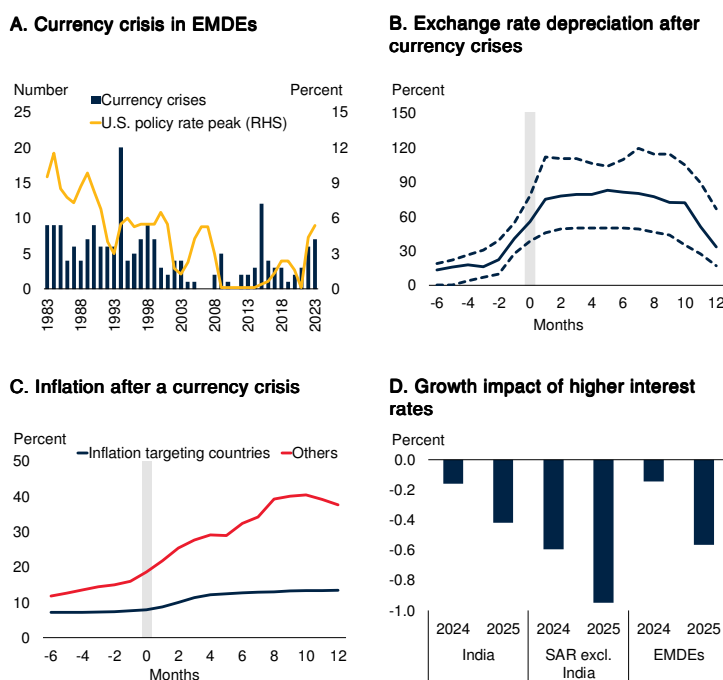
Depreciations have also tended to be associated with persistent increases in domestic inflation, except in countries with inflation targeting frameworks which, in South Asia, include only India (as of 2015) and Sri Lanka (as of 2020; Ha, Kose, and Ohnsorge 2019).

### Trade fragmentation

Many businesses appear to be adjusting inventory practices and diversifying suppliers on the basis of geopolitical considerations (ICC 2023). At the same time, some trade liberalization measures are still taking place: India signed a trade agreement with the European Free Trade Area (EFTA) in March 2024 and, globally, more goods trade benefited from new trade-facilitating measures than suffered from new restrictions in the year ending October 2023 (WTO 2023). In all, global trade growth is expected to remain subdued at 2.3 percent in 2024 and 3.1 percent in 2025.

### FIGURE 1.8 Effects of currency crises

*Currency crises have been more frequent when U.S. monetary policy rates have been higher. Depreciations after currency crises have tended to persist. Currency pass-through into inflation has generally been smaller in countries with inflation-targeting frameworks. A delay in U.S. monetary policy loosening could lower growth in South Asian countries, where currency crises are more likely, especially outside India.*



Sources: AREAER (database); Haver Analytics; Laeven and Valencia (2020); Oxford Economics; World Bank.

Note: EMDE = emerging market and developing economies; SAR = South Asia.

A. Bars show the number of currency crises defined as a nominal depreciation of 30 percent or more against the U.S. dollar. For more details, see Laeven and Valencia (2020).

B. Solid line shows the median year-on-year depreciation for a sample of up to 97 EMDEs. Dashed lines represent the interquartile range. Shaded area shows the starting month of a currency crisis.

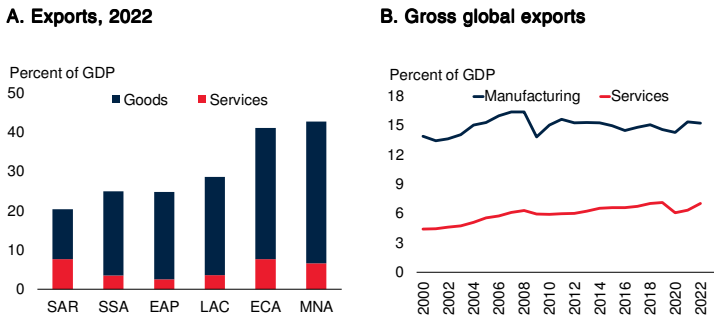
C. Lines show the simple average of CPI inflation for countries that have experienced a currency crisis during the period 1999–2017. Sample includes five countries with an inflation targeting framework in place, and up to 25 countries using other types of monetary frameworks. Shaded area shows the start of a currency crisis episode.

D. Bars show growth revisions (deviation from baseline) between the monetary tightening scenario and the baseline scenario, as derived in the Oxford Economics Model. South Asia includes 4 countries.

South Asia's export basket contains a larger share of services than that of the average EMDE (figure 1.9; World Bank 2021a). Even as manufacturing trade has stagnated in recent decades, global services exports (such as telecommunications and tourism) have risen steadily—interrupted by a brief downturn during the pandemic—and increased from 4 percent of global GDP in 2000 to 7 percent in 2022. For example, between June 2017 and October 2020, the number of online workers in software development services who work on projects in the five largest English-language labor platforms increased from 10

## FIGURE 1.9 Risk of shifts in global trade

*South Asia's exports and output are more tilted toward services than those of other emerging market and developing economies. Exports of global services have risen steadily even as manufacturing trade has plateaued.*



Sources: Subramanian, Kessler, and Properzi (2023); WDI (database).

Note: EAP = East Asia and Pacific; ECA = Europe and Central Asia; LAC = Latin America and the Caribbean; MNA = Middle East and North Africa; SAR = South Asia; SSA = Sub-Saharan Africa. A. Bars show exports of goods and services as percent of GDP. Regional aggregates computed using GDP-weighted averages (at current U.S. dollars).

million to 40 million; about half of them were based in Bangladesh, India, and Pakistan (World Bank 2021a).

Services are particularly vulnerable to geopolitical tensions because trade in services is more closely linked to transactional costs, such as buyers' trust in the seller, and less dependent on transportation or fixed costs than goods trade (Bhattacharya, Patnaik, and Shah 2012; Wagner 2014). An increase in risk perception or a decrease in trust as a result of geopolitical tensions could have a disproportionate effect on the long-standing commercial relationships often required for services trade.

A lasting rollback in services trade would slow an engine of growth for South Asia. In addition, efforts to attract foreign direct investment as supply chains diversify away from China may fail. This would set back the region's exports further behind other EMDEs.

### Climate change

Without a massive change in policies, the world is on track to warm by an average of 3°C above pre-industrial levels this century (UNEP 2023). Climate change is taking a rising toll on human health and wellbeing through increasingly frequent weather extremes such as heatwaves,

floods, and droughts, as well as a greater incidence of infectious diseases (Romanello et al. 2023; World Bank 2021b).

Climate change will have particularly severe consequences for South Asia. Average summer temperatures in the region have already increased by 0.7°C relative to the 1986–2005 baseline, with particularly large increases in Afghanistan (1.3°C) and Bangladesh (0.9°C; figure 1.10).

Heatwaves are particularly damaging for South Asia, because of its already relatively warm average temperature and its large agricultural sector, accounting for about 40 percent of employment. High temperatures already pose at least a moderate risk of heat stress for people engaged in light outdoor activity for more than five hours a day in much of the region, and periods of unhealthily high temperatures are expected to increase in both duration and intensity in coming decades. Higher temperatures will also make land less productive. The land area affected by extreme droughts has increased by one-third in Pakistan and more than doubled in Bangladesh and India since the 1950s.

Rising temperatures are also on track to cause the glaciers in the Hindu Kush Himalaya region to lose up to 80 percent of their volume by 2100. This would increase the probability of floods and landslides for adjacent communities, and threaten water scarcity for the 1.7 billion people residing downstream (Wester et al. 2023).

Highly populated coastal areas will also be affected by climate change. Rising sea levels will make much land uninhabitable, and are one reason why an estimated 40 million people in South Asia are expected to be forced to migrate because of climate change by 2050 (Clement et al. 2021).

Globally, climate change is expected to reduce GDP per capita by an average of about 7 percent by 2100 (Kahn et al. 2021). Climate change disproportionately harms poorer countries (Jafino et al. 2020). As a result, projected losses from climate change for South Asian countries are well above the global average (World Bank 2021b).

Climate change will likely push up poverty rates in South Asia. In high-climate-change scenarios, the

poverty rate in South Asia could be twice as high in 2030 as it would be in a world without climate change (Jafino et al. 2020). These losses are unlikely to accumulate smoothly or predictably, and instead may come as a series of humanitarian catastrophes.

## Policy challenges

*The growth slowdown expected in advanced economies in 2024 and the heightened risks to the outlook will make it harder for South Asian governments to implement policies needed to address risks and long-standing development challenges. Unless revenues can be raised substantially, government spending will be severely constrained, including on public goods that can provide the most effective ways of adapting to climate change. For the region to realize its demographic dividend, job creation must be accelerated. The needed measures, including the removal of distortions in the financial system, could also help lift private investment growth.*

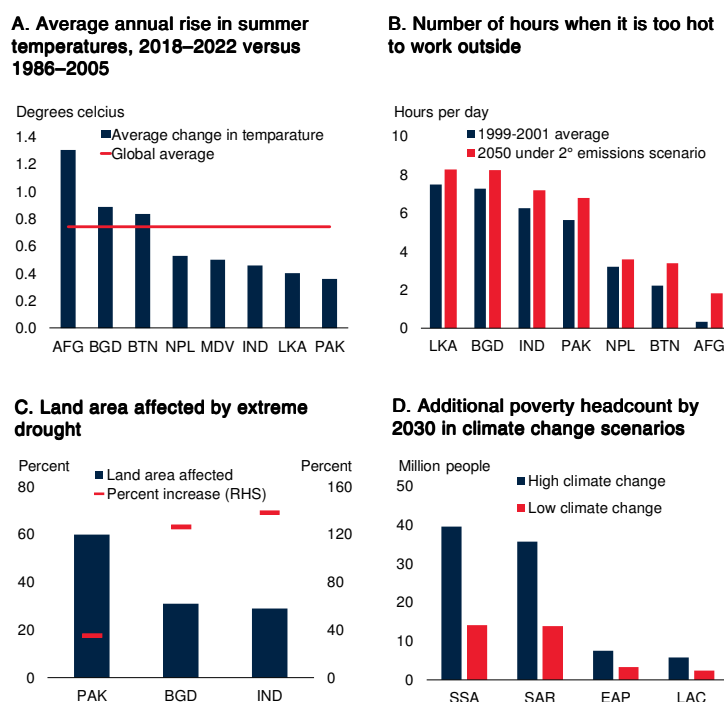
### Increasing and shifting government revenue collection

The recent prolonged period of high interest rates is testing the ability of some South Asian governments to preserve fiscal sustainability while providing adequate government services. At the root of the problem lies the region's low government revenue collection. The average South Asian government collects about 20 percent of GDP in revenues, substantially less than the 32 percent of GDP collected, on average, by other EMDEs. This severely constrains government spending and has contributed to a rapid increase in government debt over the past decade (figure 1.11). Low revenues are one reason that governments in the region spend less than peer countries on public goods such as health care, education, and research and development.

The composition of revenues also differs from other EMDEs; a greater share of revenues in South Asia comes from trade-related revenues. Taxes on trade account for 7 percent of total revenues in the average EMDE, but make up around 20 percent of total revenue in Maldives, Nepal, and Sri Lanka; and about 40 percent for Afghanistan.

### FIGURE 1.10 Climate risks

*Average summer temperatures have increased in South Asia, increasing the time when it is too hot to work outside and the land area affected by drought. Climate change will raise poverty.*



Sources: Jafino et al. (2020); Lancet countdown on health and climate change data sheet (2023) available at [www.lancetcountdown.org](http://www.lancetcountdown.org); World Bank.

Note: AFG = Afghanistan; BGD = Bangladesh; BTN = Bhutan; EAP = East Asia and Pacific; IND = India; LAC = Latin America and the Caribbean; LKA = Sri Lanka; MDV = Maldives; NPL = Nepal; PAK = Pakistan; RHS = right-hand side; SAR = South Asia; SSA = Sub-Saharan Africa.

A. Change in temperatures that people were exposed to during their respective summer seasons.  
B. Number of hours (average per person per day) during which high heat posed at least a moderate heat stress risk during light outdoor physical activity, based on the "moderate" heat stress risk classification, as outlined in the 2021 Sports Medicine Australia Extreme Heat Policy, which categorizes estimated heat stress risk according to ambient temperature and relative humidity. Projections for 2050 for 2°C scenarios.

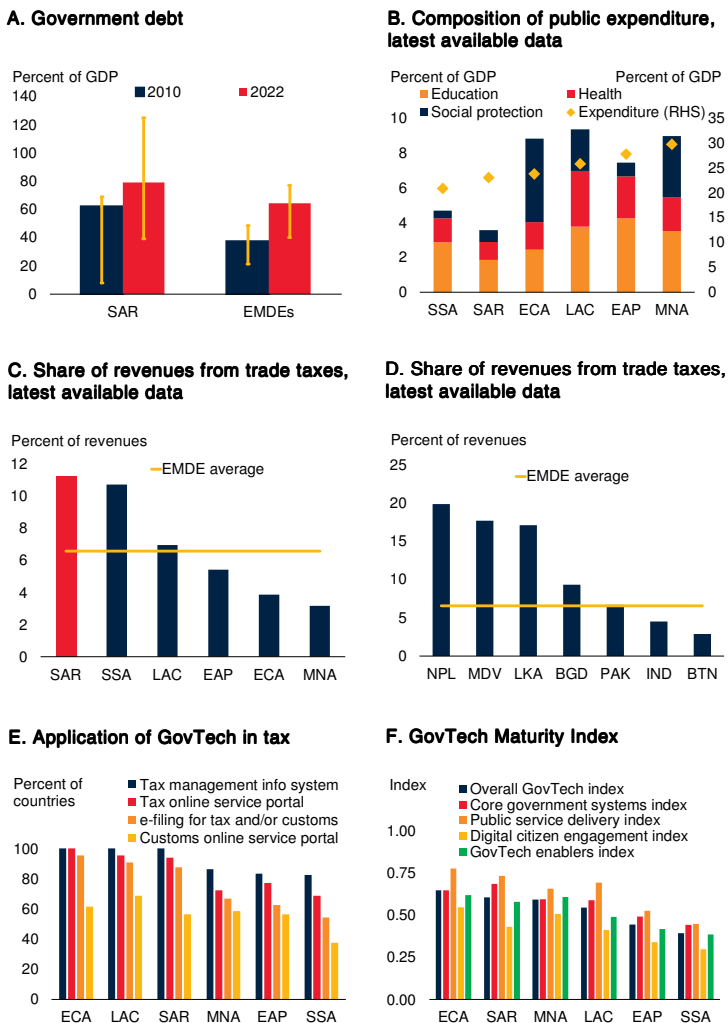
C. Total land area affected by extreme drought at least once per year, on average, in 2013–2022. Horizontal lines show percent increase of at least one month of extreme drought per year from 1951–1960 to 2013–2022.

D. Poverty headcount by 2030 under scenarios in which all climate impact channels are simultaneously included. Numbers in climate change scenarios are additional headcount from the baseline scenario.

Collecting revenues on domestic activity can be difficult in South Asia. In 2022, 80 percent of employment was in informal businesses, compared with an average of 49 percent in other EMDEs. Taxing the earnings of these businesses, many of which are subsistence farms, can be challenging. Earnings often fluctuate, wages are paid in cash or in kind, and many of the businesses have only limited bookkeeping capacity (Joshi, Prichard, and Heady 2014). These factors contribute to the region's lower reliance on income taxes and greater reliance on trade-related taxes.<sup>1</sup> Tariffs and export duties tend to be less expensive to administer than, say, income or value-added taxes (Evans 2003).

**FIGURE 1.11 Increasing revenues**

Low government revenues in South Asian countries have contributed to larger government debt and lower government spending than in other emerging market and developing countries. South Asia's government revenues heavily rely on taxing cross-border trade. Many countries in the region have digital systems in place for collecting and processing taxes and providing government services.



Sources: GovTech Maturity Index (database); Government Financial Statistics (database); World Bank.  
 Note: BGD = Bangladesh; BTN = Bhutan; EAP = East Asia and Pacific; ECA = Europe and Central Asia; EMDEs = emerging market and developing economies; IND = India; LAC = Latin America and the Caribbean; LKA = Sri Lanka; MDV = Maldives; MNA = Middle East and North Africa; NPL = Nepal; PAK = Pakistan; SAR = South Asia; SSA = Sub-Saharan Africa.  
 A. Bars show unweighted averages (at 2010–19 average prices and market exchange rates). Yellow whiskers indicate minimum-maximum range for seven South Asian economies, and interquartile range for EMDEs.  
 B. Regional aggregate uses the median for latest available data (during 2010–2022). Sample includes 105 countries for total spending, 83 countries for health and education, and 80 countries for social protection. Latest data are 2011 for Maldives; 2015 for Pakistan; 2016 for Bangladesh; 2017 for Afghanistan; 2018 for India; 2020 for Bhutan; 2021 for Nepal; and 2022 for Sri Lanka.  
 C.D. Sample includes 93 countries, including 21 countries in EAP, 18 in ECA, 25 in LAC, 14 in MNA, 8 in SAR and 41 in SSA. Regional aggregate is median. Last observed year is 2017 for Afghanistan; 2021 for Bangladesh, Maldives and Nepal; 2020 for Bhutan; 2018 for India; 2022 for Sri Lanka. "Trade taxes" include both customs tariffs and other trade-related taxes, including taxes on exports, on profits of export or import monopolies, on exchange profits, exchange taxes, and other taxes on international trade and transactions, based on IMF financial statistics definitions.  
 E. Share of countries in the region implementing tax-related digital government services. A country receives full score if the system is fully in use and half score if the implementation is in progress. Sample includes 152 EMDEs in 2022.  
 F. Bars show unweighted averages of GovTech Maturity Index.

Trade duties can create substantial economic distortions, however:

- *Pakistan's* high import duties—particularly on consumer goods, intermediate goods, and capital equipment—deter import competition, reduce productivity, and increase domestic profits of incumbent firms at the expense of growth. A 1-percent increase in tariffs and other levies on imports in upstream sectors such as ferrous metals and dairy products has been associated with a 0.6-percent decline in productivity and wages in downstream sectors such as metal production and food processing (World Bank 2022b).
- *Bangladesh* also has high tariffs and a complex web of regulatory requirements and supplementary duties that weigh particularly heavily on final goods. These reduce competition, incentivize companies to focus on the domestic market, and reduce activity in the less protected intermediate goods sector. A result is the country's highly undiversified export base, with about 85 percent of exports being ready-made garments (Kathuria and Arenas 2018; Kathuria and Malouche 2016).
- In *Nepal*, effective tariffs above 100 percent in a variety of sectors—including wood products, beverages, tobacco, and chemicals—limit competition and discourage participation in international value chains (World Bank 2021c).

South Asian countries would benefit from increasing their government revenues, while also shifting away from their reliance on trade-related taxes. Broad-based taxes on consumption or income, with few exemptions and simplified

<sup>1</sup> Apart from fiscal reasons, tariffs have also been imposed to discourage imports and help close the region's persistent current account deficits. But the relationship between tariffs and trade balances is more complicated. Import tariffs directly raise domestic prices relative to export prices, while also increasing the price of intermediate inputs used by exporters (Furceri et al. 2019; Tokarick 2006). Both these effects discourage exports, undermining any hoped-for improvements in the balance of payments from import reductions, while also hindering productivity gains from greater competition.

processes, would tend to be less distortionary than trade duties and could also raise more revenue because they are levied on a far larger share of economic activity. For example, India's goods and services tax (GST) was introduced in 2017. It replaced an existing system of fragmented and complex indirect taxes and aimed to bring about a common framework reducing inefficiencies and costs to the economy. It is estimated to have boosted formal sector output by 12 percent and formal household income by 20 percent (Zhou 2022).

However, sales and value-added tax systems can have limited revenue potential unless properly designed. The narrow base, multiple exemptions, and concessional rates in Pakistan's current sales tax are estimated to cost the country 15 percent of the tax's potential revenue (World Bank 2023f). In Nepal, value-added tax exemptions reduce revenues by nearly 40 percent without easing the burden on the poor (World Bank 2021c).

Other measures to raise revenues include strengthening tax administrations, for example through digital data collection systems that help facilitate compliance and detect noncompliance. In part by removing opportunities for corruption, digitization can lift revenues significantly, both on trade-related taxes as recently found in Colombia and from taxes more broadly as recently found in Tajikistan (Laajaj, Eslava, and Kinda 2023; Okunogbe and Pouliquen 2022).

Many countries in the region have digital systems in place for collecting and processing taxes—such as e-filing services, online tax service portals, and single window services for customs—but these are sometimes not widely used or well maintained. Increased revenue collection after the introduction of India's goods and services tax in 2017 has in part been attributed to its integration with a digital platform (Joseph and Ramalingam 2022; Alonso et al. 2023). South Asia scores higher on several indicators of government use of technology (GovTech) than do other EMDEs, with India and Bangladesh outperforming the rest of the region. More generally, an increase in the use of digital technologies can help governments increase the effectiveness of public service delivery and bring more people and firms into the formal sector, improving incomes but also widening the tax base.

## Building climate resilience and greening the economy

South Asia has thus far contributed little to the global emissions responsible for climate change, but is highly vulnerable to the consequences (figure 1.12). Unless South Asian economies can adapt to climate change, future growth may increasingly be derailed by related shocks. But South Asian governments' limited fiscal resources constrain their ability to engage in effective climate adaptation.

A meta-analysis of studies on the steps taken by households, farmers, and firms finds that firms' adaptations can offset nearly three-quarters of the damage from climate change, compared with less than half for households (spotlight 1). Adaptation mechanisms that leverage technologies such as cooling, improved seeds, and adaptive business management practices tend to be particularly effective. In contrast, households' most common adjustments—migration and shifting toward non-farm activities—are less effective at offsetting climate damage.

Because of the scale of the challenge, adaptation is likely to require broad-based actions, with household and firm-level responses supported by public infrastructure and policy measures. Such measures include providing connective infrastructure, essential public services, access to water, and effective health systems. Such public goods can make sizable contributions to adaptation not only by shielding economic activities and human capital from climate damage but also by aiding private adaptation responses. Because of the region's precarious fiscal positions—with high debt and low government revenues—government projects will have to be carefully selected to ensure that the most effective actions are taken.

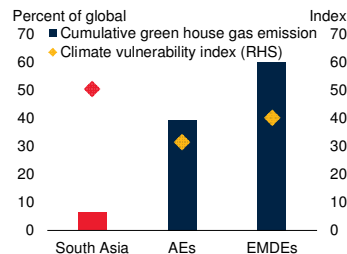
The most effective solutions are likely to be those that yield multiple dividends: achieve climate adaptation, as well as climate mitigation or other development goals.

For example, energy-efficient urban cooling solutions such as “cool roofs” may reduce climate damage (Heyes and Sabarian 2022; Phelan et al.

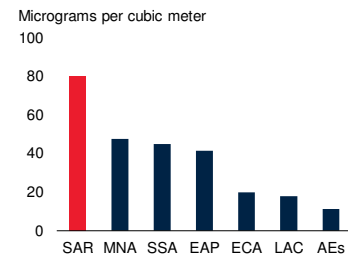
## FIGURE 1.12 Building climate resilience

South Asia has contributed very little to the global emissions responsible for climate change but is highly vulnerable to the consequences of climate change. Transitioning to cleaner growth would also help lower air pollution.

### A. Contribution to historical greenhouse gas emissions and climate vulnerability, 1850–21



### B. Air pollution exposure, 2015–19



Sources: Climate Watch (database); Jones et al. (2023) as reported in Our World in Data; World Bank.

Note: AEs = Advanced Economies; EAP = East Asia and Pacific; ECA = Europe and Central Asia; EMDEs = Emerging Market and Developing Economies; LAC = Latin America and the Caribbean; MNA = Middle East and North Africa; SAR = South Asia; SSA = Sub-Saharan Africa.

A. Contribution of total greenhouse gas emissions from 1850 to 2021 and average climate vulnerability index 2017–21. Regional aggregates weighted using real U.S. dollar GDP (at average 2010–19 prices and market exchange rates).

B. Average air pollution is calculated based on the mean annual exposure to particulate matter (PM<sub>2.5</sub>) air pollution from 2015 to 2019 (measured in micrograms per cubic meter). Regional aggregates computed using 2022 population as weights.

2015; Somanathan et al. 2021). At the same time, they mitigate the increase in greenhouse gas emissions caused by rising demand for energy to power air conditioners (Harish, Singh, and Tongia 2020; Isaac and van Vuuren 2009). Similarly, increased forest cover sequesters carbon and improves the resilience of crop yields to weather shocks (Costa, Sant’Anna, and Young 2023) and the negative impact of heat on labor productivity (Masuda et al. 2021). Reliable water access is central to the adaptive capacity of farmers (Fishman 2018; Zaveri and Lobell 2019). Complementing centralized irrigation projects with community-scale systems, pricing reforms and efficient technologies can achieve this objective while also contributing to greenhouse gas mitigation (Gleick 2003).

The green transition is an opportunity for South Asia to lift productivity and cut air pollution and greenhouse gas emissions. High levels of air pollution in the region impose a substantial toll on human health—more than 815,000 deaths in India were attributed to small particulate matter from human activities in 2020, more than all of India’s COVID-19-related deaths (Romanello et al. 2023; World Bank 2021b).

The power sector in some South Asian countries relies heavily on coal, and is responsible for a considerable share of South Asia’s greenhouse gas emissions and small particulate matter air pollution. Shifting away from coal and scaling up investment in renewables is an essential element of greening the economy.

Across the region, countries will benefit if policy makers focus on improving energy efficiency in key industries and transport, eliminate fossil fuel subsidies, strengthen power grids to facilitate the integration of renewable energy sources, introduce carbon taxes, and implement clean air programs (World Bank 2023a).

## Creating jobs

South Asia is currently on a path that risks squandering its demographic dividend of growth. The region does not create jobs nearly fast enough to provide employment for its growing population (chapter 2). Despite rapid economic growth, employment in South Asia has grown by only 1.7 percent per year since 2000—less than the 1.9 percent per year growth of the working-age population. In absolute terms, the region created an average of 10 million jobs a year when the working-age population was growing by an average of 19 million a year. As a result, South Asia was the only EMDE region in which the ratio of employment to working-age population has declined over 2000–23 (figure 1.13).

South Asia’s employment weakness has affected both men and women. The women’s employment ratio in South Asia is about half the average among other EMDEs, and only about one-third of the employment ratio for men in the region.

Like other EMDE regions, South Asia is going through a structural transformation in which the agricultural sector sheds labor. Although agricultural sectors in the region have been shedding workers at rates similar to other EMDEs, its non-agricultural sectors have not been absorbing workers as fast—a key reason for South Asia’s below-average job creation.

To accelerate job creation, realize the dividend from still-favorable demographic trends, and

facilitate productivity gains in agriculture, and thereby boost output growth, South Asia needs to address several policy weaknesses. One issue is small firm size. The average firm size in Bangladesh, India, and Sri Lanka is either in or close to the bottom quartile of EMDEs. Larger establishment sizes have been associated with greater job creation (Bento and Restuccia 2021; Hsieh and Klenow 2014).

Policies that support firm growth and encourage productive firms to hire workers can boost employment in South Asia. These include streamlining product market and labor market regulations to add flexibility to employment decisions and removing obstacles to firm operations including difficulties accessing land. Greater openness to international trade can also spur firm expansion and job creation. India's trade agreement with EFTA in March 2024 presents an opportunity for faster output and employment growth.

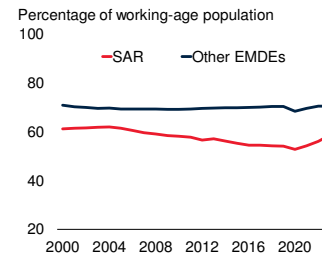
Laws that protect women's rights could encourage women's employment. In EMDEs, stronger and more comprehensive protections of women's equal rights in the workplace, on equal pay, assets, and mobility are associated with higher employment ratios for women in the long run (chapter 2). According to the *Women, Business, and the Law* database, South Asia scores poorly on legal protection of women's rights. In particular, Bangladesh, India, Pakistan, and Sri Lanka fell into the bottom quartile of EMDEs in terms of laws that promote women's equal pay; Bangladesh, Nepal, and Pakistan fell in the bottom quartile for equal asset ownership.

In addition to failing to create a sufficient number of jobs to employ its growing working-age population, South Asian jobs are also less productive than elsewhere. South Asia is characterized by the second-lowest labor productivity, after Sub-Saharan Africa, at only 6 percent of the advanced-economy average. In part, this reflects the prevalence of informal activity in the region, which is on a par with Sub-Saharan Africa and higher than any other EMDE region.

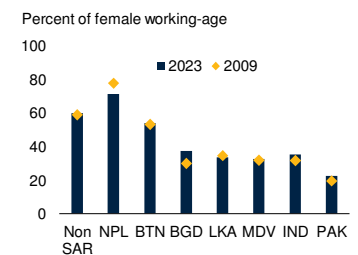
## FIGURE 1.13 Creating jobs

*Job creation in South Asia has fallen well behind working-age population growth and employment ratios have declined. The region's non-agricultural sectors have not employed as much of the working-age population as in other regions. On average, South Asia has smaller firms and less productive jobs than other emerging market and developing economies.*

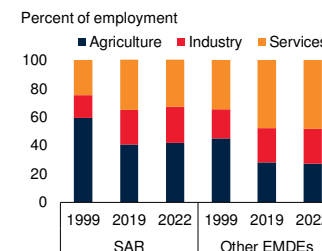
### A. Employment ratio



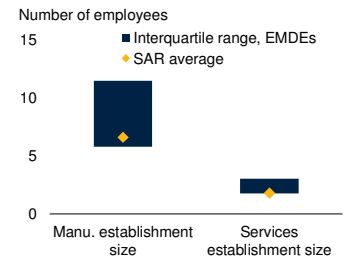
### B. Employment ratio for women



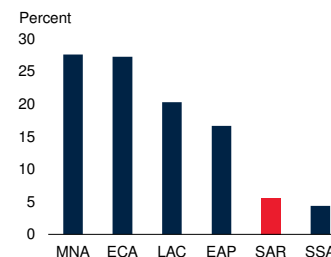
### C. Composition of employment



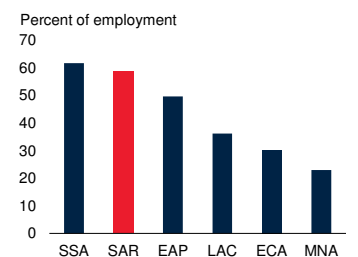
### D. Establishment sizes, 2002–12 average



### E. Labor productivity relative to advanced economies, 2022



### F. Share of informal employment, 2010–18 average



Sources: Bento and Restuccia (2021); GGDC/UNU-WIDER Economic Transformation Database; International Labour Organization; MPO (database); National statistical offices; Penn World Tables (database); UN DESA (database); WDI (database); World Bank.

Notes: AEs = advanced economies; BGD = Bangladesh; BTN = Bhutan; EAP = East Asia and Pacific; ECA = Europe and Central Asia; EMDEs = emerging market and developing economies; IND = India; LAC = Latin America and the Caribbean; LKA = Sri Lanka; MDV = Maldives; MNA = Middle East and North Africa; NPL = Nepal; PAK = Pakistan; SAR = South Asia; SSA = Sub-Saharan Africa.

A.B. Employment ratio is defined as the share of the working-age population that is formally or informally employed. Working-age population is the number of people aged 15–64. South Asia excludes Afghanistan for lack of data.

C. The share of (formal and informal) employment by sector. South Asia aggregate excludes Afghanistan for lack of data.

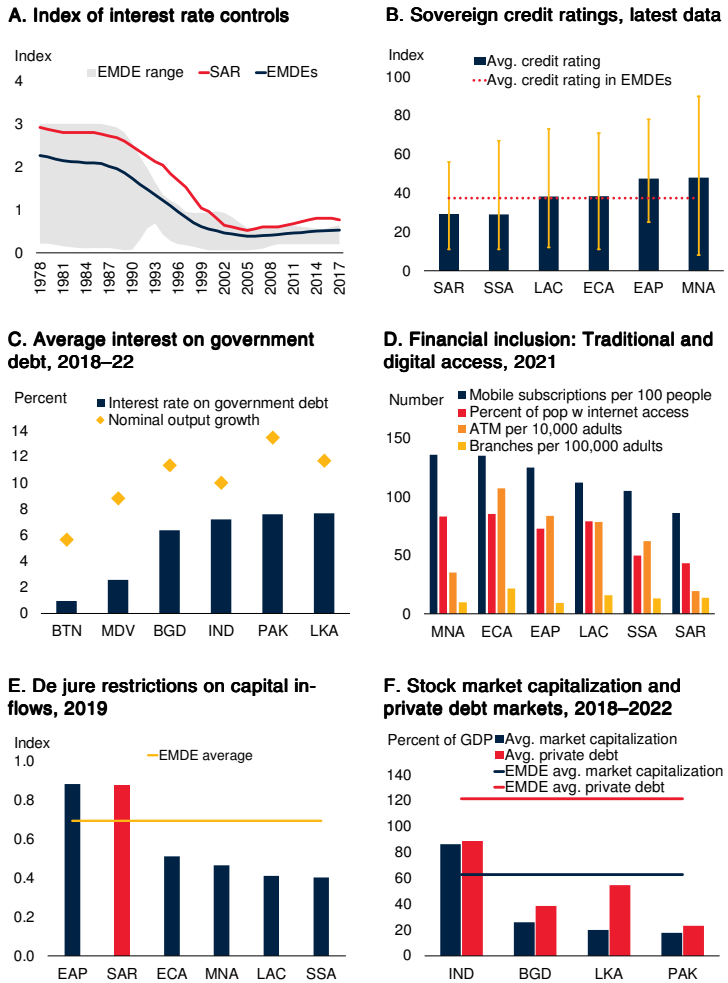
D. SAR is an unweighted average of India, Bangladesh, Nepal, and Sri Lanka for manufacturing ("Manu. establishment size"); and of India, Bangladesh, and Sri Lanka for services.

E. Latest available data is 2022. Employment-weighted averages for country aggregates. Labor productivity is defined as real GDP relative to the total number of employed.

F. Estimates from Ohnsorge and Yu (2022). Bars show unweighted average of share of self-employment 2010–18.

**FIGURE 1.14 Removing distortions in the financial system**

South Asia has more stringent interest rate controls than other emerging market and developing economies, and the lowest average credit rating. Interest rates in the region are typically below nominal GDP growth. Financial inclusion is low. The region has stringent capital controls and (except for India) less developed capital and private debt markets.



Sources: Fernández et al. (2016); Haver Analytics; Jafarov, Maino, and Pani (2019); International Monetary Fund; Financial Access Survey, Public Finances in Modern History database, and Global Debt database; Trading Economics; World Bank.

Note: Avg. = average; BGD = Bangladesh; BTN = Bhutan; EAP = East Asia and Pacific; ECA = Europe and Central Asia; EMDEs = emerging market and developing economies; IND = India; LAC = Latin America and the Caribbean; LKA = Sri Lanka; MNA = Middle East and North Africa; NPL = Nepal; PAK = Pakistan; SAR = South Asia; SSA = Sub-Saharan Africa.

A. Unweighted averages for 90 countries of 5-year moving average of interest rate control index. The index represents the presence and importance of administrative or legal controls on the interest rates that commercial banks apply to deposits and loans. The index ranges from 3 (strictest controls) to 0 (banks are essentially free to set their own interest rates). see Jafarov, Maino, and Pani (2019).

B. Bars show unweighted averages for 140 countries (five SAR countries). Credit ratings 96–100, prime; 81–95, high grade; 66–80, upper medium grade; 51–65, lower medium grade; 36–50, non-investment grade; 21–35, highly speculative; 11–20, substantial risk; 6–10, in default; and 0–5, junk. Whiskers present the range of credit ratings within each region.

C. Public debt interest rate is the difference between fiscal balance and primary fiscal balance over the gross public debt stock of previous year. Diamonds show annual average nominal output growth.

D. Regional aggregate computed using 2021 real U.S. dollar GDP (at average 2010–19 prices and market exchange rates) as weight. Sample for ATMs per 10,000 adults and branches per 100,000 adults includes 129 EMDEs (seven SAR countries) for latest year available between 2019 and 2021. Sample for mobile subscriptions includes 153 EMDEs (eight SAR countries) for 2021. Sample for internet access includes 139 EMDEs (seven SAR countries) for 2021.

E. Value of 1 indicates highest level of restrictiveness. Sample includes 69 EMDEs (including Bangladesh, India, Pakistan, and Sri Lanka). Aggregates are 2010–19 GDP-weighted averages.

F. For EMDEs, weighted average using U.S. dollar GDP (at average 2010–19 prices and market exchange rates). Private debt is the total stock of loans and debt securities of households and nonfinancial corporations.

## Removing distortions in the financial system

Faster firm growth would stimulate job creation, as well as private investment. Private investment growth has slowed since the pandemic. Reforms to improve the investment climate and increase South Asia’s openness to international trade and finance could increase the likelihood that a sustained private investment acceleration gets underway (box 1.1).

Removing distortions in the financial system could help unlock the financial resources needed for faster firm growth and private investment. Financial systems in South Asia are subject to multiple administrative interventions that reduce borrowing costs for favored borrowers, including directed lending, restrictions on entry into the banking sector, and direct government intervention in the financial sector (Jafarov, Maino, and Pani 2019). Controls on interest rates in South Asia, for example, after falling sharply during the 1990s, have since been trending up, and by some measures are now greater than in any other EMDE region (figure 1.14).

Several policies are in place to tilt financial markets in South Asia.

- *Bangladesh* imposes a lending rate corridor and a cap on interest rate spreads in the banking sector.
- In *Maldives*, limited competition, a large state-owned bank presence, and market segmentation allow banks to charge lending rates far higher than rates in neighboring countries.
- In *Sri Lanka*, the central bank capped interest rates on selected lending products in August 2023.

In countries with low sovereign credit ratings or those otherwise facing very high costs of borrowing in international markets, such measures can help keep interest rates below growth rates and thus improve debt dynamics. By reducing financing cost and creating a captive investor base,



they can help governments avoid financial crises or default (Jeanne 2023).

However, such administrative interventions tend to act as a tax on savers and can hold back financial system development. They reduce available credit, diminish the efficiency of credit allocation, impede the transmission of monetary policy, and encourage firms to manipulate the system rather than engage in profit-seeking economic behavior (Jafarov, Maino, and Pani 2019). The region's financial institutions, mainly banks, provide less credit to the private sector relative to GDP than those in other EMDEs (Ohnsorge and Pallan 2023). They also tend to be less used and less accessible than in other EMDEs according to metrics such as ATMs per person or the ability to bank online or by phone.

In addition to administrative interventions, state-owned banks are ubiquitous in South Asia and shape financial intermediation. They account for an average of 43 percent of banking system assets. Conversely, the share of foreign banks is low—for example, only about 5 percent of banking system assets in Bangladesh and India. State-owned banks tend to be less efficient than private banks at turning deposits into loans and allocating financial

resources toward their most productive use. They have also been associated with higher credit to the public sector and weaker fiscal discipline (Cihák and Demirgüç-Kunt 2013).

Finally, capital controls and barriers to entry limit competitive pressures from foreign banks or financial markets (Claessens and Van Horen 2012). Restrictions on foreign capital are far higher in South Asia than in other regions, and stock markets and corporate debt markets are smaller, with the exception of India.

Removing distortions in the financial sector would encourage entrepreneurship and competition, help mobilize capital for high-return investments, and help channel capital to the most dynamic parts of the economy. Most South Asian countries are at a point of financial development where further financialization would be significantly correlated with stronger growth (Sahay et al. 2015).

**TABLE B1.1.1 Correlates of the likelihood of private investment accelerations starting**

Policy var:	(1)	(2)	(3)	(4)
Lagged per capita GDP	0.045 (0.68)	0.201** (2.14)	0.042 (0.58)	0.220** (2.09)
Lagged capital-to-output ratio	-0.446*** (-3.23)	-0.383* (-1.87)	-0.430*** (-2.70)	-0.272 (-1.21)
Lagged overvaluation index	-0.729*** (-4.72)	-0.897*** (-3.69)	-0.849*** (-5.33)	-1.190*** (-4.94)
Lagged global GDP growth	-0.008 (-0.17)	0.004 (0.08)	0.031 (0.61)	0.030 (0.52)
Lagged institutional quality (IQ, Law and Order from ICRG)	0.257*** (4.18)	0.224*** (2.99)	0.285*** (4.15)	0.257*** (3.21)
Change in trade restrictiveness (percent change in index)		0.009** (2.02)		0.013*** (2.77)
Interaction of lagged IQ and change in trade restrictiveness		0.011** (2.48)		0.012*** (2.71)
Change in capital account openness (percent change in index)			0.007*** (3.91)	0.009*** (3.41)
Interaction of lagged IQ and change in capital account openness			0.002 (1.52)	0.002 (1.43)
Constant	-2.387*** (-4.90)	-2.880*** (-3.66)	-1.516** (-2.40)	-3.302*** (-3.77)
Observations	2016	1434	1782	1284
Adjusted R-square	0.027	0.031	0.036	0.049
Number of episodes	114	83	100	74
Number of countries	97	75	94	72
Earliest year in sample	1985	1985	1985	1985
Latest year in sample	2018	2014	2018	2014

Source: World Bank.

Note: Results from a logit regression of the likelihood of the start of a private acceleration episode. See World Bank (2024a) for variable descriptions. Sample includes 105 economies for 1960–2022. t-statistics in parentheses. \* indicates significance at the 10 percent level, \*\* at the 5 percent level, and \*\*\* at the 1 percent level.

## References

- Alesina, A., D. Furceri, J. Ostry, C. Papageorgiou, and D. Quinn. 2020. "Structural Reforms and Elections: Evidence from a World-Wide New Dataset." NBER Working Paper 26720, National Bureau of Economic Research, Cambridge, MA.
- Ali, F. A., N. Fiess, and R. MacDonald. 2010. "Do Institutions Matter for Foreign Direct Investment?" *Open Economies Review* 21 (2): 201–19.
- Alonso, C., T. Bhojwani, E. Hanedar, D. Prihardini, G. Uña, and K. Zhabaska. 2023. "Stacking Up The Benefits: Lessons from India's Digital Journey." IMF Working Paper 23/78, International Monetary Fund, Washington, DC.
- Anand, R., and V. Tulin. 2014. "Disentangling India's Investment Slowdown." IMF Working Paper 14/47, International Monetary Fund, Washington, DC.
- Barro, R., and X. Sara-i-Martin. 1992. "Convergence." *Journal of Political Economy* 100 (2): 223–51.
- Bento, P., and D. Restuccia. 2021. "On Average Establishment Size across Sectors and Countries." *Journal of Monetary Economics* 117: 220–42.
- Berg, A., J. Ostry, and J. Zettelmeyer. 2012. "What Makes Growth Sustained?" *Journal of Development Economics* 98 (2): 149–66.
- Bhattacharya, R., I. Patnaik, and A. Shah. 2012. "Export Versus FDI in Services." *The World Economy* 35 (1): 61–78.
- Caldara, D., and M. Iacoviello. 2022. "Measuring Geopolitical Risk." *American Economic Review* 112 (4): 1194–1225.
- Caselli, F., P. Pagano, and F. Schivardi. 2003. "Uncertainty and the Slowdown in Capital Accumulation in Europe." *Applied Economics* 35 (1): 79–89.
- Chinn, M., and H. Ito. 2008. "A New Measure of Financial Openness." *Journal of Comparative Policy Analysis* 10 (3): 309–22.
- Christiano L., and T. Fitzgerald. 2003. "The Band Pass Filter." *International Economic Review* 44 (2): 435–65.
- Cihák, M., and A. Demirgüç-Kunt. 2013. "Rethinking the State's Role in Finance." Policy Research Working Paper 6400, World Bank, Washington, DC.
- Claessens, S., and N. Van Horen. 2012. "Being a Foreigner among Domestic Banks: Asset or Liability?" *Journal of Banking & Finance* 36 (5): 1276–90.
- Clement, V., K. K. Rigaud, A. de Sherbinin, B. Jones, S. Adamo, J. Schewe, N. Sadiq, and E. Shabahat. 2021. *Groundswell Part 2: Acting on Internal Climate Migration*. Washington, DC: World Bank.
- Costa, L., A. A. Sant'Anna, and C. E. F. Young. 2023. "Barren Lives: Drought Shocks and Agricultural Vulnerability in the Brazilian Semi-Arid." *Environment and Development Economics* 28 (6): 603–23.
- Dieppe, A., and S. Kilic Celik. 2021. "Productivity: Conceptual Considerations and Measurement Challenges." In *Global Productivity: Trends, Drivers, and Policies*, edited by A. Dieppe, 59–63. Washington, DC: World Bank.
- Evans, C. 2003. "Studying the Studies: An Overview of Recent Research into Taxation Operation Costs." *eJournal of Tax Research* 1 (1): 64–92.
- FAO (Food and Agriculture Organization), IFAD (International Fund for Agricultural Development), UNICEF (United Nations Children's Fund), WFP (World Food Programme), and WHO (World Health Organization). 2023. *The State of Food Security and Nutrition in the World 2023: Urbanization, Agrifood Systems Transformation and Healthy Diets Across the Rural—Urban Continuum*. Rome, Italy: FAO, IFAD, UNICEF, WFP, WHO.
- Fernández, A., M. W. Klein, A. Rebucci, M. Schindler, and M. Uribe. 2016. "Capital Control Measures: A New Dataset." International Monetary Fund, Washington, DC.
- Fishman, R. 2018. "Groundwater Depletion Limits the Scope for Adaptation to Increased Rainfall Variability in India." *Climatic Change* 147 (1–2): 195–209.
- Fratzscher, M. 2012. "Capital Flows, Push versus Pull Factors and the Global Financial Crisis." *Journal of International Economics* 88 (2): 341–56.
- Furceri, D., S. A. Hannan, J. D. Ostry, and A. K. Rose. 2019. "Macroeconomic Consequences of Tariffs." IMF Working Paper 2019/009, International Monetary Fund, Washington, DC.
- G20-IEG. 2023. *The Triple Agenda: A Roadmap for Better, Bolder, and Bigger MDBs*. Report of the Independent Expert Group.
- Gleick, Peter H. 2003. "Global Freshwater Resources: Soft-Path Solutions for the 21st Century." *Science* 302 (5650): 1524–28.
- Gwartney, J. D., R. G. Holcombe, and R. A. Lawson. 2006. "Institutions and the Impact of Investment on Growth." *Kyklos* 59 (2): 255–73.

- Ha, J., M. A. Kose, and F. Ohnsorge, eds. 2019. *Inflation in Emerging and Developing Economies: Evolution, Drivers and Policies*. Washington, DC: World Bank.
- Harish, S., N. Singh, and R. Tongia. 2020. "Impact of Temperature on Electricity Demand: Evidence from Delhi and Indian States." *Energy Policy* 140 (May): 111445.
- Hausmann, R., L. Pritchett, and D. Rodrik. 2005. "Growth Accelerations." *Journal of Economic Growth*, 10 (4): 303–29.
- Heilbron, A., and R. Whyte. 2019. *Institutions for Investment: Establishing a High-Performing Institutional Framework for Foreign Direct Investment*. Washington, DC: World Bank.
- Heyes, A., and S. Saberian. 2022. "Hot Days, the Ability to Work and Climate Resilience: Evidence from a Representative Sample of 42,152 Indian Households." *Journal of Development Economics* 155 (March): 102786.
- Hsieh, C.-T., and P. J. Klenow. 2014. "The Life Cycle of Plants in India and Mexico." *Quarterly Journal of Economics* 129 (3): 1035–84.
- ICC (International Chamber of Commerce). 2023. "ICC 2023 Trade Report: A Fragmenting World," International Chamber of Commerce: Paris.
- IMF (International Monetary Fund). 2023a. "Third Review Under the Extended Credit Facility Arrangement—Press Release; Staff Report; and Statement by the Executive Director for Nepal." IMF Country Report 2023/384, International Monetary Fund, Washington, DC.
- IMF (International Monetary Fund). 2023b. "First Review Under the Extended Arrangement Under the Extended Fund Facility, Requests for a Waiver of Nonobservance of Performance Criterion, Modification of Performance Criteria, Rephrasing of Access, and Financing Assurances Review—Press Release; Staff Report; and Statement by the Executive Director for Sri Lanka." IMF Country Report 2023/408, International Monetary Fund, Washington, DC.
- Isaac, M., and D. P. van Vuuren. 2009. "Modeling Global Residential Sector Energy Demand for Heating and Air Conditioning in the Context of Climate Change." *Energy Policy* 37 (2): 507–21.
- Jafarov, E., R. Maino, and M. Pani. 2019. "Financial Repression Is Knocking at the Door, Again." IMF Working Paper 2019/211, International Monetary Fund, Washington, DC.
- Jafino, B. A., B. Walsh, J. Rozenberg, and S. Hallegatte. 2020. "Revised Estimates of the Impact of Climate Change on Extreme Poverty by 2030." Policy Research Working Paper 9417, World Bank, Washington, DC.
- Jeanne, O. 2023. "‘Whatever It Takes’: Government Default Versus Financial Repression." Working paper, Johns Hopkins University.
- Jones, B. F., and B. A. Olken. 2008. "The Anatomy of Start-Stop Growth." *Review of Economic and Statistics* 90 (3): 582–87.
- Jones, M. W., G. P. Peters, T. Gasser, R. M. Andrew, C. Schwingshackl, J. Gütschow, R. A. Houghton, P. Friedlingstein, J. Pongratz, and C. Le Quéré. 2023. "National Contributions to Climate Change Due to Historical Emissions of Carbon Dioxide, Methane, and Nitrous Oxide since 1850." *Scientific Data* 10 (1): 155.
- Jong-A-Pin, R., and J. de Haan. 2008. "Growth Accelerations and Regime Changes: A Correction." *Econ Journal Watch* 5 (1): 51–58.
- Joseph, J. and N. Ramalingam. 2022. "Digital Payments and GST Revenue: An Empirical Analysis," Paper Submission for Conference on Impact of GST on Indian Economy, on 28–29 November 2022, NIPFP, New Delhi.
- Joshi, A., W. Prichard, and C. Heady. 2014. "Taxing the Informal Economy: The Current State of Knowledge and Agendas for Future Research." *Journal of Development Studies* 50 (10): 1325–47.
- Kahn, M. E., K. Mohaddes, R. N. C. Ng, M. H. Pesaran, M. Raissi, and J. C. Yang. 2021. "Long-Term Macroeconomic Effects of Climate Change: A Cross-Country Analysis." *Energy Economics* 104: 105624.
- Kalemli-Ozcan, S., H. Kamil, and C. VillegasSanchez. 2016. "What Hinders Investment in the Aftermath of Financial Crises: Insolvent Firms or Illiquid Banks?" *The Review of Economics and Statistics* 98 (4): 756–69.
- Kathuria, S., and G. Arenas. 2018. "Border Tax Distortions in South Asia: The Impact on Regional Integration." In *A Glass Half Full: The Promise of Regional Trade in South Asia*, edited by S. Kathuria, 87–104. Washington, D.C.: World Bank.
- Kathuria, S., and M. M. Malouche. 2016. *Toward New Sources of Competitiveness in Bangladesh: Key Findings of the Diagnostic Trade Integration Study*. Washington, DC: World Bank.
- Kilic Celik, S., M. A. Kose, F. Ohnsorge, and F. U. Ruch. 2023. "Potential Growth: A Global Database."

- Policy Research Working Paper 10354, World Bank, Washington, DC.
- Kose, M. A., F. Ohnsorge, and L. Ye, and E. Islamaj. 2017. “Weakness in Investment Growth: Causes, Implications and Policy Responses.” Policy Research Working Paper 7990, World Bank, Washington, DC.
- Laajaj, R., M. Eslava, and T. Kinda. 2023. “The Costs of Bureaucracy and Corruption at Customs: Evidence from the Computerization of Imports in Colombia.” *Journal of Public Economics* 225 (September): 104969.
- Laeven, L., and F. Valencia. 2020. “Systemic Banking Crises Database II.” *IMF Economic Review* 68 (2): 307–61.
- Libman, E., J. A. Montecino, and A. Razmi. 2019. *Sustained Investment Surges*. Oxford Economic Papers 71 (4): 1071–95.
- Masuda, Y. J., T. Garg, I. Anggraeni, K. Ebi, J. Krenz, E. T. Game, N. H. Wolff, and J. T. Spector. 2021. “Warming from Tropical Deforestation Reduces Worker Productivity in Rural Communities.” *Nature Communications* 12 (1): 1601.
- OECD (Organization for Economic Cooperation and Development). 2015. “Lifting Investment for Higher Sustainable Growth.” In *OECD Economic Outlook* 2015/1. Paris: OECD Publishing.
- Ohnsorge, F., and H. Pallan. 2023. “An Ounce of Prevention, a Pound of Cure: Averting and Dealing with Sovereign Debt Default.” In *South Asia Development Update: Toward Faster, Cleaner Growth*, October. Washington, DC: World Bank.
- Ohnsorge, F., and S. Yu, eds. 2022. *The Long Shadow of Informality: Challenges and Policies*. Washington, DC: World Bank.
- Okunogbe, O., and V. Pouliquen. 2022. “Technology, Taxation, and Corruption: Evidence from the Introduction of Electronic Tax Filing.” *American Economic Journal: Economic Policy* 14 (1): 341–72.
- Phelan, P. E., K. Kaloush, M. Miner, J. Golden, B. Phelan, H. Silva, and R. A. Taylor. 2015. “Urban Heat Island: Mechanisms, Implications, and Possible Remedies.” *Annual Review of Environment and Resources* 40 (1): 285–307.
- Qureshi, Z., J. L. Diaz-Sanchez, and A. Varoudakis. 2015. “The Post-Crisis Growth Slowdown in Emerging Economies and the Role of Structural Reforms.” *Global Journal of Emerging Market Economies* 7 (2): 179–200.
- Rodrik, D. 2008. “The Real Exchange Rate and Economic Growth.” *Social and Economic Studies* 56 (2): 365–412.
- Romanello, M., C. Napoli, C. Green, H. Kennard, P. Lampard, D. Scamman, M. Walawender, et al. 2023. “The 2023 Report of the Lancet Countdown on Health and Climate Change: The Imperative for a Health-Centred Response in a World Facing Irreversible Harms.” *The Lancet* 402 (10419): 2346–94.
- Rozenberg, J. and M. Fay, eds. 2019. *Beyond the Gap: How Countries Can Afford the Infrastructure They Need While Protecting the Planet*. Washington, DC: World Bank.
- Sahay, R., M. Cihak, P. N’Diaye, A. Barajas, D. Ayala, R. Bi, Y. Gao, et al. 2015. “Rethinking Financial Deepening: Stability and Growth in Emerging Markets.” IMF Staff Discussion Note SDN/15/08, International Monetary Fund, Washington, DC.
- Solow, R. M. 1962. “Technical Progress, Capital Formation, and Economic Growth.” *The American Economic Review* 52 (2): 76–86.
- Somanathan, E., R. Somanathan, A. Sudarshan, and M. Tewari. 2021. “The Impact of Temperature on Productivity and Labor Supply: Evidence from Indian Manufacturing.” *Journal of Political Economy* 129 (6): 1797–1827.
- Stamm, K., and D. Vorisek. 2023. “The Global Investment Slowdown: Challenges and Policies.” In *Falling Long-Term Growth Prospects: Trends, Expectations, and Policies*, edited by M. A. Kose and F. Ohnsorge, 153–210. Washington, DC: World Bank.
- Subramanian, A., M. Kessler, and E. Properzi. 2023. “Trade Hyperglobalization Is Dead. Long Live...?” PIIE Working Paper 23–11, Peterson Institute for International Economics, Washington, DC.
- Syverson, C. 2011. “What Determines Productivity?” *Journal of Economic Literature* 49 (2): 326–65.
- Tokarick, S. 2006. “Does Import Protection Discourage Exports?” IMF Working Paper 2006/020, International Monetary Fund, Washington, DC.
- UNEP (United Nations Environment Programme). 2023a. “Emissions Gap Report 2023: Broken Record – Temperatures Hit New Highs, yet World Fails to Cut Emissions (Again),” United Nations Environment Programme, Nairobi.
- UNEP (United Nations Environment Programme). 2023b. “Adaptation Gap Report 2023: Underfinanced.

- Underprepared. Inadequate Investment and Planning on Climate Adaptation Leaves World Exposed,” United Nations Environment Programme, Nairobi.
- Wagner, J. 2014. “Exports, Foreign Direct Investments and Productivity: Are Services Firms Different?” *Service Industries Journal* 34 (1): 24–37.
- Wang, X., and C. Yan. 2022. “Does the Relative Importance of the Push and Pull Factors of Foreign Capital Flows Vary Across Quantiles?” *IMF Economic Review* 70 (2): 252–99.
- Wester, P., S. Chaudhary, N. Chettri, M. Jackson, A. Maharjan, S. Nepal, and J. F. Steiner. 2023. *Water, Ice, Society, and Ecosystems in the Hindu Kush Himalaya: An Outlook*. Kathmandu, Nepal: International Centre for Integrated Mountain Development (ICIMOD).
- World Bank. 2019. *Global Economic Prospects: Heightened Tensions, Subdued Investment*. June. Washington, DC: World Bank.
- World Bank. 2021a. *South Asia Economic Focus: Shifting Gears: Digitization and Services-Led Development*. Fall. Washington, DC: World Bank.
- World Bank. 2021b. *World Bank Group Climate Change Action Plan 2021–2025: South Asia Roadmap*. Washington, DC: World Bank.
- World Bank. 2021c. *Fiscal Policy for Sustainable Development: Nepal Public Expenditure Review*. Washington, DC: World Bank.
- World Bank. 2022a. *Bhutan Development Update*. October. Washington, DC: World Bank.
- World Bank. 2022b. *From Swimming in Sand to High and Sustainable Growth: A Roadmap to Reduce Distortions in the Allocation of Resources and Talent in the Pakistani Economy*. Washington, DC: World Bank.
- World Bank. 2023a. *South Asia Development Update: Toward Faster, Cleaner Growth*. Washington, DC: World Bank.
- World Bank. 2023b. *Bangladesh Development Update: Trade Reform: An Urgent Agenda*. April. Washington, DC: World Bank.
- World Bank. 2023c. *India Development Update*. Spring. Washington, DC: World Bank.
- World Bank. 2023d. *Pakistan Development Update: Recent Economic Developments, Outlook, and Risks*. April. Washington, DC: World Bank.
- World Bank. 2023e. *Nepal Development Update: Fine-Tuning Policy in a Turbulent Environment*. April. Washington, DC: World Bank.
- World Bank. 2023f. *Pakistan Federal Public Expenditure Review 2023*. Washington, DC: World Bank.
- World Bank. 2023g. *Sri Lanka: International Development Association Program Document for a Proposed Credit on Shorter Term Maturity Loan Terms*. Washington, DC: World Bank.
- World Bank. 2024a. “The Magic of Investment Acceleration.” In *Global Economic Prospects: Subdued Growth, Multiple Challenges*, January. Washington, DC: World Bank.
- World Bank. 2024b. *Afghanistan Economic Monitor*. January. Washington, DC: World Bank.
- WTO (World Trade Organization). 2023. *WTO End-Year Trade Monitoring Report*. World Trade Organization, Geneva.
- Zaveri, E., and D. B. Lobell. 2019. “The Role of Irrigation in Changing Wheat Yields and Heat Sensitivity in India.” *Nature Communications* 10 (1): 4144.
- Zhang, L., W. Cheng, E. Cheng, and B. Wu. 2020. “Does Land Titling Improve Credit Access? Quasi-Experimental Evidence from Rural China.” *Applied Economics* 52 (2): 227–41.
- Zhou, Y. 2022. “The Value Added Tax, Cascading Sales Tax, and Informality.” In *Hidden Potential: Rethinking Informality in South Asia*, edited by M. Bussolo and S. Sharma, 61–122. Washington, DC: World Bank.



SPOTLIGHT

WHO BEARS THE BURDEN OF  
CLIMATE ADAPTATION AND HOW?  
A SYSTEMATIC REVIEW





## Spotlight: Who Bears the Burden of Climate Adaptation and How? A Systematic Review

*South Asia is highly vulnerable to climate change. However, severely constrained fiscal positions will limit the scope for public policies to facilitate climate change adaptation. This means that the burden of adaptation will fall disproportionately on firms, farmers, and households and, especially, poor households, which typically suffer greater damage from climate shocks. A comprehensive and systematic review of climate change research identifies a variety of adaptation strategies used by households, firms, and farmers, which have offset 46 percent of climate damage, on average. Firms have access to the most effective adaptation strategies, typically technology-related, whereas the least effective strategies are employed by households and farmers, often in the form of labor market adjustments. Adaptations that involve public support tend to be more effective than purely private strategies. The analysis suggests that policy should be guided by three principles: (i) implementing a comprehensive package of policies; (ii) prioritizing policies that generate “double dividends”; and (iii) designing policies that target non-climate goals in a manner that does not set back climate-related goals.*

### Introduction

**Impact of climate change.** Climate change is raising global temperatures, changing precipitation patterns, acidifying oceans, and raising sea levels. Estimates of the future increase in the global mean temperature range from 0.9 degrees to 5.4 degrees Celsius by the end of this century (IPCC 2014; Hsiang and Kopp 2018). Rising temperatures will be accompanied by more frequent and intense droughts and other extreme weather events such as cyclones (Collins et al. 2014; Kossin et al. 2017).

**South Asia’s vulnerability.** South Asia is highly vulnerable to these effects of climate change. According to the vulnerability index of the University of Notre Dame’s Global Adaptation Initiative (ND-GAIN), South Asia is the most vulnerable to climate change of all the emerging market and developing economy (EMDE) regions (figure SL1A). This reflects South Asia’s geography, which leaves it exposed to changes in groundwater availability, floods, extreme heat, and rising sea levels. It also reflects the fact that a large share of the region’s population lives in areas that are particularly exposed to climate hazards. Furthermore, increasingly rapid melting of the region’s mountain glaciers creates risks of flash floods, landslides, and disruptions of water supply (Mani 2021). On average, about 60 million

people annually have been affected by natural disasters in South Asia since 2010, more than in any other region in the world (figure SL1B).

**Channels of vulnerability in South Asia.** The potential economic damage to South Asia from climate change is sizable, driven by both extreme weather events and slow-moving climate trends. Climate change is projected to reduce agricultural yields, industrial output, labor supply, productivity, and human capital.<sup>1</sup> Climate change-induced income losses will be a particular challenge for the 9 percent of the South Asian population living in extreme poverty (less than \$2.15 per day) and the 34 percent living on the brink of extreme poverty (between \$2.15 and \$3.65 per day; World Bank 2022). The agriculture sector, in which almost half of South Asia’s working-age population works, is particularly susceptible to climate change. For example, changes in temperature and precipitation patterns could reduce India’s agricultural output by 25 percent or more in the long run (Guiteras 2009). The non-farm sector is also vulnerable to climate change. In India, 2.2 percent of firm-level assets are lost in the average cyclone and the annual output of manufacturing factories falls by 2 percent for every degree Celsius of warming because of lower labor productivity (Pelli et al. 2023; Somanathan et al. 2021).

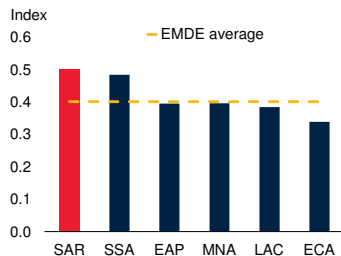
*Note:* This spotlight was prepared by Jonah Rexer and Siddharth Sharma, with contributions from Margaret Triyana (all SARCE).

<sup>1</sup> See, for example, Auffhammer (2018); Carleton and Hsiang (2016); Dell, Jones, and Olken (2014); Fernando, Liu, and McKibbin (2021); and International Monetary Fund (2022).

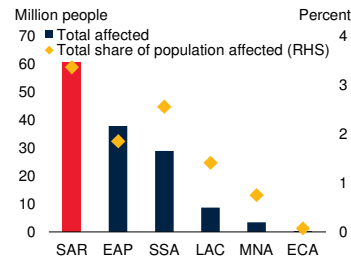
## FIGURE SL.1 Vulnerability to climate change and fiscal constraints

South Asia is more vulnerable to climate change than other emerging market and developing economies (EMDE) regions and has seen the largest share of its population affected by extreme weather events among all EMDE regions in recent years. Governments in South Asia have limited spending capacity to finance climate change adaptation because of large and growing government debt and low revenues.

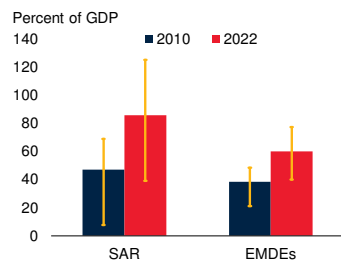
### A. Climate change vulnerability index, 2017-21 average



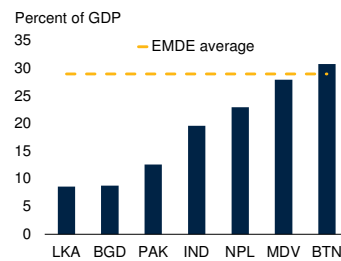
### B. People affected by natural disasters, 2013-2022 average



### C. Government debt



### D. Government revenue, 2020-22 average



Sources: International Disaster database (EM-DAT); International Monetary Fund, World Economic Outlook database; national sources; Notre Dame Vulnerability Index; WDI (database).

Note: EAP = East Asia and Pacific; ECA = Europe and Central Asia; BGD = Bangladesh; BTN = Bhutan; EMDEs = emerging market and developing economies; IND = India; LAC = Latin America and the Caribbean; LKA = Sri Lanka; MDV = Maldives; MNA = Middle East and North Africa; NPL = Nepal; PAK = Pakistan; SAR = South Asia; SSA = sub-Saharan Africa;

A. Bars show the climate vulnerability index of the Notre Dame Global Adaptation Initiative, averaged over 2017–21. Regional aggregates are GDP-weighted by country GDP in 2015.

B. Bars show the total population affected by natural disasters, and diamonds show the share of total population affected; annual averages over 2013–22. Sample includes 144 EMDEs (22 in EAP, 20 in ECA, 31 in LAC, 18 in MNA, eight in SAR, and 45 in SSA).

C. Bars show unweighted averages (at 2010–19 average prices and market exchange rates). Yellow whiskers indicate minimum-maximum range for seven SAR economies, and interquartile ranges for EMDEs.

D. EMDE average computed using 2015 GDP as weights. Bars show 2020–22 averages of government revenue.

**Government responses in South Asia.** Faced with climate change-related threats, South Asian governments have launched major programs, such as the Bangladesh Delta Plan 2100 (Government of Bangladesh 2018), to build resilient infrastructure and disaster preparedness systems. However, fiscal constraints limit how much public investment can be channeled into adaptation to climate change. In most South Asian countries, governments' debt-to-GDP ratios are well above the EMDE average, while its government revenue-

to-GDP ratio is far below the EMDE average (figure SL1C and D). These constraints hinder the effectiveness of public spending on climate adaptation and require a larger focus on facilitating climate adaptation on the private sector in other ways. Effective climate adaptation may require not only supporting specific adaptation mechanisms, but also targeting the most vulnerable groups of households and firms.

**Questions.** This spotlight examines four questions crucial for rigorous policy prioritization:

- Which households, firms, and farms are most exposed to, and hurt by, climate shocks?
- How do households, firms, and farms adapt to climate change?
- How effective is climate adaptation by households, firms, and farms?
- What are the implications for South Asia's policy priorities?

**Effectiveness versus cost-efficiency.** The adaptation strategies that firms and households ultimately adopt will depend on effectiveness relative to cost, as well as such constraints as access to finance. While a particular adaptation strategy may be highly effective, it may not be adopted if it is prohibitively expensive. This review focuses solely on one aspect of this cost-benefit analysis, by summarizing the literature on the effectiveness of adaptation strategies. Estimates of the cost of these strategies are beyond the scope of this review.

**Contributions:** This spotlight makes several contributions.

First, it draws on Rexer and Sharma (2024) to present the only statistically rigorous meta-analysis of the estimated impacts of climate change adaptation that have been reported in the economics literature.<sup>2</sup> Climate change "adaptation" is defined as any human behavioral

<sup>2</sup>Balboni, Bhogale, and Kala (2023) and Goicoechea and Lang (2023) are other recent reviews of climate change adaptation. By contrast, Rexer and Sharma (2024) is a meta-analysis and does a systematic stocktaking of papers, focuses on adaptation, excludes mitigation studies, and considers households and farmers, not just firms.

response to actual or expected climate change or weather shocks that can be understood as attempting to mitigate the losses from them. Examples include adoption of climate-resilient technologies, reallocation of resources to less climate-sensitive economic activities, migration, and the use of transfers to help households and firms cope with climate shocks. Rexer and Sharma (2024) introduce a novel standardized measure of the impact of adaptation: the adaptation ratio. It measures the share of the damage from a climate shock that is offset by adaptation. It can be derived from estimates commonly presented in studies and compared across studies of different types of adaptation mechanisms, types of climate shocks, agents involved, and outcomes.

*Second*, this spotlight systematically analyzes differences in the average effectiveness of adaptation across agents and adaptation mechanisms.

*Third*, this spotlight uses the main messages of the review of climate change adaptation research to identify policy priorities for South Asia to help ensure effective climate adaptation by a combination of public and private actions.

*Fourth*, this spotlight complements previous literature reviews that discussed the disproportionate exposure to, and impact of, climate change for poor households. In contrast to previous research that examined these relationships in depth, this spotlight aims for breadth by covering as large a body of research as could be assembled. This includes estimates featured in the World Bank's Country Climate and Development Reports (CCDRs).

**Main findings.** The main findings of the spotlight are:

- Poor households are typically more exposed to, and more adversely affected by, climate shocks than more affluent households. Less is known about firms, but less productive firms appear to be more adversely affected than more productive ones.
- Households, firms, and farmers have adopted a variety of strategies to adapt to climate change that, on average, mitigated 46 percent

of climate damages. Firms' adaptation strategies have been the most effective, offsetting 72 percent of the damage from climate change, while farmers' strategies have been the least effective, offsetting 38 percent of the damage. Adaptation has rarely fully offset climate damage.

- Firms have better access to the most effective adaptation strategies, typically technology-related, whereas households tend to rely on less effective strategies, such as labor market adjustments including migration and shifts from farm to non-farm activities. Adaptations that are supported by public policies tend to be more effective than purely private ones.
- Policy priorities include support for adoption of technologies in the private sector and investment in broad public goods. In addition, social protection systems remain an important tool in blunting the negative effects of climate shocks on households. The choice of policies can be guided by three principles: implementing a wide range of policies, prioritizing policies that generate dividends beyond climate adaptation, and designing policies aimed at goals other than climate adaptation in a manner that does not set back climate-related goals.

## Differing exposure to, and impact of, climate shocks

*Poor households are usually more exposed to, and more adversely affected by, climate shocks than more affluent households. Few studies have examined the impact on firms and the evidence on this is mixed.*

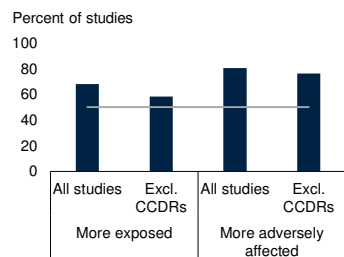
### Households

**Methodology.** A systematic review of the research is conducted to identify whether poor households are more exposed to climate shocks and, if climate shocks occur, whether they are more adversely affected than more affluent households. From a pool of 1,303 potentially relevant studies, 70 were identified that include 829 quantitative estimates (box SL.B1.1). Then a probit estimation was conducted to quantify the probability that a study

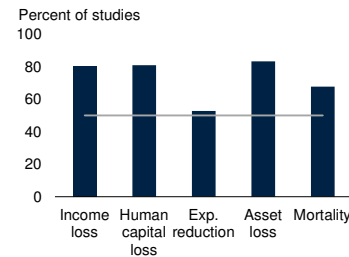
## FIGURE SL.2 Distributional implications of climate shocks

The research literature on the exposure to, and impact of, climate shocks indicates that poor households tend to be more exposed to, as well as more adversely affected by, climate shocks than better-off households. In particular, poor households tend to suffer larger income and human capital losses than more affluent households.

**A. Share of studies that document that the poor are more exposed to, or more adversely affected by, climate shocks**



**B. Share of studies that document the poor suffer larger losses for the poor**



Sources: World Bank.

Note: CCDR =Country Climate and Development Report.

A. CCDR sample includes 70 studies. Gray line indicates 50 percent.

B. Share of studies documenting that poor households suffer greater losses than more affluent households. Includes CCDRs as well as academic studies.

of a particular type of climate shock documents that the poor are either more exposed to climate shocks than other households or more adversely impacted by climate shocks.

**Disproportionate impact on poor households' incomes.** About two-thirds of the studies find that the poor are more exposed to climate shocks, especially to droughts and floods, than more affluent households (figure SL2A). In addition, because they are less able to adapt and respond, poor households usually also suffer greater damage from climate shocks, with four-fifths of the studies supporting this finding. Income and human capital (education and health) losses tend to be particularly concentrated among the poor, whereas evidence on other impacts, such as household expenditure cuts or mortality, is mixed (figure SL2B).

### Firms

**Mixed evidence thus far.** Very few studies have examined the differing impacts of climate shocks on firms and none has examined differences in exposures to shocks across firms. In the United States, agricultural firms (Nath 2021) and firms that predominantly served local markets (Gallagher, Hartley, and Rohlin 2023) suffered

greater damage from climate shocks than manufacturing and services firms. Unsurprisingly, perhaps, firms involved in reconstruction after natural disasters benefited (Indaco, Ortega, and Taşpınar 2021). In India and Indonesia, weaker-performing firms were more affected by natural disasters (Pelli et al. 2023, Xie 2022). In contrast, in China, climate shocks appear to have had similarly adverse effects across various types of manufacturing firms, including labor-intensive and capital-intensive industries, light and heavy manufacturing, and high- and low-tech sectors (Zhang et al. 2018).

## Adaptation strategies by households, firms, and farms

*Households, firms, and farmers have adopted a variety of strategies to adapt to climate change. Firms have had the most success at reversing the damage from climate change (72 percent of it) and farmers have had the least success at it (38 percent). The research reviewed here has robustly documented only a few instances of maladaptation.*

### Methodology

**Review sample.** Starting with a pool of more than 5,000 studies and applying comprehensive filters for relevance and quality, the review in Rexer and Sharma (2024) compiles a database of 324 studies on adaptation in 10 advanced economies and 34 EMDEs in South Asia (SAR), Sub-Saharan Africa (SSA), Latin American and the Caribbean (LAC), and East Asia and the Pacific (EAP), as well as 50 global or regional studies.<sup>3</sup> In addition to systematically assessing these studies, it conducts a meta-analysis using a subset of 80 studies for which statistical analysis of standardized quantitative estimates of the effectiveness of adaptation is feasible, and 52 studies for which estimation of standard errors (a measure of how closely a sample reflects the whole population) is feasible.

<sup>3</sup>The baseline pool of papers is built up from studies cited in Balboni, Bhogale and Kala (2023) by collecting all articles citing or cited by these studies.

### BOX SL. B1.1 Climate Shocks and the Poor<sup>a</sup>

*About two-thirds of studies find that the poor are more exposed to climate shocks than more affluent households and four-fifths of studies find that the poor are also more adversely affected by these shocks. Income and human capital losses tend to be particularly concentrated among the poor, whereas the evidence is more mixed for other impacts such as mortality or household expenditure cuts.*

#### Introduction

Climate shocks are expected to become more unpredictable as climate change accelerates (United Nations Framework Convention on Climate Change 2007). Similar to other regions, South Asia is expected to face a growing number of extreme weather events. With fiscal resources severely constrained in most South Asian countries, policy makers will need to focus their efforts on the groups most severely impacted by climate change.

Poor households may be more exposed to climate shocks than better-off households because they tend to live or work in locations that are prone to climate shocks (in part because have fewer options to choose from) and face a more difficult tradeoff between locational amenities, including climate risks and proximity to income-earning opportunities (Hallegatte, Fay, and Barbier 2018; Kim 2012). In addition to greater exposure to risks, poor households are likely to have fewer resources to invest in protective measures against climate risks, lose a larger fraction of their income or assets, have access to lower-quality housing and infrastructure, are less able to respond to shocks after they happen, and have less access to post-disaster relief mechanisms (Anttila-Hughes and Hsiang 2013; Hallegatte, Fay, and Barbier 2018). As a result, climate shocks can trap poor households in poverty for prolonged periods (Carter et al. 2007).

Using a meta-regression analysis, this box distills the findings of a large and rapidly growing body of research on the distributional consequences of climate shocks. It examines the following questions:

- Are poor households more exposed to climate shocks than other households?
- Are poor households more hurt by climate shocks than other households?

**Contributions.** This box contributes to the research literature in several ways. *First*, it is a review of the literature that deliberately aims for breadth of coverage. Previous literature reviews have described groups of studies in detail (for example, Hallegatte, Fay, and Barbier 2018), and have examined specific channels through which poor households are more affected, such as physical infrastructure (Hallegatte, Rentschler, and Rozenberg 2019). In contrast, the goal here is to cover the literature as comprehensively as possible, although in less detail. *Second*, since the literature is growing rapidly, this study updates previous literature reviews (for example, Hallegatte et al. 2020; Hallegatte et al. 2016). One-quarter of the studies reviewed here were published during 2020-23, including all 37 *Country Climate and Development Reports* (CCDRs) that offer quantitative estimates.

**Vulnerability and resilience.** Since this box aims to quantify the main messages from as large a literature as possible, it is constrained in the degree of granularity it can implement. For example, Hallegatte et al. (2016) distinguish between exposure, vulnerability, and resilience of households to shocks. Unfortunately, less than a handful of papers offers estimates on resilience. As a result, this box merges vulnerability and resilience into a single category to describe the impact of shocks once they materialize.

**Main findings.** The main findings of the box are as follows.

- *First*, about two-thirds of the studies in the literature find that poor households are significantly more exposed than other households, especially to drought and floods. For other types of climate shocks, the evidence is mixed.
- *Second*, the disproportionate impact on poor households has been most often documented for income and human capital losses. The evidence for other impacts, such as mortality or household expenditure cuts, is mixed.

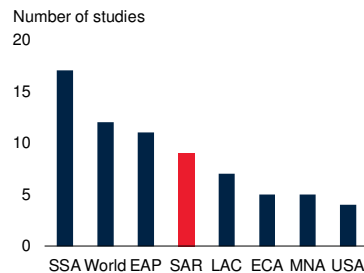
<sup>a</sup> This box was prepared by Margaret Triyana (SARCE).

### BOX SL. B1.1 Climate Shocks and the Poor (*continued*)

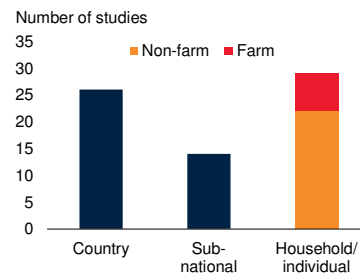
#### FIGURE SL.B1.1 Description of the literature

Differences in the exposure to, and impact of, climate shocks between poor and more affluent households have been examined for a wide range of countries, at multiple levels of analysis, and for many types of shocks. While most non-CCDR studies examine the greater impact of climate shocks on the poor, the bulk of the evidence indicating greater exposure of the poor comes from the World Bank's CCDRs.

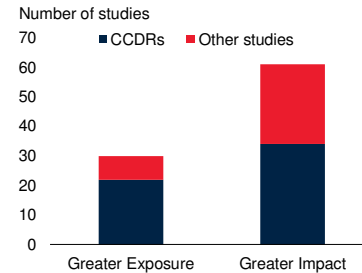
##### A. Number of studies, by region



##### B. Number of studies, by unit of observation



##### C. Number of studies, by source



Sources: World Bank.

Note: CCDR = Country Climate and Development Report; EAP = East Asia and Pacific; ECA = Europe and Central Asia; LAC = Latin America and the Caribbean; MNA = Middle East and North Africa; SAR = South Asia; SSA = Sub-Saharan Africa.

### Methodology

**Sample of studies.** A systematic review of the research and policy literature is conducted starting with 11 index studies that seed a backward and forward citation search (Triyana et al. 2024). This is supplemented with a database search. The search results are then restricted to studies published after the year 2000 to ensure the included studies would closely reflect current policy settings. Finally, all published *Country Climate Development Reports* (CCDRs) by the World Bank are included. These reports include an analysis of the link between climate shocks and poverty. Starting with a pool of 1,303 potentially relevant studies, the results were restricted to articles in economics, general interest peer-reviewed journals, and reports. After reviewing abstracts and the full text, a total of 70 studies that featured quantitative estimates were selected. Most of these studies document estimates for multiple specifications.

**Characteristics of the selected studies.** These 70 studies—of which 37 are empirical estimates and the rest include a variety of methods, including simulations—yield 701 estimates that are combined into the meta-regression analysis below. Most non-CCDR studies examine the greater *impact* of climate

shocks on the poor, whereas the overwhelming majority of the evidence for greater *exposure* to the poor comes from the World Bank's CCDRs. The level of analysis includes studies at the individual household, subnational or country-level (figure SL.B1.1). Most household or individual-level studies are about non-farm households but just about one-quarter include farmers. The studies cover a wide geographic range.

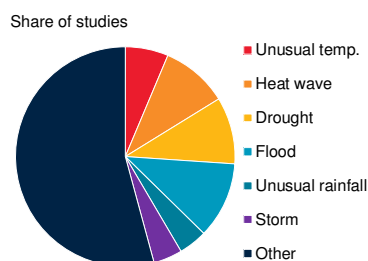
**Estimation.** The studies vary widely in the outcomes examined and in the definitions of outcomes, shocks, and level of analysis. Consequently, only a general categorization of outcomes is feasible for comparing results across studies. The findings have two outcomes: either “the poor are more exposed to climate shocks” or “the poor are more adversely affected by climate shocks.” A probit regression is used to estimate the probability of the poor’s greater-than-average exposure to, or damage from, specific climate shocks controlling for the study’s region and the level of analysis (annex SL.B1.1). Climate shocks are broadly classified into any categories such as natural disasters, extreme temperatures including extreme heat, unusual rainfall patterns, flooding, droughts, earthquakes, landslides, climate change, and other climate-related shocks.

## BOX SL. B1.1 Climate Shocks and the Poor (*continued*)

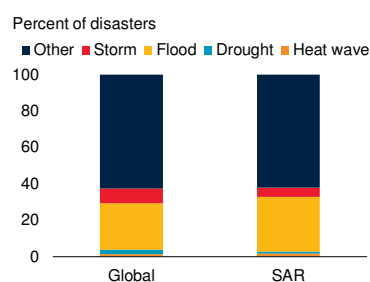
### FIGURE SL.B1.2 Types of natural disasters

*Floods are the most common type of disaster, including in South Asia. Drought and extreme heat, however, are more common in South Asia than elsewhere.*

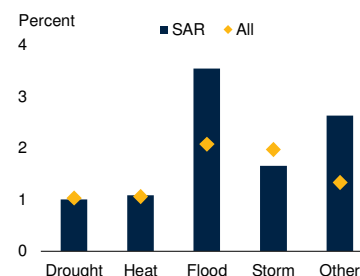
**A. Composition of sample of studies, by shock under examination**



**B. Distribution of natural disasters**



**C. Average annual number of natural disasters per country**



Sources: EM-DAT database; World Bank.

A. Other = earthquakes and landslides and generic natural disasters or climate change. Unusual temperature = temperature changes that are not extreme heat or heat waves, such as less pronounced temperature increases, as well as unusually low temperature, such as a cold snap. Unusual rainfall = either excess or shortfall precipitation that is not a drought or flood.

B.C. Other = earthquakes and landslides as well as unspecified natural disasters or climate shocks.

## Exposure to climate shocks

**Types of shocks.** South Asia stands out as the EMDE region with the largest number of people exposed to climate shocks over the past decade. Similar to other regions, the most common type of disaster is flooding. South Asia suffers more frequent floods, but fewer severe storms, than the rest of the world (figure SL.B1.2).

**Greater exposure of the poor: Droughts and floods.** More than two-thirds (68 percent) of the estimates found that the poor are statistically significantly more exposed to climate shocks (figure SL.B1.3). Among estimates not derived from CCDRs, 61 percent documented greater exposure of the poor, especially to droughts and floods (about three-quarters of estimates). This is confirmed in the regression analysis that controls for other factors. Compared with studies of other climate events, studies of droughts and floods were significantly more likely to find the poor were more exposed to the disaster than average households (annex table SL.B1.1.1). In part, the prevalence of studies finding that the poor are more exposed to shocks may reflect the samples included in these studies. For example,

there is some evidence that the poor are more exposed to floods than other households—but only in urban areas, not in rural areas where the poorest tend to live (Hallegatte et al. 2020).

## Impact of climate shocks

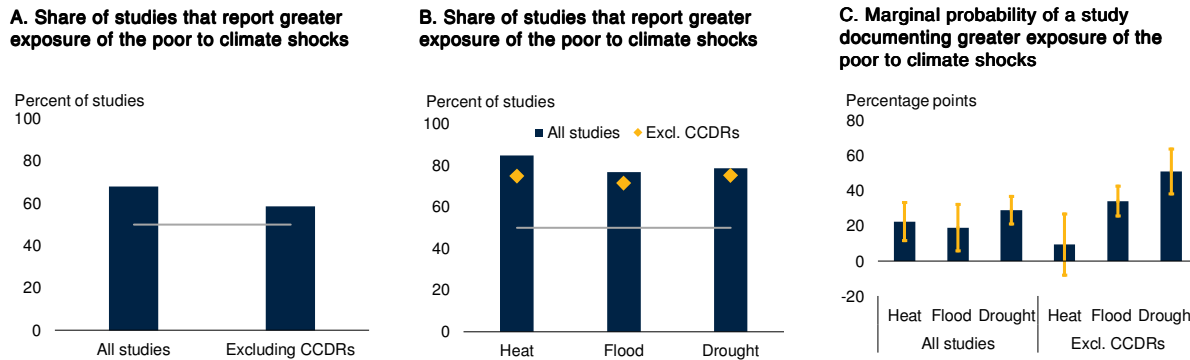
**Greater impact on the poor: Drought and floods.** Four in five (80 percent) studies in the sample found that the poor are more adversely affected by climate shocks than other households—a finding that emerges from both CCDRs and non-CCDR studies. Greater impacts on the poor were identified most frequently in studies of droughts (92 percent), extreme heat (100 percent), and floods (88 percent; figure SL.B1.4). Compared with studies of other shocks, studies of droughts and floods were significantly more likely to show a greater impact on the poor than on other households.

**Types of impact on the poor: Income and human capital losses.** The studies in the sample covered a wide variety of effects of climate shocks, including loss of income, household expenditure, welfare, assets, education, or mortality. Most estimates of the impact for the poor focus on income (27 percent), followed by human capital (education, health, and

**BOX SL. B1.1 Climate Shocks and the Poor (continued)**

**FIGURE SL.B1.3 Disproportionate exposure of the poor to climate shocks**

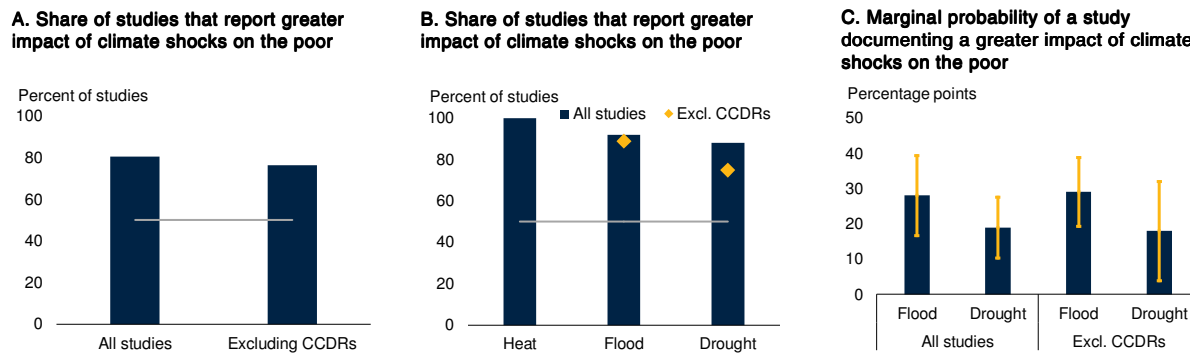
Most studies find that the poor are more exposed to climate shock than the average household, especially to droughts and floods.



Source: World Bank.  
 Note: CCDR = Country Climate and Development Report. Only CCDRs estimate the impact of extreme heat. Sample covers 33 studies, of which 22 are CCDRs. Grey lines indicate 50 percent.  
 C. Probability of a regression estimate for a specific shock documenting the poor being more exposed than other households, as deviation from the probability of the same finding in studies of other shocks. Whiskers indicate 95 percent confidence intervals.

**FIGURE SL.B1.4 Disproportionate impact of climate shocks on the poor**

Most studies find that the poor are more adversely affected by climate shock than the average household, especially in the case of droughts and floods.



Source: World Bank.  
 Note: CCDR = Country Climate and Development Report. Only CCDRs estimate the impact of extreme heat. Sample covers 61 studies, of which 34 are CCDRs. Grey lines indicate 50 percent.  
 C. Probability of a regression estimate for a specific shock documenting a greater impact on the poor than on other households, as deviation from the probability of the same finding in studies of other shocks. Whiskers indicate 95 percent confidence intervals.

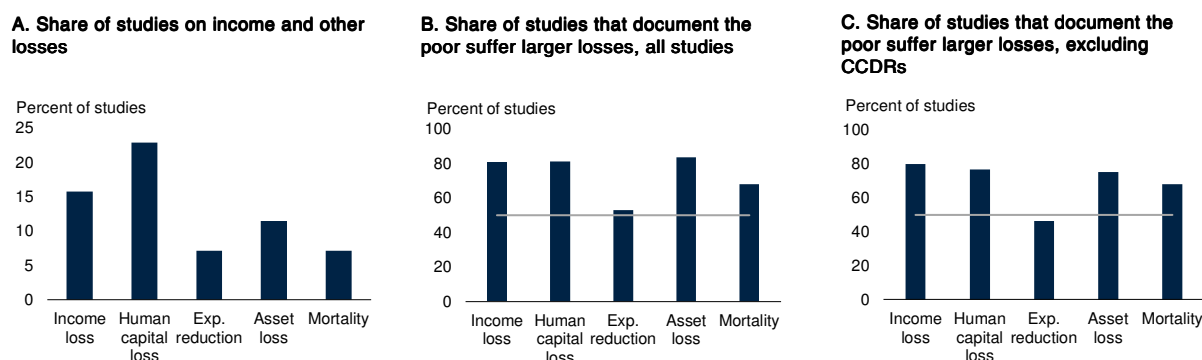
crime, 17 percent). Among studies that focus on income, 80 percent show worse outcomes for the poor. A similar finding emerges among studies that focus on human capital (figure SLB1.5).

Food security is an important mechanism in settings such as Pakistan’s floods in 2022 (Baron et al. 2022). Indeed, all studies in the sample that examine post-shock food security show that the poor are more



**BOX SL. B1.1 Climate Shocks and the Poor (continued)****FIGURE SL.B1.5 Disproportionate income and human capital losses for the poor**

*Studies of income and human capital losses mostly find that poor household suffer larger losses than more affluent households. Evidence for other impacts, such as mortality or expenditure reduction is mixed.*



Source: World Bank.

Note: CCDR = Country Climate and Development Report; Exp = Household expenditure reduction. Sample covers 61 studies, of which 34 are CCDRs. Grey lines indicate 50 percent. Income includes earnings. Human capital includes education, health, crime, and food security. Sample includes 123 estimates of income (11 studies), 74 estimates of human capital (16 studies), 17 estimates of household expenditure cuts (5 studies), 12 estimates of asset losses (8 studies), and 28 estimates of mortality (5 studies).

adversely affected. In the sample used here, three fourths of estimates found that the poor still suffer impacts more than one year after the shock, suggesting that the poor also struggle to recover.

### Conclusion

Research finds that the poor are often more exposed to climate shocks, especially droughts and floods, and

that the poor typically suffer greater income and human capital losses than other households. This suggests that support for poor households should be prioritized when strained fiscal resources require tradeoffs among spending priorities.

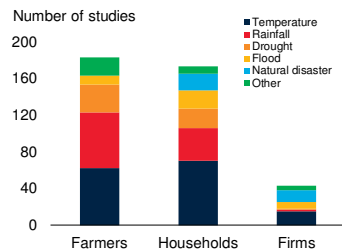
**Scope.** The review targets studies in the 250 top-ranked economics journals on the Research Papers in Economics (RePEc) repository. This is done to ensure consistency in methodological approach. The sample of reviewed studies includes ones from top cross-disciplinary journals such as Science and Nature that are included in the RePEc list. However, it does not include more specialized journals in, for example, risk management, operations research, or climate sciences. It also excludes papers that use a case study approach or engineering estimates to assess the cost and impact

of adaptation and lack econometric estimates based on observational data. The reviewed studies use econometric techniques for measuring the effectiveness of observed adaptation strategies. In general, they estimate the impact of a specific adaptation strategy by comparing against a control group that does not adopt the strategy but may well adopt other, unspecified strategies. The review sample covers a wide range of climate hazards, including both natural disasters and long-run climatic shifts such as rising temperature or changing rainfall patterns (figure SL3A).

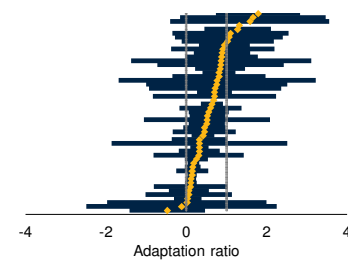
### FIGURE SL.3 Effectiveness of climate adaptation

The research literature on climate change adaptation has focused less on firms than on farmers and households. Temperature and rainfall extremes are the most-studied climate shocks. On average, adaptation offsets 46 percent of the damage from climate change, but there is considerable variation among households, firms, and farmers.

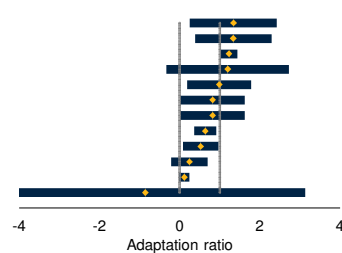
**A. Number of climate change adaptation studies reviewed, by agent and shock**



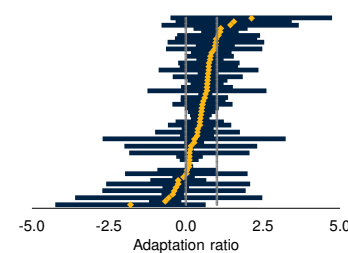
**B. Adaptation ratio estimates: Households**



**C. Adaptation ratio estimates: Firms**



**D. Adaptation ratio estimates: Farmers**



Sources: Rexer and Sharma (2024); World Bank.

Note: Adaptation ratio = the share of the damage from a climate shock that is offset by adaptation. A. Bars show the number of studies by agent and climate shock for the full sample of 324 studies from high-income countries and EMDEs reviewed in Rexer and Sharma (2024). Individual studies that analyze more than one climate shock and/or agent type are counted separately for each shock-agent pair, resulting in a total that may exceed 324.

B.-D. Charts plot all the adaptation ratios from household (B), firm (C) and farmer (D) studies, as estimated in Rexer and Sharma (2024). Each diamond represents an estimated adaptation ratio, and the corresponding horizontal blue bar represents its 95 percent confidence interval. Vertical lines indicate adaptation ratios of 0 (ineffective adaptation) and 1 (fully effective adaptation). In total, they represent 110 estimates from 51 papers. For visual clarity, eight estimates with extremely large confidence intervals are dropped. Technical details are explained in Rexer and Sharma (2024).

### Household adaptation strategies

**Coverage in the literature.** Households are the best-represented group in the research on climate change adaptation, examined in 48 percent of the 324 reviewed studies. Temperature (extreme heat and cold) is the most common climate change dimension examined (figure SL3A). There are also numerous studies of adaptation by households to abnormal rainfall, floods, droughts, and other natural disasters.

**Labor market adjustments,** in particular migration, are the most common adaptations by households in the reviewed studies, accounting for

34 percent of household studies. Among these, migration is most common. For example, a significant number of households affected by a major flooding in Bangladesh in 2014 migrated, mostly within Bangladesh in the case of low-wealth households and to international destinations for high-wealth ones (Giannelli and Canessa 2022). Remittances from migrants helped households deal with the income loss from the floods.

**Sectoral labor reallocation** is also a common adaptation strategy for households. Because farm activities are generally more sensitive to climate than non-farm activities, workers switching to non-farm activities help rural households adapt to climate change. For example, abnormal temperatures have been linked to an increase in non-agricultural employment in India, and it is estimated that local economic losses from climate change could be up to 69 percent higher if such labor reallocation were not possible (Colmer 2021).

**Resource transfers** are another common household adaptation mechanism identified in the reviewed literature, often provided through government relief programs. In Bangladesh, an anticipatory cash transfer to households at risk of flooding helped prevent food deprivation when floods struck in 2020 and significantly improved the wellbeing, assets, and income-earning potential of recipient households (Pople et al. 2021). Timely disaster relief may even ease the mental cost of natural disasters. In Pakistan, households reported significantly lower aspirations after experiencing the abnormal rainfall that led to the devastating 2010 floods. However, this decline in aspirations was significantly less pronounced in villages that received disaster relief in the form of cash transfers for each of the three years following the floods (Kosec and Mo 2017).<sup>4</sup>

**Technology adoption** serves as another household adaptation mechanism, albeit less commonly than labor market adjustments or transfers in the studies reviewed. For example, in

<sup>4</sup> Cash transfers may also have spillover effects on local labor and goods markets, with unclear implications for aggregate welfare (Egger et al. 2022). This may hold true for other adaptations as well.

India, households reported a reduced “ability to work” during extremely hot days, but this effect was significantly less in households with access to electricity and desert coolers, which are a low-cost evaporative cooling technology (Heyes and Saberian 2022).

### Effectiveness of household adaptation

**Overall.** On average, adaptive behaviors mitigate 49 percent of the damage from climate change among households. There is substantial variation in the adaptation ratio across the 56 estimates in the household meta-analysis (figure SL3B).

**Wide range of effectiveness.** The most effective adaptation mechanisms observed among households involve access to finance and infrastructure in rural areas. An example from South Asia is the expansion of rural bank branches in India. This improved access to credit and is estimated to have significantly reduced heat-related deaths among the rural poor by allowing them to meet healthcare expenses (Burgess et al. 2013). Another example is bridge construction in rural Nicaraguan villages facing seasonal floods—a situation not dissimilar to parts of South Asia. The presence of bridges almost completely mitigated the adverse impact of seasonal flash flooding on incomes, by reducing uncertainty of access to off-farm labor markets, inputs, and outputs (Brooks and Donovan 2020). Conversely, studies that consider private labor market adjustments alone tended to yield smaller adaptation effects (Gao and Bradford 2018; Giles 2006).

### Firm adaptation

**Coverage in the research literature.** Firms are the least-represented group, with only 13 percent of the reviewed studies focusing on them. This share rises to 22 percent in the top tier of economics journals. Most firm-level studies of climate change adaptation examine adaptation to abnormal temperatures or climate disasters (figure SL3A).

**Technology adoption** is a common adaptation strategy employed by firms, comprising 19 percent of the firm-level studies in the full review sample. Cooling technology is particularly important for firms to adapt effectively to rising temperatures. A recent study from India found that workers’

productivity in garment factories fell by almost 15 percent on hot days. This heat-related productivity decline disappeared when the garment factories had climate control technology (Somanathan et al. 2021). Modern, energy-efficient technologies can combine climate change adaptation with reductions in energy costs. For example, the adoption of energy-efficient LED lights by a garment factory in India reduced productivity losses on hot days by generating less ambient heat (Adhvaryu, Kala, and Nyshadham 2020). In the absence of cooling technology, workers may use second-best adaptation strategies, such as increased work breaks, which ultimately reduce labor productivity (Masuda et al. 2021).

**Improved management practices** may also enhance firms’ capacity to adapt to climate change. For example, when faced with adverse environmental conditions, managers can reallocate workers: workers who are more sensitive to those conditions can be shifted to less critical tasks. The resulting improvement in worker-task matches can reduce the adverse impact of environmental conditions on overall labor productivity, as shown in a recent study of management, air pollution, and firms’ productivity from India (Adhvaryu, Kala, and Nyshadham 2022).

**Reallocation of inputs and outputs** among suppliers and buyers also helps firms adapt to climate change. In Pakistan, flooding prompted firms to diversify their supplier base and shift purchasing toward suppliers less likely to be affected by future floods. They also moved to less flood-prone areas (Balboni, Boehm, and Waseem 2023). Firms in Tanzania similarly adjusted their supply networks, while also building up inventory and backup capacity, in response to flood risk (Rentschler et al. 2021). Climate shocks also induce reallocations across firms. In India, cyclones have prompted the reallocation of resources and market share to higher quality firms (Pelli et al. 2023). This indicates that capital and labor mobility is likely to be important to facilitating economy-wide adaptation.

**Transfers and credit** help firms cope with extreme weather and natural disasters. Relief in the form of cash grants helped Sri Lankan

microenterprises recover from the December 2004 tsunami, offsetting 80 percent of the tsunami's effect on firms' monthly profits (De Mel, McKenzie, and Woodruff 2012). Access to credit also helped firms recover faster from natural disasters such as typhoons (Elliott et al. 2019).

### Effectiveness of firm adaptation

**Overall.** The meta-analysis finds that, on average, adaptation offsets 72 percent of the climate damage among firms. As with households, there is considerable variation in the estimated adaptation ratio across different studies (figure SL3C). Although this is a small sample of 13 estimates, it appears that, compared to households and farmers, a larger number of the reviewed firm-level studies find adaptation ratios near or even exceeding 1, indicating a full offset of climate damage.

**Double dividends.** Most of the cases in which adaptation ratios among firms are estimated to be larger than 1 involve technology and management practices. These mechanisms tend to have benefits beyond aiding climate change adaptation and hence have the potential to generate a “double dividend.” For example, in one study, better monitoring and task allocation of workers by supervisors is estimated to entirely offset the adverse impact of air pollution on labor productivity (Adhvaryu, Kala, and Nyshadham 2022). Combined with the evidence that better management practices improve firm performance, these findings suggest that upgrading management quality may generate double dividends from climate adaptation in firms (for example, Bloom et al. 2013; Bloom et al. 2020). Similarly, technologies such as energy-efficient lights may improve resilience to climate change, productivity, and energy conservation. By also reducing energy use, such technologies may even constitute a “triple dividend” (Brandon et al. 2022).

### Farmer adaptation

**Coverage in the literature.** Farmers are well represented in the literature on climate change adaptation, with 47 percent of the reviewed studies examining climate change impacts on and adaptation by farmers. Unlike in firm and household studies, rainfall and temperature shocks

are studied roughly equally for farms (figure SL2A). Climate shocks related to rainfall and drought together comprise 50 percent of farm studies, reflecting the importance of rainfed agriculture in many of the countries in the sample.

**Reallocating land** to crops that are less sensitive to extreme climate conditions or to a larger variety of crop is a common adaptation strategy among farmers. For example, in India, farmers who faced dry years shifted to less water-intensive crops (Taraz 2017). During the Green Revolution, crop diversity declined in large parts of India because of the growing dominance of a small set of high-yield seed varieties. Farming in these areas is now less drought resistant than in areas with greater crop diversity (Auffhammer and Carleton 2018).

**Climate-smart agriculture** (CSA) is another common adaptation response among farmers in the reviewed studies. CSA refers to a set of agricultural practices—including crop rotation, intercropping (growing two or more crops in a field simultaneously), and preservation of biodiversity and green cover—that are more sustainable and resilient to climate shocks. For example, legume intercropping has been found to protect against floods and droughts, and green belts have been found to protect against floods in rural Malawi (McCarthy et al. 2021). However, there may be a tradeoff, at least in the short run, between maximizing yields in normal conditions and minimizing yield loss in extreme weather. For example, in Zimbabwe, adoption of CSA reduced the damage from poor rainfall but may have reduced yield in normal rainfall years (Michler et al. 2019). Almost all the CSA studies in the meta-analysis are from sub-Saharan Africa, and none from South Asian countries. Given the differences in agricultural conditions and practices between these regions, it is unclear to what degree the literature's main findings about CSA can be generalized to South Asia.

**Technology adoption** is another common adaptation among farmers in the reviewed studies. The introduction and dissemination of new crop varieties that are more tolerant of extreme growing conditions has been a major development. In India, switching to a new flood-tolerant rice variety reduced the adverse impact of floods on yields by 45 percent (Dar et al. 2013).

**Public investments**, such as irrigation systems, may help farmers adapt to climate change. Irrigation expansion in India has increased average yields while also reducing the heat sensitivity of yields: irrigated wheat fields are 75 percent less heat sensitive than fully rainfed fields (Zaveri and Lobell 2019). Investments in irrigation have also increased resilience to dry conditions; however, their potential to help adapt to a changing climate may become increasingly constrained by limits on groundwater availability (Fishman 2018).

### Effectiveness of farm adaptation

**Overall.** The meta-analysis finds that, on average, adaptation recoups only 38 percent of the damage from climate shocks among farms. This is considerably lower than for households (49 percent) or firms (72 percent, figure SL4A). As is the case with household studies, there is substantial variation in the estimated adaptation ratio across the 59 estimates (figure SL3D). However, no adaptation mechanisms consistently yield high adaptation ratios.

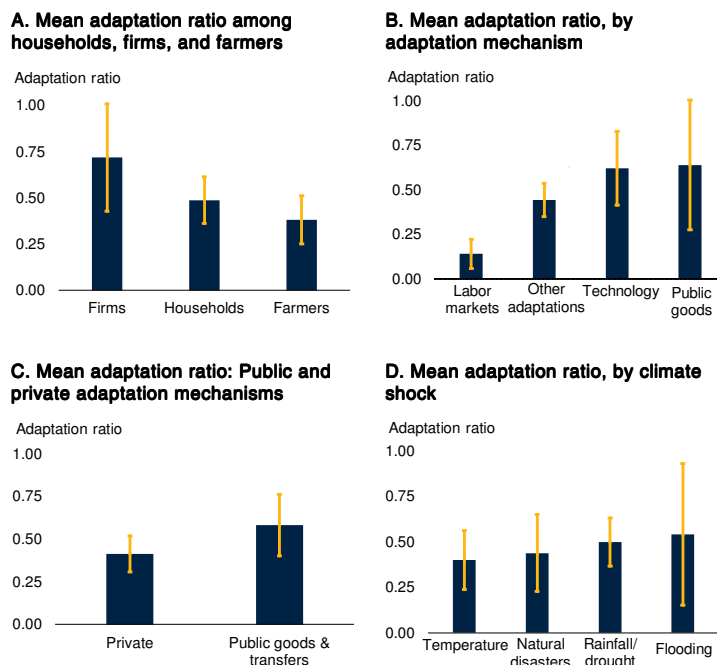
**Tradeoffs and unintended responses.** One of the adaptation mechanisms examined in the meta-analysis involved an unintended private response, with the perverse effect of exacerbating the effects of climate shocks. A subsidized federal crop insurance program in the United States expanded access to crop insurance for corn and soybean farmers, but it also reduced the incentive for these insured farmers to switch to less heat-sensitive crop varieties and made yields more sensitive to rising temperatures (Annan and Schlenker 2015). Although there is no similar reported case in the reviewed studies from South Asia, the US example is a reminder of the need to resolve potential conflicts between multiple policy goals.<sup>5</sup>

## Comparing adaptation strategies

*The most effective adaptation strategies, typically involving new technologies, are available to firms and the least effective are those employed by households, often involving labor market adjustments. Purely*

### FIGURE SL.4 Effectiveness of different climate adaptation strategies

*Studies involving firms report a higher average adaptation ratio (0.72) than those involving households (0.49) and farmers (0.38). The two types of adaptation mechanisms with the highest mean adaptation ratios are public goods and technologies. On average, public adaptation mechanisms have higher adaptation ratios than private ones. Studies from South Asia have a higher mean adaptation ratio than those from other emerging market and developing economies and from advanced economies. There is no significant difference in adaptation impacts across climate shocks.*



Sources: Rexer and Sharma (2024); World Bank.

Note: Adaptation ratio is the share of the damage from a climate shock that is offset by adaptation. The bars represent the mean adaptation ratios disaggregated by agent type (A), adaptation mechanism type (B), public versus private adaptation (C), and climate shocks (D). The yellow lines represent 95 percent confidence intervals. The total sample consists of 118 estimates from 52 papers included in the meta-analysis of adaptation in Rexer and Sharma (2024). Adaptation ratios measure the share of climate damage that is offset by climate adaptation. Technical details are explained in Rexer and Sharma (2024).

*private adaptation strategies tend to be less effective than those supported by public policies.*

**Comparison across households, firms, and farmers.** On average, adaptation strategies are most effective for firms, followed by households and then farmers (figure SL4A). The difference between the mean adaptation ratio of firms and those of households and farmers is statistically significant. This largely reflects the types of adaptation strategies that firms can access.

<sup>5</sup> However, Avner and Hallegatte (2019) argue that this “moral hazard” effect may be small.

**The least effective adaptation strategies: Labor market adjustments.** Labor market adjustments, the most common adaptation among households, are the least effective, offsetting just 14 percent of climate-related economic losses (figure SL4B). Migration, off-farm work, and other labor market adjustments typically do not require government assistance, technology, or support from financial markets. Given these low barriers to adoption, labor market strategies are commonplace among the world's poor, but broadly ineffective in the face of rising climate risks.

**The most effective adaptation strategies: Public goods.** Adaptations that leverage public and private investments are among the most effective. State-provided public goods have the highest adaptation ratio of all studied adaptation strategies (figure SL4B). The public goods studied in this meta-analysis are not climate-specific investments, but rather comprise the standard set of goods and services typically provided by the state—roads, bridges, health systems, irrigation canals, piped water. These public goods not only serve their primary use, but also improve resilience to climate change. For example, Burgess and Donaldson (2010) show that access to railroads in India reduced the likelihood of famine in times of drought by improving market integration. In the health sector, access to local clinics in India reduces the impact of heat on infant mortality (Banerjee and Maharaj 2020). A state capable of providing basic public services represents an important form of climate change adaptation.

**The most effective adaptation strategies: Technology adoption.** Private investments are also important for adaptation. Technology adoption is the second-most effective adaptation studied, with an adaptation ratio of 0.62 (figure SL4B). These technological solutions are varied, including air conditioning, improved seeds, and management practices, and may or may not be climate-specific. Additional regression analysis shows that high returns to technology adoption and greater technology adoption among firms at least partially explain the advantage that firms have in effectively adapting to climate change.

**Private versus public adaptation.** On average, purely private adaptation strategies, spanning both effective and less effective approaches, tend to offset only 41 percent of climate damage (figure SL4C). This is considerably below the effectiveness of public adaptation strategies—comprising both public goods and government transfers—which on average across households, firms, and farmers offset 58 percent of climate damage.

**Types of climate shock.** There is no significant difference in the average adaptation impacts across different types of climate shocks (figure SL4D). The average effectiveness of adaptation strategies is the highest among flood studies, but the confidence interval is exceptionally wide.

**Income and region variation in effectiveness of climate adaptation.** Studies focusing on South Asia have a higher mean adaptation ratio than those from other EMDEs and from advanced economies (figure SL5A). Given that the South Asian countries in the sample are all middle-income countries, this may be due to how the adaptation ratio varies by the income level of the study setting (figure SL5B) in an inverted U-shaped relationship. The lowest adaptation ratios are observed in low- and high-income countries, which offset only 32 and 34 percent of climate losses, respectively. In contrast, the highest ratios are in middle-income countries, where adaptation mitigates over 50 percent of climate damage on average. In low-income countries, constraints to technology adoption and provision of high-quality public goods may be severe, and so observed adaptations tend to be less effective. In advanced economies, the most effective adaptations may already be widespread, reducing baseline climate damages and the marginal value of an additional adaptation.<sup>6</sup> In middle-income countries, however, there may be both fewer constraints to adaptation than in low-income countries, and more remaining high-value adaptations than in high-income settings.

---

<sup>6</sup> More broadly, severity and frequency of shocks may affect the choice and effectiveness of adaptations (Hallegatte et al. 2016). The exercise here cannot distinguish the effectiveness of adaptation strategies by the severity or frequency of climate shocks.

## Policy implications

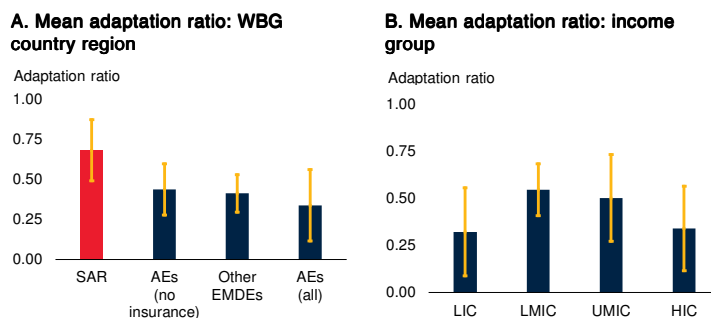
Overall, the literature suggests that adaptation supported by public policies generally outperform purely private sector responses, and that firms are better able to adapt than households and farmers. This points to two main policy priorities: supporting private technology adoption and investing in fundamental public goods. In addition, social protection systems remain an important tool for blunting the negative effects of climate shocks, especially on poor households. The choice of policies can be guided by three principles: implementing a wide range of policies; prioritizing policies that generate double dividends; and resolving conflicts among policy goals, taking into account likely private responses to policy measures.

**Wide range of policies.** Although most adaptation mechanisms are effective at reducing climate damage, almost none can fully offset it. While public adaptation mechanisms are more effective than purely private ones on average, even they only mitigate about 58 percent of the climate damage on average. Adaptation approaches should therefore ideally involve a combination of mechanisms. This should involve labor market adjustments (migration and non-farm diversification), input and output markets (reallocation), financial instruments, technology adoption, government relief and disaster management programs, and public goods (including at the local level). Robust social protection systems are critical to support the poor, who tend to be disproportionately exposed to, and affected by, several types of climate shocks.

**Double dividends: Public goods and technology adoption.** The most effective adaptation mechanisms are technology adoption and public goods that provide access to markets, essential services, and inputs. Examples include bridges (Brooks and Donovan 2020) and piped water systems (for example, Costa, Sant'Anna, and Young 2023). These mechanisms have the potential to generate double dividends because they can improve productivity, resource allocation and human capital accumulation in addition to building resilience to climate shocks. Building infrastructure that is resilient to climate shocks should also remain a policy priority (Hallegatte,

## FIGURE SL 5 Effectiveness of climate adaptation strategies, by region and income

Studies from South Asia have a higher mean adaptation ratio than those from other EMDEs and from advanced economies. This is explained in part by the relationship between adaptation impact and income: studies set in high- and low-income countries have lower adaptation ratios than those in middle-income countries.



Sources: Rexer and Sharma (2024); World Bank.

Note: AEs = advanced economies; EMDEs = emerging market and development economies; HIC = high-income country; LIC = low-income country; LMIC = lower-middle-income country; SAR = South Asia region; UMIC = upper-middle-income country; Adaptation ratio is the share of the damage from a climate shock that is offset by adaptation. The bars represent the mean adaptation ratios disaggregated by World Bank region (panel A) and income group (panel B). The yellow lines represent their 95 percent confidence intervals. The total sample consists of 118 estimates from 52 papers included in the meta-analysis of adaptation in Rexer and Sharma (2024). Adaptation ratios measure the share of climate damage that is offset by climate adaptation. Technical details are explained in Rexer and Sharma (2024).

A. AEs (no insurance) excludes studies on crop insurance.

Rentschler, and Rozenberg 2019). There is limited evidence on the barriers to adoption of technologies that help adapt to climate change. However, interventions that have been successful at spurring technology adoption among EMDE households, farmers and firms in other contexts may also be relevant for climate change adaptation (Foster and Rosenzweig 2010; Hall 2005; Verhoogen 2023; Williams and Bryan 2021).

**Designing policies that target non-climate goals in a manner that does not set back climate-related goals.** Researchers have identified examples of unintended adaptation responses that increase climate vulnerabilities. The most prominent example is the crop insurance programs in the United States that discouraged the adoption of climate-resilient crop varieties (Annan and Schlenker 2015). The primary purpose of the crop insurance program is income support for farmers in the event of climate shocks (which it achieves), rather than solely climate adaptation (which it fails to achieve). This is a reminder of the need to design policies in a manner that resolves potential conflicts between different policy goals.

**Addressing key knowledge gaps.** Climate change adaptation is a growing but still nascent research topic, and major knowledge gaps remain. Evidence on firm adaptation outside of heat-related contexts is scarce. The literature has examined how households, firms and farmers adapt and how effective they are at adapting, but not what constrains them from undertaking more effective adaptation strategies. In addition, there is little evidence on the relative cost-effectiveness of different adaptation mechanisms.

## ANNEX SL.B1.1

### Methodology

**Selection of studies.** A meta-analysis typically begins with a database search using at least two databases, followed by title and abstract screening, full text screening, and finally the meta-analysis regression. The database search involves identifying keywords based on 11 index articles that were previously identified and with which a backward and forward citation search are conducted. The keyword search looks for the poor's exposure to natural disasters and the impact of natural disasters on the poor. A search for potential studies was conducted in the following three databases: Scopus (80 studies), CORE (320 studies), and Jstor (450 studies). After removing duplicates, 655 studies remained. These 655 studies were combined with the 648 results from forward and backward citation searches for a total of 1,303 articles and reports. Search results were restricted to articles in economics or general-interest peer reviewed journals, and reports published between 2000 and 2023. This restriction removed 518 studies.

An artificial intelligence model, GPT4-32k, was used to screen abstracts for climate risks. A reviewer and the AI model identified a total of 361 relevant abstracts. Three reviewers then conducted full-text screening. Conflicts in inclusion and exclusion were reconciled by a fourth reviewer to yield 70 articles and 701 estimates for analysis. Each estimate was assigned an indicator that takes the value 1 when the poor are more exposed to climate shocks and 0 when they are not. Similarly,

an indicator for impact takes the value 1 if the poor are more adversely affected by climate shocks and 0 otherwise.

**Estimation.** Probit regressions were estimated for the probability that a study would document that the poor's were disproportionately exposed to, or affected by, climate shocks.

The specification is as follows:

$$p_i = \Phi (\beta_1 \sum Type_i + \beta_2 \sum Region_i + \beta_3 \sum LevelOfAnalysis_i)$$

where  $p_i$  is an indicator that takes the value 1 if estimate  $i$  shows that the poor are more exposed to climate shocks; covers indicators for climate change, heat, flood, drought, and an excluded category of all other natural disasters and pollution; covers indicators for Africa, East Asia and Pacific, Europe and Central Asia, Latin America and Caribbean, Middle East and North African, South Asia, the United States, and an excluded category for global or multi country studies; *LevelOfAnalysis* covers subnational, household, individual, and an excluded category of country level analysis. The estimates were clustered at the study level.

The regression for adverse impact also covers indicators for the outcomes considered in the study to analyze the channels through which the poor may be adversely affected. The channels included declining income, the risk of falling into poverty, and all other outcomes. Income includes household or individual income, household or individual earnings, household expenditure, and household consumption. Human capital outcomes included health, education, crime, and food security. Other outcomes include mortality, welfare, productivity, and growth. Annex table SL.B1.1.1 show the regression results.



**ANNEX TABLE SL.B1.1.1 Marginal probability of study documenting above-average effect for poor households**

Variables		(1)	(2)	(3)	(4)
		Poor more exposed		Poor more affected	
		All studies	Excluding CCDRs	All studies	Excluding CCDRs
Type of shock	Climate change			0.216*** (0.030)	0.181*** (0.029)
	Heat	0.224*** (0.055)	0.156*** (0.041)		
	Flood	0.190*** (0.067)	0.367*** (0.003)	0.280*** (0.058)	0.290*** (0.050)
	Drought	0.289*** (0.040)	0.536*** (0.001)	0.189*** (0.044)	0.179*** (0.038)
Country or region	United States	-0.265** (0.134)	-0.339*** (0.065)	-0.240*** (0.049)	-0.410*** (0.072)
	Africa	0.068*** (0.009)	-0.079*** (0.026)	-0.143*** (0.017)	-0.344*** (0.067)
	South Asia			0.079*** (0.009)	-0.012** (0.005)
	East Asia and Pacific	-0.235*** (0.017)	-1.042*** (0.097)	0.077*** (0.007)	0.004*** (0.001)
	Latin America and Caribbean	-0.423*** (0.014)	-0.762*** (0.056)	0.309*** (0.039)	0.246*** (0.032)
	Europe and Central Asia	-0.239*** (0.049)			
	Middle East and North Africa	0.107*** (0.041)	-0.365*** (0.049)		
	Number of observations	148	125	424	358
	Dependent variable mean	0.68	0.58	0.80	0.76

Source: World Bank.

Note: CCDR = World Bank Country Climate and Development Report. Marginal probabilities from a probit regression of the probability that a regression estimate in a study finds a greater exposure of the poor to climate shocks (columns 1-2) or a greater impact of climate shocks on the poor (columns 3-4) than for other households. Sample includes 70 studies, of which 37 are CCDRs. Even columns exclude the CCDRs. Excluded shock category is any natural disaster, excluded region or country is global. Level of analysis dummies: subnational, household, individual, and country is the excluded category. Standard errors clustered at the study level. \*\*\*, \*\*, and \* indicate significance at the 1, 5, and 10 percent levels.

## ANNEX SL.B1.1 Complete list of papers reviewed in Box SL.B1

- Abiona, O. A., and B. Joseph. 2022. "The Impact of Timing of in Utero Drought Shocks on Birth Outcomes in Rural Households: Evidence from Sierra Leone." *Journal of Population Economics* 36 (3): 1333–62.
- Aggarwal, R. 2020. "Impacts of Climate Shocks on Household Consumption and Inequality in India." *Environment and Development Economics* 26 (5–6): 488–511.
- Anttila-Hughes, J., and S. Hsiang. 2013. "Destruction, Disinvestment, and Death: Economic and Human Losses Following Environmental Disaster." *SSRN Electronic Journal*, February.
- Barbier, E. B., and J. P. Hochard. 2018. "The Impacts of Climate Change on the Poor in Disadvantaged Regions." *Review of Environmental Economics and Policy* 12 (1): 26–47.
- Behrer, A. P., and V. Bolotnyy. 2022. "Heat, Crime, and Punishment." Policy Research Working Paper 9909. World Bank, Washington, DC.
- Botzen, W. J. W., O. Deschenes, and M. Sanders. 2019. "The Economic Impacts of Natural Disasters: A Review of Models and Empirical Studies." *Review of Environmental Economics and Policy* 13 (2): 167–88.
- Burke, M., S. M. Hsiang, and E. Miguel. 2015. "Global Non-Linear Effect of Temperature on Economic Production." *Nature* 527 (7577): 235–39.
- Carleton, T. A., and S. M. Hsiang. 2016. "Social and Economic Impacts of Climate." *Science* 353 (6304): aad9837.
- Carleton, T., A. Jina, M. Delgado, M. Greenstone, T. Houser, S. Hsiang, A. Hultgren, et al. 2022. "Valuing the Global Mortality Consequences of Climate Change Accounting for Adaptation Costs and Benefits." *Quarterly Journal of Economics* 137 (4): 2037–105.
- Carter, M. R., P. D. Little, T. Mogue, and W. Negatu. 2007. "Poverty Traps and Natural Disasters in Ethiopia and Honduras." *World Development* 35 (5): 835–56.
- Chakraborty, J., A. A. McAfee, T. W. Collins, and S. E. Grineski. 2021. "Exposure to Hurricane Harvey Flooding for Subsidized Housing Residents of Harris County, Texas." *Natural Hazards* 106 (3): 2185–2205.
- Dang, H. A. H., S. Hallegatte, and T.-A. Trinh. 2023. "Does Global Warming Worsen Poverty and Inequality? An Updated Review." *SSRN Electronic Journal*.
- Datt, G., and H. Hoogeveen. 2003. "El Niño or El Peso? Crisis, Poverty and Income Distribution in the Philippines." *World Development* 31 (7): 1103–24.
- Dell, M., B. F. Jones, and B. A. Olken. 2012. "Temperature Shocks and Economic Growth: Evidence from the Last Half Century." *American Economic Journal: Macroeconomics* 4 (3): 66–95.
- Deschênes, O., and E. Moretti. 2009. "Extreme Weather Events, Mortality, and Migration." *The Review of Economics and Statistics* 91 (4): 659–81.
- Deuchert, E., and C. Felfe. 2015. "The Tempest: Short- and Long-Term Consequences of a Natural Disaster for Children's Development." *European Economic Review* 80 (November): 280–94.
- Erman, A., E. Motte, R. Goyal, A. Asare, S. Takamatsu, X. Chen, S. Malgioglio, A. Skinner, N. Yoshida, and S. Hallegatte. 2020. "The Road to Recovery the Role of Poverty in the Exposure, Vulnerability and Resilience to Floods in Accra." *Economics of Disasters and Climate Change* 4 (1): 171–93.
- Felbermayr, G., J. Gröschl, M. Sanders, V. Schippers, and T. Steinwachs. 2022. "The Economic Impact of Weather Anomalies." *World Development* 151 (March): 105745.
- Giannelli, G. C., and E. Canessa. 2022. "After the Flood: Migration and Remittances as Coping Strategies of Rural Bangladeshi Households." *Economic Development and Cultural Change* 70 (3): 1159–95.
- Gunby, N., and T. Coupé. 2023. "Weather-Related Home Damage and Subjective Well-Being." *Environmental and Resource Economics* 84 (2): 409–38.
- Hallegatte, S., M. R. Bangalore, A. Vogt-Schilb, M. Fay, M. Bangalore, L. Bonzanigo, D. Treguer, U. Narloch, J. Rozenberg, and T. Kane. 2015. *Shock Waves: Managing the Impacts of Climate Change on Poverty*. Washington, DC: World Bank.
- Hallegatte, S., A. Vogt-Schilb, M. Bangalore, and J. Rozenberg. 2016. "Unbreakable: Building the Resilience of the Poor in the Face of Natural Disasters." Washington, DC: World Bank.
- Hallegatte, S., A. Vogt-Schilb, J. Rozenberg, M. Bangalore, and C. Beaudet. 2020. "From Poverty to Disaster and Back: A Review of the Literature."

- Economics of Disasters and Climate Change* 4 (1): 223–47.
- Hallegatte, S., J. Rentschler, and J. Rozenberg. 2019. *Lifelines: The Resilient Infrastructure Opportunity*. Washington, DC: World Bank.
- Hoddinott, J., and B. Kinsey. 2001. “Child Growth in the Time of Drought.” *Oxford Bulletin of Economics and Statistics* 63 (4): 409–36.
- Hsiang, S., R. E. Kopp, A. Jina, J. Rising, M. S. Delgado, M. Delgado, S. Mohan, et al. 2017. “Estimating Economic Damage from Climate Change in the United States.” *Science* 356 (6345): 1362–9.
- Hsiang, S., P. Oliva, and R. Walker. 2019. “The Distribution of Environmental Damages.” *Review of Environmental Economics and Policy* 13 (1): 83–103.
- Kahn, M. E. 2005. “The Death Toll from Natural Disasters: The Role of Income, Geography, and Institutions.” *Review of Economics and Statistics* 87 (2): 271–84.
- Keerthiratne, S., and R. S. J. Tol. 2018. “Impact of Natural Disasters on Income Inequality in Sri Lanka.” *World Development* 105 (May): 217–30.
- Kim, N. 2012. “How Much More Exposed Are the Poor to Natural Disasters? Global and Regional Measurement.” *Disasters* 36 (2): 195–211.
- Klomp, J., and K. Valckx. 2014. “Natural Disasters and Economic Growth: A Meta-Analysis.” *Global Environmental Change* 26 (May): 183–95.
- Lai, W., Y. Qiu, Q. Tang, C. Xi, and P. Zhang. 2023. “The Effects of Temperature on Labor Productivity.” *Annual Review of Resource Economics* 15 (1): 213–32.
- McDermott, T. K. J. 2022. “Global Exposure to Flood Risk and Poverty.” *Nature Communications* 13 (1): 3529.
- Meierrieks, D. 2021. “Weather Shocks, Climate Change and Human Health.” *World Development* 138 (February): 105228.
- Miller, S., K. Chua, J. Coggins, and H. Mohtadi. 2021. “Heat Waves, Climate Change, and Economic Output.” *Journal of the European Economic Association* 19 (5): 2658–94.
- Moreira, M. M., and M. Dolabella. 2024. “Does Trade Policy Help or Hinder Global Warming? A Case Study of Latin America and the Caribbean.” *The World Economy* 47 (2): 779–805.
- Pleninger, R. 2022. “Impact of Natural Disasters on the Income Distribution.” *World Development* 157 (September): 105936.
- Reardon, T., and J. E. Taylor. 1996. “Agroclimatic Shock, Income Inequality, and Poverty: Evidence from Burkina Faso.” *World Development* 24 (5): 901–14.
- Skoufias, E., M. Rabassa, and S. Olivieri. 2011. “The Poverty Impacts of Climate Change: A Review of the Evidence.” Policy Research Working Paper 5622, DC: World Bank.
- Toya, H., and M. Skidmore. 2007. “Economic Development and the Impacts of Natural Disasters.” *Economics Letters* 94 (1): 20–25.
- World Bank. 2022a. *Angola Country Climate and Development Report*. Washington, DC: World Bank.
- World Bank. 2022b. *Cameroon Country Climate and Development Report*. Washington, DC: World Bank.
- World Bank. 2022c. *Türkiye Country Climate and Development Report*. Washington, DC: World Bank.
- World Bank. 2022d. *G5 Sahel Region Country Climate and Development Report*. Washington, DC: World Bank.
- World Bank. 2022e. *Vietnam Country Climate and Development Report*. Washington, DC: World Bank.
- World Bank. 2022f. “*Nepal Country Climate and Development Report*.” World Bank, Washington, DC.
- World Bank. 2022g. “*Rwanda Country Climate and Development Report*.” World Bank, Washington, DC.
- World Bank. 2022h. “*Bangladesh Country Climate and Development Report*.” World Bank, Washington, DC.
- World Bank. 2022i. *China Country Climate and Development Report*. Washington, DC: World Bank.
- World Bank. 2022j. *Ghana Country Climate and Development Report*. Washington, DC: World Bank.
- World Bank. 2022k. *Malawi Country Climate and Development Report*. Washington, DC: World Bank.
- World Bank. 2022l. *Morocco Country Climate and Development Report*. Washington, DC: World Bank.
- World Bank. 2022m. *South Africa Country Climate and Development Report*. Washington, DC: World Bank.
- World Bank. 2022n. *Argentina Country Climate and Development Report*. Washington, DC: World Bank.
- World Bank. 2022o. *Iraq Country Climate and Development Report*. Washington, DC: World Bank.
- World Bank. 2022p. *Jordan Country Climate and Development Report*. Washington, DC: World Bank.

World Bank. 2022q. *Kazakhstan Country Climate and Development Report*. Washington, DC: World Bank.

World Bank. 2022r. *Pakistan Country Climate and Development Report*. Washington, DC: World Bank.

World Bank. 2022s. *Peru Country Climate and Development Report*. Washington, DC: World Bank.

World Bank. 2022t. *Philippines Country Climate and Development Report*. World Bank, Washington, DC.

World Bank. 2022u. *Egypt Country Climate and Development Report*. Washington, DC: World Bank.

World Bank. 2023a. *Cambodia Country Climate and Development Report*. Washington, DC: World Bank.

World Bank. 2023b. *Indonesia Country Climate and Development Report*. Washington, DC: World Bank.

World Bank. 2023c. *Brazil Country Climate and Development Report*. Washington, DC: World Bank.

World Bank. 2023d. *Honduras Country Climate and Development Report*. Washington, DC: World Bank.

World Bank. 2023e. *Mozambique Country Climate and Development Report*. Washington, DC: World Bank.

World Bank. 2023f. *Colombia Country Climate and Development Report*. Washington, DC: World Bank.

World Bank. 2023g. *Republic of Congo Country Climate and Development Report - Diversifying Congo's Economy: Making the Most of Climate Change*. Washington, DC: World Bank.

World Bank. 2023h. *Romania Country Climate and Development Report*. Washington, DC: World Bank.

World Bank. 2023i. *Côte d'Ivoire Country Climate and Development Report*. Washington, DC: World Bank.

World Bank. 2023j. *Democratic Republic of Congo (DRC) Country Climate and Development Report*. Washington, DC: World Bank.

World Bank. 2023k. *Kenya Country Climate and Development Report*. Washington, DC: World Bank.

World Bank. 2023l. *Uzbekistan Country Climate and Development Report*. Washington, DC: World Bank.

World Bank. 2023m. *Azerbaijan Country Climate and Development Report*. Washington, DC: World Bank.

World Bank. 2023n. *Tunisia Country Climate and Development Report*. Washington, DC: World Bank.

World Bank. 2023o. *Dominican Republic Country Climate and Development Report*. Washington, DC: World Bank.

World Bank. 2023p. *West Bank and Gaza Country Climate and Development Report*. Washington, DC: World Bank.

World Bank. 2023q. *Benin Country Climate and Development Report*. Washington, DC: World Bank.

Yuan, B., Y. Cui, X. Wang, and H. Xu. 2022. "Study on the Heterogeneity of China's Agricultural Economic Growth in the Context of Temperature Shocks." *Scientific Reports* 12 (June): 10511.

## References

Adhvaryu, A., N. Kala, and A. Nyshadham. 2020. "The Light and the Heat: Productivity Co-Benefits of Energy-Saving Technology." *The Review of Economics and Statistics* 102 (4): 779–92.

Adhvaryu, A., N. Kala, and A. Nyshadham. 2022. "Management and Shocks to Worker Productivity." *Journal of Political Economy* 130 (1): 1–47.

Annan, F., and W. Schlenker. 2015. "Federal Crop Insurance and the Disincentive to Adapt to Extreme Heat." *American Economic Review* 105 (5): 262–66.

Anttila-Hughes, J., and S. Hsiang. 2013. "Destruction, Disinvestment, and Death: Economic and Human Losses Following Environmental Disaster." Rochester, NY.

Auffhammer, M. 2018. "Quantifying Economic Damages from Climate Change." *Journal of Economic Perspectives* 32 (4): 33–52.

Auffhammer, M., and T. Carleton. 2018. "Regional Crop Diversity and Weather Shocks in India." *Asian Development Review* 35 (2): 113–30.

Avner, P., and S. Hallegatte. 2019. *Moral Hazard vs. Land Scarcity: Flood Management Policies for the Real World*. Washington, DC: World Bank.

Balboni, C., S. Bhogale, and N. Kala. 2023. "Climate Adaptation." 7.1. VoxDev Lit.

Balboni, C., J. Boehm, and M. Waseem. 2023. "Firm Adaptation in Production Networks: Evidence from Extreme Weather Events in Pakistan." Unpublished paper.

Banerjee, R., and R. Maharaj. 2020. "Heat, Infant Mortality and Adaptation: Evidence from India." *Journal of Development Economics* 143 (March): 102378.

Baron, J., M. Bend, E. M. Roseo, and I. Farrakh. 2022. "Floods in Pakistan: Human Development at Risk." Special Note, DC: World Bank.

- Bloom, N., B. Eifert, A. Mahajan, D. McKenzie, and J. Roberts. 2013. "Does Management Matter? Evidence from India." *Quarterly Journal of Economics* 128 (1): 1–51.
- Bloom, N., A. Mahajan, D. McKenzie, and J. Roberts. 2020. "Do Management Interventions Last? Evidence from India." *American Economic Journal: Applied Economics* 12 (2): 198–219.
- Brandon, C., H. Heubaum, T. Tanner, S. Surminski, and V. Roezer. 2022. *The Triple Dividend of Building Climate Resilience: Taking Stock, Moving Forward*. World Resources Institute, Washington, DC.
- Brooks, W., and K. Donovan. 2020. "Eliminating Uncertainty in Market Access: The Impact of New Bridges in Rural Nicaragua." *Econometrica* 88 (5): 1965–97.
- Burgess, R., O. Deschenes, D. Donaldson, and M. Greenstone. 2013. "The Unequal Effects of Weather and Climate Change: Evidence from Mortality in India." Unpublished paper.
- Burgess, Robin, and D. Donaldson. 2010. "Can Openness Mitigate the Effects of Weather Shocks? Evidence from India's Famine Era." *American Economic Review* 100 (2): 449–53.
- Carleton, T. A., and S. M. Hsiang. 2016. "Social and Economic Impacts of Climate." *Science* 353 (6304).
- Carter, M. R., P. D. Little, T. Mogues, and W. Negatu. 2007. "Poverty Traps and Natural Disasters in Ethiopia and Honduras." *World Development* 35 (5): 835–56.
- Collins, M., R. Knutti, J. Arblaster, J. Dufrese, T. Fichefet, P. Friedlingstein, X. Gao, and W. J. Gutowski. 2014. "Long-Term Climate Change: Projections, Commitments and Irreversibility Pages 1029 to 1076." In *Climate Change 2013 – The Physical Science Basis*, edited by Intergovernmental Panel on Climate Change, 1st ed., 1029–136. Cambridge, U.K.: Cambridge University Press.
- Colmer, J. 2021. "Temperature, Labor Reallocation, and Industrial Production: Evidence from India." *American Economic Journal: Applied Economics* 13 (4): 101–24.
- Costa, L., A. A. Sant'Anna, and C. E. F. Young. 2023. "Barren Lives: Drought Shocks and Agricultural Vulnerability in the Brazilian Semi-Arid." *Environment and Development Economics* 28 (6): 603–23.
- Dar, M. H., A. de Janvry, K. Emerick, D. Raitzer, and E. Sadoulet. 2013. "Flood-Tolerant Rice Reduces Yield Variability and Raises Expected Yield, Differentially Benefitting Socially Disadvantaged Groups." *Scientific Reports* 3 (1): 3315.
- De Mel, S., D. McKenzie, and C. Woodruff. 2012. "Enterprise Recovery Following Natural Disasters." *Economic Journal* 122 (559): 64–91.
- Dell, M., B. F. Jones, and B. A. Olken. 2014. "What Do We Learn from the Weather? The New Climate-Economy Literature." *Journal of Economic Literature* 52 (3): 740–98.
- Egger, D., J. Haushofer, E. Miguel, P. Niehaus, and M. Walker. 2022. "General Equilibrium Effects of Cash Transfers: Experimental Evidence from Kenya." *Econometrica* 90 (6): 2603–43.
- Elliott, R., Y. Liu, E. Strobl, and M. Tong. 2019. "Estimating the Direct and Indirect Impact of Typhoons on Plant Performance: Evidence from Chinese Manufacturers." *Journal of Environmental Economics and Management* 98 (4): 102252.
- Fernando, R., W. Liu, and W. J. McKibbin. 2021. "Global Economic Impacts of Climate Shocks, Climate Policy and Changes in Climate Risk Assessment." CAMA Working Paper 37/2021, Centre for Applied Macroeconomic Analysis, Australian National University, Canberra.
- Fishman, R. 2018. "Groundwater Depletion Limits the Scope for Adaptation to Increased Rainfall Variability in India." *Climatic Change* 147 (1): 195–209.
- Foster, A. D., and M. R. Rosenzweig. 2010. "Microeconomics of Technology Adoption." *Annual Review of Economics* 2 (1): 395–424.
- Gallagher, J., D. Hartley, and S. Rohlin. 2023. "Weathering an Unexpected Financial Shock: The Role of Federal Disaster Assistance on Household Finance and Business Survival." *Journal of the Association of Environmental and Resource Economists* 10 (2): 525–67.
- Gao, J., and M. F. Bradford. 2018. "Weather Shocks, Coping Strategies, and Consumption Dynamics in Rural Ethiopia." *World Development* 101 (January): 268–83.
- Giannelli, G. C., and E. Canessa. 2022. "After the Flood: Migration and Remittances as Coping Strategies of Rural Bangladeshi Households." *Economic Development and Cultural Change* 70 (3): 1159–95.
- Giles, J. 2006. "Is Life More Risky in the Open? Household Risk-Coping and the Opening of China's Labor Markets." *Journal of Development Economics* 81 (1): 25–60.

- Goicoechea, A., and M. Lang. 2023. "Firms and Climate Change in Low and Middle-Income Countries." Working Paper 1064, World Bank, Washington, DC.
- Government of Bangladesh. 2018. "Bangladesh Delta Plan 2100: Bangladesh in the 21st Century." General Economics Division, Ministry of Planning, Government of Bangladesh.
- Guiteras, R. 2009. "The Impact of Climate Change on Indian Agriculture." University of Maryland.
- Hall, B. 2005. "Innovation and Diffusion." in *The Oxford Handbook of Innovation*. Oxford, U.K.: Oxford University Press.
- Hallegatte, S., M. Fay, and E. B. Barbier. 2018. "Poverty and Climate Change: Introduction." *Environment and Development Economics* 23: 217–33.
- Hallegatte, S., J. Rentschler, and J. Rozenberg. 2019. *Lifelines: The Resilient Infrastructure Opportunity*. Sustainable Development Series. Washington, DC: World Bank
- Hallegatte, S., A. Vogt-Schilb, M. Bangalore, and J. Rozenberg. 2016. *Unbreakable: Building the Resilience of the Poor in the Face of Natural Disasters*. Washington, DC: World Bank.
- Hallegatte, S., A. Vogt-Schilb, J. Rozenberg, M. Bangalore, and C. Beaudet. 2020. "From Poverty to Disaster and Back: A Review of the Literature." *Economics of Disasters and Climate Change* 4 (1): 223–47.
- Heyes, A., and S. Saberian. 2022. "Hot Days, the Ability to Work and Climate Resilience: Evidence from a Representative Sample of 42,152 Indian Households." *Journal of Development Economics* 155 (March): 102786.
- Hsiang, S., and R. E. Kopp. 2018. "An Economist's Guide to Climate Change Science." *Journal of Economic Perspectives* 32 (4): 3–32.
- Indaco, A., F. Ortega, and A. S. Tapınar. 2021. "Hurricanes, Flood Risk and the Economic Adaptation of Businesses." *Journal of Economic Geography* 21 (4): 557–91.
- International Monetary Fund. 2022. *World Economic Outlook: War Sets Back the Global Recovery*. April. Washington, DC: International Monetary Fund.
- IPCC (Intergovernmental Panel of Climate Change). 2014. "IPCC, 2014: Climate Change 2014: Synthesis Report. Contribution of Working Groups I, II and III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change." IPCC.
- Kim, N. 2012. "How Much More Exposed Are the Poor to Natural Disasters? Global and Regional Measurement." *Disasters* 36 (2): 195–211.
- Kosec, K., and C. H. Mo. 2017. "Aspirations and the Role of Social Protection: Evidence from a Natural Disaster in Rural Pakistan." *World Development* 97 (September): 49–66.
- Kossin, J. P., T. Hall, T. Knutson, K. E. Kunkel, R. J. Trapp, D. E. Waliser, M. F. Wehner, et al. 2017. "Ch. 9: Extreme Storms. Climate Science Special Report: Fourth National Climate Assessment, Volume I." U.S. Global Change Research Program.
- Mani, M. 2021. *Glaciers of the Himalayas: Climate Change, Black Carbon, and Regional Resilience*. Washington, DC: World Bank.
- Masuda, Y. J., T. Garg, I. Anggraeni, K. Ebi, J. Krenz, E. T. Game, N. H. Wolff, and J. T. Spector. 2021. "Warming from Tropical Deforestation Reduces Worker Productivity in Rural Communities." *Nature Communications* 12 (1): 1601.
- McCarthy, N., T. Kilic, A. de la Fuente, Siobhan, and J. Brubaker. 2021. "Droughts and Floods in Malawi." *Environment and Development Economics* 26 (5–6): 432–49.
- Michler, J. D., K. Baylis, M. Arends-Kuenning, and K. Mazvimavi. 2019. "Conservation Agriculture and Climate Resilience." *Journal of Environmental Economics and Management* 93 (January): 148–69.
- Nath, I. 2021. "Climate Change, The Food Problem, and the Challenge of Adaptation through Sectoral Reallocation." Working paper.
- Pelli, M., J. Tschopp, N. Bezmaternykh, and K. M. Eklou. 2023. "In the Eye of the Storm: Firms and Capital Destruction in India." *Journal of Urban Economics* 134 (March): 103529.
- Pople, A., S. Dercon, R. Hill, and B. Brunckhorst. 2021. "Anticipatory Cash Transfers in Climate Disaster Response." CSAE Working Paper 2021-07, Centre for the Study of African Economies, University of Oxford.
- Rentschler, J., E. Kim, S. Thies, S. De Vries Robbe, A. Erman, and S. Hallegatte. 2021. "Floods and Their Impacts on Firms: Evidence from Tanzania." Policy Research Working Paper 9775, World Bank, Washington, DC.
- Rexer, J., and S. Sharma. 2024. "Climate Adaptation: What Does the Evidence Say?" Policy Research Working Paper, World Bank. Washington, DC.

- Somanathan, E., R. Somanathan, A. Sudarshan, and M. Tewari. 2021. "The Impact of Temperature on Productivity and Labor Supply: Evidence from Indian Manufacturing." *Journal of Political Economy* 129 (6): 1797–827.
- Taraz, V. 2017. "Adaptation to Climate Change: Historical Evidence from the Indian Monsoon." *Environment and Development Economics* 22 (5): 517–45.
- Triyana, M., A. W. Jiang, Y. Hui, and MD. S. Naoaj. 2024. "Climate Shocks and the Poor: A Review of the Literature ." Policy Research Working Paper 10742, World Bank, Washington, DC.
- United Nations Framework Convention on Climate Change. 2007. "Climate Change: Impacts, Vulnerabilities, and Adaptation in Developing Countries." United Nations Framework Convention on Climate Change, Bonn, Germany.
- Verhoogen, E. 2023. "Firm-Level Upgrading in Developing Countries." *Journal of Economic Literature* 61 (4).
- Williams, H., and K. Bryan. 2021. "Innovation: Market Failures and Public Policies." in *Handbook of Industrial Organization* 5, edited by K. Ho, A. Hortaçsu, and A. Lizzeri, 281-388. Amsterdam: North-Holland.
- Xie, V. W. 2022. "Heterogeneous Firms under Regional Temperature Shocks: Exit and Reallocation, with Evidence from Indonesia." *Economic Development and Cultural Change* 72 (2): 559–690.
- Zaveri, E., and D. Lobell. 2019. "The Role of Irrigation in Changing Wheat Yields and Heat Sensitivity in India." *Nature Communications* 10 (1): 4144.
- Zhang, P., O. Deschenes, K. Meng, and J. Zhang. 2018. "Temperature Effects on Productivity and Factor Reallocation: Evidence from a Half Million Chinese Manufacturing Plants." *Journal of Environmental Economics and Management* 88 (March): 1–17.







## CHAPTER 2

# JOBLESS DEVELOPMENT



## Chapter 2. Jobless Development

*South Asia's labor markets stand out among emerging market and developing economies (EMDEs) for having suffered for decades from declining employment ratios (that is, employment relative to the total working-age population) and exceptionally low shares of women in employment. While agriculture has shed labor as it has in other EMDEs, non-agriculture has been unusually slow in creating jobs. This partly stems from challenging institutional and economic environments that have held back firms' growth. As a result, the region has relied on labor productivity and population growth as engines of output growth. However, working-age population growth is expected to slow and labor productivity growth has already slowed sharply since the COVID-19 pandemic. Sustaining growth will require increasing employment ratios, especially in the non-agricultural sectors and among women, through measures to remove obstacles to growth for businesses, increase openness to international trade, ease labor market and product market restrictions, build human capital, and strengthen equality of women's rights.*

### Introduction

South Asia's still-favorable demographic trends contribute to the best output growth prospects among emerging market and developing economy (EMDE) regions in the 2020s (figure 2.1; Kose and Ohnsorge 2023). Whereas aging populations will weigh on output growth in the average EMDE in the current decade, a rapidly rising working-age population is expected to support growth in South Asia (Kasyanenko et al. 2023). On average during the 2020s, working-age population growth in the region is projected at 1.3 percent a year (compared with 0.9 percent a year in all EMDEs). That said, this still represents a slowdown by one-fifth from the 2010s and working-age population shares are expected to peak in the early 2030s in Bangladesh, Bhutan, and India.

Population growth has been robust despite considerable net emigration. After a lull during the pandemic, the steady exodus of people from South Asia has resumed (figure 2.2).<sup>1</sup> This is a return to

the longer-term trend of large net outflows of migrants from South Asia—the largest among EMDE regions. Overall, during the period 2010–23, net migration from South Asia represented a loss of about 2 percent of the region's working-age population. Large-scale emigration may in part reflect poor job prospects (World Bank 2022a).

To realize the demographic dividend that could be reaped from its still growing working-age population, South Asia needs to create jobs. South Asia's employment growth has been below growth of its working-age population—during 2000–23, employment grew by 1.7 percent a year and the working-age population expanded by 1.9 percent a year. Raising employment growth above the growth rate of the working-age population, and thus lifting employment ratios, would raise the growth rates of output and output per capita, help to reduce the region's above-average poverty rate, improve its precarious public finances, and thus help to address long-standing development challenges.

Faster job creation, especially the creation of more productive jobs, may also slow emigration. For countries with rapidly growing working-age populations, like those in South Asia, realizing their demographic dividends requires that employment growth be not just positive, but match or exceed working-age population growth. This means increasing the employment ratio (defined as the ratio of employment to the working-age population). In addition,

---

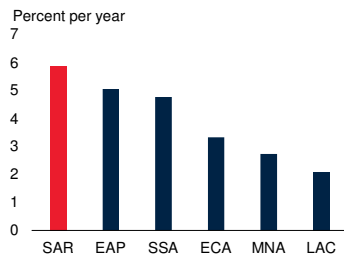
*Note:* This chapter was prepared by Franziska Ohnsorge (SARCE), Richard Rogerson (Princeton University), and Zoe Leiyu Xie (SARCE).

<sup>1</sup> In addition, emigration for study purposes has soared. The number of Bhutanese students studying in Australia has tripled from pre-pandemic levels to the equivalent of 1.8 percent of Bhutan's working-age population. Emigration has also affected Bhutan's government sector, where attrition in the civil service rose to 16 percent of the staff in fiscal year 2023 (Royal Government of Bhutan 2023).

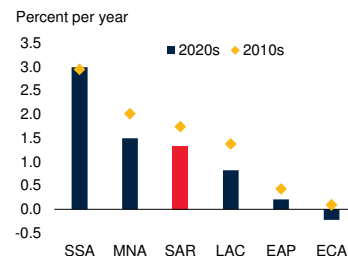
## FIGURE 2.1 South Asia's growth prospects

South Asia is projected to be the fastest-growing EMDE region, in part because of still-rapid growth in the working-age population

### A. Potential growth prospects, 2020–29



### B. Expected working-age population growth, 2010s and 2020s



Sources: Kilic Celik, Kose, and Ohnsorge (2023); World Bank.

Note: EAP = East Asia and the Pacific; ECA = East Europe and Asia; LAC = Latin America and the Caribbean; MNA = Middle East and North Africa; SAR = South Asia; SSA = sub-Saharan Africa. Working-age population refers to the number of persons between the ages of 15 and 64 in a country. Weighted averages unless otherwise specified.

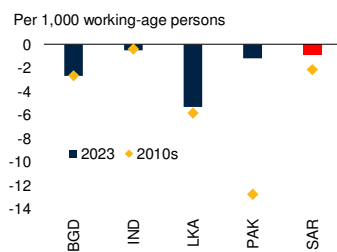
A. Population-weighted regional averages of average annual growth rates.

B. Working age defined as ages 15–64 years.

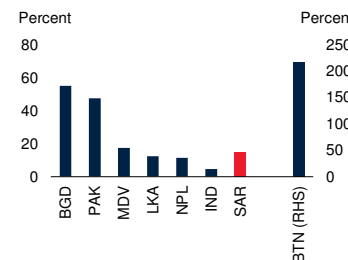
## FIGURE 2.2 South Asia: Migration

South Asia has long been one of the largest sources of emigration. After a lull during the pandemic, South Asians resumed their outmigration.

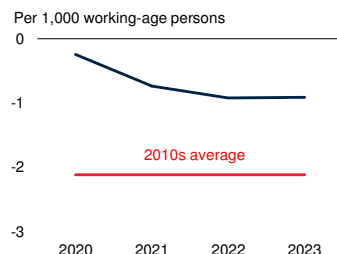
### A. Net immigration rate



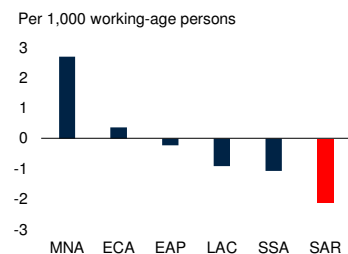
### B. Growth in number of students in Australia, 2019–23



### C. South Asia: Net immigration rate



### D. Net immigration rate, 2010–19



Sources: United Nations; WDI (database); World Bank.

Note: BGD = Bangladesh; BTN = Bhutan; IND = India; LKA = Sri Lanka; MDV = Maldives; NPL = Nepal; PAK = Pakistan. EAP = East Asia and the Pacific; ECA = East Europe and Asia; LAC = Latin America and the Caribbean; MNA = Middle East and North Africa; SAR = South Asia; SSA = Sub-Saharan Africa. Weighted averages for aggregates unless otherwise specified.

A. C. D. 2010s = annual average of net immigration rate for 2010–19. Latest available data for 2023.

D. 2010s = annual average net immigration during 2010–19.

productivity increases are needed to achieve per capita income gains.<sup>2</sup>

As an example, consider the Republic of Korea, which in the 1960s had per capita incomes that resembled those in 2022 of Bangladesh, India, Nepal, and Pakistan. The convergence of the Republic of Korea's per capita income toward those in advanced economies, completed by 1987, was marked by a combination of labor productivity growth and increases in its employment ratio. Thus, between 1960 and 1980, labor productivity growth averaged 5 percent a year and the employment ratio increased on average by 0.4 percentage points a year (figure 2.3).<sup>3</sup>

More broadly, since 2000, per capita income growth has been faster, by 0.7 percentage points a year, on average, in EMDEs that generated increases in the employment ratio alongside productivity than in EMDEs where productivity rose but employment ratios declined.

Since 2000, South Asian countries have taken a different path: one of rising productivity but only marginally rising, or even declining, employment ratios. Employment ratios fell in Bhutan, India, Maldives, and Nepal, while in Bangladesh, Pakistan, and Sri Lanka, they rose at half the pace that the Republic of Korea achieved in the 1960s and 1970s. As a result of this employment weakness, more than two-thirds of South Asia's output growth since 2000 has been accounted for by labor productivity growth and the remainder by working-age population growth, while the declining employment ratio reduced growth.

The failure of these countries to fully employ their growing working-age populations is a missed opportunity. If South Asia could employ as large a

<sup>2</sup> Employment encompasses all employed persons, regardless of age. Although some employed persons may not be of working age (15–64), the working-age population (aged 15–64 years) is used as a benchmark to separate the effect of population growth from employment growth.

<sup>3</sup> Similarly, Portugal and Singapore in the early 1960s and Malta in the mid-1970s had per capita incomes that resembled those of Sri Lanka in 2022. Their convergence toward advanced-economy per capita incomes by 1971 was also characterized by rapid labor productivity growth and rising employment ratios.

share of its working-age population as the average EMDE, without losing productivity momentum, its output might be 16 percent higher. And if this increase in employment ratios occurred in non-agriculture (where labor productivity tends to be higher), it might be accompanied by higher labor productivity growth that would lift output growth even further.

## Questions

With the double imperative of job creation and productivity growth in mind, this chapter examines how South Asia can harness its growing working-age population to achieve faster convergence toward advanced-economy incomes, a stated goal of most countries in the region. Specifically, this chapter addresses the following questions.

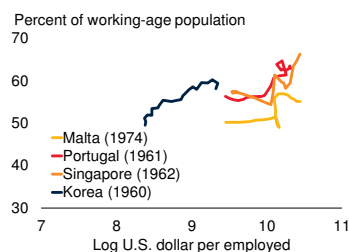
- How does South Asia's employment compare with that of other EMDEs?
- What are the correlates of long-run employment ratios among EMDEs?
- How can South Asia create the jobs needed to absorb its growing working-age population, while also boosting productivity?

This chapter focuses on the aggregate *quantity* of employment, assuming that employment is a policy goal in its own right. Individuals value jobs for the earnings, as well as for their contributions to self-esteem and happiness and, through their broader influence on living standards and social cohesion, jobs create even greater benefits to society (World Bank 2013). The *quality* of employment in terms of its various characteristics—labor productivity, labor income shares, wage rates, or contractual arrangements—is no less critical for the development process but is beyond the scope of this chapter. Previous editions of this report and companion reports have examined the quality of jobs in the context of informality and other labor market outcomes such as migration (Bussolo and Sharma 2022; World Bank 2022a). These studies have also examined labor force participation, which is often predominantly driven by supply-side factors,

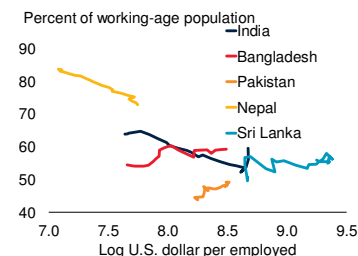
## FIGURE 2.3 Growth models

*Few countries have reached the per capita incomes of advanced economies in the span of two decades starting from income levels that prevailed in South Asia in 2022. Those that did combined productivity growth with rising employment ratios. Since 2000, EMDEs with both productivity growth and increases in employment ratios had higher growth than did those with only labor productivity growth. Unlike in other EMDEs, South Asia's declining employment ratio has reduced output growth since 2000.*

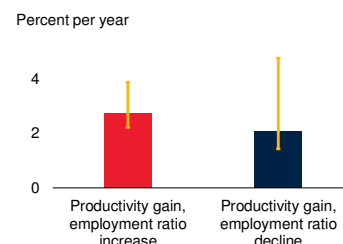
### A. Selected advanced economies: Employment ratio and productivity



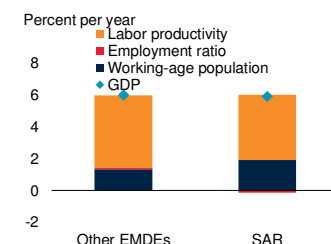
### B. South Asia: Employment ratio and productivity, 2000–23



### C. Per capita GDP growth in EMDEs, 2000–2023



### D. Contributions to output growth, 2000–23



Sources: Haver Analytics; International Labour Organization; Penn World Tables (database); World Bank.

Note: EMDEs = emerging market and developing economies; SAR = South Asia. Employment ratios are defined as employment in percent of the working-age population. Working-age population refers to persons aged between 15 and 64.

A. B. Figure shows the logarithm of productivity (defined as real GDP in U.S. dollars at average 2010–19 prices and market exchange rates per employed) and employment ratio.

A. Countries are selected because they had similar per capita incomes in the 1960s–1970s to South Asian countries in 2022. The Republic of Korea in the 1960s had per capita incomes similar to those that prevailed in 2022 in Bangladesh (in 1969), India (in 1971), Nepal (in 1961–62) and Pakistan (in 1967), all in 2015 PPP U.S. dollars. Similarly, Malta (in 1974), Portugal (in 1961), and Singapore (in 1962–64) had similar per capita incomes to Sri Lanka in 2022. Figure shows two decades of data, for each country starting in the year indicated in parentheses.

C. Unweighted average annual average per capita GDP growth during 2000–23 for 48 EMDEs that had either positive cumulative labor productivity growth and increases in the employment ratio, or positive cumulative labor productivity growth and declines in the employment ratio. Blue or red bars denote unweighted averages across EMDEs, yellow whiskers denote interquartile ranges.

D. Accounting decomposition of annual average real GDP growth during 2000–23 for 119 EMDEs. Employment-weighted averages of country groups.

whereas this chapter focuses mainly on the demand-side factors driving job creation, i.e., employment. In contrast to these previous studies and World Bank (forthcoming), this chapter examines the composition of employment only to the extent that it affects aggregate employment rather than, for example, for its impact on labor productivity or the quality of employment.

## Contributions to the literature

This chapter makes several contributions to the literature.

**Focus on employment ratios.** The chapter examines the correlates of employment ratios rather than employment growth. Several previous studies have estimated the correlates of employment growth in large cross-sections of countries (Crivelli, Furceri, and Toujas-Bernaté 2012; Kapsos 2005) or in South Asia alone (Kumar et al. 2021; World Bank 2018). Annex 2.1 summarizes estimates of the elasticity of employment with respect to output growth from this body of literature. Since merely positive employment growth alone will be insufficient for South Asia to realize the demographic dividend promised by a still-growing population, this chapter examines the correlates of employment ratios—driven by the rate at which employment growth outpaces working-age population growth—rather than simply employment growth.

**Long-run focus.** This study focuses on correlates of long-run employment ratios, specifically the correlates of country-specific long-run employment ratios once the correlates of annual movements in employment ratios have been controlled for. This contrasts with previous studies, such as World Bank (2018), which examined the short-term link between output growth and employment over the business cycle.

**Linking aggregate employment with structural transformation.** South Asia's employment weakness is well-known but has thus far mostly been attributed to a lack of women in the labor force (World Bank 2018). This chapter shows that the challenge now extends beyond women's labor force participation: low structural transformation from agriculture to non-agriculture is at the heart of the region's employment weakness. The analysis examines the ability of countries to employ their working-age populations in two dimensions: across sectors and across groups of workers. Previous studies have examined sectoral employment for individual South Asian countries (Das et al. 2008 for Bangladesh) or for South Asia alone (Kumar et al. 2021).

**Linking aggregate employment with firm-level constraints.** Using the World Bank's *Enterprise Surveys*, the chapter provides the first analysis of the extent to which government regulations on labor, land, finance, and trade help or hinder the absorption of a growing working-age population into employment. Previous studies have focused on firm-level employment, often in specific countries, without bridging to aggregate employment (see, for example, Aga and Francis 2015; Ayyagari, Demirgüç-Kunt, and Maksimovic 2011; Khan 2023).

**Post-pandemic developments.** This chapter provides the first region-wide overview of job creation in South Asia since the start of the COVID-19 pandemic, in a global comparison. It builds on pre-pandemic regional studies (such as Nayar et al. 2012 and World Bank 2018) and ongoing World Bank studies at the global level (World Bank, forthcoming).

## Main findings

This chapter finds, **first**, that South Asia's labor markets stand out among EMDEs in several respects.

- *Declining employment ratio.* South Asia's long-standing employment weakness deepened during 2000–23. A 6-percentage-point post-pandemic surge only partially reversed a decades-long decline before the pandemic. As a result, whereas the employment ratio held broadly steady in other EMDEs between 2000 and 2023, it declined in South Asia by 2 percentage points. The overall decline masks a divergence between 2- to 1-percentage point declines in Bhutan, India, Maldives, and Nepal and 5- to 7-percentage point increases in Bangladesh, Pakistan, and Sri Lanka.
- *Low employment ratios.* Employment ratios in all South Asian countries except Nepal are now well below those in other EMDEs. At 59 percent in 2023, South Asia's employment ratio is well under the 70 percent average in other EMDEs.
- *Employment weakness for men and women.* South Asia is the only region in which men's

employment ratios fell over the past two decades (although to levels on a par with other EMDEs). In Bhutan, India, Maldives, and Nepal, men's employment ratios declined. The employment ratio for South Asian women has been low for decades and remains about half that in other EMDEs and about one-third that of South Asian men. Low employment ratios for women fully account for the gap in aggregate employment rates between South Asia and other EMDEs.

- *A missing engine of growth.* In contrast to other EMDEs, labor productivity growth surged in South Asia in the 2010s before declining below the EMDE average during 2020–23. In EMDEs outside South Asia, working-age population growth, increases in employment ratios, and labor productivity growth all contributed to output growth during 2000–23. In contrast, South Asia's output growth was driven only by labor productivity growth (more than two-thirds) and working-age population growth, whereas declining employment ratios reduced output growth.

**Second,** there is evidence that South Asia's employment ratios are converging toward levels that are significantly below those in other EMDEs. The employment weakness appears to be concentrated in non-agricultural sectors: in India, Nepal, and Pakistan, long-run employment ratios in non-agriculture are well below those in the average EMDE, whereas agricultural employment ratios are broadly in line (and above-average in Nepal). In all South Asian countries except Nepal, women's long-run employment ratios are significantly below the EMDE average.

**Third,** regression analysis suggests that declining employment ratios reflect, in part, a more challenging institutional and economic environment than elsewhere, which has stunted firms' growth. Among EMDEs, less burdensome tax regimes, greater political stability, and less corruption have been associated with higher overall long-run employment ratios. In non-agriculture specifically, greater trade openness and access to finance, larger firm size, more efficient land markets, more flexible product and labor market regulations, better education, and stronger

legal protection of women's rights have been associated with higher long-run employment ratios.

## Data and definitions

The main data sources for this analysis include the World Bank's *World Development Indicators* (WDI) and *Global Economic Prospects* databases, the International Labour Organization's (ILO) *ILOSTAT* database, *Penn World Tables*, and the Groningen Growth and Development Center's *Economic Transformation Database* (ETD).<sup>4</sup> The baseline employment comes from the *Penn World Tables*, which is available up to 2019 and includes subsistence employment. It is extended forward up to 2023 and spliced by sector and gender using ILO-modeled employment data (annex 2.2). For Nepal, adjusted employment data are drawn from Ruppert Bulmer, Shrestha, and Marshalian (2020), which also include subsistence employment, consistent with the baseline employment measure. Data on correlates of long-run employment ratios come from various data sources, including WDI, the *World Bank's Women, Business, and the Law* database, the *Financial Access Survey* from the International Monetary Fund (IMF), the World Bank's *Enterprise Survey*, and the Fraser Institute's *Economic Freedom of the World* (EFW) database. The dataset includes 145 EMDEs for 2000–23.

Labor productivity is calculated as the ratio of real output to the number of workers. The employment ratio is defined as the ratio, in percent, of total employment, to the working-age population. The working-age population is defined as the number of people aged 15–64 years.

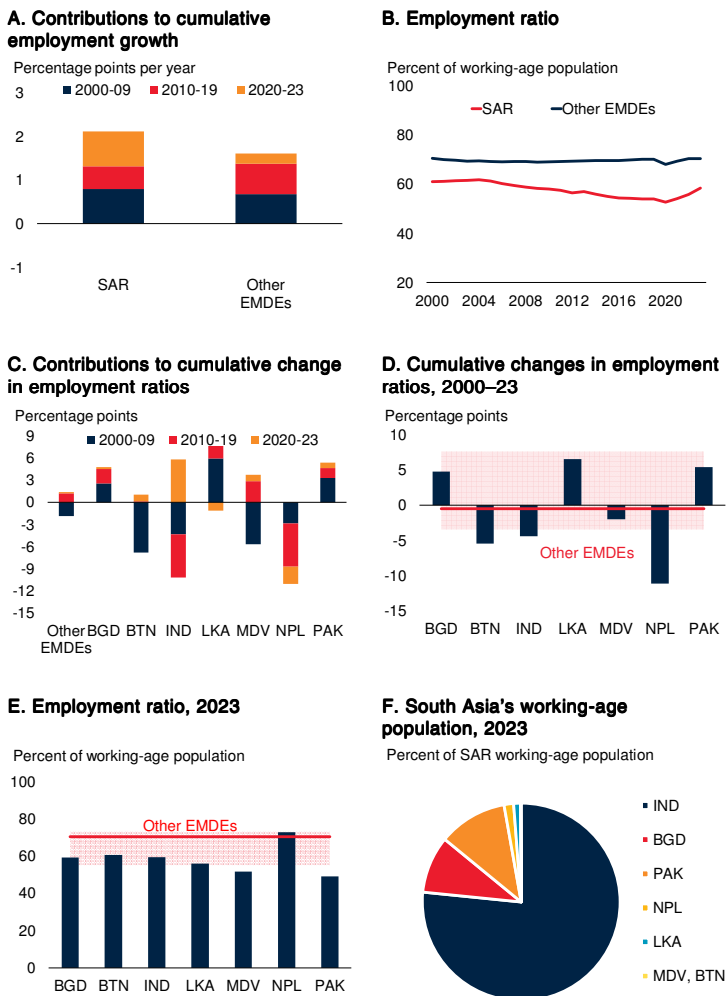
## Trends in employment and labor productivity

*South Asia stands out among EMDEs in four respects. First, whereas the employment ratio held broadly steady in other EMDEs during 2000–23, it declined in South Asia by 2 percentage points. Second, employment ratios in all South Asian*

<sup>4</sup> Because of unavailable data, Afghanistan is excluded from this chapter's analysis.

## FIGURE 2.4 Employment

The 2010s were a decade of pronounced weakness in employment growth in South Asian countries. Since 2020, however, employment growth has rebounded more strongly than in other EMDEs. Over 2000–23, employment growth has fallen short of working-age population growth and employment ratios fell in Bhutan, India, Maldives, and Nepal. Across the region, employment ratios are well below those in other EMDEs.



Sources: International Labour Organization; Penn World Tables (database); WDI (database); World Bank.

Note: EMDEs = emerging market and developing economies; SAR = South Asia. 2000s = annual average for 2000–2009; 2010s = 2010–19. BGD = Bangladesh; BTN = Bhutan; IND = India; LKA = Sri Lanka; MDV = Maldives; NPL = Nepal; PAK = Pakistan. South Asia includes Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan, and Sri Lanka. Employment ratios are defined as employment in percent of the working-age population. Working-age population refers to persons aged between 15 and 64. Sample comprises 128 EMDEs.

A. Contributions to cumulative employment change between 1999 and 2023 (in percent of 1999 employment), divided by number of years.

B.-F. Working-age population-weighted averages of country groups.

D. E. Red-shaded area is the interquartile range for EMDEs outside South Asia. The red line denotes the working-age population-weighted average for other EMDEs.

countries other than Nepal are well below those in other EMDEs. Third, South Asia's employment ratios have declined for men and are low for women. Fourth, in contrast to other EMDEs, labor productivity growth surged in South Asia in the

2010s before slowing below the EMDE average after the pandemic.

**Employment trends.** The 2010s was a period of sharply slowing and below-average employment growth in South Asia (in particular, India and Nepal). This was followed by a post-pandemic rebound (in Bhutan, India, Maldives, and Pakistan) to employment growth rates well above the average in other EMDEs (figure 2.4). Overall during 2000–23, average employment growth (1.7 percent a year) in South Asia was below that of the working-age population (1.9 percent a year). As a result, South Asia saw a 2-percentage-point decline in its employment ratio during 2000–23 while the average employment ratio in other EMDEs remained broadly stable. The decline in South Asia was limited to Bhutan, India, Maldives, and Nepal, but employment ratios are below the average for other EMDEs in all South Asian countries except Nepal. Maldives, Pakistan, and Sri Lanka, are in the bottom quartile of other EMDEs. By 2023, South Asia's employment ratio averaged 59 percent—well below the 70 percent average in other EMDEs.

**Bhutan, India, Maldives, Nepal: Falling employment ratios.** The declines in employment ratios over 2000–23 in Bhutan, India, and Nepal ranked in the bottom quartile among other EMDEs.

- *Bhutan.* Following a surge in hydropower construction in the early 2000s, employment growth slowed after the global financial crisis and fell behind working-age population growth. As a result, Bhutan's employment ratio dropped by a cumulative 5 percentage points during 2000–23.
- *India.* During the 2010s, employment growth was exceptionally weak compared with other EMDEs, but it rebounded strongly from pandemic employment losses. Over 2000–22, the employment ratio declined by more than in any other South Asian country except Nepal, but preliminary data suggest a 3-percentage-point rebound in 2023 that partially reversed the earlier decline. Overall during 2000–23, employment growth was well below the average working-age



population growth and the employment ratio declined.

- *Maldives.* The COVID-19 pandemic caused a collapse in tourism and steep employment losses but this was followed by a strong rebound. Above-average employment growth during 2020–23 still represented a slowdown from the employment surge in the 2010s, when construction of a major new airport ended a decade of employment weakness. As in Bhutan and India, employment growth fell short of working-age population growth, so that the employment ratio fell by 2 percentage points during 2000–23.
- *Nepal.* During the 2010s, Nepal’s small non-agriculture sector struggled to absorb an influx of labor from rural areas to the cities (Ruppert Bulmer, Shrestha, and Marshalian 2020). This was accompanied by considerable emigration. A subsequent surge in working-age population growth, fueled by return migration from Gulf countries during the pandemic, compounded employment losses during 2020–23. As a result, Nepal’s employment ratio declined by 11 percentage points during 2000–23.

**Bangladesh, Sri Lanka, Pakistan: Rising employment ratios.** Whereas employment growth in other EMDEs was broadly steady in the first two decades of the 2000s, it accelerated in Bangladesh (as garment manufacturing boomed) and slowed in Pakistan (amid a series of debt crises). Employment growth in both countries remained at least twice the average of other EMDEs—and one-quarter above working-age population growth. As a result, the employment ratio rose in both countries by 5 percentage points during 2000–23. In Sri Lanka, after a decade of robust employment growth in the thriving tourism and information-technology sectors, the global financial crisis ushered in a decade of slowing employment growth alongside large-scale emigration. Subsequently, Sri Lanka suffered South Asia’s largest employment decline, when pandemic employment losses were compounded by a collapse in economic activity associated with political unrest and a sovereign debt crisis.

### **Trends in employment ratios: Declines for men.**

In contrast to other EMDEs, in which men’s employment ratios were broadly stable, employment ratios in South Asia have fallen for men and been well below-average for women since 2000 (figure 2.5). Men’s employment ratios declined in Bangladesh, Bhutan, India, Maldives, and Nepal, by less than 1 percentage point in Bangladesh and more than 9 percentage points in Bhutan, India, and Nepal. In all South Asian countries except Sri Lanka, declines in employment ratios have been steeper (Bangladesh, Bhutan, India, Maldives, Nepal), or increases smaller (Pakistan), for men than for women. The decline in male employment ratios predated the pandemic, with a post-pandemic, partial recovery to the EMDE average of 81 percent in 2023.

### **Levels of employment ratios: Below-average for women.**

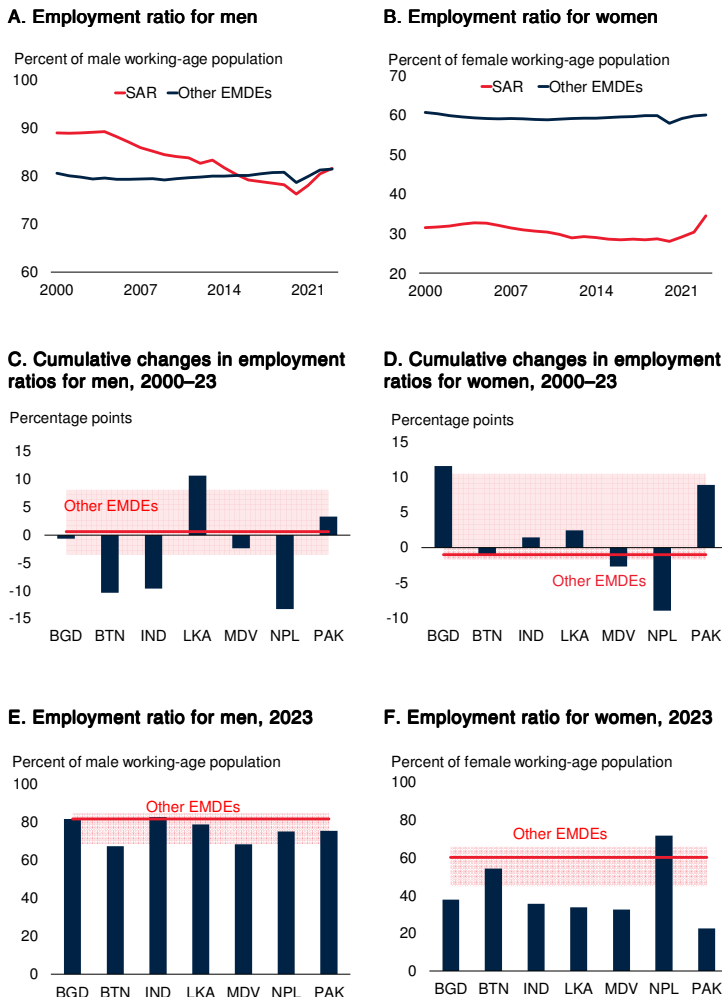
By 2023, men’s employment ratios in all South Asian countries, except in Bhutan and Maldives, were broadly similar to those in other EMDEs. Women’s employment ratios, however, have historically been well below those in other EMDEs. Despite preliminary data pointing to a sharp increase in women’s employment ratio in South Asia in 2023, women’s employment ratios in all South Asian countries, except in Bhutan and Nepal, ranked in the bottom quartile among other EMDEs, at least 20 percentage points below the average in other EMDEs, two-thirds or less of the average for other EMDEs (60 percent), and one-half or less of the employment ratio for men. Many factors have limited employment of South Asian women, including a lack of education, safe transport, childcare, and poor law enforcement, as well as deep-rooted social norms (Raiser 2023).

### **Sectoral employment ratios: Similar in agriculture, widening gap in non-agriculture.**

During the first two decades of the 2000s, South Asia’s agricultural employment ratio declined broadly in line with that of other EMDEs, followed by a pandemic uptick that did not occur in other EMDEs (figure 2.6). South Asia’s non-agricultural employment ratios, however, have historically been well below those in other EMDEs and the gap has widened since 2000. By 2022, South Asia’s non-agricultural employment ratio was almost 20 percentage points below that in other EMDEs.

## FIGURE 2.5 Employment ratios of men and women

South Asia stands out as the only region where the employment ratio for men declined during 2000–23, albeit in most countries only to levels broadly similar to those in other EMDEs. Except in Nepal and despite an increase since the COVID-19 pandemic, employment ratios for women remain well below the average in other EMDEs.



Sources: International Labour Organization; Penn World Tables (database); WDI (database); World Bank.

Note: EMDEs = emerging market and developing economies; SAR = South Asia. BGD = Bangladesh; BTN = Bhutan; IND = India; LKA = Sri Lanka; MDV = Maldives; NPL = Nepal; PAK = Pakistan. South Asia includes Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan, and Sri Lanka. Employment ratios are defined as employment in percent of the working-age population. Working-age population refers to persons aged between 15 and 64. Gender-specific working-age population-weighted averages for country groups. Sample comprises 128 EMDEs.

C.-F. Red-shaded area indicates interquartile range for EMDEs outside South Asia.

**Employment composition: A shift out of agriculture, as elsewhere.** Since 2000, employment in South Asia, as in other EMDEs, has shifted out of agriculture into non-agriculture. The pandemic partially reversed this process in South Asia, whereas it did not in other EMDEs (figure 2.7). In 2020, COVID-19 outbreaks, pandemic restrictions, and the global collapse of

tourism initially caused severe employment losses of 7–8 percent in South Asia’s non-agricultural sectors:

- *India.* Migrant workers returned to rural areas, and emigration from rural areas slowed, during the pandemic.<sup>5</sup> India has the region’s second-largest share of workers in agriculture (44 percent) after Nepal.
- *Sri Lanka.* The collapse of tourism and deep recessions in both countries, coupled with political unrest and debt distress in Sri Lanka, led to disproportionate employment losses in non-agricultural sectors and encouraged a return to rural areas.

As a result of these worker movements during the pandemic, agricultural employment in South Asia had already risen above pre-pandemic levels by 2021 whereas it remained below pre-pandemic levels in other EMDEs. However, over 2000–22, the agricultural share of employment in South Asia declined by 18 percentage points—in line with other EMDEs. Shifts were larger in Bangladesh and Bhutan. Agriculture’s 42 percent share of total South Asian employment remains higher than in any other EMDE region except Sub-Saharan Africa.

**Employment composition: A shift into services, but less than elsewhere.** In South Asia, less than one-half of the employment shift out of agriculture during 2000–22 was absorbed by services; in other EMDEs, it was more than three-quarters.<sup>6</sup> In part, the difference may have reflected the fact that South Asian services sectors were already unusually large: In all South Asian countries except Bhutan, services account for a larger share of employment than in countries with similar per capita incomes (World Bank 2021). Among South Asian countries, the employment

<sup>5</sup> For example, India’s Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGS) work program offered paid work for unskilled manual labor. Demand for the program increased sharply in rural areas during the COVID-19 pandemic, as out-of-work individuals who moved back to rural areas sought employment for subsistence.

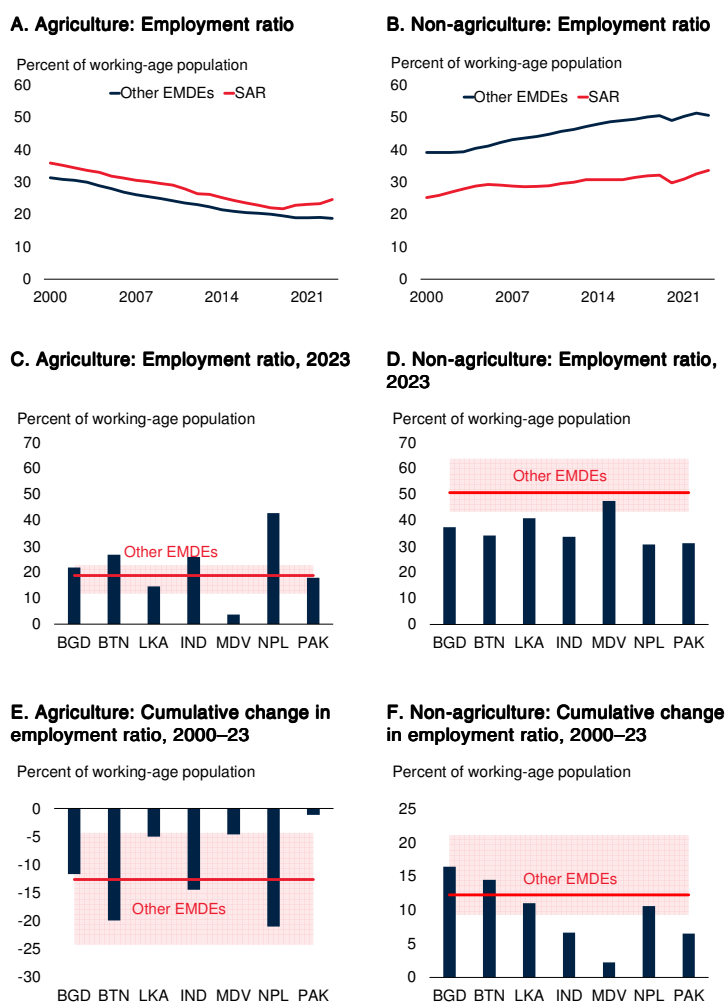
<sup>6</sup> India’s Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGS) work program provides paid unskilled manual labor to participants. The program provided important support in rural areas during the COVID-19 pandemic.

shifts were tilted toward industry in India, Maldives, and Pakistan and toward services in Bhutan, Nepal, and Sri Lanka.

- Bangladesh.** The ready-made garment industry expanded rapidly during the 2010s but then its growth slowed amid a broader global trade slowdown (IMF 2022; Nayyar and Sharma 2022). These predominantly low value-added exports had larger-than-average links to the local economy, which supported growth in services related to trade and logistics (World Bank 2021).
- India.** Large public investment projects, the easing of labor regulations after 2014, and increased use of contract labor have supported industrial employment growth (Bertrand, Hsieh, and Tsivanidis 2021; Goldar 2023). In the services sector, India's large, well-educated, young, and English-speaking workforce, coupled with a reliable digital infrastructure, has turned the country into a global leader in computer services and business process outsourcing and a global hub for medical services (World Bank and WTO 2023). These sectors, which constitute a larger part of India's services sector than they do in other EMDEs, tend to require highly skilled workers and have only a limited capacity to employ India's large pool of unskilled workers (Nayyar and Davies 2023).
- Pakistan.** Employment in the low-productivity garment sector expanded rapidly (ILO 2017), but services sector employment was held back by low human capital and limited access to credit for the private sector (Begum 2022).
- Nepal.** Starting with South Asia's smallest share of services employment, a rapidly growing real estate market, growing links between tourism and business services, and expanding digital services exports have combined to accelerate a shift of employment into services (IIDS 2023; World Bank 2021, 2023a).
- Sri Lanka.** Services sector employment has expanded rapidly and Sri Lanka already had the second-largest share of services

## FIGURE 2.6 Sectoral employment ratios

In almost all South Asian countries, non-agricultural employment ratios are in the bottom quartile of other EMDEs. Whereas agricultural employment ratios have fallen in most South Asian countries since 2000 in line with other EMDEs, non-agricultural employment ratios rose considerably less than elsewhere.



Sources: GGDC/UNU-WIDER Economic Transformation Database; International Labour Organization; National statistical offices; Penn World Tables (database); WDI (database); World Bank.

Note: EMDEs = emerging market and developing economies; SAR = South Asia. BGD = Bangladesh; BTN = Bhutan; IND = India; LKA = Sri Lanka; MDV = Maldives; NPL = Nepal; PAK = Pakistan. South Asia includes Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan, and Sri Lanka. Latest available data for sectoral employment in a large sample of countries is for 2023; missing 2023 data is assumed to be constant at 2022 level. Sample comprises 128 EMDEs. Working-age population-weighted averages for country groups.

C.-F. Red lines are working-age population-weighted averages for EMDEs outside South Asia. Red-shaded areas are interquartile ranges for EMDEs outside South Asia.

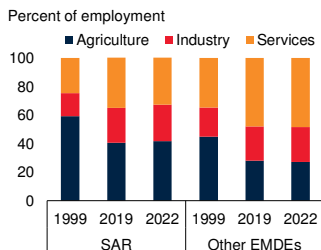
employment in the region. The information technology and business services industries more than doubled in size in the second half of the 2010s (International Trade Administration 2019).

- Maldives and Bhutan.** Large public investments (hydropower in Bhutan; an

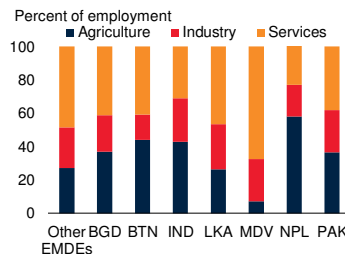
## FIGURE 2.7 Sectoral employment composition

Despite the shift out of agriculture, the agricultural employment share remains considerably higher in South Asia than in other EMDEs. South Asian employment has shifted toward government, as in other EMDEs.

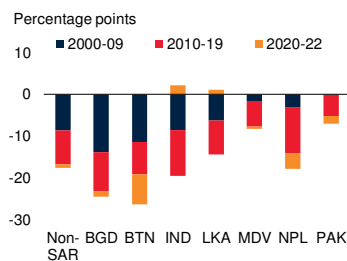
### A. Composition of employment



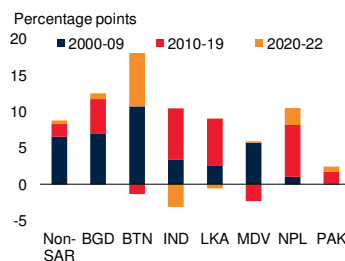
### B. Composition of employment, 2022



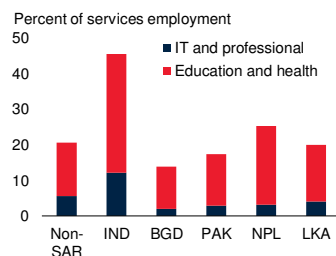
### C. Cumulative changes in the agricultural share of employment



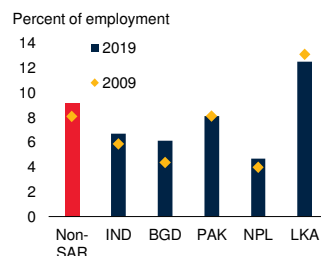
### D. Cumulative changes in services share of employment



### E. Share of high-skilled sectors in services employment, 2018



### F. Share of government employment



Sources: GGDC/UNU-WIDER Economic Transformation Database; International Labour Organization; National statistical offices; Penn World Tables (database); WDI (database); World Bank.

Note: EMDEs = emerging market and developing economies; Non-SAR = other EMDEs; SAR = South Asia. BGD = Bangladesh; BTN = Bhutan; IND = India; LKA = Sri Lanka; MDV = Maldives; NPL = Nepal; PAK = Pakistan. South Asia here includes Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan, and Sri Lanka. Latest available data for government employment is for 2019; government employment data is not available for Maldives and Bhutan. Latest available data for sectoral employment in a large sample of countries is for 2022; missing 2022 data is assumed to be constant at 2021 level. Employment-weighted averages for all country groups. Sample comprises 128 EMDEs. E. Business services includes information technologies and communication, professional and scientific services, and administrative services.

airport, housing, and bridge projects in Maldives) boosted construction and, hence, industrial employment in the 2010s.

**Employment composition: A shift toward government, as elsewhere.** Over 2009–19, amid rapidly rising government debt and major public

investment programs, employment shifted toward the government sector, especially in Bangladesh and India. This risks creating future underfunded public liabilities. Pakistan's government, in contrast, froze hiring to restore fiscal sustainability, thereby stabilizing the share of government employment. In Sri Lanka, a rapid unwinding of a surge in public employment during the global recession of 2009 reduced the share of government employment.

### Labor productivity growth: Above-average.

Following above-average rates during the pre-pandemic decade, South Asia's labor productivity growth slowed below the EMDE average during 2020–23 (figure 2.8).

- *Broad-based across countries.* A productivity growth surge in the 2010s, followed by a sharp slowdown during 2020–23, occurred in all South Asian economies. Except in Bangladesh, labor productivity growth during 2020–23 was well below the average in other EMDEs—almost zero in Maldives, India, Nepal, and Pakistan or negative in Bhutan and Sri Lanka—except in Bangladesh where productivity growth was much higher, in part reflecting of a sharp rebound in global goods trade.
- *Services-based productivity growth.* While South Asia's labor productivity growth surged in all sectors during the 2010s, it rose to rates above those in other EMDEs only in the services sector. Industrial and agricultural productivity growth lagged that in other EMDEs. During 2020–22, South Asia's agricultural productivity stalled and services productivity accelerated, in a reversal of developments in other EMDEs.

### Output growth: More productivity and population-driven than elsewhere.

In EMDEs outside South Asia, all growth engines—working-age population, employment ratios, and labor productivity—were firing during 2000–23, albeit at a slowing rate (figure 2.9). South Asia, in contrast, has relied only on labor productivity growth (two-thirds) and working-age population growth whereas declining employment ratios had

reduced growth until the pandemic. Since the pandemic, labor productivity has slowed sharply.<sup>7</sup>

## Conceptual framework

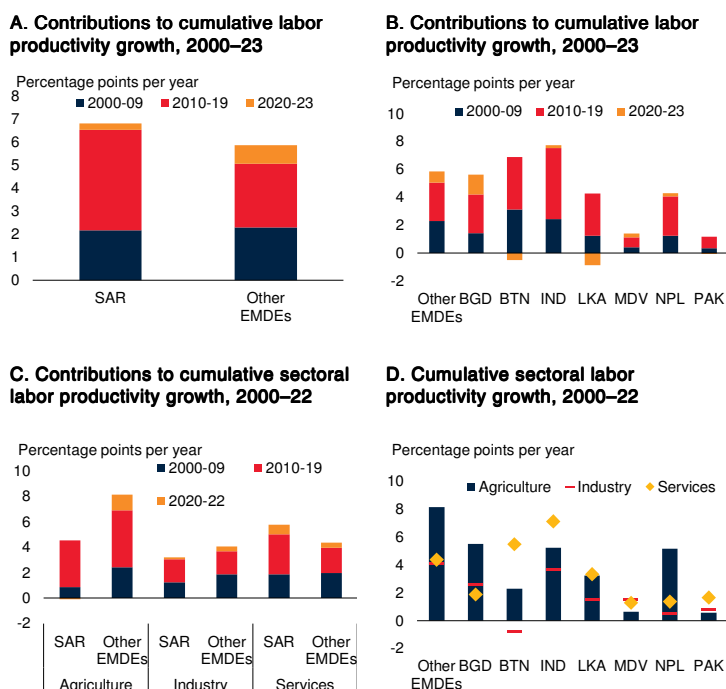
*Among the structural changes involved in development, shifts of workers out of agriculture into non-agriculture are highlighted by economic models. They point to convergence of employment ratios toward long-run, “steady-state” levels that are achieved once workers have transitioned out of agriculture and into non-agriculture. These long-run levels are determined by country-specific factors that influence long-run supply and demand for labor in non-agriculture.*

**Framework.** Economy-wide employment can be viewed as the equilibrium outcome of labor supply by households motivated to earn income and labor demand from firms that need labor as an input into production of goods and services. The conceptual framework used here emphasizes that the nature of this equilibrium will depend upon the level of development. The framework draws on the work of Herrendorf, Rogerson, and Valentinyi (2014), who study a multi-sector growth model to capture the process of structural change that occurs during development.

**Structural transformation and aggregate employment.** An important feature of such models is that labor moves from the agriculture sector to non-agriculture sectors during the development process, and that in the long run virtually all labor is employed in non-agriculture. Because the nature of labor supply and demand tends to vary among sectors, this process of reallocation will be associated with changes in labor market equilibrium and, as a result, in the economy-wide employment ratio. Because the long-run employment ratio is effectively determined by that in non-agriculture, the analysis in this chapter examines the behavior of both aggregate employment ratios and non-agricultural employment ratios.

## FIGURE 2.8 Labor productivity growth

*Labor productivity growth surged in a broad-based manner in the 2010s before slowing below the average in other EMDEs during 2020–22.*

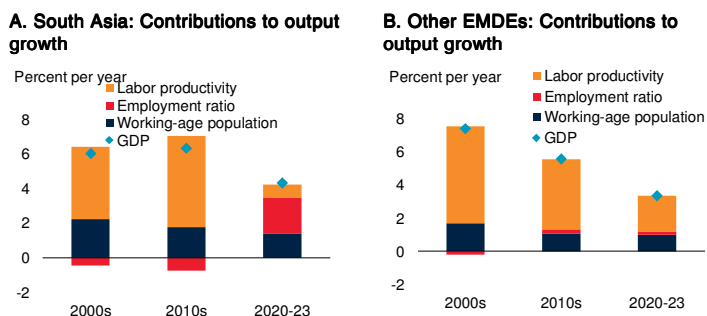


Sources: International Labour Organization; Penn World Tables (database); WDI (database); World Bank.

Note: Productivity = output per worker. Agri. = Agriculture; Emp. = Employment; Indu. = Industry; Prod. = Productivity; Serv. = Services. EMDEs = emerging market and developing economies; SAR = South Asia. South Asia here includes Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan, and Sri Lanka). BGD = Bangladesh; BTN = Bhutan; IND = India; LKA = Sri Lanka; MDV = Maldives; NPL = Nepal; PAK = Pakistan. Latest available data for sectoral productivity are 2022; for aggregate productivity is 2023. Bhutan's sector productivity is up to 2021. Employment-weighted averages for country groups. Arithmetic annual averages over time periods. Calculations in panels C and D based on gross value added, which differs from calculations based on aggregate real GDP in panels A and B. Sample includes 118 EMDEs for panels A and B, and 115 EMDEs for panels C and D.

## FIGURE 2.9 Engines of output growth in EMDEs

*Until the pandemic, South Asia's output growth relied on labor productivity and working-age population growth.*



Sources: International Labour Organization; Penn World Tables (database); WDI (database); World Bank.

Note: EMDEs = emerging market and developing economies; SAR = South Asia. 2000s = the cross-country average of geometric average annual growth rates for 2000–09; 2010s = 2010–19. Employment ratios are defined as employment in percent of the working-age population. Accounting decomposition of annual average real GDP growth between 2000 and 2023. Sample includes 119 EMDEs. Employment-weighted averages for country groups.

<sup>7</sup> The decomposition can be further refined by separating out the labor share of income. This is done in World Bank (forthcoming).

**Long-run, “steady-state”, employment ratios.** A large body of research studies the effect on labor market equilibrium of such factors as labor market policies, institutions (societal norms, both formal, such as laws, and informal, such as traditions), and regulations on labor market equilibrium (Duval and Loungani 2019; McKenzie 2017; Nickell and Layard 1999). Because these factors vary from country to country, the framework developed here allows country-specific factors to shape each country’s long-run labor market equilibrium. The effects of various institutions and regulations on labor demand and supply are likely to differ across sectors. Regulations that disproportionately affect large establishments will likely have different effects on typically small firms than on larger non-agricultural firms. Policies that impede access to credit will hurt more capital-intensive sectors dependent on external finance. In addition, the long-run effects of a given policy or institution will depend on a country’s stage of development: factors that obstruct non-agricultural sectors will have a smaller aggregate impact in an economy in which a larger proportion of labor works in agriculture.<sup>8</sup> Because virtually all employment is expected to be in non-agriculture eventually, the long-run aggregate employment level essentially reflects preferences and the impact of policies on employment in this sector.

**Parallels to income convergence.** This conceptual framework has much in common with that used to study the dynamics of GDP per capita across countries (Barro and Sala-i-Martin 1992; Kremer, Willis, and You 2022; Patel, Sandefur, and Subramanian 2021). Like the framework used here, this literature views each country as having its own steady-state level, dictated by country-specific factors that reflect policies and institutions and allow for a dynamic process of convergence.

**Controlling for other factors.** Two additional factors are controlled for in the framework used here—labor productivity growth and working-age population growth.

<sup>8</sup> This framework models production at the sectoral level. That said, overall labor demand within any sector may be influenced by policies that distort the demand for labor across individual firms (Hsieh and Klenow 2009, 2014). That is, labor productivity at the sectoral level may be a function of the institutional and regulatory environment.

- *Labor productivity growth.* Recent work has emphasized that employment ratios ultimately depend on household preferences and firm technologies. For example, higher wages driven by higher labor productivity could reduce labor supply by opening options of choosing leisure over labor (Boppart and Krusell 2020). And faster productivity growth may reduce demand for labor if it is obtained through labor-saving automation (Acemoglu and Restrepo 2018). The framework used here allows for such effects of productivity growth on the evolution of the long-run employment ratio over time.
- *Working-age population growth.* Growth of the working-age population varies widely across countries. To the extent that there frictions hinder job creation, the rate of population growth may affect the evolution of the employment ratio over time. If jobs are not created as fast as the working-age population expands, the employment ratio will fall. This motivates the inclusion of working-age population growth in the analysis.

## Correlates of employment ratios

*South Asia’s employment ratios appear to be converging toward long-run levels below EMDE averages, with weakness primarily concentrated in non-agriculture. Specifically, in India, Nepal, and Pakistan, long-run employment ratios in non-agriculture sectors are significantly lower than in the average EMDE, whereas agricultural employment ratios are broadly in line with the EMDE average and, in Nepal, above. Regression analysis suggests that this shortfall has, in part, reflected a more challenging institutional and economic environment than elsewhere, which has stunted firms’ growth.*

### Methodology and data

**Econometric approach.** To discern the relationship between job creation and its correlates, while remaining agnostic about causality, a two-step exercise is conducted. In the first step, the relationship between changes in employment ratios and the correlates are

estimated. In the second step, the correlates of estimated long-run, “steady-state” employment ratios, toward which employment ratios are converging, are estimated. The analysis is conducted separately for the employment ratio for the whole economy, women, men, agriculture, non-agriculture, and women in non-agriculture. Details of the econometric analysis can be found in annex 2.3.

**First step.** A panel regression is estimated to establish the correlates of annual changes in employment ratios. The main purpose of this analysis is to identify the country fixed effects. These provide a measure of the employment ratio that each country converges to in the long run, while controlling for labor productivity growth, working-age population growth, and common shocks that countries experience over time.<sup>9</sup> The regression results provide evidence that employment ratios in EMDEs converge toward country-specific long-run levels. The results are shown in annex tables A2.3.1–A2.3.2 and discussed in annex 2.3.

**Second step.** The country fixed effects estimated in the first step represent the portion of the change of the employment ratio that is accounted for by country characteristics that do not change over time, after controlling for fluctuations in labor productivity and working-age population growth (annex 2.4). Once divided by the coefficient estimate on the lagged employment ratio, the country fixed effects measure the deviation of the country-specific long-run steady state level from the EMDE average, after controlling for productivity and working-age population growth. In a second step, these country fixed effects are correlated in a series of cross-country regressions with features of the economic environment and policies that are associated with long-run employment ratios. Policies and the economic environment influence labor demand (for example, trade, access to finance, and policies that directly affect firms), as well as labor supply (such as education and gender-biased policies). Annex

2.5 provides details on the selection of variables and proxies. The average of each correlate over 2000–19 is used to capture the long-term average of these variables.

**Data.** The dataset includes 160 countries over 1960–2019. However, the baseline sample focuses on 103 EMDEs that are not small states for 2000–19, a period in which there is good data coverage for most EMDEs and which excludes the outlier years during the COVID-19 pandemic. Among South Asian countries, the sample excludes Bhutan and Maldives, which are small states, and Afghanistan, which lacks data.

### Long-run employment ratios in South Asia

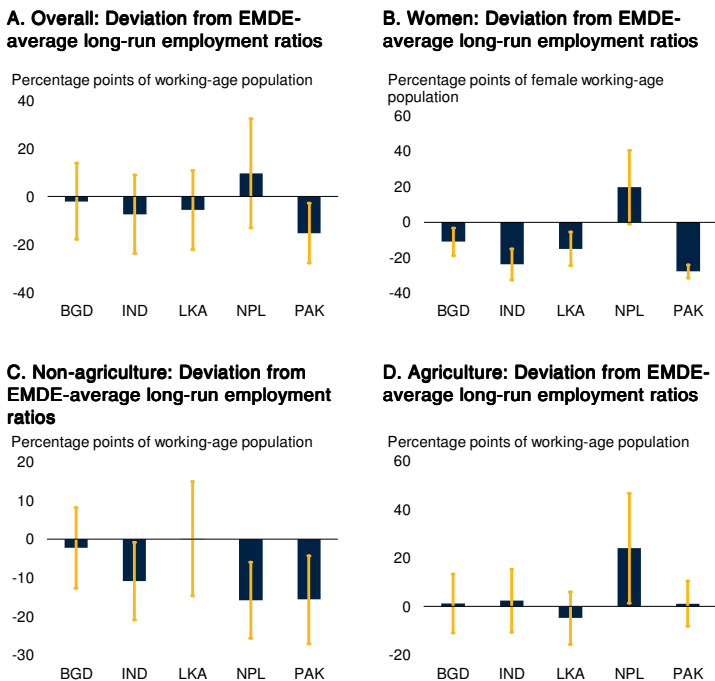
**Below-average overall and, especially, for women.** As detailed earlier, the country fixed effects from the first-step regression (appropriately scaled) capture the differences in the long-run employment ratios from EMDE averages, after controlling for labor productivity and working-age population growth. A negative country fixed effect indicates that the country is converging toward a below-average long-run employment ratio. On average, EMDEs are estimated to be converging toward a long-run employment ratio of around 69 percent, assuming that UN population projections materialize and that labor productivity growth continues at its 2015–19 average pace. Of the five South Asian countries in the baseline sample, all but Nepal are estimated to be converging toward below-average long-run total employment ratios, although the shortfall (15 percentage points) is statistically significant only for Pakistan (figure 2.10). Bangladesh, India, Pakistan, and Sri Lanka are all estimated to be converging toward long-run employment ratios for women that are significantly below those of the average EMDE, by 11–28 percentage points.

**Below-average for non-agriculture, in line with average for agriculture.** Employment weakness appears to be concentrated in the non-agriculture sector. In India, Nepal, and Pakistan, employment ratios are estimated to be converging toward steady-state levels that are well below-average in non-agriculture—by 11 percentage points in India and 16 percentage points in Nepal and Pakistan—but near-average (India, Pakistan) or well above-

<sup>9</sup> The bulk of productivity growth during 2000–22 in South Asia and other EMDEs reflected within-sector productivity growth, consistent with limited structural transformation in both groups.

## FIGURE 2.10 South Asia: Long-run employment ratios

In several South Asian countries, long-run, steady-state employment ratios are significantly below-average, especially for women and in the non-agriculture sector.



Sources: GGDC/UNU-WIDER Economic Transformation Database; International Labour Organization; Penn World Tables (database); WDI (database); World Bank.

Note: EMDEs = emerging market and developing economies; SAR = South Asia. BGD = Bangladesh; IND = India; LKA = Sri Lanka; NPL = Nepal; PAK = Pakistan. Charts are based on regressions in annex table A2.3.1. Values shown are the country fixed effects of five South Asian countries (Bangladesh, India, Nepal, Pakistan, and Sri Lanka) recovered from the regressions and scaled by the coefficient on the lagged employment ratio. These can be interpreted as the deviation of country-specific long-run employment ratios from the EMDE average. Employment ratios are defined as employment in percent of the working-age population. Bars show deviations of long-run employment ratios from EMDE average; yellow whiskers refer to 90 percent confidence interval. Regression sample includes 103 EMDEs.

average (Nepal) in the agricultural sector. This suggests that sluggish structural transformation may be at the heart of South Asia's employment weakness. In contrast, long-run employment ratios in Bangladesh and Sri Lanka are estimated to be around the EMDE average in both agriculture and non-agriculture.

### Correlates of long-run employment ratios

#### Correlates of long-run employment ratios.

Results from the second step of the analysis reveal few significant policy correlates of *economy-wide* long-run employment ratios among EMDEs but several important correlates of long-run employment ratios in *non-agriculture* (annex tables A2.5.1–A2.5.3):

- *Economy-wide employment ratios.* Burdensome tax regimes and policy uncertainty, captured by political instability or corruption, are associated with lower economy-wide long-run employment ratios.
- *Non-agricultural employment ratios.* Smaller firm size; lower trade openness and access to finance; less efficient labor, land, and product markets; and a less educated workforce are associated with lower non-agricultural employment ratios.
- *Women's employment ratios.* Fewer legal protections of women's rights are associated with lower long-run female employment ratios, without benefiting male employment ratios.

**Implications for South Asia.** All these correlates to some extent capture features of South Asian countries that can help explain some of the weakness in South Asia's employment ratios. While the econometric exercise conducted here cannot determine causality, it is suggestive of policies that could help raise employment. If the correlations were causal, several thought experiments give a sense of the orders of magnitude of policy changes that could help raise employment ratios.

#### Correlates of economy-wide long-run employment ratios

**Tax regimes.** Higher taxes have been associated with lower employment ratios. Corporate tax increases have reduced employment in U.S. counties and tax cuts have raised employment if implemented during recessions (Ljungqvist and Smolyansky 2016). Labor taxes, including payroll taxes, have been associated with slower employment growth in the European Union (Dolenc and Laporšek 2010).<sup>10</sup>

Many studies identify employment effects of tax changes on a wide range of affected groups,

<sup>10</sup> In contrast, payroll tax had no significant effect on employment, but raised wages, in Finnish regions (Korkeamäki and Uusitalo 2008).



especially in advanced economies. In France, following the introduction of a differential payroll tax regime, payroll tax increases were associated with significantly lower employment among affected workers, whereas decreases had no significant effects (Kramarz and Philippon 2001). In the United Kingdom, a tax regime that favored self-employment in the construction industry was associated with significantly higher self-employment (Briscoe, Dainty, and Millett 2000). In Switzerland, employment was higher in cantons with lower corporate and personal income taxes (Feld and Kirchgässner 2003).

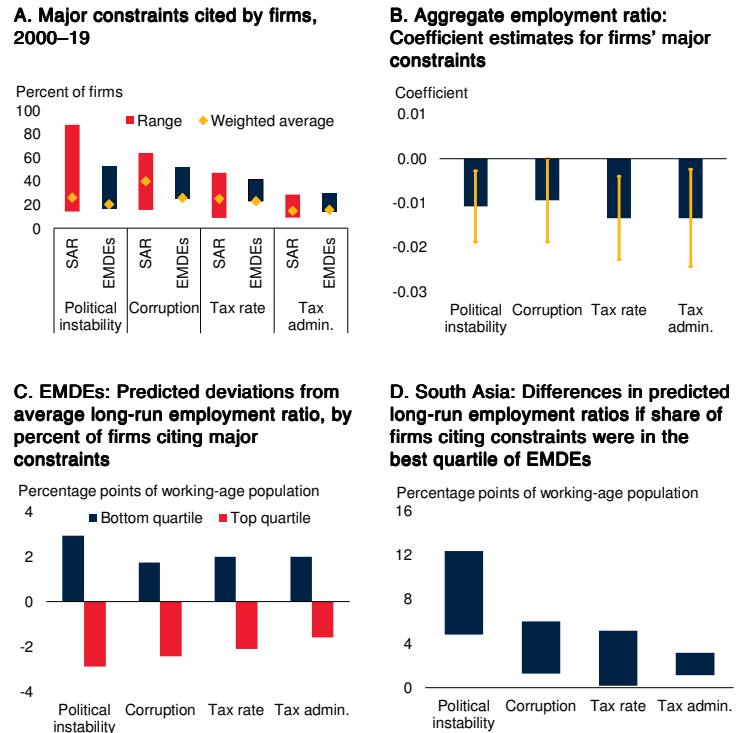
The econometric analysis conducted here supports these earlier findings. Tax-related complaints by firms, including about tax rates and tax administration, have been associated with significantly lower long-run employment ratios (figure 2.11). These constraints manifested themselves in lower economy-wide employment ratios rather than as shifts of workers from one sector to another.

**Policy uncertainty.** Political instability and corruption have been associated with weaker investment and weaker growth of firms, especially among mid-sized firms that often account for a large part of employment (Aterido, Hallward-Driemeier, and Pagés 2011; Batra and Stone 2008). In the analysis conducted here, greater constraints from political instability or corruption have been associated with significantly lower long-run employment ratios. These effects appear to have been associated less with sectoral shifts and more with economy-wide employment losses, especially among women.

South Asia scores worse than the median EMDE on the number of firms citing political instability or corruption as a major constraint on doing business. The estimates derived here suggest that economy-wide employment ratios might have been 1–13 percentage points higher in South Asian countries had the share of firms citing constraints from political instability and corruption been as low as in the quartile of EMDEs with the least corruption and political instability.

## FIGURE 2.11 Correlates of long-run employment ratios: Tax regimes and policy uncertainty

*Political instability, corruption, and burdensome tax regimes—which firms in some South Asian countries cite as major obstacles to doing business—have been associated with lower long-run employment ratios.*



Sources: GGDC/UNU-WIDER Economic Transformation Database; International Labour Organization; Penn World Tables (database); WDI (database); World Bank; World Bank Enterprise Surveys (database).

Note: EMDEs = emerging market and developing economies; SAR = South Asia. Admin. = administration. Employment ratios are defined as employment in percent of the working-age population.

A. Red bars show the range for five SAR countries (Bangladesh, India, Nepal, Pakistan, and Sri Lanka). Blue bars show the interquartile ranges for EMDEs. Yellow diamonds show employment-weighted average for each country group.

B.-D. Charts are based on the regression results from annex table A2.5.2.

B. The bars show the estimated coefficients of percent of firms citing political instability, corruption, tax rate, or tax administration as major constraints in the regression on country fixed effects of total employment ratios. Yellow whiskers refer to 95 percent confidence interval.

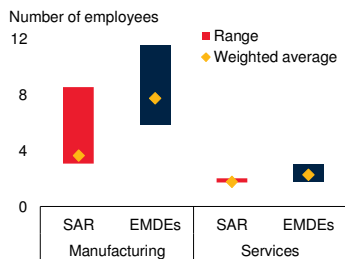
C. Bars show predicted deviations from EMDE-average long-run employment ratios, for different shares of firms citing political instability, corruption, tax rate, or tax administration as a major constraint. The thresholds for firms facing political instability as major constraint are 16.3 percent for the 25th percentile and 49.8 percent for the 75th percentile. The thresholds for firms facing corruption as major constraint are 23.8 percent for the 25th percentile and 51.6 percent for the 75th percentile. The thresholds for firms facing tax rate as major constraint are 23.1 percent for the 25th percentile and 42.1 percent for the 75th percentile. The thresholds for firms facing tax administration as a major constraint are 13.8 percent for the 25th percentile and 30.4 percent for the 75th percentile.

D. Bars show the range among South Asian countries of changes in the predicted deviations from EMDE-average long-run employment ratios, if South Asian countries had the same share of firms citing political instability, corruption, tax rate, or tax administration as a major constraint as the quartile of EMDEs with the least such constraints. Bars include South Asian countries with variable values below the best quartile of other EMDEs. Pakistan would see the smallest difference from lower political instability as a constraint on firms; Nepal the largest. Nepal would see the smallest difference from lower corruption as a constraint for firms; Pakistan the largest. India would see the smallest difference from lower constraints from tax rate; Pakistan the largest. Sri Lanka would see the smallest difference from lower constraints from tax administration; Pakistan the largest.

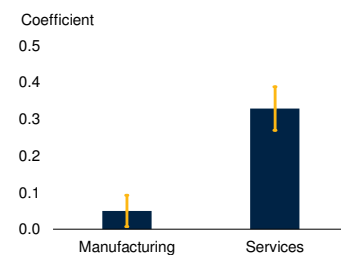
**FIGURE 2.12 Correlates of long-run employment ratios: Establishment size**

*Firms in South Asia tend to be smaller in size than elsewhere, and smaller firms have been associated with lower long-run employment ratios in the non-agriculture sector.*

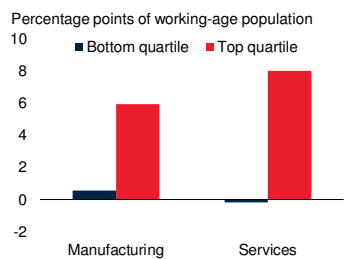
**A. Services and manufacturing establishment sizes, 2002–12**



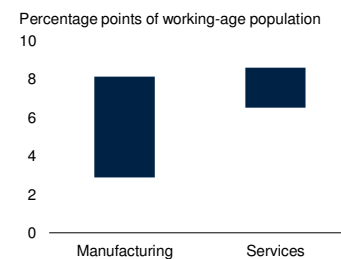
**B. Non-agricultural employment ratio: Coefficient estimates for manufacturing and services establishment sizes**



**C. EMDEs: Predicted deviations from average long-run non-agricultural employment ratios, by establishment size**



**D. South Asia: Differences in predicted long-run non-agricultural employment ratio if indicator was in the top EMDE quartile**



Sources: Bento and Restuccia (2021); GGDC/UNU-WIDER Economic Transformation Database; International Labour Organization; Penn World Tables (database); WDI (database); World Bank.

Note: EMDEs = emerging market and developing market countries; SAR = South Asia. Non-agricultural employment ratios are defined as non-agricultural employment in percent of the total working-age population.

A. Red bars show the range for manufacturing establishment size in four South Asian countries—India, Bangladesh, Nepal, Sri Lanka—and for services in India, Bangladesh, and Sri Lanka. Blue bars show interquartile ranges for EMDEs. Yellow diamonds show employment-weighted average for each country group.

B.-D. Charts are based on the regression results of annex table A2.5.2.

B. The bars show the estimated coefficients of manufacturing and services establishment sizes for country fixed effects of non-agriculture employment ratios. Yellow whiskers refer to a 95 percent confidence interval.

C. Bars show the predicted deviations from EMDE-average long-run employment ratios in non-agriculture, at the bottom and top EMDE quartiles of manufacturing or services establishment size. The thresholds for manufacturing establishment size are 5.9 employees for the 25th percentile and 11.5 employees for the 75th percentile. The thresholds for services establishment size are 1.8 employees for the 25th percentile and 3.0 employees for the 75th percentile.

D. Bars show the range among South Asian countries of the changes in the predicted deviations from EMDE-average long-run non-agricultural employment ratios, if South Asian countries had the same manufacturing or services establishment size as the quartile of EMDE with the largest firms. For manufacturing, Sri Lanka would see the smallest difference; India the largest. For services, Bangladesh would see the smallest difference; India the largest.

*Correlates of sector-specific long-run employment ratios*

**Establishment size: Channels of impact.** Many factors hold back firms' growth. Tax and regulatory policies are often size-dependent—that is, they affect larger firms more than smaller ones. Inefficient input markets, such as for land, capital,

and labor, or uneven playing fields in product markets prevent firms from growing and slow firm entry. The heavier regulatory burden on larger firms can discourage firms' growth and promotes informal sector activity. Informal firms, which tend to be smaller, also tend to grow more slowly and this holds back aggregate employment and productivity growth (Ohnsorge and Yu 2022). Indeed, greater policy distortions have been associated with smaller firm size which, in turn, has been associated with slower aggregate employment growth (Bento and Restuccia 2021; Restuccia and Rogerson 2017). In cross-country studies, smaller establishment sizes have been associated with institutional features that discourage productive firms from hiring labor (Bento and Restuccia 2021; Hsieh and Klenow 2014).

**Establishment size: Empirical estimates.** Larger establishment sizes in non-agricultural sectors have been associated with significantly higher long-run non-agricultural employment ratios. This has been especially true in the services sector (figure 2.12). The average establishment size across the South Asian countries for which data are available is either in the bottom quartile of EMDEs (for services) or near the bottom quartile (for manufacturing). The econometric estimates suggest that, had establishment size been as large in the South Asian countries as in the top EMDE quartile, long-run employment ratios might have been 3–9 percentage points higher in non-agriculture.

**International trade: Channels of impact.** Empirically, greater openness to international trade and related trade reforms have been shown to displace workers in the most directly affected firms, sectors, or regions. The impact on economy-wide employment, however, can be positive or negative, depending on country characteristics and circumstances.<sup>11</sup>

<sup>11</sup> In principle, trade could affect aggregate employment positively or negatively through two channels. First a reallocation of labor toward industries with comparative advantage could increase or lower aggregate employment depending on the labor-intensity of the growing and contracting industries. Second, greater competitive pressures from international markets and greater technology spillovers from abroad could foster productivity growth in a way that either displaces workers or generates new jobs (Lall 2002).

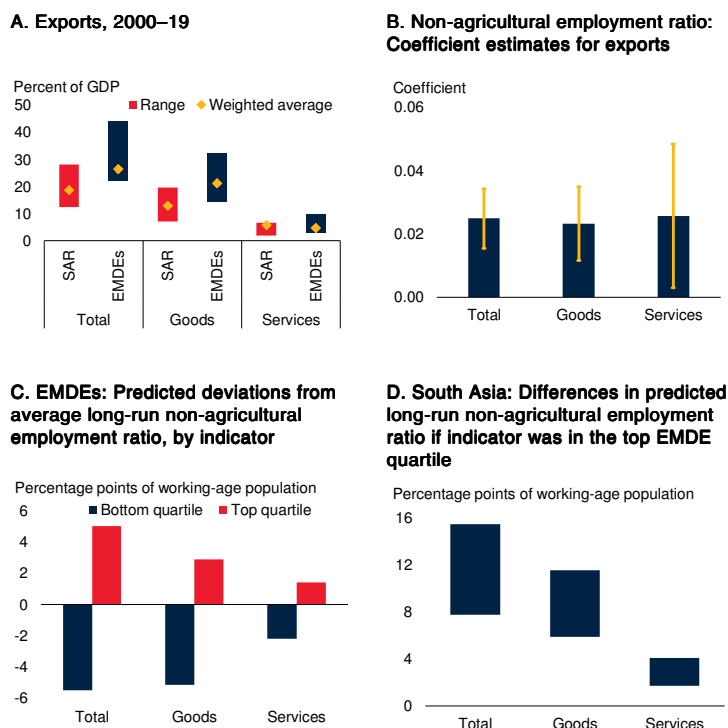
There have been many empirical findings of localized employment losses resulting from trade. Increased imports from China have been associated with employment losses in the United States (Autor, Dorn, and Hanson 2013a, 2013b, 2016). Increased outsourcing of business services has also been associated with localized, but not necessarily aggregate, employment losses in the United States (Amiti and Wei 2005; Ebenstein et al. 2014). Larger numbers of applicants for trade adjustment assistance from the federal government have been associated with larger local employment losses in the United States (Kondo 2018). Tariff cuts and trade liberalization have been associated with employment losses in the most affected regions of Brazil, with displaced workers moving into informal employment (Dix-Carneiro and Kovak 2017, 2019).<sup>12</sup> Trade liberalization in India has been associated with more job-rich growth in regions and industries with less restrictive labor regulations (Hasan, Mitra, and Ramaswamy 2007).

The evidence is mixed on whether increased openness to trade raised or lowered economy-wide employment. Trade reforms in Latin America in the 1980s and 1990s were followed by a period of slow employment growth, but this has been attributed to weak output growth rather than the trade reforms (Stallings and Peres 2000). Trade liberalization in East Asian EMDEs has been associated with increased employment, in part because of rapid growth in manufacturing (Ghose 2000). In a large sample of countries for 1991–2007, increased trade openness has been associated with higher employment ratios (Kamar, Bakardzhieva, and Goaid 2019).

**Trade: Empirical estimates.** The econometric analysis conducted here suggests that increased exports (as a percent of GDP) are associated with significantly higher long-run employment ratios in non-agriculture (figure 2.13). These differences are not only statistically significant but also economically meaningful—especially considering that each 1-percentage-point change in the

## FIGURE 2.13 Correlates of long-run employment ratios: Trade openness

*Lack of trade openness, which is common in South Asia, has been associated with lower long-run non-agricultural employment ratios.*



Sources: GGDC/UNU-WIDER Economic Transformation Database; International Labour Organization; Penn World Tables (database); WDI (database); World Bank.

Note: EMDEs = emerging market and developing economies; SAR = South Asia. Non-agricultural employment ratios are defined as non-agricultural employment in percent of the total working-age population.

A. Red bars show the range for five SAR countries (Bangladesh, India, Nepal, Pakistan, and Sri Lanka). Blue bars show the interquartile ranges for EMDEs. Yellow diamonds show employment-weighted average for each country group.

B.-D. Charts are based on the regression results of annex table A2.5.1.

B. The bars show the estimated coefficients of the export-to-GDP ratio for country fixed effects of non-agriculture employment ratios. Yellow whiskers refer to 95 percent confidence interval.

C. Bars show the predicted deviations from EMDE-average long-run employment ratios in non-agriculture, at the bottom and top EMDE quartiles of the export-to-GDP ratio. The thresholds for total export-to-GDP ratio are 22 percent of GDP for the 25th percentile and 44 percent of GDP for the 75th percentile. The thresholds for goods export-to-GDP ratio are 14 percent of GDP for the 25th percentile and 32 percent of GDP for the 75th percentile. The thresholds for services export-to-GDP ratio are 2.8 percent of GDP for the 25th percentile and 10 percent of GDP for the 75th percentile.

D. Bars show the range among South Asian countries of changes in the predicted deviations from EMDE-average long-run non-agricultural employment ratios, if their export-to-GDP ratios were as high as in the most open quartile of EMDEs. For total exports, Sri Lanka would see the smallest difference; Pakistan the largest. For the goods exports, Sri Lanka would see the smallest difference; Nepal the largest. For the services exports, Sri Lanka would see the smallest difference; Bangladesh the largest.

employment ratio in South Asia is equivalent to about 12 million people. EMDEs in the bottom quartile of export-to-GDP ratios, which include four South Asian countries, have on average lower long-run non-agricultural employment ratios than those in the top quartile, by 11 percentage points.

The average South Asian country is more closed to trade than the average EMDE. South Asia's export share of GDP is about half that in the average

<sup>12</sup> In contrast, trade reform in Colombia and Mexico does not seem to have led to significant employment losses among the most affected industries (Feliciano 2001; Goldberg and Pavcnik 2005).

EMDE outside South Asia. Export-to-GDP ratios in three South Asian countries (Bangladesh, Nepal, and Pakistan) rank in the bottom quartile of EMDEs. The econometric estimates suggest that long-run employment ratios might have been 2–16 percentage points higher in non-agriculture, if South Asian countries matched the export-to-GDP ratio of the top EMDE quartile.

**Finance for investment and technologies: Channels of impact.**

Greater access to finance can stimulate investment, which in turn can lead to productivity growth, firms' expansion, and employment growth. Investment, especially infrastructure investment, has often been associated with employment growth. Beyond its short-term, direct effects on construction employment, infrastructure investment can raise employment over the long term (Lakshmanan 2007, 2011).<sup>13</sup> These growth-accelerating processes favor job creation.

- *Road* transportation infrastructure investment has been associated with local employment gains, including the construction of interstate highways in the United States (Jiwattanakupaisarn et al. 2009; Sobieralski 2021) and municipal and national roads in Portugal (Pereira, Pereira, and Rodrigues 2021). However, highway infrastructure investment has also been associated with employment losses around existing transport networks (Jiwattanakupaisarn et al. 2009).
- Results for *airport* infrastructure investment are more mixed, with uncertain and mixed employment gains found for regional airports in the United States (Bilotkach 2015; Cidell 2015) and Norway (Tveter 2017), but significant gains found for Italy (Percoco 2010) and Portugal (Pereira, Pereira, and Rodrigues 2021).

- *Rail* infrastructure investment has been associated with job creation. High-speed rail lines were accompanied by greater employment in Spain (Carbo et al. 2019; Pereira, Pereira, and Rodrigues 2021) and China (Cheng, Loo, and Vickerman 2015). Public transit in the United States was accompanied by greater hiring in general or of minority workers (Holzer, Quigley, and Raphael 2003; Tyndall 2017).

A boost to public, private or foreign direct investment could also unlock the technological progress and productivity gains needed to fuel aggregate demand and create jobs. Similar to trade openness or liberalization, technological change has been associated with localized employment losses, yet it had mixed aggregate effects and effects in EMDEs.

Automation or robotization provides an example. In the United States, increased use of robots has been accompanied by employment declines in specific commuting zones and industries, but aggregate effects have been found to be mixed (Acemoglu and Restrepo 2018, 2020; Autor and Salomons 2018). A classification of the occupations at risk from new technologies yielded net employment gains in the United States (Vermeulen et al. 2018). The introduction of robots has not been associated with aggregate changes in hours worked in a broader group of countries in the Organisation for Economic Co-operation and Development, or with net employment losses in Germany (Dauth et al. 2017; Graetz and Michaels 2018). Few studies have examined the employment impact of new technologies in EMDEs, but those that have found either net employment losses (Carbonero, Ernst, and Weber 2020) or no strong evidence of employment changes (Maloney and Molina 2016).

**Finance: Empirical estimates.** Better access to finance—as proxied by the number of commercial bank branches per capita, the proportion of firms' working capital that is financed by banks, or the percent of firms citing access to finance as a major constraint—is associated with a significantly higher long-run employment ratio in non-agriculture (figure 2.14).

<sup>13</sup> Short-term direct employment effects of infrastructure construction have been extensively explored in the context of highway construction in the U.S. fiscal stimulus program of 2009. In reviews of research on the topic, Ercolani (2021) and Ramey (2020) conclude that these effects are mixed and highly uncertainty.

Compared with EMDEs in the bottom quartile by number of commercial bank branches per capita, those in the top quartile have on average 5 percentage points higher long-run employment ratios in non-agriculture. Compared with EMDEs in the top quartile by the percent of firms reporting major constraints in access to finance, those in the bottom quartile have on average 10 percentage points higher long-run employment ratios in non-agriculture.

Among South Asian countries, Bangladesh, Nepal, and Pakistan had about the same number of commercial bank branches per capita as the EMDE median. If, instead, these three South Asian countries had matched the top EMDE quartile, long-run employment ratios in non-agriculture might have been 0.5–4 percentage points higher.

### Land constraints: Channels of impact.

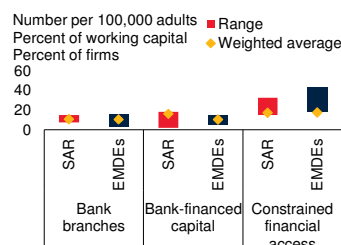
Inefficient input markets, such as for land, may also constrain firms' growth. Most research on land reforms has focused on the agricultural sector, where land redistribution, tenancy reforms, and consolidation have been shown to improve agricultural productivity, at least in some instances as seen in India (Banerjee, Gertler, and Ghatak 2002; Besley and Burgess 2000) and Ethiopia (Chen, Restuccia, and Santaella-Llopis 2022). But the impact of higher agricultural productivity on economy-wide employment is ambiguous. Although increased agricultural productivity may reduce the need for agricultural employment, it may also expand opportunities in other sectors (such as food processing and transportation) and free up labor to work elsewhere (Deininger et al. 2014 for China; Do and Iyer 2008 for Vietnam). What happens to economy-wide employment ratios in the short term depends on how quickly demand and supply adjust in other sectors.

Rapid urbanization can be part of the process of structural transformation from agriculture to manufacturing and services. There is evidence that urbanization results in income and productivity gains, but employment gains are often modest and occur, at least initially, in the informal sector (Turok and McGranham 2013). That said, agglomeration benefits such as economies of scale

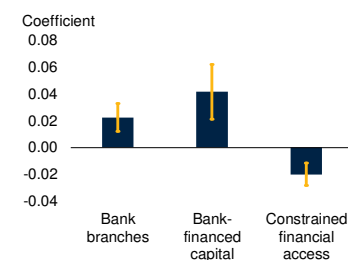
## FIGURE 2.14 Correlates of long-run employment ratios: Access to finance

*Lower long-run non-agricultural employment ratios have been associated with a lack of commercial bank branches, a smaller proportion of working capital financed by banks, and more widespread constraints on access to finance among firms. If South Asia's indicators had been similar to those in the best quartile of EMDEs, long-run employment ratios in non-agriculture sectors would have been higher.*

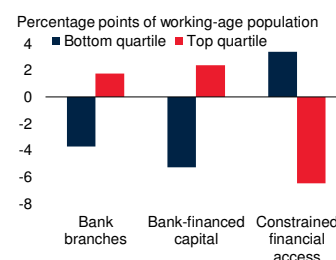
### A. Access to finance, 2000–19



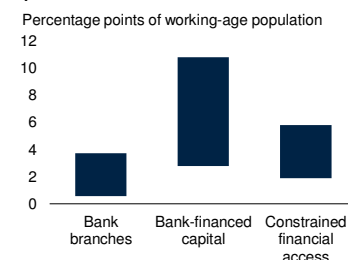
### B. Non-agricultural employment ratio: Coefficient estimates for access to finance



### C. EMDEs: Predicted deviations from average long-run non-agricultural employment ratio, by indicator



### D. South Asia: Differences in predicted long-run non-agricultural employment ratio if indicator was in the top EMDE quartile



Sources: GGDC/UNU-WIDER Economic Transformation Database; International Monetary Fund Financial Access Survey (database); International Labour Organization; Penn World Tables (database); WDI (database); World Bank; World Bank Enterprise Survey (database).

Note: EMDEs = emerging market and developing economies; SAR = South Asia. Non-agricultural employment ratios are defined as non-agricultural employment in percent of the total working-age population. Bank branches refers to number of commercial bank branches per 100,000 adults. Bank-financed capital refers to share of firms' working capital financed by banks, or share of firms citing access to finance as a major constraint. Constrained financial access refers to share of firms citing access to finance as a major constraint.

A. Red bars show the range for five SAR countries—Bangladesh, India, Nepal, Pakistan, and Sri Lanka. Blue bars show the interquartile ranges for EMDEs. Yellow diamonds show employment-weighted average for each country group.

B.-D. Charts are based on the regression results of annex table A2.5.1.

B. Bars show the estimated coefficients of the number of commercial bank branches per 100,000 adults, proportion of firms' working capital that is financed by banks, and the proportion of firms citing access to finance as a major constraint, for country fixed effects of total and non-agricultural employment ratios. Yellow whiskers refer to 95 percent confidence intervals.

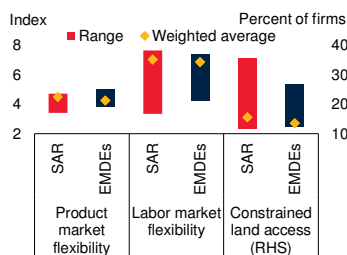
C. Bars show predicted deviations from EMDE-average long-run employment ratios in non-agriculture, at the bottom and top EMDE quartiles of number of commercial bank branches per 100,000 adults, share of firms' working capital financed by banks, or share of firms citing access to finance as a major constraint. Thresholds for number of commercial bank branches per 100,000 adults are 3.6 branches for the 25th percentile and 16 branches for the 75th percentile. Thresholds for the proportion of firms' working capital that is financed by banks are 5.9 percent for the 25th percentile and 15 percent for the 75th percentile. Thresholds for percent of firms citing access to finance as a major constraint are 18 percent for the 25th percentile and 43 percent for the 75th percentile.

D. Bars show range among South Asian countries of changes in the predicted deviations from EMDE-average long-run non-agricultural employment ratios, if their number of commercial bank branches per 100,000 adults, the share of firms' working capital that is financed by banks, or share of firms citing access to finance as a major constraint had been as high as the quartile of EMDEs with the highest access to finance. Bars include South Asian countries with variable values below the top quartile of other EMDEs. For the number of commercial bank branches per capita, Sri Lanka would see the smallest difference; Nepal the largest. For the share of firms' working capital that is financed by banks, Nepal would see the smallest difference; Pakistan the largest. For the share of firms citing access to finance as a major constraint, Nepal would see the smallest difference; Bangladesh the largest.

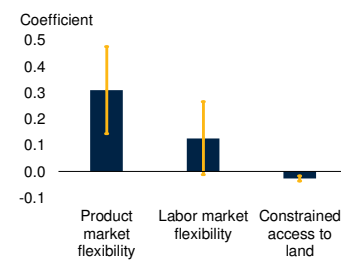
## FIGURE 2.15 Correlates of long-run employment ratios: Product, labor, and land markets

*Less flexible product and labor market regulations, as well as greater obstacles in land markets, have been associated with significantly lower long-run employment ratios in non-agricultural sectors.*

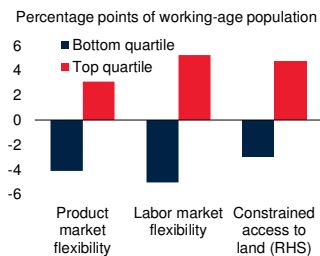
### A. Flexibility of product and labor market regulations, and complaints about land access, 2000–19



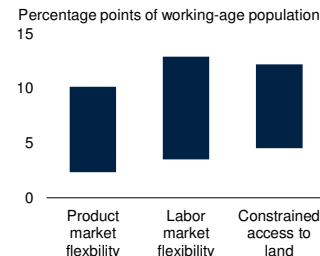
### B. Non-agricultural employment ratio: Coefficient estimates for product and labor market flexibility and constrained access to land



### C. EMDEs: Predicted deviations from average long-run non-agricultural employment ratio, by indicator



### D. South Asia: Differences in predicted long-run non-agricultural employment ratio if indicator was in the top EMDE quartile



*Sources:* Fraser Institute Economic Freedom of the World (database); GGDC/UNU-WIDER Economic Transformation Database; International Labour Organization; Penn World Tables (database); WDI (database); World Bank; World Bank Enterprise Surveys (database).

*Note:* EMDEs = emerging market and developing economies; SAR = South Asia. Non-agricultural employment ratios are defined as non-agricultural employment in percent of the total working-age population.

A. Red bars show the range for five South Asian countries—Bangladesh, India, Nepal, Pakistan, and Sri Lanka. Blue bars show the interquartile ranges for EMDEs. Yellow diamonds show employment-weighted average for each country group. Product and labor market regulations are each scored between 0 and 10 at source, with a higher score indicating more flexible regulations.

B.-D. Charts are based on the regression results of annex table A2.5.2.

B. The bars show the estimated coefficients of the product market regulation score, labor regulation and minimum wage score, and the percent of firms citing access to land as a major constraint for country fixed effects of non-agriculture employment ratios. Yellow whiskers refer to 95 percent confidence interval.

C. Bars show the predicted deviations from EMDE-average long-run employment ratios in non-agriculture, by different levels of product market regulation score, labor regulation and minimum wage score, or constraint on access to land. The thresholds for product market regulation score are 3.9 index points for the 25th percentile and 5.1 index points for the 75th percentile. The thresholds for labor market regulation score are 4.1 index points for the 25th percentile and 7.3 index points for the 75th percentile. The thresholds for constraint from access to land are 12.4 percent of firms for the 25th percentile and 26.9 percent of firms for the 75th percentile.

D. Bars show the range among South Asian countries of changes in the predicted deviations from EMDE-average long-run non-agricultural employment ratios, if South Asian countries had the same product or labor market regulation score, or percent of firms facing land access constraint as the quartile of EMDEs with the least restrictions. Bars include South Asian countries with variable values below the top quartile of other EMDEs. India would see the smallest difference from a higher product market score; Bangladesh the largest. Bangladesh would see the smallest difference from a higher labor market score; Nepal the largest. Pakistan would see the smallest difference from lower constraints on access to land; Bangladesh the largest.

and lower transaction costs in urban centers can reduce the length of unemployment spells and facilitate quick reentry into employment (Annez and Buckley 2009).

**Land constraints: Empirical estimates.** The long-run non-agricultural employment ratio has been significantly lower in countries where a larger share of firms report major constraints in accessing land (figure 2.15). Compared with the quartile of EMDEs in which firms most often cited access to land as a constraint to doing business, the average EMDE in the quartile with the least firms' complaints had almost 8 percentage points higher long-run employment ratios in non-agricultural sectors.

South Asia scores close to the EMDE median on the number of firms citing access to land as a major constraint. If the share of firms citing land access as a constraint had been as low as that in the least constrained quartile of EMDEs, then South Asian countries might each have had 4–12 percentage points higher long-run employment ratios in non-agriculture.

**Product and labor market flexibility: Channels of impact.** Labor laws allowing firms more flexibility can boost employment, especially in the formal sector. A review of the literature has documented the adverse effects of restrictive labor laws on employment (Betcherman 2015). Most (but not all) studies find that minimum wage legislation in EMDEs has been associated with modest but significant employment losses, especially in the formal sector and among low-wage workers. Studies on the employment impact of employment protection legislation typically find no significant impact. Active labor market programs—which seek to encourage hiring through job training, wage subsidies, and job search assistance—have not been shown to have any significant employment effects in EMDEs (McKenzie 2017).

For India, two labor-related policies have been most studied. First, the Industrial Disputes Act (IDA) provides employment protection to workers. The law has been found to increase labor market rigidity (Datta-Chaudhuri 1996); reduce employment and output, and increase temporary

or contract labor (Besley and Burgess 2004; Dutta 2003; Hasan, Mehta, and Sundaram 2021; Ramaswamy 2003); and dampen the employment benefits of trade liberalization (Hasan, Mitra, and Ramaswamy 2007). Second, the National Rural Employment Guarantee Act (NREGA) program, the largest public works program in the world, provides guaranteed employment to rural workers at the state-defined minimum wage. The program has been found to crowd out private sector work, increase private sector wages (Bahal 2022; Berg et al. 2018; Imbert and Papp 2015), and increase output, although unevenly across districts (Cook and Shah 2022). However, with regard to overall effects, Muralidharan, Niehaus, and Sukhtankar (2023) find that the program raised private employment, increased workers' reservation wages (the lowest wage that a worker will accept for a job), and boosted local demand.

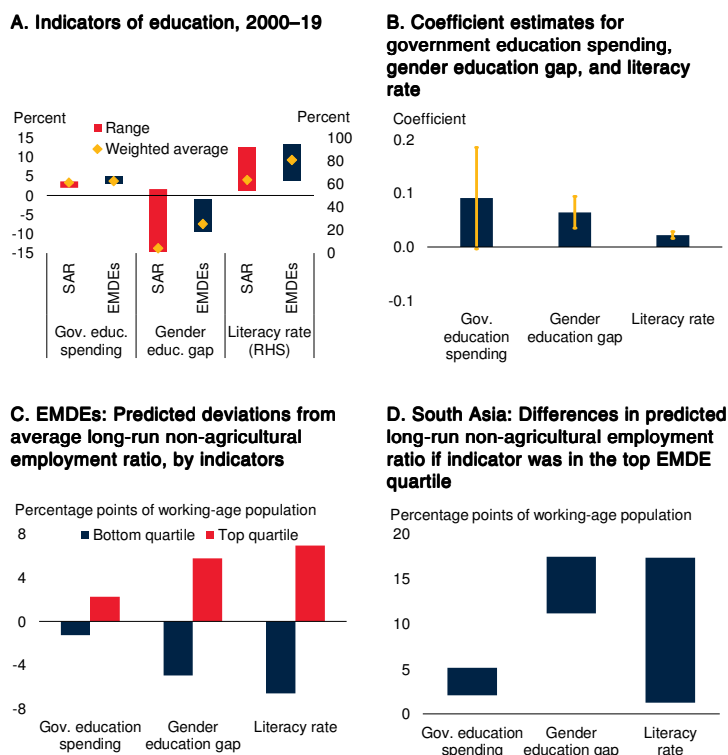
**Product and labor market flexibility: Empirical estimates.** For the two indices used in the empirical analysis—for product market regulation and labor regulation and minimum wage—a higher score indicates greater flexibility and has been associated statistically significantly with higher non-agricultural employment ratios among EMDEs.

On average, South Asia has less flexible product markets than the median EMDE, whereas its labor market flexibility is close to the median EMDE. The empirical results suggest that, had South Asian countries had the product or labor market regulations of the most flexible quartile of EMDEs, long-run employment ratios might have been up to 13 percentage points higher in non-agriculture sectors.

**Human capital.** A workforce that has inadequate education, training and/or health care (hence, weak human capital) makes sectoral shifts more difficult. In the regression analysis conducted here, higher literacy rates, higher government spending on education as a percent of GDP, and more gender-equal education outcomes have been associated with higher long-run employment ratios in non-agriculture sectors, although typically with no differences in economy-wide employment ratios (figure 2.16).

## FIGURE 2.16 Correlates of long-run employment ratios: Education

*Lower literacy rates, less education spending, and less gender-equal education outcomes have been associated with significantly lower long-run employment ratios in non-agriculture sectors.*



Sources: GGDC/UNU-WIDER Economic Transformation Database; International Labour Organization; Penn World Tables (database); WDI (database); World Bank.

Note: EMDE = emerging market and developing economies; SAR = South Asia. Gov. = government; Educ. = education. Non-agricultural employment ratios are defined as non-agricultural employment in percent of the total working-age population. Government education spending refers to government education spending. Gender education gap refers to the difference between female and male secondary education completion rate (in percent of gender group population 25 and above), with a negative value indicating lower female education outcomes than male. Literacy rate refers to the percent of the population aged 15 and above that can read and write.

A. Red bars show the range for five South Asia countries (Bangladesh, India, Nepal, Pakistan, and Sri Lanka). Blue bars show the interquartile ranges for EMDEs. Yellow diamonds show employment-weighted average for each country group. Government education spending is in percent of GDP.

B.-D. Charts are based on the regression results of annex table A2.5.3. B. The bars show the estimated coefficients of government education spending, gender education gap, and literacy rate for country fixed effects of non-agriculture employment ratios. Yellow whiskers refer to 95 percent confidence interval.

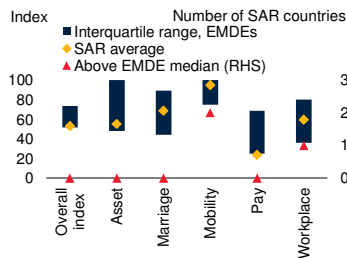
C. Bars show the predicted deviations from EMDE-average long-run employment ratios in non-agriculture, by quartile of government education spending, gender education gap, and literacy rate. The thresholds for literacy rate are 63 percent for the 25th percentile and 94 percent for the 75th percentile. The thresholds for government education spending are 2.9 percent of GDP for the 25th percentile and 4.9 percent of GDP for the 75th percentile. The thresholds for gender education gap are -9.4 percentage point for the 25th percentile and -0.9 percentage points for the 75th percentile. The thresholds for literacy rate are 63 percent of the population aged 15 and above for the 25th percentile and 94 percent for the 75th percentile.

D. Bars show the range among South Asian countries of changes in the predicted deviations from EMDE-average long-run non-agricultural employment ratios, if South Asian countries had the same government education spending, gender education gap, or literacy rate as the quartile of EMDEs with the highest education indicators. Bars include South Asian countries with variable values below the top quartile of other EMDEs. India would see the smallest difference from higher government education spending; Bangladesh the largest. Bangladesh would see the smallest difference from narrower gender education gaps; India the largest. Sri Lanka would see the smallest difference from higher literacy rates; Nepal the largest.

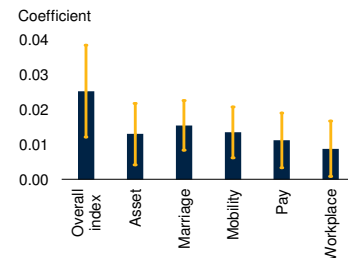
## FIGURE 2.17 Correlates of women's long-run employment ratios

Lack of legal protection of women's rights has been associated with lower long-run employment ratios for women.

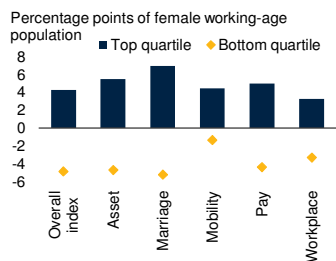
### A. Legal protection of women's rights, 2000–19



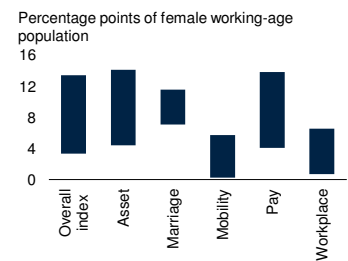
### B. Coefficient estimates for legal protection of women's rights



### C. EMDEs: Predicted deviations from average long-run women's employment ratio, by indicator



### D. South Asia: Differences in predicted long-run women's employment ratio if indicator was in the top EMDE quartile



Sources: GGDC/UNU-WIDER Economic Transformation Database; International Labour Organization; Penn World Tables (database); WDI (database); World Bank; World Bank Women, Business and the Law (database).

Note: EMDEs = emerging market and developing economies; SAR = South Asia. Women's employment ratios are defined as women's employment in percent of the female working-age population.

A. SAR average is unweighted average of Bangladesh, India, Nepal, Pakistan, and Sri Lanka. The scores range between 0 and 100. A higher score indicates fewer legal restrictions on women's economic and social activity. The red triangle marks the number of South Asian countries with scores above EMDE median.

B.-D. Charts are based on the regression results of annex table A2.5.3.

B. Bars show the estimated coefficients of the WBL scores on country fixed effects of female employment ratio. Yellow whiskers refer to 95 percent confidence interval.

C. The bars and diamonds show the predicted deviations from EMDE-average long-run employment ratios for women, by different levels of Women, Business and the Law scores in: overall, asset, marriage, mobility, pay, and workplace scores. The thresholds for the overall score are 52 for the 25th percentile and 74 for the 75th percentile. The thresholds for the asset score are 54 for the 25th percentile and 100 for the 75th percentile. The thresholds for the marriage score are 44 for the 25th percentile and 90 for the 75th percentile. The thresholds for the mobility score are 75 for the 25th percentile and 100 for the 75th percentile. The thresholds for the pay score are 25 for the 25th percentile and 74 for the 75th percentile. The thresholds for the workplace score are 36 for the 25th percentile and 80 for the 75th percentile.

D. Bars show the range among South Asian countries of changes in the predicted deviations from EMDE-average long-run women's non-agricultural employment ratios, assuming South Asian countries had the same WBL index overall, asset, marriage, mobility, pay, or workplace scores as the quartile of EMDE with the highest scores. Bars include South Asian countries with variable values below the top quartile of other EMDEs. India would see the smallest difference from higher overall scores; Pakistan the largest. India would see the smallest difference from higher asset scores; Nepal the largest. Nepal would see the smallest difference from higher marriage scores; Pakistan the largest. Nepal would see the smallest difference from higher mobility scores; Pakistan the largest. Nepal would see the smallest difference from higher pay scores; India the largest. Sri Lanka would see the smallest difference from higher workplace scores; Nepal the largest.

South Asia ranks near the bottom EMDE quartile on most of these indicators of human capital. Had South Asian countries achieved the literacy rate of the most literate quartile of EMDEs, or a gender education gap on a par with the most gender-equal quartile of EMDEs, then non-agricultural employment ratios might have been higher by up to 18 percentage points.

**Gender-related laws.** Laws that promote gender equality (in the workplace, in pay, and in marriage) can increase women's labor supply, while laws that protect women's mobility have been shown to increase women's willingness to travel for better work opportunities (Braunmiller et al. 2023a, 2023b; Roy 2019). Such laws are proxied using various indices from the World Bank's *Women, Business and the Law* surveys (Hyland, Djankov, and Goldberg 2020).

In the econometric analysis, stronger and more comprehensive legal protection of women's rights (such as to own assets, work or receive equal pay) has been associated with higher long-run employment ratios for women, without affecting long-run employment ratios for men or economy-wide (figure 2.17). The protection of women's rights for entrepreneurial activities has been associated with higher long-run employment ratios economy-wide, as well as in non-agriculture, in line with findings by Chiplunkar and Goldberg (2023). On average, EMDEs in the top quartile in terms of legal protection of women's rights had 6–12 percentage points higher long-run employment ratios for women than those in the bottom quartile.

South Asian countries scored poorly on several dimension of gender equality: Bangladesh, India, Pakistan, and Sri Lanka fell into the bottom quartile of EMDEs in terms of laws that promote women's equal pay; Bangladesh, Nepal, and Pakistan fell in the bottom quartile for equal asset ownership; and the rest mostly fell short of the EMDE median. Had these countries had more strongly and more comprehensively protected women's rights—on a par with the quartile of EMDEs with the strongest legal protections—their long-run employment ratios for women might have been 1–14 percentage points higher.



**Women in the non-agriculture sector: Doubly held back.** Women's labor force participation follows a U-shaped curve relative to the level of development (figure 2.18; Bussolo et al. 2024; Goldin 1995). At low and high per capita incomes, larger shares of women participate in labor markets than at moderate per capita incomes. This has been attributed to the gradual labor market exit of women from agriculture, where most of them tend to be employed in low-productivity tasks at early stages of development. For women in non-agriculture, which accounts for the majority of women's employment at higher levels of income, the relationship to development is linear.

The regression analysis suggests that women's employment in non-agriculture is doubly held back both by a challenging economic and institutional environment and by gender-unequal laws. Similar to non-agricultural employment overall, women's employment ratio in non-agriculture sectors is held back by poorly functioning product, labor, land and financial markets; small firm sizes; burdensome tax regimes and policy uncertainty; lack of trade openness and access to finance; and lack of human capital. In addition, similar to women in all sectors, their employment ratios in the non-agriculture sector are depressed by unequal gender-related laws.

## Policy options to boost employment

*Vibrant, competitive firms are the key to unlocking employment growth. Policies to stimulate firms' growth include increasing trade openness and access to finance; reducing such obstacles to firm operations as corruption, political instability, and difficult access to land; streamlining product and labor market regulations; improving human capital; and removing restrictions on women's economic activity. Most of these measures would also lift productivity growth and could lay the ground for a virtuous circle of faster and more inclusive per capita income growth.*

**The policy challenge for South Asia.** South Asia is the only EMDE region in which employment ratios fell for men during 2000–23. At the heart of this employment weakness lies a non-agriculture

## FIGURE 2.18 Women's employment in non-agriculture

*Women's non-agricultural employment ratio have tended to rise with per capita incomes, unlike the economy-wide employment ratio which typically exhibits a U-shaped relationship. Several factors have tended to hold back women's non-agricultural employment ratio.*



Sources: Bento and Restuccia (2021); Fraser Institute Economic Freedom of the World (database); GGDC/UNU-WIDER Economic Transformation Database; International Labour Organization; Penn World Tables (database); WDI (database); World Bank; World Bank Enterprise Surveys (database).

Note: Manu. = manufacturing. Serv. = services. Prod. = product. Fin. = finance. Size = establishment size. Women's (non-agricultural) employment ratios are defined as women's (non-agricultural) employment in percent of the female working-age population.

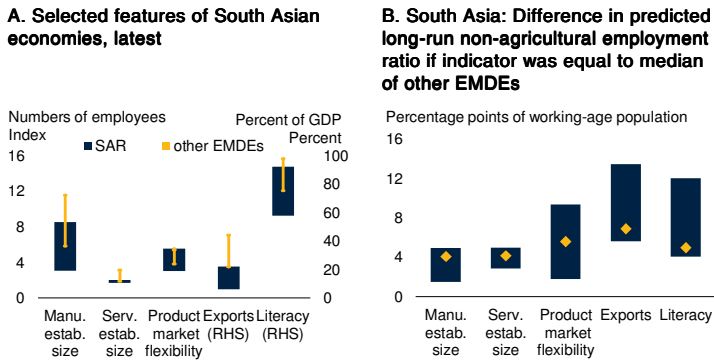
A.-C. Charts plot the relationship between a country's long-run women's non-agricultural, agricultural, and total employment ratio and log GDP per capita. Long-run women's employment ratios come from first-stage regressions of annex table A2.3.1 and include 103 countries including five South Asian countries (Bangladesh, India, Nepal, Pakistan, and Sri Lanka). Yellow lines are polynomial fitted lines. D. Chart is based on the regression results of annex tables A2.5.1–A2.5.2.

sector that is converging to long-run employment ratios well below the EMDE average. The regression analysis suggests that this has, in part, reflected a more challenging institutional and economic environment than elsewhere, and also suggests specific policy steps that could be taken to meaningfully support employment over the longer term.

**Policy priorities: Country-specific.** Specific policy priorities will depend on country characteristics and circumstances. Three areas appear particularly promising for policy action across South Asia. Most South Asian countries rank in the bottom quartile of other EMDEs by their firm size (especially in services), by their

## FIGURE 2.19 Policy priorities for South Asia

If South Asia had larger firms, more flexible product market regulations, greater trade openness and better educational outcomes, its long-run employment ratios might have been substantially higher.



Sources: Bento and Restuccia (2021); Fraser Institute Economic Freedom of the World (database); GGDC/UNU-WIDER Economic Transformation Database; International Labour Organization; Penn World Tables (database); WDI (database); World Bank.

Note: EMDEs = emerging market and developing economies; SAR = South Asia. Manu. = manufacturing. Serv. = services. Estab. = establishment. Non-agricultural employment ratios are defined as non-agricultural employment in percent of the total working-age population.

A. Bars show range for Bangladesh, India, Nepal, Pakistan, and Sri Lanka for product market flexibility, exports, and literacy; Bangladesh, India, Nepal, and Sri Lanka for manufacturing establishment size; and Bangladesh, India, and Sri Lanka for services establishment size. Yellow whisker show the interquartile range for a sample of 96 non-SAR EMDEs.

B. Chart is based on the regression results of annex tables A2.5.1-A2.5.3. Bars show the range among South Asian countries of changes in the predicted long-run non-agricultural employment ratios, if South Asian countries had the same establishment size, product market flexibility, exports, or literacy as the median of other EMDEs. Yellow diamonds show the employment-weighted averages of the changes among South Asian countries. Sample includes South Asian countries with variable values below the median of other EMDEs, which exclude Nepal and Sri Lanka for manufacturing establishment size; India, Nepal, and Sri Lanka for product market flexibility; and Sri Lanka for literacy.

trade openness, and by their education outcomes (especially literacy rates and gender gaps in education). The correlations estimated in this chapter suggest that the gap between South Asia and other EMDEs in non-agricultural employment ratios might have been one-fifth narrower if South Asia had instead matched the EMDE median in any one of these areas (figure 2.19).

**Greater openness to international trade.** Many measures could spur trade openness (Ohnsorge and Quaglietti 2023). These include measures directly related to trade, such as streamlining border procedures, reducing tariff and nontariff barriers, and implementing trade agreements. They also include domestic measures to improve logistics and transport. And they include actions that promote the distribution of traded goods, such as improved transport infrastructure and governance. Measures to attract foreign direct investment, which often occurs in conjunction

with trade-related activities, could also encourage trade openness (chapter 1; World Bank 2023b).

**More flexible labor markets.** Increasing the flexibility of labor laws and regulations could boost employment, especially in the formal sector. Restrictive minimum wages and employment protection laws have been associated with weaker employment in EMDEs (Betcherman 2015).

**More efficient land markets.** Policies in this area include enhancing land tenure security in a way that recognizes customary laws; documenting land rights; and putting adjudication of land disputes in the hands of an accountable and transparent local body (World Bank 2007). More generally, land tenure and titling procedures can be made more efficient, accurate, and transparent. The optimal form of land tenure depends on local conditions, however, and the success of reforms requires careful implementation, local buy-in and participation, and robust enforcement (Deininger 2003).

**More competitive product markets.** Labor and tax regulations can be streamlined to remove impediments to firm start-ups and expansion. Explicit and implicit subsidies for state-owned firms could be removed to encourage the entry of, and competition from, more dynamic private firms (World Bank 2020).

**Infrastructure investment.** Infrastructure investment can support employment in several ways (Lakshmanan 2007, 2011). For example, shorter travel times and lower travel costs made possibly by improved transportation systems encourage households to increase their labor supply. Easier access to inputs and markets encourages firms to expand, leveraging returns to scale and agglomeration benefits while promoting productivity gains from competition, specialization, more productive labor matching, and technology diffusion. In the agricultural sector, better transport and storage infrastructure may allow a move into activities with higher value-added, such as food processing.

**Improved human capital.** Improved human capital allows workers to switch employment more easily, especially from agriculture to non-agriculture.

**Female labor force participation: Broad policy package.** A comprehensive policy package is needed to tackle South Asia’s exceptionally low female labor force participation. Steps that could be taken to encourage greater participation include affirmative action such as: promoting women in leadership positions or law enforcement (Gupta 2023); monetary incentives such as wage subsidies or tax benefits (Groh et al. 2016); availability of affordable childcare (Cali et al. 2022); competition to spur firms’ growth and hiring; and efforts to increase transparency in job markets to help women more easily find jobs (World Bank 2022b). Closing gaps between the quality of boys’ and girls’ schooling and broadening women’s access to finance and other inputs would also be helpful (Ubfal 2023). Many of these measures rank high in a recent World Bank assessment of interventions aimed at boosting female labor force participation (Halim, O’Sullivan, and Sahay 2023). Comprehensive approaches that remove obstacles to women’s willingness to work outside the home have been shown to be effective (Halim, Ubfa, and Wangchuk 2023). These include child and elderly care, as well as safe transport and safe workplaces and study spaces (Borker 2021; Cheema et al. 2022; Fields and Vyborny 2022; Gupta 2023).

**Female labor force participation: Shift social norms.** Poor job prospects and negative attitudes toward women’s work outside the home can interact in ways that deter women’s participation in labor markets. For example, when jobs are scarce, social norms, rather than productivity, may determine who gets hired. Social norms could be counteracted through mandated hiring policies or employment guarantees in firms and for public works and employment guarantees for firms and quotas for representation in village councils (Beaman et al. 2012; Deininger et al. 2022; Ghani, Kerr, and O’Connell 2014), and classroom and community discussions to shift the perception of female employment (Bursztyn, González, and Yanagizawa-Drott 2020).

**Female labor force participation: Raise exports.** Export-oriented sectors—in which firms face international competition in their product markets—tend to be more gender-equal (Hoyos,

Bussolo, and Núñez 2012). More open trade and competition policies could not only boost output and productivity growth, but also favor greater gender equity. Bangladesh’s garment sector is an example of a light manufacturing activity whose growth, based on exports, has attracted millions of women into the labor force. Similarly, the rise of the business processing and outsourcing industry in India attracted millions of women into the workforce and encouraged them to remain engaged in the labor market throughout their lifetime (Jensen 2012). The situation for women in Morocco, Tunisia, and Turkey is similar (Klasen 2019).

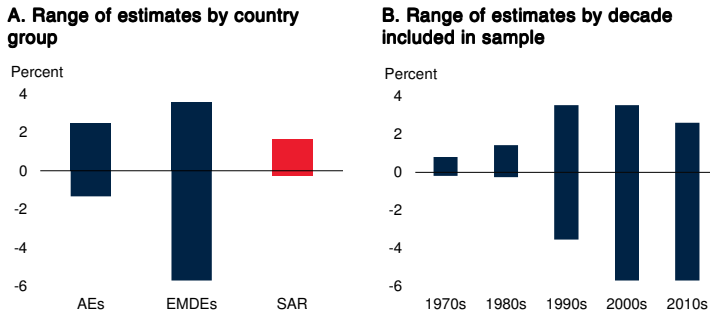
**A virtuous circle.** All these policies could help lift employment economy-wide and in the non-agricultural sector, while also accelerating output growth and the structural transformation that lifts labor productivity growth. Faster output growth would benefit government revenue collection and allow governments to invest in physical and human capital. To boost economic growth as a catalyst for job creation, other obstacles to growth could also be eased (chapter 1; World Bank 2023b). These include: foreign currency restrictions that constrain private investment; financial regulations that tilt capital allocations toward governments or consumption and away from investment; poor business climates and weak governance that deter private sector activity; and fiscal vulnerabilities that constrain government action.

## ANNEX 2.1 Summary of literature on the growth elasticity of employment

An extensive literature search was performed of studies on the elasticity of employment with respect to output growth using literature search engines, supplemented by forward and backward citations tracking using artificial intelligence-enhanced citation chasing tools to identify a set of relevant studies. The results were derived solely

### ANNEX FIGURE A2.1.1 Estimates of output elasticity of employment

The literature provides a wide range of estimates on the growth elasticity of total employment.



Sources: World Bank; sources listed in annex table A2.1.1.

Note: AEs = advance economies; EMDEs = emerging market and developing economies; SAR = South Asia. Range of estimates based on a review of 25 academic and policy studies on the growth elasticity of employment.

B. An estimate is counted in a given decade if the sample used for its estimation spans at least three years within the decade. An estimate can be counted in more than one decade, if the sample encompasses multiple decades, with at least three years in each decade included.

from country-level estimates. Articles exclusively presenting subnational-level estimates, gender-specific estimates, or industry- and sector-specific estimates were excluded. In addition, articles focusing on Okun's law and reporting solely the unemployment elasticity of growth were also excluded. The final sample includes 25 academic and policy studies. Annex table A2.1.1 lists the papers in the sample.

Range estimates for South Asia were collected from 11 articles, sampling Afghanistan, Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan, and Sri Lanka. The range estimates on EMDEs were derived from 16 articles, sampling countries in Africa, Asia, Eastern Europe, Latin America and the Caribbean, and the Middle East. The range estimates for the advanced economies were based on 11 articles, including the most-developed countries and advanced economies globally (annex figure A2.1.1). Several articles presented estimates of the elasticity of employment with respect to output growth for multiple country categories, and these corresponding estimates were utilized to generate range estimates for each specific country category.

## ANNEX 2.2 Data

The main data sources include the World Bank's *World Development Indicators* (WDI) database, the

International Labour Organization (ILO)'s *ILOSTAT* database, *Penn World Tables*, and the Groningen Growth and Development Center *Economic Transformation Database* (ETD).

The baseline employment comes from the *Penn World Tables*, which is available up to 2019 and includes subsistence employment. It is extended forward up to 2023 and spliced by sector and gender using the cross-sectional shares of employment from ILO modeled data. For Nepal, adjusted employment data is drawn from Ruppert Bulmer, Shrestha, and Marshalian (2020), which also includes subsistence employment, consistent with the baseline employment measure.

The data for baseline real output are from the World Bank's *Global Economic Prospects* database, supplemented with data from WDI for earlier years, spliced by sector using ETD data and by gender using ILO data. The baseline employment variable captures both formal and informal forms of work. Productivity is calculated as the ratio of real output to the number of workers.

Total and working-age population come from WDI. The working-age population is defined as the number of people aged 15–64 years.

Data on employment, real output, and population spans 1960–2022 for 145 EMDEs. However, the analysis focuses mostly on developments since 2000 because of limited data availability on their correlates for earlier years.

Data on correlates of long-run employment ratios come from various data sources, including WDI, the World Bank's *Women, Business and the Law* database, the from the International Monetary Fund's *Financial Access Survey*, the World Bank's *Enterprise Survey*, and the Fraser Institute's *Economic Freedom of the World* (EFW) database.

## ANNEX 2.3 Econometric methodology

**Econometric approach.** Discerning the relationship between job creation and its correlates in the data—while remaining agnostic about causality—required a two-step exercise. In the first step, the relationship between employment ratios and the correlates of their evolution over time are

estimated. In the second step, the correlates of long-run, “steady-state” employment ratios are estimated.

**First step.** The following baseline panel regression is estimated to establish the correlates of the evolution of employment ratios over time, building on the conceptual framework:

$$EWAP_{c,t} - EWAP_{c,t-1} = a + b_1 DProd_{c,t} + b_2 DWAP_{c,t} + b_3 EWAP_{c,t-1} + d_t + d_c + e_{c,t}$$

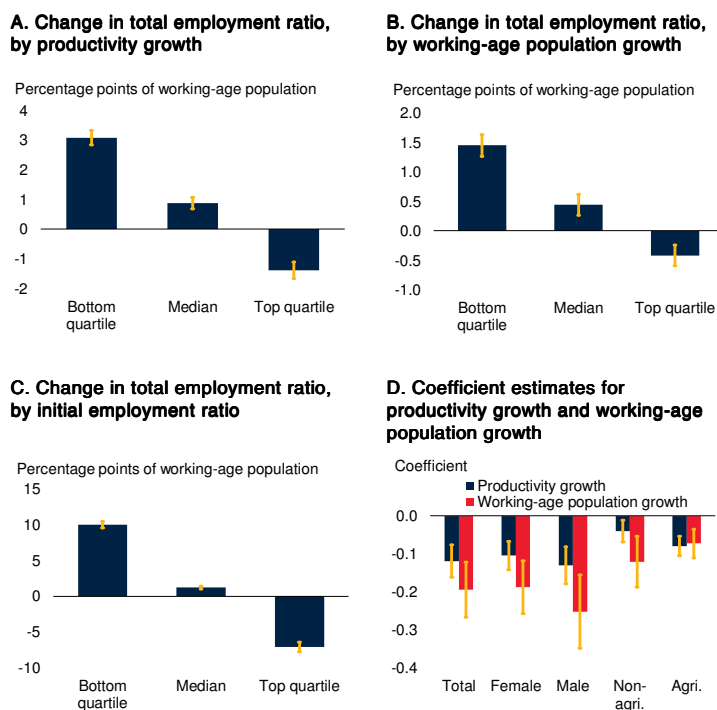
where the dependent variable is the change in country  $c$ 's employment-to-working-age population ratio (in percentage point) between the years  $t$  and  $t-1$ ;  $DProd_{c,t}$  represents country  $c$ 's overall labor productivity growth from  $t-1$  to  $t$ ;  $DWAP_{c,t}$  indicates country  $c$ 's working-age population growth over the same period;  $EWAP_{c,t-1}$  is the ratio in year  $t-1$ , included to capture eventual convergence toward a “steady state employment-to-working-age-population ratio”; year dummies ( $d_t$ ) control for common shocks over time, such as global recessions, and country fixed effects ( $d_c$ ) capture country characteristics that do not change over time. The analysis is conducted separately for the total employment ratio, by gender and by sector.<sup>14</sup> Only two sectors are considered: agriculture and non-agriculture.<sup>15</sup>

**Baseline regressions.** The baseline regression results suggest that slower productivity growth and faster working-age population growth have been associated with significantly faster increases in employment ratios in EMDEs. In addition, employment ratios in EMDEs appear to converge toward a long-run employment ratio (annex table A2.3.1; annex figure A2.3.1).

- *Productivity growth.* Higher productivity growth has been associated with slower increases in the employment ratio, even

### ANNEX FIGURE A2.3.1 Correlates of the evolution of employment ratios over time

*Faster growth in productivity and working-age population, and higher initial employment ratios are associated with smaller increases in the employment ratio. The link between productivity growth and declines in employment ratios is significantly stronger in the agriculture sector than in the non-agriculture sector.*



Sources: GGDC/UNU-WIDER Economic Transformation Database; International Labour Organization; Penn World Tables (database); WDI (database); World Bank.

Note: Employment ratios are defined as employment in percent of the working-age population. Working-age population refers to persons aged between 15 and 64.

A.-C. Chart is based on the regressions of annex table A2.3.1. The bars show the predicted average annual change in the total employment ratio for different levels of explanatory variables. Yellow whiskers refer to the 95 percent confidence interval. The thresholds for productivity growth are -0.05 for the 25th percentile, 2.1 percent for the 50th percentile and 4.4 percent for the 75th percentile. The thresholds for working-age population growth are 1.2 percent for the 25th percentile, 2.2 percent for the 50th percentile and 3.1 percent for the 75th percentile. The thresholds for the initial employment ratio are 55 percent of the working age-population (WAP) for the 25th percentile, 63 percent of the WAP for the 50th percentile and 72 percent of the WAP for the 75th percentile.

D. The bars show the regression coefficients, which represent the change in employment ratio associated with a 1 percentage point higher growth rate in productivity or the working-age population. Yellow whiskers refer to the 95 percent confidence interval.

controlling for working-age population growth. Among country-year pairs in the top quartile of productivity growth, the employment ratio decreased by 0.2 percentage points whereas among those in the bottom quartile (with productivity losses) it rose by 0.4 percentage points—a difference of over 0.5 percentage points (annex figure A2.3.1A). This effect was significantly stronger in agriculture than in non-agriculture because agriculture has often been a reservoir of underemployment (annex figure A2.3.1D).

<sup>14</sup> In the analysis by gender, gender-specific working-age population growth is used.

<sup>15</sup> The linear analysis here does not separate industry and services because the literature has documented a nonlinear relationship for industry, a complexity that goes beyond the scope of the analysis here (Herrendorf, Rogerson, and Valentinyi 2014; Rodrik 2016; Timmer, de Vries, and de Vries 2015).

- *Working-age population growth.* Faster working-age population growth has also been associated with slower increases in employment ratios as labor markets struggled to absorb large numbers of labor market entrants. Among the EMDEs in the bottom quartile of working-age population growth (that is, mostly those with working-age population declines), employment ratios on average rose by 1.5 percentage points. In those in the top quartile, they fell by 0.4 percentage points (annex figure A2.3.1B). This pattern was present across genders and sectors but was somewhat stronger for men than for women, and stronger in non-agriculture than in agriculture. Working-age population growth in South Asia was close to the EMDE median, where working-age population growth contributed to a 0.5-percentage-point increase in employment ratio.
- *Initial employment ratio.* Higher initial employment ratios have been associated with slower increases in the employment ratio (annex figure A2.3.1C). This suggests conditional convergence of employment ratios toward the country-specific long-run level. This was the case for both men and women and in both agriculture and non-agriculture. For South Asia, the average speed of adjustment ranges from 0.2 percentage points of the working-age population a year in the early 2020s to below 0.08 percentage points by 2050.

**Robustness tests.** These results are robust to using different samples, including a sample of all countries—both advanced economies and EMDEs, since the 1960s—all EMDEs, including small states, and a trimmed sample of all EMDEs (annex table A2.3.2). The patterns are also robust to defining the sample by decade averages of annual changes or growth rates. The fixed effects generated by the decade-average regression specification are highly correlated (correlation above 0.96) with those generated by the annual regression specification and the resulting pattern for South Asian countries remains the same, with even tighter confidence bands. The results are also consistent whether the employment ratio for

women overall or for women in non-agriculture is used (annex table A2.3.3).

**Second step.** The country fixed effects in the first step estimate the portion of the change of the employment ratio that is accounted for by time-invariant country characteristics, after controlling for fluctuations in labor productivity and working-age population growth (annex 2.4). Effectively, the country fixed effect  $d_c$  in the first-stage regression can be interpreted as the deviation (from the EMDE average) of the country-specific long-run, “steady-state” level to which the employment ratio converges, after controlling for productivity and working-age population growth.<sup>16</sup>

The fixed effects that result from the first-stage estimation account for about 40–50 percent of the explained variation in changes in employment ratios overall (42 percent), for non-agriculture (39 percent), and for women (52 percent).

These country fixed effects are regressed on a series of policy variables  $X_c$  that have been associated with long-run employment ratios.:

$$d_c = g X_c + n_c$$

These policy variables serve as proxies for factors related to labor demand (such as trade, access to finance, and policies that directly affect firms) and labor supply (such as education and gender-biased policies). Effectively, this second-stage regression estimates the long-run correlates of changes in EMDEs’ employment ratios over two decades. Annex 2.5 provides details on the selection of variables and proxies. The regression uses the average of each correlate over 2000–2019, capturing the long-term average of these variables.

<sup>16</sup> As noted earlier, the specification shares much with the literature on convergence properties for GDP per capita. The coefficient on the lagged employment ratio indicates the presence and speed of unconditional convergence when country fixed effects are not included. When country fixed effects are included, this coefficient indicates the presence and speed of conditional convergence. This parallels the discussion of convergence in GDP per capita in Barro and Sala-i-Martin (1992) and Durlauf, Johnson, and Temple (2005). Annex 2.4 provides details of the interpretation of the country fixed effects.

## ANNEX 2.4 Interpretation of country fixed effects

In the canonical Solow (1956) model, the growth of output per worker in a country is related to its distance from steady state. If all countries have the same steady state, then this “unconditional convergence” can be described by the following expression:

$$\log y_{it+1} - \log y_{it} = a + b (\log y_{it} - \log y^*)$$

where  $y_{it}$  is country  $i$ 's output per worker, and  $y^*$  is a common steady state level for all countries. Since  $y^*$  is a constant,  $b \times \log y^*$  can be combined into the constant term. This modification motivates running the following regression:

$$\log y_{it+1} - \log y_{it} = c + b \times \log y_{it}$$

In the conditional convergence literature (for example, Barro and Sala-i-Martin 1992, 2003; Mankiw, Romer, and Weil 1992), each country  $i$  has its own steady state value  $y_i^*$ . The equation that captures the relationship between growth and steady state becomes:

$$\log y_{it+1} - \log y_{it} = a + b (\log y_{it} - \log y_i^*).$$

The value  $b \times \log y_i^*$  is now a country-specific constant, which motivates the fixed effects regression:

$$\log y_{it+1} - \log y_{it} = c_i + b \times \log y_{it}$$

where variation in steady state levels across countries is embedded in the fixed effects  $c_i$ .

In the fixed effects regression model here, the fixed effects imply differences in growth rates conditional on current levels, but they also capture differences in the levels of employment ratios to which each country is converging. Specifically, the fixed effect  $c_i$  divided by the coefficient  $b$  is the deviation from each country's long-run equilibrium employment ratio from the EMDE average.

## ANNEX 2.5 Proxies for correlates of long-run employment ratios

The literature offers several structural factors that could explain some of the recent employment weakness in EMDEs, especially in South Asia. These include: infrastructure investment to broaden pools of labor and jobs by reducing transport cost; greater trade openness to increase competitive pressures and boost aggregate demand; a relaxation of excessively restrictive labor laws to reduce the cost of hiring; more efficient land regulation to encourage firms' entry and job creation; and streamlined taxation to avoid penalizing firms' growth and employment. Enforcement of policies can be changed to avoid disproportionately targeting large firms, thereby encouraging firms' growth.

**Tax regimes.** Given the low tax collection prevalent in most EMDEs, this analysis emphasizes the firm-side of tax variables. These variables are proxied using data from the World Bank's *Enterprise Survey*, which asks firms whether tax rates or tax administration constitute a constraint on activity. The variable used in the regression is the country-level average percent of firms that identified tax rates or tax administration as a major constraint.

**Trade openness.** Trade openness is proxied by total exports, goods exports, services exports, and net inflows of foreign direct investment (FDI), all as a percent of GDP. All but FDI is significant in at least one regression.

**Access to finance.** An array of investment-related variables are used. Gross capital formation and credit to the private sector—in percent of GDP—are used to proxy for total and private investment. Variables capturing access to finance are included to proxy for potential investment, including the number of commercial bank branches per 100,000 adults, log per capita outstanding loans and outstanding deposits in commercial banks, all from the International Monetary Fund's *Financial Access Survey*. Implicitly, this assumes that private credit and banking sector activities are used for

purposes that correlate with job creation and predominantly in the private sector. This assumption may not hold if a large part of private credit is extended to state-owned enterprises or for other purposes than job creation.

**Establishment size.** Average establishment size within the services and manufacturing sectors is used to represent the size of the average firm. Although the distribution of establishments above average size can also be important for employment generation, the scope of the analysis is limited to the average size. Factors that could limit establishment size are also included, in addition to tax-related and access to land variables. Establishment size data are available for four South Asian countries: Bangladesh, India, Nepal (manufacturing only), and Sri Lanka. Manufacturing establishment data are also available for Bhutan and Maldives, and services establishment data for Maldives. But the two small states are not included in the regression sample.

**Labor laws.** The labor market regulation index and sub-index from the Fraser Institute's *Economic Freedom of the World* are used to proxy for different aspects of labor market policies. A higher product market score suggests greater flexibility in the product market, such as low costs of bureaucracy, low regulatory burdens, and the low cost of tax compliance, while a higher labor market score indicates more flexible labor market regulations, such as more flexible minimum wage regulations. The sub-indexes capture labor regulations and minimum wage policies, hiring and firing practices, flexibility in wage determination, regulation of working hours,

costs associated with worker dismissal, and conscription. In the sample used here, the total score and the labor regulation and minimum wage index are significantly correlated with the country fixed effects.

**Land laws and urbanization.** The *World Bank Enterprise Survey* asks firms whether access to land constitutes a constraint on doing business. The regression includes the country-level average share of firms that identified access to land as a major constraint. In addition, population density and urban population share are used to proxy for urbanization.

**Human capital.** Health and education policies and conditions affect human capital and long-run labor productivity. The malaria mortality rate and life expectancy at birth are included to proxy for basic health condition. An array of education-related variables are included to capture the quality and equity of education, including literacy rates, government spending on education, secondary education completion rates, and gender gap in secondary education completion rate.

**Other control variables.** The estimation includes several other control variables that have been found to correlate with employment in previous studies (Crivelli, Furceri, and Toujas-Bernat  2012; Kapsos 2005). These include average annual inflation, GDP per capita, and product market policies as captured by the *Economic Freedom of the World* indicator.

**Regression results.** The results of the regression analysis are summarized in annex tables A2.5.1–A2.5.3.



**ANNEX TABLE A2.1.1 Studies included in the literature review**

Paper	Period of main sample	Sample coverage	
		Region	Economies
Kapsos (2005)	1991-2003	Worldwide	160 countries
Saget (2000)	1990-1998	Europe (transition economies)	Bulgaria, Czech Republic, Estonia, Hungary, Latvia, Poland, Romania, Russian Federation, Slovakia, Slovenia, Ukraine
Papola and Sahu (2012)	1972-2010	South Asia	India
Slimane (2015)	1991-2011	Worldwide	90 developing countries
Ben-Salha and Zmami (2021)	1970-2017	Middle East	Bahrain, Kuwait, Oman, Qatar, Saudi Arabia, United Arab Emirates
Kumar et al. (2021)	2009-2019	South Asia	Afghanistan, Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan, Sri Lanka
Martins (2012)	1992-2008	Africa	Ethiopia, Ghana, Mozambique, Tanzania
Al-Tarawneh et al. (2022)	1992-2019	Middle East	Jordan
Ball et al. (2019)	1980-2015	Worldwide	29 advanced and 42 developing countries
Mourre (2006)	1969-2000	Europe, North America	21 countries
Perugini (2009)	1970-2004	Europe	Italy
Sogner and Stiassny (2002)	1960-1999	Worldwide	15 OECD countries
Morén and Wändal (2019)	2000-2017	Worldwide	168 countries
Siddique et al. (2016)	1970-2015	South Asia	Pakistan
Basu and Das (2016)	1977-2011	Asia, North America	India, United States
Bhat et al. (2022)	1991-2019	Asia	Kazakhstan
An et al. (2019)	1981-2015	Worldwide	25 developing countries
Hanusch (2013)	1997-2011	Asia	China, Republic of Korea, Malaysia, Philippines, Singapore, Thailand
African Development Bank (2018)	2000-2014	Africa	47 African countries
Asian Development Bank (2012)	1991-2011	Asia, South Asia	45 Asian countries
ILO et al. (2015)	1991-2014	Worldwide	G20 countries; advanced economies
Herman (2011)	2000-2010	Europe	EU countries
Islam and Nazara (2000)	1977-1996	Asia	Indonesia
Sodipe and Ogunrinola (2011)	1981-2006	Africa	Nigeria

Source: World Bank.

**ANNEX TABLE A2.3.1 Baseline regression**

Variables	Dependent variable: Change in employment ratio				
	(1) Total	(2) Female	(3) Male	(4) Non-agriculture	(5) Agriculture
Labor productivity growth	-0.1192*** [0.0218]	-0.1043*** [0.0192]	-0.1308*** [0.0250]	-0.0404*** [0.0146]	-0.0797*** [0.0130]
Working-age population growth					
Total	-0.1937*** [0.0368]			-0.1210*** [0.0342]	-0.0730*** [0.0194]
Female		-0.1879*** [0.0355]			
Male			-0.2520*** [0.0492]		
Initial employment ratio					
Total	-0.0622*** [0.0124]				
Female		-0.0599*** [0.0101]			
Male			-0.0607*** [0.0189]		
Non-agriculture				-0.0512*** [0.0190]	
Agriculture					-0.0485*** [0.0146]
Constant	4.4334*** [0.7700]	3.4728*** [0.5260]	5.2174*** [1.4031]	2.2074*** [0.6268]	1.4587*** [0.4167]
Observations	2058	2058	2058	2058	2058
Numbers of countries	103	103	103	103	103
Adjusted R-squared	0.234	0.234	0.192	0.192	0.208
Year dummies	Yes	Yes	Yes	Yes	Yes
Country fixed effects	Yes	Yes	Yes	Yes	Yes

Sources: GGDC/UNU-WIDER Economic Transformation Database; International Labour Organization; Penn World Tables (database); WDI (database); World Bank.

Note: \*\*\* p<0.01, \*\* p<0.05, \* p<0.1. Robust standard errors reported in brackets. Small states are excluded from the sample. Country fixed effects and year dummies are included. Columns show the regression results from panel regressions of the change in (1) total employment ratio (as a percent of working-age population), (2) female employment ratio (as a percent of the female working-age population), (3) male employment ratio (as a percent of the male working-age population), (4) non-agriculture employment ratio (as a percent of the working-age population), and (5) agricultural employment ratio (as a percent of the working-age population).

**ANNEX TABLE A2.3.2** Baseline regression: Robustness tests for total employment ratio

Variables	Dependent variable: Change in total employment ratio				
	(1) Baseline	(2) All countries, 1960-2019	(3) All EMDEs	(4) Baseline with trimmed sample	(5) Baseline with 10-year averages
Labor productivity growth	-0.1192*** [0.0218]	-0.0527*** [0.0114]	-0.1069*** [0.0211]	-0.1671*** [0.0151]	-0.0503*** [0.0191]
Working-age population growth	-0.1947*** [0.0368]	-0.2726*** [0.0800]	-0.1882*** [0.0353]	-0.2365*** [0.0302]	-0.0896*** [0.0331]
Initial employment ratio	-0.0622*** [0.0124]	-0.0437*** [0.0086]	-0.0696*** [0.0116]	-0.0598*** [0.0108]	-0.0783*** [0.0102]
Constant	4.4334*** [0.7700]	3.5284*** [0.6423]	4.8639*** [0.7126]	4.4522*** [0.6673]	5.2580*** [0.6820]
Observations	2058	6799	2447	2378	206
Number of countries	103	160	124	124	103
Adjusted R-squared	0.234	0.152	0.222	0.303	0.540
Year dummies	Yes	Yes	Yes	Yes	Yes
Country fixed effects	Yes	Yes	Yes	Yes	Yes

Sources: GGDC/UNU-WIDER Economic Transformation Database; International Labour Organization; Penn World Tables (database); WDI (database); World Bank.

Note. \*\*\* p<0.01, \*\* p<0.05, \* p<0.1. Robust standard errors reported in brackets. Small states are excluded from the sample. Country fixed effects and year dummies are included. Columns show the results from regressions of the change in employment ratios using different samples. Column (1), for the baseline sample, includes all emerging market and developing economies (EMDEs) that are not small states during 2000–19. Column (2) includes all countries including advanced economies and EMDEs during 1960–2019. Column (3) includes all EMDEs during 2000–19. Column (4) includes all EMDE during 2000–2019, excluding those whose real output growth or employment ratio growth is in the top or bottom 1 percent. Column (5) includes baseline sample using the 10-year average annual change in employment-to-working-age-population ratio as dependent variable.

**ANNEX TABLE A2.3.3** Baseline regression: Robustness tests for female employment ratio

Variables	(1) Female	(2) Female non-agriculture
	Labor productivity growth	-0.1043*** [0.0192]
Female working-age population growth	-0.1879*** [0.0355]	-0.1038*** [0.0342]
Initial employment ratio		
Female	-0.0599*** [0.0101]	
Female non-agriculture		-0.0481** [0.0189]
Constant	3.4728*** [0.5260]	1.6094*** [0.4880]
Observations	2058	2058
Numbers of countries	103	103
Adjusted R-squared	0.192	0.069
Year dummies	Yes	Yes
Country fixed effects	Yes	Yes

Sources: GGDC/UNU-WIDE Economic Transformation Database; International Labour Organization; Penn World Tables (database); WDI (database); World Bank.

Note. \*\*\* p<0.01, \*\* p<0.05, \* p<0.1. Robust standard errors reported in brackets. Small states are excluded from the sample. Country fixed effects and year dummies are included. Columns show the regression results from panel regressions of the change in (1) female employment ratio (as a percent of the female working-age population), and (2) female non-agriculture employment ratio (as a percent of the female working-age population).

**ANNEX TABLE A2.5.1 Regressions with correlates: Trade and access to finance**

Variables (included one at a time)	Number of obs.	(1) Total	(2) Female	(3) Male	(4) Non-agriculture	(5) Female non-agriculture
<b>Trade-related variables</b>						
Total exports (percent of GDP)	101	0.0065	-0.0017	0.0123*	0.0249***	0.0166***
Goods exports (percent of GDP)	100	0.0077	-0.0002	0.0133	0.0232***	0.0151***
Services exports (percent of GDP)	100	-0.0149	-0.0171	-0.0119	0.0257**	0.0223
<b>Finance-related variables</b>						
Credit to the private sector (percent of GDP)	102	-0.0006	-0.0057	0.0036	0.0131***	0.0083***
Number of commercial bank branches (per 100,000 adults)	102	-0.0114	-0.0193*	-0.0045	0.0224***	0.0155***

Sources: GGDC/UNU-WIDER Economic Transformation Database; International Labour Organization; International Monetary Fund Financial Access Survey (database); Penn World Tables (database); WDI (database); World Bank.

Note: \*\*\* p<0.01, \*\* p<0.05, \* p<0.1. Small states are excluded from the sample. Table shows the regression coefficients from regressions of country fixed effects on a policy variable. Columns show the regression results from panel regressions of the change in (1) total employment ratio (as a percent of working-age population), (2) female employment ratio (as a percent of the female working-age population), (3) male employment ratio (as a percent of the male working-age population), (4) non-agriculture employment ratio (as a percent of the working-age population), and (5) female non-agriculture employment ratio (as a percent of the female working-age population). Policy variables are taken as the average over 2000–19 and are included one at a time in the regression.

**ANNEX TABLE A2.5.2 Regressions with correlates: Firm characteristics and constraints**

Variables (included one at a time)	Number of obs.	(1) Total	(2) Female	(3) Male	(4) Non-agriculture	(5) Female non-agriculture
<b>Average establishment size (Bento and Restuccia 2021)</b>						
Manufacturing	60	0.0157	-0.0024	0.0278	0.0493**	0.0293**
Services	55	0.2019***	0.0293	0.3292***	0.3287***	0.1629***
<b>Product market regulation index (EFW)</b>						
Overall index	103	0.0779	-0.0929	0.2105	0.3089***	0.1666**
Bureaucracy cost	103	0.0827	0.0412	0.1003	0.2491***	0.2071***
Impartial public	103	-0.0181	-0.0256	-0.0198	0.1436***	0.1348***
<b>Labor market regulation index (EFW)</b>						
Overall index	103	-0.0474	-0.0400	-0.0662	0.1265*	0.1086
Labor regulations and minimum wage	103	0.0781	0.0192	0.1199**	0.1658***	0.1136***
<b>Firms identifying major constraint in (percent of firms, Enterprise Survey)</b>						
Tax rate	95	-0.0134***	-0.0132**	-0.0127***	-0.0069	-0.0065
Tax administration	95	-0.0134**	-0.0146**	-0.0106**	-0.0102*	-0.0099
Access to land	95	-0.0037	0.0004	-0.0060	-0.0270***	-0.0233***
Political instability	95	-0.0108**	-0.0155***	-0.0053	-0.0072**	-0.0107***
Corruption	95	-0.0094*	-0.0152***	-0.0021	-0.0056	-0.0083*
Access to finance	95	-0.0032	0.0036	-0.0086*	-0.0200***	-0.0150***
<b>Source of finance for firm working capital (percent of working capital, Enterprise Survey)</b>						
Internal fund	95	0.0054	0.0075	0.0032	-0.0179***	-0.0184**
Banks	95	-0.0020	-0.0085	0.0025	0.0416***	0.0364***

Sources: Bento and Restuccia (2021); GGDC/UNU-WIDER Economic Transformation Database; International Labour Organization; Penn World Tables (database); WDI (database); World Bank; World Bank Enterprise Survey (database).

Note: \*\*\* p<0.01, \*\* p<0.05, \* p<0.1. Small states are excluded from the sample. Table shows the regression coefficients from regressions of country fixed effects on one policy variable. Columns show the regression results from panel regressions of the change in (1) total employment ratio (as a percent of working-age population), (2) female employment ratio (as a percent of the female working-age population), (3) male employment ratio (as percent of the male working-age population), (4) non-agriculture employment ratio (as a percent of the working-age population), and (5) female non-agriculture employment ratio (as a percent of the female working-age population). Policy variables are taken as the average over 2000–19 and are included one at a time in the regression. A higher product market regulation index (EFW) indicates less burdensome regulations.

**ANNEX TABLE A2.5.3 Regressions with correlates: Worker characteristics and protection of women's rights**

Variables (included one at a time)	Number of obs.	(1) Total	(2) Female	(3) Male	(4) Non-agriculture	(5) Female non-agriculture
<b>Education-related variables</b>						
Literacy rate (percent of people 15+)	99	-0.0033	-0.0083**	0.0004	0.0222***	0.0163***
Government expenditure on education (percent of GDP)	100	-0.0949*	-0.1079	-0.0862	0.0908*	0.0766*
Gender education gap (female-male difference in secondary education rate)	97	0.0358**	0.0005	0.0648***	0.0646***	0.0398***
<b>Women, Business and the Law (WBL)</b>						
Overall index	103	0.0062	0.0252***	-0.0124	0.0048	0.0223***
Entrepreneurship	103	0.0021	-0.0010	0.0042	0.0148***	0.0125***
Mobility	103	0.0035	0.0135***	-0.0060	-0.0000	0.0084***
Workplace	103	0.0036	0.0088**	-0.0016	0.0010	0.0065**
Pay	103	0.0040	0.0112***	-0.0029	0.0019	0.0083***
Marriage	103	0.0059	0.0155***	-0.0040	0.0042	0.0123***
Assets	103	0.0052	0.0130***	-0.0031	0.0068**	0.0139***

Sources: GGDC/UNU-WIDER Economic Transformation Database; International Labour Organization; Penn World Tables (database); WDI (database); World Bank; World Bank Women, Business and the Law (database).

Note: \*\*\* p<0.01, \*\* p<0.05, \* p<0.1. Small states are excluded from sample. Table shows the regression coefficients from regressions of country fixed effects on one policy variable. EFW refers to the Fraser Institute's Economic Freedom of the World index. Columns show the regression results from panel regressions of the change in (1) total employment ratio (as a percent of working-age population), (2) female employment ratio (as a percent of the female working-age population), (3) male employment ratio (as a percent of the male working-age population), (4) non-agriculture employment ratio (as a percent of the working-age population), and (5) female non-agriculture employment ratio (as a percent of the female working-age population). Policy variables are taken as the average over 2000–19 and are included one at a time in the regression. A higher value of each policy variable indicates a more flexible labor markets, better and more equal education outcomes, and more legal protection of women's rights.

## References

- Acemoglu, D., and P. Restrepo. 2018. "The Race between Man and Machine: Implications of Technology for Growth, Factor Shares, and Employment." *American Economic Review* 108 (6): 1488–1542.
- Acemoglu, D., and P. Restrepo. 2020. "Robots and Jobs: Evidence from US Labor Markets." *Journal of Political Economy* 128 (6): 2188–2244.
- African Development Bank. 2018. *African Economic Outlook 2018*. Abidjan, Côte d'Ivoire: African Development Bank.
- Aga, G., and D. Francis. 2015. "As the Market Churns: Estimates of Firm Exit and Job Loss Using the World Bank's Enterprise Surveys." Policy Research Working Paper 7218, World Bank, Washington, DC.
- Al-Tarawneh, A., M. Almenfi, M. Khataybeh, G. Omet, and F. Haddad. 2022. "The Unemployment Challenge in Jordan: The Issue of Employment Elasticity of Growth." *Corporate Governance and Organizational Behavior Review* 6 (2): 143–9.
- Amiti, M., and S. Wei. 2005. "Service Offshoring, Productivity, and Employment: Evidence from the United States." IMF Working Paper 05/238, International Monetary Fund, Washington, DC.
- An, Z., T. Ghazi, N. Prieto, and A. Ibourk. 2019. "Growth and Jobs in Developing Economies: Trends and Cycles." *Open Economies Review* 30 (5): 875–93.
- Annez, P. C., and R. Buckley. 2009. "Urbanization and Growth: Setting the Context." In *Urbanization and Growth*, edited by M. Spence, P. C. Annez, and R. M. Buckley, 1–46. World Bank, Washington, DC.
- Asian Development Bank. 2012. *Asian Development Outlook 2012: Confronting Rising Inequality in Asia*. Manila, Philippines: Asian Development Bank.
- Aterido, R., M. Hallward-Driemeier, and C. Pagés. 2011. "Big Constraints to Small Firms' Growth? Business Environment and Employment Growth across Firms." *Economic Development and Cultural Change* 59 (3): 609–47.
- Autor, D. H., D. Dorn, and G. H. Hanson. 2013a. "The China Syndrome: Local Labor Market Effects of Import Competition in the United States." *American Economic Review* 103 (6): 2121–68.
- Autor, D. H., D. Dorn, and G. H. Hanson. 2013b. "The Geography of Trade and Technology Shocks in the United States." *American Economic Review* 103 (3): 220–25.

- Autor, D. H., D. Dorn, and G. H. Hanson. 2016. "The China Shock: Learning from Labor-Market Adjustment to Large Changes in Trade." *Annual Review of Economics* 8 (1): 205–40.
- Autor, D., and A. Salomons. 2018. "Is Automation Labor-Displacing? Productivity Growth, Employment, and the Labor Share." NBER Working Paper 24871, National Bureau of Economic Research, Cambridge, MA.
- Ayyagari, M., A. Demirgüç-Kunt, and V. Maksimovic. 2011. "Small vs. Young Firms Across the World: Contribution to Employment, Job Creation, and Growth." Policy Research Working Paper 5631, World Bank, Washington, DC.
- Bahal, G. 2022. "A Tale of Two Programs: Assessing Treatment and Control in NREGA Studies." *World Bank Economic Review* 36 (2): 514–32.
- Ball, L., D. Furceri, D. Leigh, and P. Loungani. 2019. "Does One Law Fit All? Cross-Country Evidence on Okun's Law." *Open Economies Review* 30 (5): 841–74.
- Banerjee, A. V., P. J. Gertler, and M. Ghatak. 2002. "Empowerment and Efficiency: Tenancy Reform in West Bengal." *Journal of Political Economy* 110 (2): 239–80.
- Barro, R. J., and X. Sala-i-Martin. 1992. "Convergence." *Journal of Political Economy* 100 (2): 223–51.
- Barro, R. J., and X. I. Sala-i-Martin. 2003. *Economic Growth*. Cambridge, MA: MIT Press.
- Basu, D., and D. Das. 2016. "Employment Elasticity in India and the US, 1977-2011." *Economic and Political Weekly* 51 (10): 51-9.
- Batra, G., and A. Stone. 2008. "Investment Climate, Capabilities and Firm Performance: Evidence from the World Business Environment Survey." *OECD Journal: General Papers* 2008 (1): 1–37.
- Beaman, L., E. Duflo, R. Pande, and P. Topalova. 2012. "Female Leadership Raises Aspirations and Educational Attainment for Girls: A Policy Experiment in India." *Science* 335 (6068): 582–86.
- Begum, A. 2022. "Employment Generation Challenges and Strategies for Pakistan: A Diagnostic Analysis." *Unisia* 40 (1): 67–102.
- Ben-Salha, O., and M. Zmami. 2021. "The Effect of Economic Growth on Employment in GCC Countries." *Scientific Annals of Economics and Business* 68 (1): 25–41.
- Bento, P., and D. Restuccia. 2021. "On Average Establishment Size across Sectors and Countries." *Journal of Monetary Economics* 117 (January): 220–42.
- Berg, E., S. Bhattacharyya, D. Rajasekhar, and R. Manjula. 2018. "Can Public Works Increase Equilibrium Wages? Evidence from India's National Rural Employment Guarantee." *World Development* 103 (March): 239–54.
- Bertrand, M., C.-T. Hsieh, and N. Tsivanidis. 2021. "Contract Labor and Firm Growth in India." NBER Working Paper 29151, National Bureau of Economic Research, Cambridge, MA.
- Besley, T., and R. Burgess. 2000. "Land Reform, Poverty Reduction, and Growth: Evidence from India." *The Quarterly Journal of Economics* 115 (2): 389–430.
- Besley, T., and R. Burgess. 2004. "Can Labor Regulation Hinder Economic Performance? Evidence from India." *The Quarterly Journal of Economics* 119 (1): 91–134.
- Betcherman, G. 2015. "Labor Market Regulations: What Do We Know About Their Impacts in Developing Countries?" *World Bank Research Observer* 30 (1): 124-53.
- Bhat, J. A., I. ul Haq, S. A. Bhat, and N. Megits. 2022. "Employment Elasticity of Output Growth in Kazakhstan Economy: Recent Evidence from a Macroeconomic Perspective." *Journal of Eastern European and Central Asian Research* 9 (2): 369–84.
- Bilokach, V. 2015. "Are Airports Engines of Economic Development? A Dynamic Panel Data Approach." *Urban Studies* 52 (9): 1577–93.
- Boppert, T., and P. Krusell. 2020. "Labor Supply in the Past, Present, and Future: A Balanced-Growth Perspective." *Journal of Political Economy* 128 (1): 118–57.
- Borker, G. 2021. "Safety First: Perceived Risk of Street Harassment and Educational Choices of Women." Policy Research Working Paper 9731, World Bank, Washington, DC.
- Braunmiller, J. C., I. S. Recavarren, A. Mittal, and T. Khatri. 2023a. "How Did India Successfully Reform Women's Rights? Part I: Answers from the Movement on Equal Inheritance Rights." Global Indicators Briefs No. 19, World Bank, Washington, DC.
- Braunmiller, J. C., I. S. Recavarren, A. Mittal, and T. Khatri. 2023b. "How Did India Successfully Reform

- Women's Rights? Part II: Answers from the Movement on Protection from Violence." Global Indicators Briefs No. 20, World Bank, Washington, DC.
- Briscoe, G., A. Dainty, and S. Millett. 2000. "The Impact of the Tax System on Self-employment in the British Construction Industry." *International Journal of Manpower* 21 (8): 596–614.
- Bursztyn, L., A. L. González, and D. Yanagizawa-Drott. 2020. "Misperceived Social Norms: Women Working Outside the Home in Saudi Arabia." *American Economic Review* 110 (10): 2997–3029.
- Bussolo, M., J. A. Ezebuihe, A. M. Muñoz Boudet, S. Poupakis, T. Rahman, and N. Sarma. 2024. "Social Norms and Gender Disparities with a Focus on Female Labor Force Participation in South Asia." *World Bank Research Observer* 39 (1): 124–58.
- Bussolo, M., and S. Sharma, eds. 2022. *Hidden Potential: Rethinking Informality in South Asia*. World Bank: Washington, DC.
- Cali, M., H. C. Johnson, E. Perova, N. R. Ryandiansyah. 2022. "Caring for Children and Firms? The Impact of Preschool Expansion on Firm Productivity." Policy Research Working Paper 10193, World Bank, Washington, DC.
- Carbo, J. M., D. J. Graham, Anupriya, D. Casas, and P. C. Melo. 2019. "Evaluating the Causal Economic Impacts of Transport Investments: Evidence from the Madrid–Barcelona High Speed Rail Corridor." *Journal of Applied Statistics* 46 (9): 1714–23.
- Carbonero, F., E. Ernst, and E. Weber. 2020. "Robots Worldwide: The Impact of Automation on Employment and Trade." IAB Discussion Paper 2020/7, Institut für Arbeitsmarkt und Berufsforschung, Nürnberg, Germany.
- Cheema, A., A. I. Khwaja, F. Naseer, and J. N. Shapiro. 2022. "Glass Walls: Experimental Evidence on Access Constraints Faced by Women." G<sup>2</sup>LM|LIC Working Paper 65, Institute of Labor Economics, Bonn, Germany.
- Chen, C., D. Restuccia, and R. Santaella-Llopis. 2022. "The Effects of Land Markets on Resource Allocation and Agricultural Productivity." *Review of Economic Dynamics* 45: 41–54.
- Cheng, Y., B. Loo, and R. Vickerman. 2015. "High-Speed Rail Networks, Economic Integration and Regional Specialisation in China and Europe." *Travel Behaviour and Society* 2 (1): 1–14.
- Chiplunkar, G., and P. K. Goldberg. 2023. "Aggregate Implications of Barriers to Female Entrepreneurship." NBER Working Paper 28486, National Bureau of Economic Research, Cambridge, MA.
- Cidell, J. 2015. "The Role of Major Infrastructure in Subregional Economic Development: An Empirical Study of Airports and Cities." *Journal of Economic Geography* 15 (6): 1125–44.
- Cook, C. J., and M. Shah. 2022. "Aggregate Effects from Public Works: Evidence from India." *Review of Economics and Statistics* 104 (4): 797–806.
- Crivelli, E., D. Furceri, and J. Toujas-Bernaté. 2012. "Can Policies Affect Employment Intensity of Growth? A Cross-Country Analysis." IMF Working Paper 2012/218, International Monetary Fund, Washington, DC.
- Das, S., M. A. Baten, M. A. Rana, and M. A. Kheleque. 2008. "Analysis of the Growth of Manufacturing Industries in Bangladesh." *South Asia Economic Journal* 9 (1): 85–108.
- Datta-Chaudhuri, M. 1996. "Labor Markets as Social Institutions in India." IRIS-India Working Paper 10, University of Maryland at College Park.
- Dauth, W., S. Findeisen, J. Südekum, and N. Wößner. 2017. "German Robots: The Impact of Industrial Robots on Workers." IAB Discussion Paper 2017/30, Institut für Arbeitsmarkt- und Berufsforschung, Nürnberg.
- Deininger, K. 2003. "Land Markets in Developing and Transition Economies: Impact of Liberalization and Implications for Future Reform." *American Journal of Agricultural Economics* 85 (5): 1217–22.
- Deininger, K., S. Jin, H. K. Nagarajan, and S. K. Singh. 2022. "Addressing Declining Female Labor Force Participation in India: Does Political Empowerment Make a Difference?" *Journal of Development Studies* 58 (9): 1772–90.
- Deininger, K., S. Jin, F. Xia, and J. Huang. 2014. "Moving Off the Farm: Land Institutions to Facilitate Structural Transformation and Agricultural Productivity Growth in China." *World Development* 59 (July): 505–20.
- Dix-Carneiro, R., and B. K. Kovak. 2017. "Trade Liberalization and Regional Dynamics." *American Economic Review* 107 (10): 2908–46.
- Dix-Carneiro, R., and B. K. Kovak. 2019. "Margins of Labor Market Adjustment to Trade." *Journal of International Economics* 117 (March): 125–42.

- Do, Q., and L. Iyer. 2008. "Land Titling and Rural Transition in Vietnam." *Economic Development and Cultural Change* 56 (3): 531–79.
- Dolenc, P., and S. Laporšek. 2010. "Tax Wedge on Labour and Its Effect on Employment Growth in the European Union." *Prague Economic Papers* 2010 (4): 344–58.
- Durlauf, S. N., P. A. Johnson, and J. R. W. Temple. 2005. "Growth Econometrics." In *Handbook of Economic Growth*, edited by P. Aghion and S. N. Durlauf 555–677. Amsterdam: North-Holland.
- Dutta, R. 2003. "Labor Market, Social Institutions, Economic Reforms and Social Cost." In *Labor Market and Institution in India: 1990s and Beyond*, edited by S. Uchikawa. New Delhi: Manohar.
- Duval, R., and P. Loungani. 2019. "Designing Labor Market Institutions in Emerging Market and Developing Economies: Evidence and Policy Options." IMF Staff Discussion Note 19/04, International Monetary Fund, Washington, DC.
- Ebenstein, A., A. Harrison, M. McMillan, and S. Phillips. 2014. "Estimating the Impact of Trade and Offshoring on American Workers Using the Current Population Surveys." *Review of Economics and Statistics* 96 (4): 581–95.
- Ercolani, V. 2021. "The Macroeconomic Impact of Infrastructure Investment: A Review of Channels." Bank of Italy Occasional Paper 613, Bank of Italy.
- Feld, L. P., and G. Kirchgässner. 2003. "The Impact of Corporate and Personal Income Taxes on the Location of Firms and on Employment: Some Panel Evidence for the Swiss Cantons." *Journal of Public Economics* 87 (1): 129–55.
- Feliciano, Z. M. 2001. "Workers and Trade Liberalization: The Impact of Trade Reforms in Mexico on Wages and Employment." *Industrial and Labor Relations Review* 55 (1): 95–115.
- Field, E. and K. Vyborny. 2022. "Women's Mobility and Labor Supply: Experimental Evidence from Pakistan." Economics Working Paper Series 655, Asian Development Bank, Manila.
- Ghani, E., W. R. Kerr, and S. D. O'Connell. 2014. "Political Reservations and Women's Entrepreneurship in India." *Journal of Development Economics* 108 (May): 138–53.
- Ghose, A. K. 2000. "Trade Liberalization and Manufacturing Employment." Employment Paper 2000/3, International Labour Organization, Geneva.
- Goldar, B. 2023. "Employment Growth in India's Organized Manufacturing in the Post-GFC Period." SSRN Working Paper 4300762, Social Science Research Network.
- Goldberg, P. K., and N. Pavcnik. 2005. "Short-Term Consequences of Trade Reform for Industry Employment and Wages: Survey of Evidence from Colombia." *The World Economy* 28 (7): 923–39.
- Goldin, C. 1995. "The U-Shaped Female Labor Force Function in Economic Development and Economic History." In *Investment in Women's Human Capital and Economic Development*, edited by T. P. Schultz, 61–90. Chicago: University of Chicago Press.
- Graetz, G., and G. Michaels. 2018. "Robots at Work." *Review of Economics and Statistics* 100 (5): 753–68.
- Groh, M., N. Krishnan, D. McKenzie, and T. Vishwanath. 2016. "Do Wage Subsidies Provide a Stepping-Stone to Employment for Recent College Graduates? Evidence from a Randomized Experiment in Jordan." *Review of Economics and Statistics* 98 (3): 488–502.
- Gupta, P. 2023. "India Needs a Gender Strategy." *National Council of Applied Economic Research* (blog). October 19, 2023. <https://www.ncaer.org/news/india-needs-a-gender-strategy>.
- Halim, D., M. B. O'Sullivan, and A. Sahay. 2023. "Increasing Female Labor Force Participation." World Bank Group Gender Thematic Policy Notes Series, World Bank, Washington, DC.
- Halim, D., D. Ubfa, and R. Wangchuk. 2023. "Policy Lessons on Social Protection." Gender Innovation Lab Federation Evidence Series No. 8, World Bank, Washington, DC.
- Hanusch, M. 2013. "Jobless Growth? Okun's Law in East Asia." *Journal of International Commerce, Economics and Policy* 04 (03): 1–14.
- Hasan, R., A. Mehta, and A. Sundaram. 2021. "The Effects of Labor Regulation on Firms and Exports: Evidence from Indian Apparel Manufacturing." *Journal of Comparative Economics* 49 (1): 183–200.
- Hasan, R., D. Mitra, and K. Ramaswamy. 2007. "Trade Reforms, Labor Regulations, and Labour-Demand Elasticities: Empirical Evidence from India." *Review of Economics and Statistics* 89 (3): 466–81.
- Herman, E. 2011. "The Impact of Economic Growth Process on Employment in European Union Countries." *Romanian Economic Journal* 14 (42): 47–67.



- Herrendorf, B., R. Rogerson, and Á. Valentinyi. 2014. "Growth and Structural Transformation." NBER Working Paper 18996, National Bureau of Economic Research, Cambridge, MA.
- Holzer, H. J., J. M. Quigley, and S. Raphael. 2003. "Public Transit and the Spatial Distribution of Minority Employment: Evidence from a Natural Experiment." *Journal of Policy Analysis and Management* 22 (3): 415–41.
- Hoyos, R., M. Bussolo, and O. Núñez. 2012. "Exports, Gender Wage Gaps, and Poverty in Honduras." *Oxford Development Studies* 40 (4): 533–51.
- Hsieh, C.-T., and P. J. Klenow. 2009. "Misallocation and Manufacturing TFP in China and India." *Quarterly Journal of Economics* 124 (4): 1403–48.
- Hsieh, C.-T., and P. J. Klenow. 2014. "The Life Cycle of Plants in India and Mexico." *Quarterly Journal of Economics* 129 (3): 1035–84.
- Hyland, M., S. Djankov, and P. K. Goldberg. 2020. "Gendered Laws and Women in the Workforce." *American Economic Review: Insights* 2 (4): 475–90.
- IIDS (Institute for Integrated Development Studies). 2023. Unleashing IT: *Advancing Nepal's Digital Economy*. Kathmandu, Nepal: Institute for Integrated Development Studies.
- ILO (International Labour Organization). 2017. "Employment and Wages Rising in Pakistan's Garment Sector." 7. Asia-Pacific Garment and Footwear Sector Research Note, International Labour Organization, Geneva, Switzerland.
- ILO, OECD, and World Bank. 2015. "G20 Labour Markets in 2015: Strengthening the Link between Growth and Employment," International Labour Organization, Geneva.
- Imbert, C., and J. Papp. 2015. "Labor Market Effects of Social Programs: Evidence from India's Employment Guarantee." *American Economic Journal: Applied Economics* 7 (2): 233–63.
- IMF (International Monetary Fund). 2022. *Bangladesh: Selected Issues*. IMF Staff Report, International Monetary Fund, Washington, DC.
- International Trade Administration. 2019. "Sri Lanka - Information and Communication Technologies." July 22, 2019. <https://www.export.gov/apex/article2?id=Sri-Lanka-Information-and-Communication-Technologies>.
- Islam, I., and S. Nazara. 2000. "Estimating Employment Elasticity for the Indonesian Economy: Technical Note on the Indonesian Labour Market," International Labour Office, Jakarta, Indonesia.
- Jensen, R. 2012. "Do Labor Market Opportunities Affect Young Women's Work and Family Decisions? Experimental Evidence from India." *Quarterly Journal of Economics* 127 (2): 753–92.
- Jiwattanakulpaisarn, P., R. B. Noland, D. J. Graham, and J. W. Polak. 2009. "Highway Infrastructure and State-Level Employment: A Causal Spatial Analysis." *Papers in Regional Science* 88 (1): 133–59.
- Kamar, B., D. Bakardzhieva, and M. Goaid. 2019. "Effects of Pro-Growth Policies on Employment: Evidence of Regional Disparities." *Applied Economics* 51 (40): 4337–67.
- Kapsos, S. 2005. "The Employment Intensity of Growth: Trends and Macroeconomic Determinants." *Employment Strategy Papers* 12, International Labour Organization, Geneva.
- Kasyanenko, S., P. Kenworthy, S. Kilic Celik, F. Ruch, E. Vashakmadze, and C. Wheeler. 2023. "The Past and Future of Regional Potential Growth: Hopes, Fears, and Realities." Policy Research Working Paper 10368, World Bank, Washington, DC.
- Khan, S. 2023. "The Firm-Level Employment Impact of COVID-19: International Evidence from World Bank Group's Enterprise Surveys." *Eastern European Economics* 61 (5): 457–90.
- Kilic Celik, S., M. A. Kose, and F. Ohnsorge. 2023. "Potential Growth Prospects: Risks, Rewards, and Policies." Policy Research Working Paper 10355, World Bank, Washington, DC.
- Klasen, S. 2019. "What Explains Uneven Female Labor Force Participation Levels and Trends in Developing Countries?" *World Bank Research Observer* 34 (2): 161–346.
- Kondo, I. 2018. "Trade-Induced Displacements and Local Labor Market Adjustments in the U.S." *Journal of International Economics* 114 (September): 180–202.
- Korkeamäki, O., and R. Uusitalo. 2008. "Employment and Wage Effects of a Payroll-Tax Cut—Evidence from a Regional Experiment." *International Tax and Public Finance* 16 (6): 753–72.
- Kose, M. A., and F. Ohnsorge, eds. 2023. *Falling Long-Term Growth Prospects: Trends, Expectations, and Policies*. Washington, DC: World Bank.

- Kramarz, F., and T. Philippon. 2001. "The Impact of Differential Payroll Tax Subsidies on Minimum Wage Employment." *Journal of Public Economics* 82 (1): 115–46.
- Kremer, M., J. Willis, and Y. You. 2022. "Converging to Convergence." NBER *Macroeconomics Annual* 36 (1): 1–444.
- Kumar, S., F. Pattanaik, A. Singh, and M. Pedi. 2021. "A Comparative Analysis of Employment Intensity of Growth in South Asian Countries." *Indian Journal of Industrial Relations* 57 (2): 189–204.
- Lakshmanan, T. 2007. "The Wider Economic Benefits of Transportation: An Overview." OECD/ITF Joint Transport Research Centre Discussion Papers 2007/08, Organisation for Economic Co-Operation and Development, Paris, France.
- Lakshmanan, T. 2011. "The Broader Economic Consequences of Transport Infrastructure Investments." *Journal of Transport Geography* 19 (1): 1–12.
- Lall, S. 2002. "The Employment Impact of Globalisation In Developing Countries." QEH Working Paper Series 93, University of Oxford.
- Ljungqvist, A., and M. Smolyansky. 2016. "To Cut or Not to Cut? On the Impact of Corporate Taxes on Employment and Income." Finance and Economics Discussion Series 2016-006, Board of Governors of the Federal Reserve System, Washington, DC.
- Maloney, W. F., and C. Molina. 2016. "Are Automation and Trade Polarizing Developing Country Labor Markets, Too?" Policy Research Working Paper No. 7922, World Bank, Washington, DC.
- Mankiw, N. G., D. Romer, and D. N. Weil. 1992. "A Contribution to the Empirics of Economic Growth." *Quarterly Journal of Economics* 107 (May): 407–37.
- Martins, P. 2012. "World Development Report: Growth, Employment and Poverty in Africa: Tales of Lions and Cheetahs." Background Paper for World Development Report 2013, World Bank, Washington, DC.
- McKenzie, D. 2017. "How Effective Are Active Labor Market Policies in Developing Countries? A Critical Review of Recent Evidence." *World Bank Research Observer* 32 (2): 127–54.
- Morén, V., and E. Wändal. 2019. "The Employment Elasticity of Economic Growth." Business, Economics and Law University of Gothenburg, Sweden.
- Mourre, G. 2006. "Did the Pattern of Aggregate Employment Growth Change in the Euro Area in the Late 1990s?" *Applied Economics* 38 (15): 1783–1807.
- Muralidharan, K., P. Niehaus, and S. Sukhtankar. 2023. "General Equilibrium Effects of (Improving) Public Employment Programs: Experimental Evidence From India." *Econometrica* 91 (4): 1261–95.
- Nayar, R., P. Gottret, P. Mitra, G. Betcherman, Y. Lee, I. Santos, M. Dahal, and M. Shrestha. 2012. *More and Better Jobs in South Asia*. Washington, DC: World Bank.
- Nayyar, G., and E. Davies. 2023. "Services-Led Growth: Better Prospects after the Pandemic?" Policy Research Working Paper 10382, World Bank, Washington, DC.
- Nayyar, G., and S. Sharma. 2022. "Shifting Gears to Propel Bangladesh's Growth Engine." End Poverty (blog). August 31, 2022. <https://blogs.worldbank.org/endpovertyinsouthasia/shifting-gears-propel-bangladeshs-growth-engine>.
- Nickell, S., and R. Layard. 1999. "Labor Market Institutions and Economic Performance." In *Handbook of Labor Economics*, edited by O. Ashenfelter and D. Card, 3C:3029–84. Amsterdam: North-Holland.
- Ohnsorge, F., and L. Quaglietti. 2023. "Trade as an Engine of Growth: Sputtering but Fixable." Policy Research Working Paper 10356, World Bank, Washington, DC.
- Ohnsorge, F., and S. Yu, eds. 2022. *The Long Shadow of Informality: Challenges and Policies*. World Bank, Washington, DC.
- Padalino, S., and M. Vivarelli. 1997. "The Employment Intensity of Economic Growth in the G-7 Countries." *International Labour Review* 136 (2): 191–214.
- Papola, T., and P. Sahu. 2012. "Growth and Structure of Employment in India." *Institute for Studies in Industrial Development*, New Delhi.
- Patel, D., J. Sandefur, and A. Subramanian. 2021. "The New Era of Unconditional Convergence." *Journal of Development Economics* 152 (September): 102687.
- Percoco, M. 2010. "Airport Activity and Local Development: Evidence from Italy." *Urban Studies* 47 (11): 2259–2486.
- Pereira, A. M., R. M. Pereira, and P. G. Rodrigues. 2021. "Infrastructure Investment and Employment:

- Evidence for Portugal.” *Journal of Infrastructure, Policy and Development* 5 (2): 1377.
- Perugini, C. 2009. “Employment Intensity of Growth in Italy. A Note Using Regional Data.” *Regional and Sectoral Economic Studies* 9 (1).
- Raiser, M. 2023. “Women’s Inclusion in the Labour Force.” Financial Express, November 25, 2023. <https://www.financialexpress.com/opinion/womens-inclusion-in-the-labour-force/3317143/>.
- Ramaswamy, K. V. 2003. “Liberalization, Outsourcing and Industrial Labor Markets in India: Some Preliminary Results.” In *Labour Market and Institution in India: 1990s and Beyond*, edited by S. Uchikawa. New Delhi: Manohar.
- Ramey, V. A. 2020. “The Macroeconomic Consequences of Infrastructure Investment.” NBER Working Paper 27625, National Bureau of Economic Research, Cambridge, MA.
- Restuccia, D., and R. Rogerson. 2017. “The Causes and Costs of Misallocation.” *Journal of Economic Perspectives* 31 (3): 151–74.
- Rodrik, D. 2016. “Premature Deindustrialization.” *Journal of Economic Growth* 21 (1): 1–33.
- Roy, S. 2019. “Discriminatory Laws Against Women: A Survey of the Literature.” Policy Research Working Paper 8719, World Bank, Washington, DC.
- Royal Government of Bhutan. 2023. “Royal Civil Service Commission Annual Report, July 2022-June 2023.”
- Ruppert Bulmer, E., A. Shrestha, and M. Marshalian. 2020. *Nepal Jobs Diagnostic*. Washington, DC: World Bank.
- Saget, C. 2000. “Can the Level of Employment Be Explained by GDP Growth in Transition Countries? (Theory versus the Quality of Data).” *Labour* 14 (4): 623–43.
- Siddique, M., K. Mustafa, A. Hussain, M. M. Khan, and M. F. Khan. 2016. “Estimating Employment Elasticity of Growth for Pakistan.” *Abasyn University Journal of Social Sciences* 9 (Special Issue): 278–84.
- Slimane, S. B. 2015. “The Relationship between Growth and Employment Intensity: Evidence for Developing Countries.” *Asian Economic and Financial Review* 5 (4): 680–92.
- Sobieralski, J. B. 2021. “Transportation Infrastructure and Employment: Are All Investments Created Equal?” *Research in Transportation Economics* 88 (September): 100927.
- Sodipe, O. A., and O. I. Ogunrinola. 2011. “Employment and Economic Growth Nexus in Nigeria.” *International Journal of Business and Social Science* 2 (11): 232–39.
- Sogner, L., and A. Stiassny. 2002. “An Analysis on the Structural Stability of Okun’s Law—A Cross-Country Study.” *Applied Economics* 34 (14): 1775–87.
- Solow, R. M. 1956. “A Contribution to the Theory of Economic Growth.” *Quarterly Journal of Economics* 70 (1): 65–94.
- Stallings, B., and W. Peres. 2000. *Growth, Employment, and Equity: The Impact of the Economic Reforms in Latin America and the Caribbean*. Washington, DC: Brookings Institution Press.
- Timmer, M., G. J. de Vries, and K. de Vries. 2015. “Patterns of Structural Change in Developing Countries.” In *Routledge Handbook of Industry and Development*, edited by J. Weiss and M. Tribe, 65–83. London: Routledge.
- Turok, I., and G. McGranaham. 2013. “Urbanization and Economic Growth: The Arguments and Evidence for Africa and Asia.” *Environment and Urbanization* 25 (2): 291–604.
- Tveter, E. 2017. “The Effect of Airports on Regional Development: Evidence from the Construction of Regional Airports in Norway.” *Research in Transportation Economics* 63 (August): 50–58.
- Tyndall, J. 2017. “Waiting for the R Train: Public Transportation and Employment.” *Urban Studies* 54 (2): 520–37.
- Ubfal, D. 2023. “What Works in Supporting Women-Led Businesses?” World Bank Group Gender Thematic Policy Notes Series, World Bank, Washington, DC.
- Vermeulen, B., J. Kesselhut, A. Pyka, and P. P. Saviotti. 2018. “The Impact of Automation on Employment: Just the Usual Structural Change?” *Sustainability* 10 (5): 1661.
- World Bank. 2007. *World Development Report 2008: Agriculture for Development*. Washington, DC: World Bank.
- World Bank. 2018. *South Asia Economic Focus: Jobless Growth*. Fall. Washington, DC: World Bank.

World Bank. 2020. “State-Owned Enterprises: Understanding Their Market Effects and the Need for Competitive Neutrality,” World Bank, Washington, DC.

World Bank. 2021. *South Asia Economic Focus: Shifting Gears: Digitization and Services-Led Development*. Fall. Washington, DC: World Bank.

World Bank. 2022a. *South Asia Economic Focus: Coping with Shocks: Migration and the Road to Resilience*. Fall. Washington, DC: World Bank.

World Bank. 2022b. *South Asia Economic Focus: Reshaping Norms: A New Way Forward*. Spring. Washington, DC: World Bank.

World Bank. 2023a. *Nepal Development Update, October 2023: Restoring Export Competitiveness*. Washington, DC: World Bank.

World Bank. 2023b. *South Asia Development Update: Toward Faster, Cleaner Growth*. October. Washington, DC: World Bank.

World Bank. Forthcoming. *Jobs for Development: Facts and a Framework for Policy*. Washington, DC: World Bank.

World Bank and WTO (World Trade Organization). 2023. *Trade in Services for Development—Fostering Sustainable Growth and Economic Diversification*. Washington, DC: World Bank; Geneva: World Trade Organization.

## South Asia Development Update: Selected Topics, 2018-23

### Growth

Fiscal space and disaster resilience	Spring 2023, Box 2.3
Rising interest-growth differentials and what it means for developing economies	Fall 2022, Box 2.1
COVID-19 vaccination and economic activity in South Asia	Spring 2022, Box 1.1
Financial markets post-lending support measures	Spring 2022, Box 1.3
Shifting gears: Digitization and services-led development	Fall 2021, Chapter 3
Rethinking tourism: Seizing on services links post-COVID	Fall 2021, Box 3.2
Digital technologies can also aid agricultural production	Fall 2021, Box 3.4
The pandemic has exacerbated the difficulties in measuring GDP in South Asia	Spring 2021, Box 1.1
What does a model based on macro trends predict about remittance growth in 2020, and what does it miss?	Spring 2021, Box 1.2
Without immediate action, learning losses and the resulting economic losses in South Asia could be catastrophic	Spring 2021, Box 2.4
Both the spread of COVID-19 and related containment measures contributed to GDP losses	Fall 2020, Box 1.1
Tourism in South Asia has been shattered but there are opportunities	Fall 2020, Box 1.3
Assessing India's economic activity with daily electricity consumption	Fall 2020, Box 1.4
Worrying fiscal implications of shuttered tourism in Maldives	Fall 2020, Box 1.5
The silver lining: Can global value chains thrive in South Asia post-COVID?	Fall 2020, Box 2.1
Green and resilient recovery in South Asia	Fall 2020, Box 2.2
The impact of COVID-19 on the informal sector	Fall 2020, Chapter 3
How to simulate the impact of the COVID-19 crisis	Fall 2020, Box 3.1
Early insights from Bangladesh—Informal workers and women are losing livelihoods, and considerable uncertainty remains	Fall 2020, Box 3.2
Identifying the people working in sectors most affected by the COVID-19 crisis	Spring 2020, Box 2.2
South Asia Economic Focus forecasting performance	Fall 2019, Box 3
Growth expectations from within the region	Fall 2019, Box 4
Exports wanted	Spring 2019, Chapter 3
Private cities: Outstanding examples from developing countries and their implications for urban policy	Urban Development Series, May 2023

### Jobs

Stranded jobs? The energy transition in South Asia's labor markets	October 2023, Chapter 3
The informal foreign exchange market and capital controls: A South Asian tale	Spring 2023, Spotlight
Affirmative action policies in South Asia	Spring 2023, Box 3.4
How is the labor market recovering from the pandemic?	Fall 2022, Box 2.3
COVID and migration in South Asia	Fall 2022, Chapter 3
(Mis)Measuring migration	Fall 2022, Box 3.1
Intraregional migration in South Asia	Fall 2022, Box 3.2
Determinants of economic migration: A framework	Fall 2022, Box 3.3
Labor market impacts of COVID-19 on the displaced Rohingya population in Cox's Bazar, Bangladesh	Fall 2022, Box 3.4
Migration and climate change in South Asia	Fall 2022, Box 3.5
Reshaping social norms about gender: A new way forward	Spring 2022, Chapter 3
Female labor force participation rates may be affected by a country's economic structure and by the prevalence of norms over women's employment in specific sectors	Spring 2022, Box 3.1

Note: The South Asia Development Update was called South Asia Economic Focus through April 2023.

**Jobs (continued)**

Impact of Covid-19 among refugees in South Asian countries	Fall 2021, Box 1.2
How have South Asian women fared during the crisis?	Spring 2021, Box 1.3
The impact of COVID-19 on the informal sector	Fall 2020, Chapter 3
Early insights from Bangladesh--Informal workers and women are losing livelihoods, and considerable uncertainty remains	Fall 2020, Box 3.2
Predicting the spread of COVID-19 in South Asia through migration corridors	Spring 2020, Box 1.1
Identifying the people working in sectors most affected by the COVID-19 crisis	Spring 2020, Box 2.2
Jobless growth?	Spring 2018, Chapter 3
Private cities: Outstanding examples from developing countries and their implications for urban policy	Urban Development Series, May 2023
Hidden potential: Rethinking informality in South Asia	South Asia Development Forum, November 2022

**Climate change and environment**

Recruiting firms for the energy transition	October 2023, Chapter 2
Literature review: Addressing barriers to technology diffusion in firms	October 2023, Box 2.1
Stranded jobs? The energy transition in South Asia's labor markets	October 2023, Chapter 3
Weather extremes and price stability	Spring 2023, Box 2.1
Fiscal space and disaster resilience	Spring 2023, Box 2.3
The turning point—Fossil fuel subsidy reform in South Asia	Spring 2023, Box 2.4
The green transition: How will it affect households in South Asia?	Fall 2022, Box 2.4
Migration and climate change in South Asia	Fall 2022, Box 3.5
How prepared are South Asia's energy firms and workers for the green transition?	Spring 2022, Box 2.2
Healthy fiscal balance for a swift recovery: Lessons from natural disasters	Fall 2021, Box 2.2
Toward a low carbon future in South Asia	Fall 2021, Box 2.3
The “double jeopardy” of fiscal and climate-related risks	Spring 2021, Box 2.3
Green and resilient recovery in South Asia	Fall 2020, Box 2.2
Striving for clean air: Air pollution and public health in South Asia	South Asia Development Matters, July 2023
Glaciers of the Himalayas: Climate change, black carbon, and regional resilience	South Asia Development Forum, June 2021

**Inequality**

Stranded jobs? The energy transition in South Asia's labor markets	October 2023, Chapter 3
Distributional impact of high food and energy inflation in South Asia	Spring 2023, Box 1.1
Expanding opportunities: A map for equitable growth in South Asia	Spring 2023, Chapter 3
Measuring inequality, inequality of opportunity and intergenerational mobility in South Asia	Spring 2023, Box 3.1
In South Asia, opportunity gaps in primary education have been shrinking but not at the same pace for all countries	Spring 2023, Box 3.2
Are opportunity gaps closing? A stylized version of the opportunity growth incidence curve	Spring 2023, Box 3.3
Affirmative action policies in South Asia	Spring 2023, Box 3.4
Remittances and the effects on poverty and inequality	Fall 2021, Box 1.3
Distributional impact of COVID-19: Whose health is affected?	Spring 2020, Box 1.4
Identifying the people working in sectors most affected by the COVID-19 crisis	Spring 2020, Box 2.2

**COVID-19 pandemic**

COVID-19 vaccination and economic activity in South Asia	Spring 2022, Box 1.1
Alternative measures of COVID-19 deaths	Fall 2021, Box 1.1
Impact of Covid-19 among refugees in South Asian countries	Fall 2021, Box 1.2
Rethinking tourism: Seizing on services links post-COVID	Fall 2021, Box 3.2
The pandemic has exacerbated the difficulties in measuring GDP in South Asia	Spring 2021, Box 1.1
How have South Asian women fared during the crisis?	Spring 2021, Box 1.3
Without immediate action, learning losses and the resulting economic losses in South Asia could be catastrophic	Spring 2021, Box 2.4
South Asia vaccinates	Spring 2021, Chapter 3
How can countries address COVID vaccine hesitancy and increase take-up?	Spring 2021, Box 3.1
Methodology for modeling impact of COVID-19 by population groups	Spring 2021, Box 3.2
Both the spread of COVID-19 and related containment measures contributed to GDP losses	Fall 2020, Box 1.1
Learning and related income losses due to school closures in South Asia are huge	Fall 2020, Box 1.2
Tourism in South Asia has been shattered but there are opportunities	Fall 2020, Box 1.3
Assessing India's economic activity with daily electricity consumption	Fall 2020, Box 1.4
Worrying fiscal implications of shuttered tourism in Maldives	Fall 2020, Box 1.5
The silver lining: Can global value chains thrive in South Asia post-COVID?	Fall 2020, Box 2.1
Forecasting COVID caseloads and estimating services activity using the Google mobility index	Fall 2020, Box A2.1
The impact of COVID-19 on the informal sector	Fall 2020, Chapter 3
How to simulate the impact of the COVID-19 crisis	Fall 2020, Box 3.1
Early insights from Bangladesh—Informal workers and women are losing livelihoods, and considerable uncertainty remains	Fall 2020, Box 3.2
Unpacking India's COVID-19 social assistance package	Fall 2020, Box 3.3
Predicting the Spread of COVID-19 in South Asia through migration corridors	Spring 2020, Box 1.1
Food price increases need to be addressed with decisive measures	Spring 2020, Box 1.2
Migrant remittances in South Asia may decline during the time of COVID-19	Spring 2020, Box 1.3
Distributional impact of COVID-19: Whose health is affected?	Spring 2020, Box 1.4
Identifying the people working in sectors most affected by the COVID-19 crisis	Spring 2020, Box 2.2

**Monetary policy and inflation**

Distributional impact of high food and energy inflation in South Asia	Spring 2023, Box 1.1
Recent changes in exchange rate policy in Bangladesh	Spring 2023, Box 1.2
Weather extremes and price stability	Spring 2023, Box 2.1
Estimating the spillovers from U.S. monetary policy	Spring 2023, Box 2.2
Pass-through of global commodity prices in South Asia	Fall 2022, Box 1.1
The dollar is whose problem: Impact of the U.S. dollar dynamics on bilateral trade	Fall 2022, Box 1.2
How effective is monetary policy in South Asia?	Fall 2022, Box 1.3
Financial markets post-lending support measures	Spring 2022, Box 1.3

*Note:* The *South Asia Development Update* was called *South Asia Economic Focus* through April 2023.

**Monetary policy and inflation (continued)**

Food price increases need to be addressed with decisive measures	Spring 2020, Box 1.2
The drivers of food price inflation in South Asia	Fall 2019, Box 1
Consumer price inflation and food inflation in South Asia	Spring 2019, Box 2

**Fiscal policy and debt**

Fiscal deteriorations around elections	October 2023, Box 1.1
An ounce of prevention, a pound of cure: Averting and dealing with sovereign debt default	October 2023, Spotlight
Literature review: Costs of sovereign debt default	October 2023, Box SL.1
The sovereign–bank sector nexus in South Asia	Spring 2023, Box 1.3
Fiscal space and disaster resilience	Spring 2023, Box 2.3
The turning point—Fossil fuel subsidy reform in South Asia	Spring 2023, Box 2.4
Crisis in Sri Lanka: Lessons from the Asian financial crisis	Fall 2022, Spotlight
Rising interest-growth differentials and what it means for developing economies	Fall 2022, Box 2.1
Healthy fiscal balance for a swift recovery: Lessons from natural disasters	Fall 2021, Box 2.2
Toward a low carbon future in South Asia	Fall 2021, Box 2.3
How can South Asia avoid getting caught in a wave of debt?	Spring 2021, Box 2.1
What does the economic literature tell us about government spending multipliers in developing countries?	Spring 2021, Box 2.2
The “double jeopardy” of fiscal and climate-related risks	Spring 2021, Box 2.3
Worrying fiscal implications of shuttered tourism in Maldives	Fall 2020, Box 1.5
Unpacking India’s COVID-19 social assistance package	Fall 2020, Box 3.3
Fiscal policy should turn countercyclical during this crisis	Spring 2020, Box 2.3
Government borrowing crowds out the private sector across the region	Spring 2020, Box 3.4
Reducing government ownership has had positive effects in other countries	Spring 2020, Box 3.5
Research on oil prices, J-curves, and twin deficits in South Asia	Spring 2019, Box 8
Hidden debt: Solutions to avert the next financial crisis in South Asia	South Asia Development Matters, June 2021

**Trade**

Pass-through of global commodity prices in South Asia	Fall 2022, Box 1.1
The dollar is whose problem: Impact of the US dollar dynamics on bilateral trade	Fall 2022, Box 1.2
Where do South Asia’s exports stand in 2022?	Spring 2022, Box 1.2
The silver lining: Can global value chains thrive in South Asia post-COVID?	Fall 2020, Box 2.1
An update on trade policy changes affecting South Asia	Spring 2019, Box 1
Exports wanted	Spring 2019, Chapter 3
Analyzing the current account balance with Vector Autoregressive (VAR) Models	Spring 2019, Box 5
A Gravity model to estimate South Asia’s export gaps	Spring 2019, Box 6
Constraints to export competitiveness in Pakistan	Spring 2019, Box 7
Research on oil prices, J-curves, and twin deficits in South Asia	Spring 2019, Box 8



<b>Financial flows</b>	
An ounce of prevention, a pound of cure: Averting and dealing with sovereign debt default	October 2023, Spotlight
Literature review: Costs of sovereign debt default	October 2023, Box SL.1
The informal foreign exchange market and capital controls: A South Asian tale	Spring 2023, Spotlight
The sovereign–bank sector nexus in South Asia	Spring 2023, Box 1.3
Estimating the spillovers from U.S. monetary policy	Spring 2023, Box 2.2
Fintech credits: From competition to collaboration	Fall 2022, Box 2.2
Financial markets post-lending support measures	Spring 2022, Box 1.3
Central bank digital currency	Spring 2022, Box 1.4
What determines domestic market yields	Spring 2022, Box 2.1
Remittances and the effects on poverty and inequality	Fall 2021, Box 1.3
What does a model based on macro trends predict about remittance growth in 2020, and what does it miss?	Spring 2021, Box 1.2
Migrant remittances in South Asia may decline during the time of COVID-19	Spring 2020, Box 1.3
Public banks: A cursed blessing	Spring 2020, Chapter 3
Have public banks hindered subsequent financial development?	Spring 2020, Box 3.1
Does the broad public branch network translate into more credit for development targets in Bangladesh?	Spring 2020, Box 3.2
In Asia, more public banks are associated with lower interest rate margins	Spring 2020, Box 3.3
Reducing government ownership has had positive effects in other countries	Spring 2020, Box 3.5
Measurement and significance of remittances	Spring 2019, Box 4
Hidden debt: Solutions to avert the next financial crisis in South Asia	South Asia Development Matters, June 2021
<b>Surveys</b>	
Voices from South Asia	Spring 2023, Box 1.4
Voices from South Asia	Fall 2022, Box 1.4
Voices from South Asia	Spring 2022, Box 1.5
Views from the South Asia Economic Policy Network	Fall 2021, Box 1.4
Survey of South Asia experts	Spring 2021, Box 1.4
Views from the South Asia Economic Policy Network	Fall 2020, Box 1.6
Views from the South Asia Economic Policy Network	Spring 2020, Box 1.5
Views from the South Asia Economic Policy Network	Fall 2019, Box 2
Views from the South Asia Economic Policy Network	Spring 2019, Box 3
Policy views among economists in the region	Spring 2019, Box 9



**S**outh Asia is expected to continue to be the fastest-growing emerging market and developing economy (EMDE) region over the next two years. This is largely thanks to robust growth in India but growth is also expected to pick up in most other South Asian economies. However, this growth pickup in the near term is reliant on the public sector whereas private investment, in particular, continues to be weak. Efforts to rein in elevated debt, borrowing costs, and fiscal deficits may eventually weigh on growth and limit government's ability to respond to increasingly frequent climate shocks.

Yet, the provision of public goods is among the most effective strategies for climate adaptation. This is especially the case for households and farms, who tend to rely on shifting their efforts to nonagricultural jobs. This is a less effective adaptation strategies in part because opportunities to move out of agriculture are limited by the region's below-average employment ratios in the nonagricultural sector and for women. Because employment growth is falling short of working-age population growth, the region fails to fully capitalize on its demographic dividend. Vibrant, competitive firms are key to unlocking the demographic dividend, robust private investment, and workers' ability to move out of agriculture. A range of policies could spur firm growth, including improved business climates and institutions, the removal of financial sector restrictions, and greater openness to trade and capital flows.